# Yemen

# Demographic and Maternal and Child Health Survey 1997

Central Statistical Organization

DHS

Demographic and Health Surveys
Macro International Inc.

World Summit for Children Indicators: Yemen 1997

| | | Value |
|---|---|---|
| | **BASIC INDICATORS** | |
| Childhood mortality | Infant mortality rate | 75 per 1,000 |
| | Under-five mortality rate | 105 per 1,000 |
| Maternal mortality | Maternal mortality ratio | 351 per 100,000 |
| Childhood undernutrition | Percent stunted (of children under 5 years) | 51.7 |
| | Percent wasted (of children under 5 years) | 12.9 |
| | Percent underweight (of children under 5 years) | 46.1 |
| Clean water supply | Percent of households within 15 minutes of a safe water supply[1] | 49.5 |
| Sanitary excreta disposal | Percent of households with flush toilets or VIP latrines | 36.5 |
| Basic education | Percent of women 15-49 with completed primary education | 18.2 |
| | Percent of men 15-49 with completed primary education | 61.0 |
| | Percent of girls 6-12 attending school | 42.7 |
| | Percent of boys 6-12 attending school | 72.2 |
| | Percent of women 15-49 who are literate | 19.4 |
| Children in especially difficult situations | Percent of children who are orphans (both parents dead) | 0.2 |
| | Percent of children who do not live with their natural mother | 4.0 |
| | Percent of children who live in single adult households | 3.3 |
| | **SUPPORTING INDICATORS** | |
| **Women's Health** | | |
| Birth spacing | Percent of births within 24 months of a previous birth[2] | 36.6 |
| Safe motherhood | Percent of births with medical antenatal care | 34.3 |
| | Percent of births with antenatal care in first trimester | 15.5 |
| | Percent of births with medical assistance at delivery | 21.7 |
| | Percent of births in a medical facility | 15.2 |
| | Percent of births at high risk | 74.5 |
| Family planning | Contraceptive prevalence rate (any method, married women) | 20.8 |
| | Percent of currently married women with unmet demand for family planning | 38.6 |
| **Nutrition** | | |
| Maternal nutrition | Percent of mothers with low BMI | 25.2 |
| Low birth weight | Percent of births at low birth weight (of those reporting numeric weight) | 25.7 |
| Breastfeeding | Percent of children under 4 months who are exclusively breastfed | 23.3 |
| Iodine | Percent of households with iodized salt | 39.0 |
| **Child Health** | | |
| Diarrhea control | Percent of children with diarrhea in preceding 2 weeks who received oral rehydration therapy (sugar-salt-water solution) | 35.3 |
| Acute respiratory infection | Percent of children with acute respiratory infection in preceding 2 weeks who were seen by medical personnel | 32.2 |

[1] Piped, well, pools, tanker trunk, and bottled water
[2] First births are excluded.

REPUBLIC OF YEMEN

# Yemen Demographic and Maternal and Child Health Survey 1997

Central Statistical Organization
Sana'a, Yemen

Macro International Inc.
Calverton, Maryland USA

November 1998

This report presents the findings of the 1997 Yemen Demographic and Maternal and Child Health Survey (YDMCHS) conducted by the Central Statistical Organization. Macro International Inc. provided technical assistance. Funding was provided by the U.S. Agency for International Development and the Republic of Yemen.

The YDMCHS is part of the worldwide Demographic and Health Surveys (DHS) program. The DHS program is designed to collect data on fertility, family planning, and maternal and child health. Additional information on the Yemen survey may be obtained from the Central Statistical Organization (CSO), Post Box 13434, Sana'a, Yemen (Telephone: 250619 or 250108; and Fax: 250664). Additional information about the DHS program may be obtained by writing to: DHS, Macro International Inc., 11785 Beltsville Drive, Calverton, MD 20705, USA (Telephone: 301-572-0200; and Fax: 301-572-0999).

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# FOREWORD

The Central Statistical Organization (CSO) is pleased to present this main report of the final results of the 1997 YDMCHS survey (second round) as an outstanding scientific, statistical, and research achievement. The preparation and publication of this report comes in the context of an ambitious plan designed to update and expand the population and health database at the national level, in order to provide specialists, researchers, scholars and others concerned, with indicators, and current data that will enable planners, policymakers, and decisionmakers to design optimal policies and population and health programs and to pursue a follow-up process, particularly regarding the health of mothers and children, who are an important and wide sector of Yemeni society.

The completion of this report crowns the tremendous efforts that have been exerted during a year of work by various specialists, technicians, and researchers of the CSO and of Macro International Inc., who prepared and implemented the YDMCHS survey in collaboration with the Ministry of Public Health and other relevant authorities including the Ministry of Planning and Development and the General Secretariat of the National Council for Population. Funding for the survey was provided by the U.S. Agency for International Development (USAID) through the Demographic and Health Surveys (DHS) program administered by Macro International Inc.

The significance of this report is that the results of this second demographic and maternal and child health survey in Yemen, herein published in a detailed, comprehensive, and accurate manner, can now be compared with the results of the 1991-92 survey, which were issued by the CSO. This new report contains numerous informative indices and updated data, and comprehensive analyses of various topics on maternal and child health and the socioeconomic and demographic situation characteristics which reflect their current status, displaying many variation to those aspects, as trends in fertility rates among females and mortality rates among infants and children under 5 years of age, estimating differential levels on the knowledge and use of family planning methods and immunization, diarrheal cases and treatment, nutrition of children, and other data and indicators being dealt with for the first time; with mortality rates of mothers and circumcision of females, as such this report is highly significant since it displays important and updated data on the maternal and child health, thus allowing for those concerned and specialists to conduct many comparisons between results of the first round 1991-92 and results of the second round 1997 to monitor and acquaint with developments and variations that took place between duration of the two rounds in many aspects and spheres negatively or positively, which in turn, would serve those involved, and specialists, policies and decision makers and planners in defining priorities in the design and provision of policies, plans, also population programs and implementation according to these developments and variations which are basically aiming to develop and improve the living standards for this slice of the population (mothers and children) in our united Yemeni society.

The final results of the 1997 YDMCHS presented in this report would also serve spheres of comprehensive development for the population within the frame of the first 5-year plan objectives (1996-2000), which the state is currently under taking, through the evaluation of numerous socioeconomic and health programs and estimation of the performance of the population work plan, in the light of objectives of the population national strategy designed until 2000 and its revision and updating, such results will be an effective implement to forecast the future for the strategic indicators and its work plan.

It should be noted that compared with other countries, the Yemen survey was completed in record time—less than a year from the implementation of fieldwork until completion of the report. This is a result mainly of the sound planning and preparation at various stages of the survey and abiding by the program

deadlines defined for the survey. This arises within the frame of the CSO plan, which aims to provide and publish results of all survey in a timely manner to satisfy the needs of competent data users.

On this occasion, we praise the distinguished role displayed at all stages by survey participants, associates, field staff, and interviewers alike, from the preparatory stage beginning in June 1997 until the preparation of the final tables for the survey results, the compilation and publication of the main report.

I would like to record a word of thanks and gratitude to all those who took part in the various activities of the survey, data analysis, and preparation of this report, especially members of the Supreme Committee of the survey, the Technical Committee, the management of the project, the General Department of the Population Research and Studies Center of the CSO, and the Demographic Health Surveys (DHS) program of Macro International Inc. (USA).

The Central Statistical Organization would wish to suggest that it does not stop at the publication of the final results of any survey, but endeavors to recruit and invest all new related data by continuing to conduct numerous in-depth studies and analytical research for important indices in specific fields. This further analysis is usually undertaken right after completion of the survey to maximize the utilization of the data and the overall benefits of the survey.

Wishing all those involved, progress and success and abundant fruitful rewards in the service of our society and the Yemeni homeland.

Abdoraboh Ahmed Gradah
Chairman of the Central Statistical Organization
Chairman of the survey Supreme Committee

# PREFACE

By the significance it represents in the course of advanced and specialized statistical research, the execution of the second round of the YDMCHS 1997, emerges as vital to the interpretation of trends and objectives of the Central Statistical Organization (CSO) in developing national skills and capabilities to manage specialized demographic surveys, which satisfy various analytical needs, particularly the multilateral analysis for the numerous variations and indicators according to procedures of the contemporary scientific statistical research by pursuing the method of the multistage clustered random sampling, which represents a target society to be investigated or studied in an accurate representation.

The design and selection of the YDMCHS sample was carried out to represent Yemeni society in all parts of the Republic, in a manner complying with the analysis of data and extraction of indicators at the urban, rural, and national levels, and at the regional level including the coastal region, the upper highlands, the hill plateaus, and the desert region (group of regions and homogenous governorates). The selected sample combined all governorates of the Republic at the urban and rural levels. Two questionnaires were designed to obtain the information and data necessary for purposes of the research. The first questionnaire is on the household living standards and dwelling characteristics, the second questionnaire is on maternal and child health. This report reflects the final results of survey, the analytical health and demographic data on mothers and children, according to the background characteristics of the aforementioned levels, in addition to other socioeconomic characteristics. The report comprises eleven chapters, in which the first chapter presents the introductory setting of the report, containing the geographical and physical locations and a brief over the political socioeconomic and demographic conditions in Yemen, this chapter includes the main objectives for strategy of the family planning and survey objectives; and a brief review of the main tasks undertaken during the preparation of the project document, formation of committees, initiation of documents, sample design, the pretest survey, evaluation of results, and results of households interviews on standards of living and eligible women currently married women and ever-married women age 15-49 years, and rates of response.

The second chapter combines the general characteristics of households and dwellings (an analysis and review on the main characteristics of the sample population and characteristics of the dwelling from results of data an households living standards and characteristics of dwelling), eligible women and children by background characteristics, standard of education, labor force profession, wages, and other data and information.

The remaining chapters deal with demographic and health rates for women and children such as fertility rates and trends, family planning, median age at birth and marriage, fertility preferences, mortality rates of infants and children under five, reproductive health and child health, breastfeeding and nutrition of children, maternal mortality, and circumcision of girls in Yemen. The report also includes various appendixes regarding the survey personnel, the sample design, the estimation of sampling errors, and data quality. The questionnaires used in the survey are included in an appendix.

In this context, we express our great appreciation on behalf of myself, colleagues on the technical team, the survey staff and researchers who prepared chapters for the main report, to the Chairman of the Central Statistical Organization and the survey Supreme Committee, Mr. Abdruboh A. Garadah, in recognition of his never-ending support and sponsorship, and special attention to this survey, and for his sincere directives and guidance, which greatly facilitated the survey procedures and overcame obstacles during the implementation of the various stages of survey.

We would also like to thank Mr. Yahya Algaizal, Deputy Chairman of the CSO and Chairman of the Technical Committee and Mr. Hussain Ogleh, Deputy Assistant and Director of the Technical Office and coordinator of the survey department. Our thanks are also extended to the USAID team in Cairo and Sana'a for their assistance and support, and in particular Ms. Leslie Perry, Population Project Officer, Ms. Donella Russel, Contract Officer, Mr. Abdulali Alshami, Development Program Specialist and Ms. Fawzia Youssef, Population and Nutrition Specialist.

On this occasion we also thank all our colleagues at Macro International Inc. for their active role and continuous cooperation and sincere efforts with the survey department, in particular, Dr. Mohamed Ayad, the Regional Coordinator, Mr. Sushil Kumar, the Country Monitor and the Survey Technical Expert, Mr. Noor Uddin Abdul Rahim, Specialist and Data Processing Expert, Dr. Alfredo Aliaga, Sampling Expert, and all the DHS staff in Calverton, Maryland. We thank and appreciate the participation and cooperation of colleague Dr. Abdullah Abdul Aziz Al-Zoabie, Demographic Expert with the U.N. Population Fund. We thank all our national colleagues who have participated positively and effectively at all stages of the survey, especially researchers from the Ministry of Public Health, Dr. Naguiba Abdul Ghani, Dr. Abdul Jabbar Ali Abdullah, Mr. Khalid Al Jindari. From Sana'a University Faculty of Medicine, Dr. Naguiba Ba Hubaishi from the General Secretariat of the National Council, Mr. Abdul Malik Al Tihami and Mr. Abdul Raquib Abdo Saif from the CSO, colleague Mohamed Said Ben Raiyah, Technical Assistant to the Executive Director of survey, and colleague Ahmad Abdul Rub Mohamad, Supervisor of Field Operations and Assistant to the Executive Director in the follow up and preparation of the main report. Mr. Anwar Farhan official on process of entry and data processing, Mr. Abdul Wahid Thabit and Mrs. Amina Al Ghurpani, counterparts to the sample expert, and all the female and male staff of the General Department of the Population Research and Studies Center, especially while preparing the main report. Finally, we thank all those involved in the various stages of the survey, particularly the fieldwork, of field team supervisors, male and female supervisors and interviewers who carried out the honorable role of data collection with great efficiency.

We hope this report has achieved the survey targets and satisfied the needs of those concerned and observers seeking informative data and updated indicators on the demographic characteristics and health conditions of mothers and children in our country.

From God Almighty We Seek Regularly
Support and Good Fortune.
Sana'a, Republic of Yemen
June 1998

**Abdo Mohamad Nassir**
General Director, General Department
***Population Research and Studies Center***
Executive Director of the YDMCHS

# SUMMARY OF FINDINGS

The 1997 Yemen Demographic and Maternal and Child Health Survey (YDMCHS) is a nationally representative survey of 10,414 ever-married women age 15-49. The survey is the second of its kind conducted in Yemen. As in the previous survey, the main purpose of the 1997 YDMCHS was to provide detailed information on fertility, family planning, infant and child mortality, maternal and child health, and nutrition. The 1997 YDMCHS included a module to obtain information on female circumcision and information was collected on height and weight of mothers to measure maternal malnutrition.

**Fertility.** Survey results indicate that fertility in Yemen has declined steadily from 7.7 births per woman in the 1991-92 YDMCHS to 6.5 births in the three years prior to the 1997 survey. Differentials in fertility by place of residence and education are substantial. In urban areas, the total fertility rate is 5 births per woman, exactly two children lower than the rural rate. Fertility in the Mountainous and Plateau and Desert regions is almost one child higher than the rate in the Coastal region (5.8 births per woman).

Childbearing begins early for many Yemeni women. One in six teenagers has given birth or is pregnant with her first child. Teenage childbearing is more common among rural women, illiterate women, and women living in the Plateau and Desert region and less common among urban women, those who have completed secondary school or higher, and those living in the Coastal region.

Closely spaced births are common in Yemen. Almost four in ten births occur within 24 months of a previous birth. One factor contributing to short birth intervals is the relatively short period during which the average Yemeni woman is amenorrheic following a birth. By 6.1 months after a birth half of women have resumed menstruation; by 10-11 months the proportion has risen to more than 70 percent. The relatively short duration of postpartum amenorrhea is related to breastfeeding patterns, especially early introduction of supplemental foods.

Although fertility levels have declined since the 1991-92 survey, many women are still having more children than they consider ideal. At current fertility levels, the average woman in Yemen will have almost two births more than she wants. Almost one-quarter of births in the five years preceding the survey were mistimed, i.e, they occurred before they were desired. For children, high fertility is frequently associated with increased mortality risks; more than two-thirds of births in the five years before the survey had a greater chance of dying because of mother's age (under 18 or 35 and over), high birth order (4 or higher), and short birth interval (less than 24 months).

**Family Planning.** Knowledge of family planning methods and sources has increased greatly since the 1991-92 YDMCHS. Eighty-four percent of currently married women have heard of a method and 52 percent know a source for a modern method. However, only 8 percent of the women correctly identified the middle of the cycle as the time when a women is most at risk of pregnancy. Considering that more than two-thirds of women have not heard any family planning messages on radio or television, the general level of knowledge of family planning is high, although knowledge of the fertile period is low. Three-fourths of ever-married women who listen to local radio and the same proportion of women who watch local television consider it acceptable to broadcast family planning messages on radio and television. Six in ten currently married women discussed family planning with their husbands in the year preceding the survey.

Use of family planning has moderate support among Yemeni couples. Six in ten currently married women approve of a couple using contraceptive methods and 45 percent believe that their husband approves of family planning.

Four in ten Yemeni women have experience with using family planning. At the time of the 1997 survey half of them, or one in five currently married women, was using a method, including 8 percent who were using prolonged breastfeeding. Half of current users were using effective methods—the pill (4 percent), the IUD (3 percent), and injectables and female sterilization (1 percent each). Male methods were used by only a small proportion of women.

Government health facilities and private sector providers share equally in the delivery of family planning methods, particularly the pill and the IUD. Three-fourths of female sterilizations are done in the public sector and three-fourths of injectables are supplied by the private sector. General hospitals, primary health care centers, and pharmacies are the main sources of family planning methods in Yemen.

While there has been a dramatic increase in the use of effective methods by current married women since the 1991-92 survey, the current level of prevalence of modern methods—10 percent—is low compared with other countries in the Near East. For example, the prevalence rate for modern methods is 42 percent in Morocco and 46 percent in Egypt. In addition, only one-fourth of currently married women who are not using any method intend to use one in the future and 12 percent are not sure.

There is, however, considerable potential for increased use of family planning in Yemen. Overall, almost four in ten currently married women are considered to have an unmet need for family planning. This group includes women who are not using family planning but want to wait two or more years for the next birth (17 percent) or want no more children (21 percent). More than three-fourths of the women with an unmet need for family planning live in rural areas, and even higher proportion are illiterate.

**Childhood Mortality.** At current mortality levels, more than one in ten Yemeni children will die before the fifth birthday. Almost three-quarters of these early childhood deaths take place before the child's first birthday. Both of these mortality rates are higher in rural areas than in urban areas, and the highest levels are found in the Coastal region. Differentials by mother's literacy level are large; children of illiterate mothers have much higher mortality levels than children whose mothers are literate or have completed some level of education. Additionally, under-five mortality has a negative correlation with mother's education. Finally, infant mortality is lower among children whose mothers do not use tobacco or qat than among children of other mothers.

As expected, neonatal mortality is higher for boys than for girls. However, the risk of dying between the first and the fifth year is lower for boys than for girls. Children of mothers under age 20 have a much higher risk of dying than children of older mother. Short birth intervals are associated with higher mortality; the risk of dying more than doubles if a child is born less than two years after a sibling.

**Maternal Mortality.** Direct estimates of maternal mortality can be made by analyzing reported survivorship of sisters from data provided by 1997 YDMCHS respondents. Maternal deaths represent approximately 42 percent of all deaths among women age 15-49. The maternal mortality ratio was estimated to be 351 per 100,000 live births (applicable to the 1988-97 time period).

**Maternity Care Indicators.** The care that a woman receives during pregnancy and at childbirth reduces the risk of illness and death for both the mother and the child. Mothers received adequate antenatal care (four or more visits) for only 11 percent of the births in the five years before the survey. Tetanus toxoid vaccinations are given to mothers during pregnancy to prevent neonatal tetanus, a frequent cause of death in young infants. Mothers had at least one tetanus toxoid injection for only 17 percent of births in the five years before the survey.

The overwhelming majority of Yemeni children are born at home without assistance from trained medical personnel. Overall, 22 percent of the births in the five-year period before the survey were assisted by doctors, nurses, or trained midwives, and 16 percent took place in a health facility. Sixty percent of births not delivered in a health facility were delivered at home because mothers consider home a better place for their children to be born. However, one-third of births did not occur at a health facility because services were not available, were too far away, or were costly.

**Child Health.** One of the primary means for improving survival during childhood is increasing the proportion of children vaccinated against the major preventable diseases. The 1997 YDMCHS results show that only 28 percent of children 12-23 months are fully immunized against the major preventable childhood illnesses (tuberculosis, diphtheria, whooping cough, tetanus, polio, and measles), a sharp decline from 42 percent in 1991-92.

During the two-week period before the survey, almost one-quarter of children under age five had a cough accompanied by short, rapid breathing, which are symptoms of acute lower respiratory illness. One-third of the children with these symptoms were taken to a health facility or provider.

Diarrheal and respiratory illnesses are a common cause of child deaths in Yemen. Twenty-eight percent of children under age five had diarrhea in the two-week period before the survey. Use of ORS packets (32 percent) or a homemade solution of sugar, salt and water (8 percent) to combat the dehydration of diarrhea is common. Many mothers also report that they gave their children increased fluids (48 percent). More than one-quarter of children with diarrhea received medical attention.

**Breastfeeding.** Breastfeeding is nearly universal in Yemen, and the length of time that the average child is breastfed is relatively long (18 months). Almost half of children are put to the breast within one hour of birth and almost 70 percent start suckling within one day of birth. Until 4-6 months of age, exclusive breastfeeding (i.e., without any food or liquid) is recommended because it provides all the necessary nutrients and avoids exposure to disease agents; only 23 percent of children under four months are exclusively breastfed in Yemen. Another practice that is not recommended is feeding children with a bottle with a nipple. Almost half of children under a year were bottle-fed.

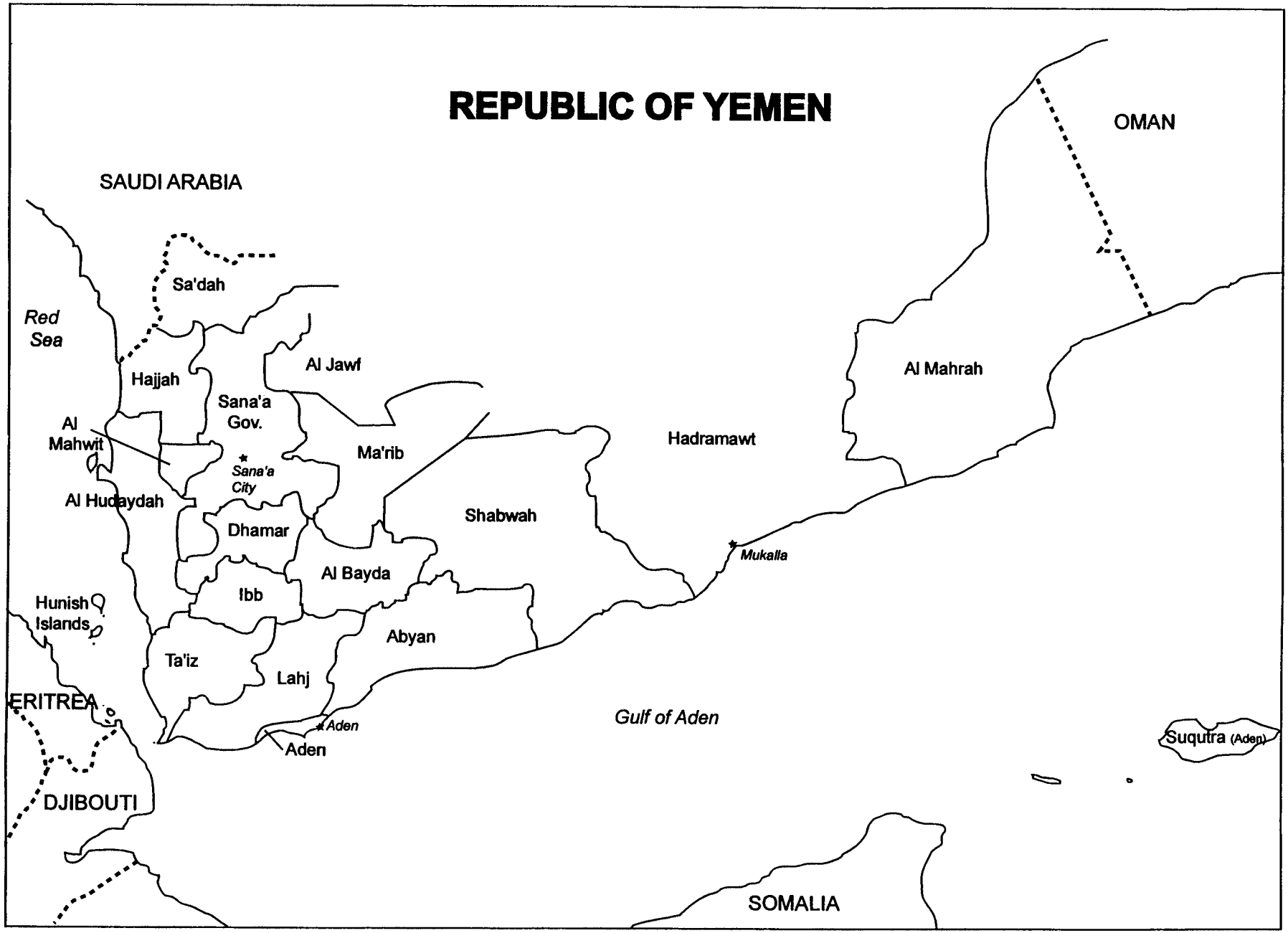
**Children's Nutrition Status.** The 1997 YDMCHS found significant levels of malnutrition among young children. Overall, around half of children under five are stunted (or short for their age), a condition reflecting chronic malnutrition, while 13 percent are wasted (or thin for their height), a problem indicating an acute food deficit due to illness or recent food shortages. There are substantial variations by residence in children's nutritional status. For example, 56 percent of children in rural areas and 40 percent in urban areas are stunted; and the proportion stunted varies from 42 percent in the Coastal region to 59 percent in the Mountainous region.

**Maternal Nutrition Status.** A woman's height is useful to predict the risk of difficult delivery, since the risk of having a low birth weight baby is higher for short mothers. Nine percent of women who had a birth in the five years before the survey are under 145 centimeters, the cutoff point below which mothers can be considered at risk.

Body mass index (BMI), defined as weight in kilograms divided by height in meters squared, is used to assess thinness and obesity. One-quarter of women measured are below the BMI cutoff point of 18.5, reflecting chronic energy deficiency. Rural mothers are more likely to be underweight than urban mothers, and almost one-third of mothers in the Coastal and Mountainous regions have a BMI below 18.5.

**Female Circumcision.** Half of the respondents in the YDMCHS have heard of female circumcision and nearly one-quarter have been circumcised. The practice of female circumcision is less common among rural women than urban women. The prevalence of female circumcision varies markedly by region. Almost 7 out of 10 women are circumcised in the Coastal region, compared with 1 out of 6 in the Mountainous region, and 1 in 20 in the Plateau and Desert region. In addition, among women who have daughters, one-fifth of mothers reported that at least one of their daughters had been circumcised.

Among women who have heard of female circumcision, 48 percent favor discontinuation and 41 percent favor continuation of the practice. In some groups, the proportion favoring discontinuation is high (52 to 74 percent). These groups include urban women, literate women (more than 50 percent), women with at least preparatory education (over 60 percent), women in the Plateau and Desert region, and women who were never circumcised (over 70 percent).


REPUBLIC OF YEMEN
SAUDI ARABIA
OMAN
Red Sea
Sa'dah
Hajjah
Al Jawf
Sana'a Gov.
Sana'a City
Al Mahwit
Al Hudaydah
Ma'rib
Hadramawt
Al Mahrah
Shabwah
Mukalla
Dhamar
Al Bayda
Ibb
Hunish Islands
Abyan
Ta'iz
Lahj
ERITREA
Aden
Aden
Gulf of Aden
Suqutra (Aden)
DJIBOUTI
SOMALIA

# CHAPTER 1

# INTRODUCTION

This chapter presents a brief overview of the Republic of Yemen, its geographical and historical aspects, the existing population, and socioeconomic conditions. The purpose is to provide the reader with a comprehensive background on the country and conditions in Yemeni society before presenting the results and methodological and administrative aspects of the Yemen Demographic, Maternal and Child Health Survey undertaken in 1997 (YDMCHS-97).

The first YDMCHS was implemented in 1991-92, after the unification of Yemen on May 22, 1990. The second round of the survey was carried out during 1997 by the Central Statistical Organization with Yemeni personnel who participated in all phases of the study (including planning, preparation, implementation, supervision, and writing of this report) in cooperation with the Ministry of Planning and Development, the Ministry of Public Health and the National Council for Population on the one hand, and Macro International Inc. (Macro) on the other.

This survey is considered an important benchmark in statistical work since it covers all the governorates of the Republic and went through highly precise phases during preparation and set-up, training and testing, follow-up and implementation. The survey comes after the first census (1994) under a unified country, the Yemen Republic.

## 1.1 Geography of Yemen

The Republic of Yemen is located in the southern part of the Arabian Peninsula and is bordered by the Kingdom of Saudi Arabia to the north, the Arabian Sea and Gulf of Aden to the south, the Sultanate of Oman in the east, and the Red Sea to the west. The Bab Al Mandab strait lies off the southwestern tip of the Republic, Mayoun, a Yemeni island in the middle of the strait, controls the passage into and out of the Red Sea.

There are over 112 Yemeni Islands in the Red Sea and the Arabian Sea. The largest is Sucotra, which has an area of 3,650 square kms and is inhabited by a population of 37,623, according to the results of the 1994 census. Socotra Island lies 510 kilometers southeast of the Yemeni seaport of Mukalla. Next is Kamaran Island with an area of 110 square kms and inhabited by 2,220 persons. In addition, there are the islands of Larger Hunaish and Smaller Hunaish, Zaqar, Al Zubair, and Al Tair as well as other islands. Yemen is characterized by an irregular terrain that accounts in large part for the dispersion of population aggregates. Despite the country's small size, the terrain makes it hard for statistical work to be undertaken in many areas. Yemen can be divided geographically into five major areas: the Mountainous area, the Coastal area, the Plateau area, the Desert (Al-Ruba Al-Khali) area, and the Yemeni islands..

**Mountainous Area**

The Mountainous area consists of two mountain ranges. The first, the north-south mountain range, runs parallel to the Red Sea. The second is the east-west mountain range, which parallels the Gulf of Aden. The height of these mountains varies from 1,000 to 3,700 meters, the highest elevation being on the level of the Arab peninsula and Greater Syria, where the land is around 3,666 meters above sea level at the peak of Nabi Shuaib Mountain. Water from the mountains drains in all directions into a number of agricultural wadis. These mountain ranges contain several plains and basins forming extensive agricultural areas.

**Coastal Area**

The coastal plains overlooking the Red Sea, the Gulf of Aden, and the Arabian Sea stretch along a coastal strip approximately 2,000 kms long from the Omani border in the east to Bab Al Mandeb in the west, and then to the border of Saudi Arabia in the north. The width of this coastal area varies from 30 to 60 kilometers.

**Plateau Area**

The highest elevation in the Plateau area is around 1,000 meters and lies to the east and north of the mountainous highlands and parallel to them. The Plateau becomes wider towards Al-Ruba Al-Khali (the empty quarter). The outer parts of this hilly area are contiguous in the north with the Al-Rub Al-Khali region, which extends deep into the Arabian Peninsula and comprises almost a quarter of the area of the Arabian Sub-Peninsula.

**Desert (Al-Ruba Al-Khali) Area**

The Al-Ruba Al-Khali region is part of the Yemen Desert. It contains some desert plants and herbs, particularly in the outermost parts that are contiguous with the Plateau area. Fewer plants are seen as one goes deeper into the Al-Ruba Al-Khali region of the Arabian Sub-Peninsula where sand dunes increase.

**Yemeni Islands**

There are 112 islands scattered in the Yemeni territorial waters of the Red Sea and the Arabian Sea. Many of these islands are inhabited by people and are used by Yemeni fishermen as waiting centers and for fishing purposes. The majority are situated in the Red Sea adjacent to the Yemeni coast.

The largest and most important island is Sucotra in the Arabian Sea, which is known world wide as the home of rare trees such as the ormosia, dracaena draco, and pterocarpus draco trees from which gum, various medicines, incense, and pigments are obtained. Kamaran Island is another important Yemeni island.

For the purposes of this survey, data were collected from hilly and desert areas, as can be observed from the results presented in this report. Sample segments were selected based on three main regions: the coastal region, the mountainous region, and the plateau and desert region. The islands were excluded from the sample because of the small size of the populations, and the difficulty in accessing them.

## 1.2 Historical Review

In ancient times Yemen's geographical location and favorable natural conditions played an important role in population settlement and the development of civilization in the territory of Yemen, particularly in the valleys opening into the Al-Ruba Al-Khali desert in the east, the Arabian Sea in the south, and the Red Sea in the west.

The eras of Mae'en, Hadramaut, and Saba'a are considered to be the first organized political entities in Yemen before the birth of Christ. The Hemyar era flourished later and ended with the Abyssinian invasion in 525 A.D.

The most important activities of the people of these regimes were agriculture and trade; they invented agricultural terracing on the mountains and erected dams, the most famous of which was the Ma'arib dam.

They also controlled mercantile caravans and roads which transported commodities from India and East Africa across the Arabian Sub-Peninsula to areas around the Mediterranean Sea (Al-Zoghbi, 1990).

Yemen civilization flourished in those years; it was called Arabia Felix (Arabia the Happy) by the ancient Greeks.

At the end of the Hamiarite era, Yemen was dominated first by the Abyssinians and then by the Persians. This lasted until the emergence of Islam when the Yemenis embraced the Islamic religion and Yemen became part of the central Islamic state. This period lasted from 628 A.D. to 824 A.D. Small independent states emerged thereafter leaving Yemen weak and divided. The Turks (Ottomans) occupied Yemen from the sixteenth century until the beginning of the seventeenth century; then the British occupied Aden in 1839.

The Turks invaded the northern part of Yemen again in 1873 and continued their occupation until the outbreak of World War I, when Yemen came under the rule of the Hamid Al Deen family in the north. This lasted until the outbreak of the Yemeni revolution on September 26, 1962.

The British remained in the south until the outbreak of the revolution of October 14, 1963, which resulted in independence on November 30, 1967 (Mustapha, 1984).

With the success of these two revolutions, Yemen entered a new era of economic, social, cultural and political change. The latest of these changes was the unification of the two parts of Yemen on May 22, 1990.

## 1.3 Population

The first Population Census under the Republic of Yemen was conducted in 1994. The de facto population of the country reached 15,831,757 persons, of which 14,587,807 were residents distributed in urban and rural areas. The urban population was 3,423,518 and the rural population was 11,164,289, representing 23.5 percent and 76.5 percent of the total population, respectively. The population residing outside Yemen was 737,669.

The population density for the country in 1994 was estimated at 28 per square kilometer, distributed among 18 governorates. Including the capital area (Sana'a city), these governorates comprise 226 districts. The cities of Sana'a, Aden, Taiz, Hodeida, Mukalla, and Ibb are considered Yemen's largest cities from the standpoint of population density. The annual population growth rate resulting from the difference between births and deaths in Yemen was approximately 3.4 percent. The crude birth rate was 45.4 per thousand population according to 1996 estimates, while the crude mortality rate in the same year was 11.3 per thousand. This indicates a tangible decrease in mortality, as the crude mortality rate was 11.4 per thousand in 1994. However, these rates are still high and are a clear sign that the state must adopt a sound population policy aimed at solving current and anticipated population problems. For example, infant and child mortality remain high in Yemen compared with other countries in the region and most third world countries. The impact of high mortality is reflected in life expectancy, which is relatively low. Results of the 1994 census indicate that life expectancy is only 58 years for both sexes.

The total fertility rate is still high as well, despite a decrease from 7.7 births per woman in 1991-92 to 7.4 in the 1994 census.

## 1.4 Socioeconomic Conditions

### Education

Education is one of the most important indicators of socioeconomic development; hence, the State has paid great attention to this sector since the revolution in the early 1960's. Illiteracy among Yemenis was the highest among Arab and other developing countries. At the time of the revolution there was not one secondary school in the country, with the exception of Aden.

Statistics indicate that considerable progress has been achieved in the area of education. The number enrolled in basic education for the year 1996/97 was 2,557,329 students of both sexes, distributed over 10,355 schools. The number enrolled in secondary education for the same year was approximately 289,578 students of both sexes, distributed over 1993 schools. As for higher education, the enrollment figures in the Yemeni public universities reached 104,784 students of both sexes.

The private sector has taken on an effective role in education that needs encouragement, guidance, and supervision in order to maintain a strong supporting role with the State. The private sector can serve the community in this important area by becoming involved in all stages of basic, secondary, and higher education, as well as pre-school nurseries and kindergartens, and technical and vocational training.

Illiteracy still characterizes, half the Yemeni population. The results of the 1994 census indicate the illiteracy rate among males 10 years and over is 37 percent while it reaches 76 percent among females in the same age group. Illiteracy is most marked among females, particularly in rural areas.

The enrollment rate in basic education for the age group 6-15 years is around 71 percent for males and 38 percent for females. This means the State, the community, and the private sector continue to have an important role in extending basic education through out the population, while still taking into account the high rate of population growth, which remains a significant challenge.

### Health

Health conditions in any community are the result of various social, economic, cultural and environmental factors. Yemen witnessed many changes in the period following the revolution. The number of hospitals in 1997 reached 84 in addition to 421 health centers, with a total capacity of 9,788 beds and a staff of 4,070 doctors, of whom 3,803 are Yemeni doctors.

Despite development in the health sector, the rate of coverage by health services for the population is still at the 45 percent level, and this is basically concentrated in urban centers. At the same time rural areas are relatively deprived of these health services, especially the remote areas which have difficult geographical terrain. In fact the private sector has participated in a tangible and effective manner, whether on the level of cooperative or charitable societies or by individual effort. In spite of its growth throughout the country, the private sector for the most part is still confined to the main cities. There is no precise monitoring of the role of the private sector which is in need of support, sponsorship, and supervision from the state and the community, in order to have a more improved and effective role.

### Labor Force and Food Production

The age group 15–64 years represents 46 percent of the country's population in 1994 compared with 50 percent for children in the age group under 15 years, and about 4 percent in the age group 65 years and

over. Therefore, the dependency ratio in Yemen is high: for every 100 persons in the age group 15-64 years approximately 117 persons in the nonproductive age groups are being supported.

Around 53 percent of the Yemeni labor force is involved in the agriculture and fishing sectors, while the rest of its labor force is distributed among other sectors.

Total arable land in the country is approximately 1.66 million hectares, representing 67 percent of the total land area. Only 1.11 million hectares are under cultivation. Agriculture depends mainly on rain water, thus production is subject to changing climatic conditions. Generally, locally grown fruits and vegetables are sufficient to meet the needs of the population. However, Yemen imports some essential food products such as wheat; two-thirds of flour consumed is imported from other countries. There are indications that Yemen has considerable unexploited mineral wealth, especially oil, which has gained great attention from the state. Oil exploration operations have increased considerably since unification of the country. It is likely that Yemen will be exporting oil in large quantities in coming years.

## 1.5 Population Policy

The National Committee for Population and Family Planning (NCPFP) was established in 1984 to strengthen the government's capacity to implement population policy in North Yemen. After the achievement of Yemen's unity in May 1990, the government drafted a national population strategy which, after revision, was adopted as national policy at the National Population Conference in October 1991. The National Population Council was established to oversee implementation of the policy. The overall objectives of the National Population Strategy for the period 1990-2000 are:

1. Reduce the crude death rate (CDR) by at least 50 percent by the year 2000.

2. Reduce the total fertility rate (TFR) to reach 6 births per woman for the same period.

3. Reduce the infant mortality rate to 60 deaths per 1,000 live births and maternal mortality by 50 percent of its 1990 level.

4. Achieve a population growth rate of 2 percent by the year 2000.

5. Achieve a tangible change in the quality of life of the population through the following goals:

    a) Increase the enrollment rate in formal education to 85 percent of the children in the age group 6-12, especially among girls in rural areas.

    b) Intensify work in the health sector, especially in primary health care, and improve the preventive and curative areas of the health system; expand family planning and family care services.

    c) Improve the living conditions of the population, satisfy their basic needs and raise income levels.

6. Achieve a population distribution between urban and rural areas that corresponds to the prevailing environmental, economic, and production requirements.

7. Care about, protect, and improve the environment.

8. Follow up and assess overall comprehensive development programs and develop their capacities.

9. To develop and improve population-related legislation.

## 1.6 Objectives of Family Planning Strategy

The objectives of the family planning program in Yemen are:

1. Increase the use of contraception to 35 percent among women of reproductive age and expand family planning services to men, and

2. Make family planning a free choice for couples, a basic human right as well as a factor for social change. Family planning must also include the right to treatment for infertility.

The general secretariat of the NCPFP prepared for the Second Conference on Population Policy (held in October 1996) with the aim of evaluating and assessing progress in the implementation of strategy and revising the work plan on population in light of international, regional, and local events. Many participant experts, politicians, interested persons, and concerned international and local organizations attended the Conference and issued an updated work plan on population that took into account the necessity of updating the following fields and work areas:

- *In the field of health,* a few modifications in reproductive health were made regarding quantitative targets especially those concerned with maternal and child health and family planning.

- *In the field of human resources*, in addition to some modifications in the objectives and means of achieving them, two main areas of concern were the specific groups of children, adults, older ages, and invalids, as well as the household.

- *In the area of ongoing development*, issues of poverty were included and the necessity for full incorporation of environmental and population factors into the plans and programs of economic development were discussed.

## 1.7 Objectives of the Survey

The 1997 Yemen Demographic, Maternal and Child Health Survey (YDMCHS-97) has the following objectives:

1. Provide policymakers and decisionmakers with a reliable database and analyses useful for policy choices and population programs, and provide researchers, other interested persons, and scholars with such data.

2. Update and expand the national population and health data base through collection of data which will allow the calculation of demographic rates, especially fertility rates, and infant and child mortality rates;

3. Analyse the direct and indirect factors which determine levels and trends of fertility. Indicators related to fertility will serve to elaborate plans for social and economic development;

4. Measure the level of contraceptive knowledge and practice by method, by rural and urban residence including some homogeneous governorates (Sana'a, Aden, Hadhramaut, Hodeidah, Hajjah and Lahj).

5. Collect quality data on family health: immunizations, prevalence and treatment of diarrhea and other diseases among children under five, prenatal visits, assistance at delivery and breastfeeding;

6. Measure the nutritional status of mothers and their children under five years (anthropometric measurements: weight and height);

7. Measure the level of maternal mortality at the national level.

8. Develop skills and resources necessary to conduct high-quality demographic and health surveys.

This survey is part of the worldwide Demographic and Health Surveys (DHS) program. Macro International Inc. (Macro) provides technical and administrative support for the DHS program, which is funded by the U.S. Agency for International Development (USAID).

## 1.8 Survey Activities

A number of basic tasks were implemented from May 1, 1997 to September 25, 1997:

1. Preparation of the project document including the work plan, the time table, and the budget;

2. Formation of the survey committees and administrative structure (supervisory and technical);

3. Preparation of the technical documents;

4. Sample design;

5. Household listing to update the selected areas of the sample;

6. Pretest of the survey documents;

7. Estimation for the provision of human and material resources required for the survey.

Below are some of the important details for this phase.

**Preparation of the Survey Project Document**

The first draft of the survey subcontract between the Central Statistical Organization (CSO), the implementing agency of the YDMCHS-97, and Macro was prepared in December 1996, and finalized a few months later. The subcontract was signed by the CSO and Macro in June 1997 after the delivery order for the Yemen survey was finalized by the USAID Mission in Cairo.

**Formation of Committees**

The Council of Ministers decree No. 234 of 1997 was issued to form the Supreme Committee of the Survey or the Steering Committee headed by the chairman of the CSO. The tasks of this committee are defined as the facilitation and provision of the required support to make the survey a success, and implementation of alternative strategies as needed to resolve survey problems.

A technical committee was also formed and charged with preparation and approval of all survey technical documents and other tasks associated with specified activities at various stages of the survey, as well as provision of survey personnel and, material and financial resources (see Appendix A for the names

of the Supreme Committee and the Technical Committee, the field personnel and other persons involved in the YDMCHS-97).

**Preparation of Documents**

The survey documents include the following:

*Household Questionnaire*: The household questionnaire consists of two parts: a household schedule and a series of questions relating to the health and socioeconomic status of the household. The household schedule was used to list all usual household members. For each of the individuals included in the schedule, information was collected on the relationship to the household head, age, sex, marital status (for those 10 years and older), educational level (for those 6 years and older) and work status (for those 10 years and older). It also collects information on fertility, general mortality and child survival. The second part of the household questionnaire included questions on housing characteristics including the type of dwelling, location, materials used in construction, number of rooms, kitchen in use, main source of drinking water and health related aspects, lighting and toilet facilities, disposal of garbage, durable commodities, and assets, type of salt the household uses for cooking, and other related residential information.

*Individual Questionnaire*: The individual questionnaire was administered to all ever-married women age 15-49 years who were usual residents. It contained 10 sections on the followings topics:

- Respondent's background
- Reproduction
- Family planning
- Pregnancy and breastfeeding
- Immunization and health
- Birth preferences
- Marriage and husband's background
- Maternal mortality
- Female circumcision
- Height and weight

(see Appendix E for the English version of the questionnaires).

*Other Documents*: Other documents prepared for use in survey activities were training manuals and field reporting forms (interviewer's and supervisor's assignment sheets, and editing and coding instructions).

**Sample Design**

The 1997 YDMCHS was based on a national sample in order to provide estimates for general indicators for the following domains: Yemen as a whole, urban and rural areas (each as a separate domain), three ecological zones identified as Coastal, Mountainous, and Plateau and Desert, as well as governorates with a sample size of at least 500 completed cases. The survey sample was designed as a two-stage cluster sample of 475 enumeration areas (EA), 135 in urban areas and 340 in rural areas. The master sample, based on the 1994 census frame, was used as the frame for the 1997 YDMCHS. The population covered by the Yemen survey was the universe of all ever-married women age 15-49. The initial target sample was 10,000 completed interviews among eligible women, and the final sample was 10,414. In order to get this number of completed interviews, and using the response rate found in the 1991-92 YDMCHS survey, a total of 10,701 of the 11,435 potential households selected for the household sample were completed (see Appendix B for a complete description of the sample design).

In each selected EA, a complete household listing operation took place between July and September 1997, and was undertaken by nineteen (19) field teams, taking into consideration the geographical closeness of the areas assigned to each team.

**Pretest**

The household and individual questionnaires were pretested in August 1997 following a three-week training course. Four male supervisors and 15 female interviewers participated in the pretest. Two hundred and fifty households were interviewed in Sana'a City (70 households) and in rural areas of Sana'a Governorate (180 households). At the end of the pretest fieldwork, a meeting was held with the two teams which conducted the interviews. At the meeting the experiences of interviewers, editors, and supervisors were discussed. The pretest was extremely helpful in revising and modifying the questionnaires and in producing the final version of the questionnaires that was used for the main fieldwork. The completed pretest questionnaires were checked for data quality and completeness of answers to some questions considered "sensitive" such as the questions on female circumcision.

The questionnaires were modified and interviewer's instructions were revised in light of feedback from the field staff and review of the pretest questionnaires.

**Printing of Survey Documents**

After finalizing the questionnaires and fieldwork manuals, the basic documents and other forms to be used in the field for monitoring fieldwork operations and checking quality control were printed. The number of documents printed was as follows:

Training manuals (200 copies)
Household questionnaire (15,000 copies)
Individual questionnaire (15,000 copies).

**Training and Data Collection Activities**

*Training:* The CSO organized the interviewer training for the main fieldwork by recruiting interviewers from all over the country. The CSO staff from the central and regional offices who had worked on the household listing were recruited as supervisors. From almost 500 applicants, 132 were selected for training as interviewers. Some of the interviewers had participated in the 1991-92 YDMCHS. From over 55 persons who had participated in the household listing, 32 were selected as candidates for supervisors. Because of the large number of the trainees, two groups were formed to be trained separately, and training on height and weight was given in four MCH centers in Sana'a.

The training program included: 1) general lectures related to basic interview techniques and to survey topics (i.e. fertility and family planning, and maternal and child health); 2) opportunities for role playing and mock interviews; 3) field practices in areas not covered in the survey; and quizzes. Training lasted from the end of September to mid-October 1997. After the completion of training and practice interviews, 84 female candidates were selected as interviewers or editors, and 31 men were selected to work as supervisors or editors.

*Fieldwork*: Fieldwork for the 1997 YDMCHS began on October 20, and was completed on December 30, 1997. The field staff was divided into 19 teams; each team had a male supervisor, 4-5 female interviewers, and a male or female editor. During the fieldwork period, the senior project staff from Sana'a visited the teams regularly to monitor the quality of the completed questionnaires and to solve any technical or field problems the teams encountered.

In addition, the teams were encouraged to keep the survey operations desk informed about the progress of the work and any problems requiring assistance. Whenever possible, the monitoring staff returned to Sana'a with completed questionnaires so that data processing could be carried out simultaneously with fieldwork. On receipt of the questionnaires at the central office, the process of revising, editing, coding and processing the data was carried out.

**Data Processing Activities**

The cental office in Sana'a was responsible for collecting questionnaires from the field as soon as each cluster was completed. Questionnaires were reviewed for consistency and completeness by office editors, and a few questions (e.g., occupation and type of illness) were coded in the office prior to data entry. The machine entry and editing phase began while interviewing teams were still in the field.

The CSO made its network of 12 computers available to the survey for data entry. The computer programs that had been prepared at Macro headquarters for use in the 1997 YDMCHS were modified to take into account the network environment. The data from the questionnaires were entered and edited using the Integrated System for Survey Analysis (ISSA), a software package developed especially for the Demographic and Health Surveys program.

Twelve data entry personnel participated in processing the survey data. During machine entry, 50 percent of each segment was reentered for verification. The data processing started at the beginning of November 1997 and was completed at the end of February 1998. Tables for the preliminary report were prepared in March 1998 and tables for the final report were completed in June 1998.

## 1.9 Results of the Household and Individual Interviews

A summary of the outcome of the fieldwork for the survey by place of residence is presented in Table 1.1. The table shows that 10,701 households, distributed between urban (3,008 households) and rural areas (7,693), households which were successfully interviewed in the 1997 YDMCHS. This represents a country-wide response rate of 98.2 percent (98.7 and 98.0 percent, respectively, for urban and rural areas).

A total of 11,158 women were identified as eligible to be interviewed. Questionnaires were completed for 10,414 women, which represents a response rate of 93.3 percent. The response rate in urban areas was 93 percent; and in rural areas it was 93.5 percent.

Table 1.1 Results of the household and individual interviews

Number of households and eligible women, and response rates by residence, Yemen 1997

| Sample/ response rate | Residence | | |
|---|---|---|---|
| | Urban | Rural | Total |
| **Household interviews** | | | |
| Households sampled | 3,255 | 8,180 | 11,435 |
| Households found | 3,049 | 7,846 | 10,895 |
| Households interviewed | 3,008 | 7,693 | 10,701 |
| **Household response rate** | 98.7 | 98.0 | 98.2 |
| **Individual interviews** | | | |
| Number of eligible women | 3,166 | 7,992 | 11,158 |
| Number of eligible women interviewed | 2,945 | 7,469 | 10,414 |
| **Eligible woman response rate** | 93.0 | 93.5 | 93.3 |

# CHAPTER 2

# CHARACTERISTICS OF HOUSEHOLDS AND RESPONDENTS

This chapter presents information on selected socioeconomic characteristics of the household population and individual survey respondents including age, sex, education, school enrollment and participation in the labor force. The chapter also considers the conditions surrounding the households in which the survey population live, including the source of drinking water, availability of electricity, sanitation facilities, housing materials, and housing congestion. This background information is useful for understanding the factors which affect reproductive and contraceptive use behavior.

## 2.1 Characteristics of the Household Population

The YDMCHS Household Questionnaire was used to collect data on the demographic and social characteristics of all usual residents of the sampled household (de jure population).

### Age and Sex Composition

Table 2.1 presents the percent distribution of the de jure population by age, according to urban-rural residence and sex. The table shows the effects of past demographic trends on the structure of the Yemeni population and indicates the context in which a variety of demographic processes are operating.

Table 2.1 Household population by age, residence and sex

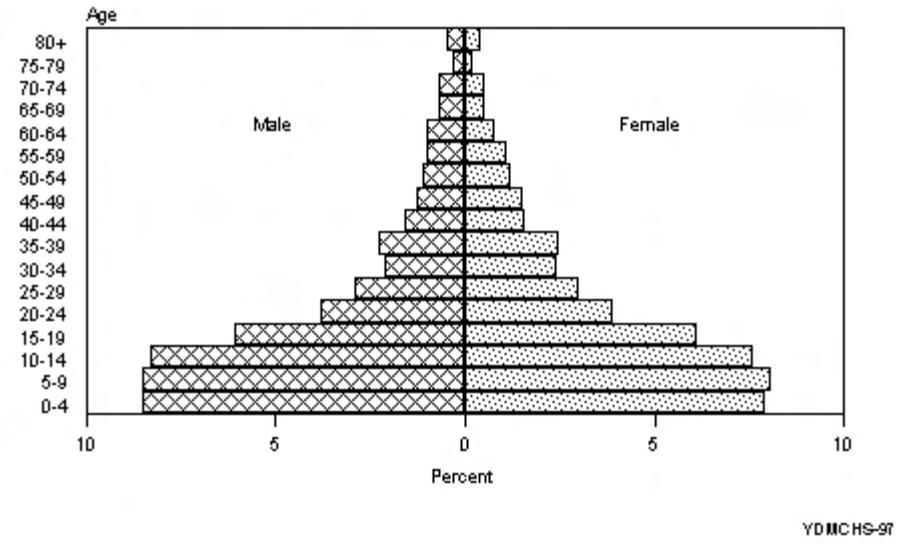
Percent distribution of the de jure household population by five-year age groups, according to urban-rural residence, sex, and sex ratio, Yemen 1997

| Age group | Urban | | | | Rural | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Sex ratio | Male | Female | Total | Sex ratio | Male | Female | Total | Sex ratio |
| 0-4 | 14.9 | 14.7 | 14.8 | 109 | 17.4 | 16.4 | 16.9 | 107 | 16.7 | 16.0 | 16.4 | 107 |
| 5-9 | 14.4 | 14.4 | 14.4 | 107 | 17.7 | 17.1 | 17.4 | 105 | 16.8 | 16.4 | 16.6 | 105 |
| 10-14 | 15.9 | 15.0 | 15.4 | 113 | 16.6 | 15.6 | 16.1 | 107 | 16.4 | 15.5 | 15.9 | 109 |
| 15-19 | 13.0 | 13.9 | 13.4 | 100 | 11.6 | 11.8 | 11.7 | 100 | 12.0 | 12.3 | 12.1 | 100 |
| 20-24 | 9.5 | 9.4 | 9.4 | 108 | 6.7 | 7.4 | 7.1 | 92 | 7.5 | 7.9 | 7.7 | 96 |
| 25-29 | 6.8 | 6.8 | 6.8 | 107 | 5.2 | 5.9 | 5.6 | 89 | 5.6 | 6.1 | 5.9 | 94 |
| 30-34 | 5.0 | 5.5 | 5.3 | 97 | 3.9 | 4.8 | 4.3 | 83 | 4.2 | 4.9 | 4.6 | 87 |
| 35-39 | 5.0 | 5.4 | 5.2 | 99 | 4.3 | 5.0 | 4.6 | 88 | 4.5 | 5.1 | 4.8 | 91 |
| 40-44 | 3.7 | 3.3 | 3.5 | 118 | 3.0 | 3.1 | 3.0 | 98 | 3.2 | 3.2 | 3.2 | 103 |
| 45-49 | 2.8 | 2.3 | 2.6 | 128 | 2.6 | 2.4 | 2.5 | 109 | 2.6 | 2.4 | 2.5 | 114 |
| 50-54 | 2.1 | 2.9 | 2.5 | 79 | 2.3 | 3.2 | 2.7 | 73 | 2.2 | 3.1 | 2.7 | 74 |
| 55-59 | 1.7 | 2.0 | 1.9 | 89 | 1.9 | 2.2 | 2.1 | 90 | 1.9 | 2.2 | 2.0 | 90 |
| 60-64 | 1.9 | 1.4 | 1.6 | 141 | 2.1 | 1.7 | 1.9 | 123 | 2.0 | 1.6 | 1.8 | 127 |
| 65-69 | 1.4 | 0.9 | 1.2 | 171 | 1.4 | 1.0 | 1.2 | 147 | 1.4 | 1.0 | 1.2 | 152 |
| 70-74 | 1.0 | 0.9 | 0.9 | 116 | 1.4 | 1.0 | 1.2 | 142 | 1.3 | 1.0 | 1.1 | 136 |
| 75-79 | 0.4 | 0.4 | 0.4 | 111 | 0.6 | 0.5 | 0.6 | 143 | 0.6 | 0.4 | 0.5 | 136 |
| 80 + | 0.6 | 0.8 | 0.7 | 77 | 1.2 | 0.9 | 1.1 | 133 | 1.0 | 0.9 | 1.0 | 120 |
| Missing/Don't know | 0.0 | 0.0 | 0.0 | 84 | 0.0 | 0.0 | 0.0 | 137 | 0.0 | 0.0 | 0.0 | 107 |
| Total | 100.0 | 100.0 | 100.0 | 107.0 | 100.0 | 100.0 | 100.0 | 101.0 | 100.0 | 100.0 | 100.0 | 103.0 |
| Median | 16.7 | 17.0 | 16.8 | NA | 14.4 | 15.3 | 14.9 | NA | 15.0 | 15.7 | 15.4 | NA |
| Number | 9,879 | 9,251 | 19,130 | NA | 27,890 | 27,569 | 55,459 | NA | 37,768 | 36,820 | 74,589 | NA |

Note: Table is based on de jure members, i.e., usual residents. Sex ratio is the number of males per 100 females.
NA = Not applicable

The YDMCHS households constitute a population of 74,589 persons and the sample is 26 percent urban. There are slightly more men (51 percent) than women (49 percent), and there are larger numbers of the population in the younger age groups than in the older age groups. This applies in both urban and rural areas and among both males and females. The information on sex and age distribution can be used to construct a population pyramid describing the 1997 YDMCHS household population (see Figure 2. 1). The pyramid has a wide-base, with a large concentration (49 percent) of the population under 15 years of age. This pattern is typical of countries with high fertility.

**Figure 2.1**
**Distribution of the Household Population by Age**




As Table 2.1 shows, the median age is 15.4 years, a slight increase compared with the 1991-92 survey (14.1 years). The median age in urban areas (16.8) is higher than that in rural areas (14.9). In addition, the proportion under age 15 is greater in rural areas than in urban population. The differences in the age distribution are evidence of lower recent fertility in urban areas compared with rural areas (see Chapter 3 on Fertility).

The distribution of the de jure population by broad age groups presented in Table 2.2 indicates that children under 15 years of age account for 49 percent of the population, while individuals in age group 15-64 account for 47 percent, with the remaining population over 65

Table 2.2 Population by age, 1991-92, 1994, and 1997

Percent distribution of the population by broad age group 1991-92 YDMCHS, 1994 Census, and 1997 YDMCHS

| Age group | 1991-92 YDMCHS | 1994 Census | 1997 YDMCHS |
|---|---|---|---|
| < 15 | 52.1 | 50.3 | 48.9 |
| 15-64 | 43.5 | 46.2 | 47.2 |
| 65+ | 4.4 | 3.5 | 3.8 |
| Total | 100.0 | 100.0 | 100.0 |
| Median age | 14.1 | 13.9 | 15.4 |

years of age. The dependency ratio, defined as the ratio of the nonproductive population (the sum of persons under 15 years and over 64 years) to the population age 15-64, is 112 which means that there are 112 persons under 15 years or over 64 years in Yemen for every 100 persons age 15-64 years. The dependency ratio decreased from 130 in 1991-92 to 116 in 1994 and 112 in 1997, indicating a change in fertility levels.

**Household Composition**

Table 2.3 presents the distribution of households in the 1997 YDMCHS sample by sex of the head of household and by the number of household members. These characteristics are important because they are often associated with socioeconomic differences between households. For example, female-headed households frequently are poorer than households headed by males. In addition, the size and composition of the household affects the allocation of financial and other resources among household members, which in turn influences the overall well-being of these individuals. Household size is also associated with crowding in the dwelling, which can lead to unfavorable health conditions.

Table 2.3 Household composition

Percent distribution of households by sex of head of household and household size and percentage of households with foster children, according to residence, Yemen 1997

| Characteristic | Urban | Rural | Total |
|---|---|---|---|
| **Household headship** | | | |
| Male | 90.6 | 90.5 | 90.5 |
| Female | 9.4 | 9.5 | 9.5 |
| **Number of usual members** | | | |
| 1 | 2.7 | 2.9 | 2.9 |
| 2 | 4.9 | 8.0 | 7.2 |
| 3 | 7.5 | 8.4 | 8.1 |
| 4 | 9.4 | 9.2 | 9.3 |
| 5 | 11.0 | 9.7 | 10.0 |
| 6 | 10.8 | 10.9 | 10.9 |
| 7 | 12.5 | 11.0 | 11.3 |
| 8 | 9.9 | 10.7 | 10.5 |
| 9+ | 31.3 | 29.3 | 29.8 |
| Total | 100.0 | 100.0 | 100.0 |
| **Mean size** | 7.2 | 6.9 | 7.0 |
| **Percentage of households with foster children**[1] | 4.7 | 3.1 | 3.5 |

Note: By convention, foster children are those who are not living with either of their biological parents. This includes orphans, i.e., children with both parents dead.
-- Less than 0.05 percent

Female-headed households make up less than 10 percent of the households in the 1997 YDMCHS., and there is no variation by residence. This is a slight decrease from the 1991-92 survey when the level of female-headed households was 12 percent.

There are, on average, 7 persons in a Yemeni household. Less than one in five households has fewer than four members, while one in two households has seven or more members. Households in urban areas are slightly larger (7.2 persons) than those in rural areas (6.9 persons).

Foster children are those persons under 15 years of age who are not living with either of their biological parents. Less than 4 percent of households have foster children; urban households are more likely to have foster children than rural households.

Information regarding foster children and orphans under 15 years of age is presented in Table 2.4. More than 85 percent of children under 15 years of age live with both parents, 8 percent live with their mothers (but not their living fathers), and 1 percent live with their fathers (but not their living mothers), while less than 1 percent live with neither parent, although both are alive. Four percent of children live with only one parent because the other parent is dead. The percentage of children not living with both parents increases with increasing age of the child. The proportion living with both parents varies little by sex, residence, or region.

Table 2.4 Fosterhood and orphanhood

Percent distribution of de jure children under age 15 by survival status of parents and child's living arrangements, according to child's age, sex, residence, and region, Yemen 1997

| Background characteristic | Living with both parents | Living with mother but not father | | Living with father but not mother | | Not living with either parent | | | | Missing info. on father/ mother | Total | Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Father alive | Father dead | Mother alive | Mother dead | Both alive | Father only alive | Mother only alive | Both dead | | | |
| **Age** | | | | | | | | | | | | |
| <2 | 90.0 | 8.5 | 0.5 | 0.4 | 0.3 | 0.2 | 0.1 | -- | -- | -- | 100.0 | 7,351 |
| 3-5 | 86.9 | 9.1 | 1.5 | 0.8 | 0.8 | 0.5 | 0.2 | 0.1 | 0.1 | 0.0 | 100.0 | 7,005 |
| 6-8 | 84.5 | 8.9 | 2.8 | 1.1 | 1.2 | 0.7 | 0.4 | 0.3 | 0.1 | -- | 100.0 | 8,027 |
| 9-11 | 83.5 | 7.6 | 3.6 | 1.5 | 1.8 | 1.1 | 0.3 | 0.3 | 0.2 | -- | 100.0 | 7,111 |
| 12+ | 80.9 | 6.6 | 5.1 | 1.8 | 2.5 | 1.8 | 0.3 | 0.5 | 0.4 | -- | 100.0 | 6,998 |
| **Sex** | | | | | | | | | | | | |
| Male | 85.4 | 7.9 | 2.7 | 1.1 | 1.3 | 0.8 | 0.2 | 0.3 | 0.2 | -- | 100.0 | 18,862 |
| Female | 85.0 | 8.4 | 2.6 | 1.1 | 1.3 | 0.8 | 0.3 | 0.2 | 0.1 | -- | 100.0 | 17,628 |
| **Residence** | | | | | | | | | | | | |
| Urban | 86.2 | 6.4 | 2.4 | 1.3 | 1.5 | 1.5 | 0.3 | 0.1 | 0.3 | -- | 100.0 | 8,532 |
| Rural | 84.9 | 8.7 | 2.7 | 1.1 | 1.3 | 0.6 | 0.3 | 0.3 | 0.1 | -- | 100.0 | 27,959 |
| **Region** | | | | | | | | | | | | |
| Coastal | 86.7 | 7.7 | 2.3 | 0.7 | 1.2 | 0.9 | 0.2 | 0.2 | 0.2 | -- | 100.0 | 7,680 |
| Mountainous | 85.2 | 8.3 | 2.4 | 1.1 | 1.2 | 0.8 | 0.4 | 0.4 | 0.2 | -- | 100.0 | 11,235 |
| Plateau and Desert | 84.6 | 8.3 | 3.0 | 1.3 | 1.5 | 0.9 | 0.2 | 0.2 | 0.1 | -- | 100.0 | 17,575 |
| Total | 85.2 | 8.2 | 2.7 | 1.1 | 1.3 | 0.8 | 0.3 | 0.2 | 0.2 | -- | 100.0 | 36,491 |

Note: By convention, foster children are those who are not living with either of their biological parents. This includes orphans, i.e., children with both parents dead.
-- Less than 0.05 percent

## 2.2 Education of the Household Population

The educational level of household members is among the most important characteristics of the household because it is associated with many phenomena including reproductive behavior, use of contraception, and the health of children.

### Educational Attainment

The educational level of household members is an important characteristic because educational attainment affects many areas including reproductive behavior, proper hygienic practices, health of children and the status of women.

Table 2.5.1 presents data on the educational level of the female population age 6 and over. Overall, two-thirds of the females have no education, less than 21 percent have not completed their primary education, leaving only 12 percent of all females who completed primary education and higher.

An examination of the changes in educational indicators over successive cohorts indicates that there has been an increase over time in the educational attainment of women. For example, the percentage of women with some schooling is 55 percent in the 15-19 age group compared with 9 percent in the 35-39 age group.

Table 2.5.1 Educational level of the female household population

Percent distribution of the de jure female household population age 6 and over by highest level of education completed, and median number of years of schooling, according to selected background characteristics, Yemen 1997

| Background characteristic | No education | Incomplete primary | Complete primary | Incomplete secondary | Complete secondary+ | Missing | Total | Number | Median years of schooling |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | | | | | | | | | |
| 6-10 | 59.0 | 38.1 | 0.1 | 0.1 | 0.0 | 2.7 | 100.0 | 4,994 | 0.0 |
| 10-14 | 44.9 | 42.9 | 6.5 | 5.5 | 0.0 | 0.2 | 100.0 | 5,695 | 1.1 |
| 15-19 | 48.6 | 20.3 | 8.1 | 22.4 | 0.4 | 0.2 | 100.0 | 4,534 | 1.0 |
| 20-24 | 60.7 | 14.4 | 5.7 | 14.0 | 5.2 | 0.0 | 100.0 | 2,920 | 0.0 |
| 25-29 | 75.9 | 9.3 | 3.3 | 7.5 | 4.0 | 0.0 | 100.0 | 2,264 | 0.0 |
| 30-34 | 83.2 | 6.4 | 2.8 | 5.5 | 2.2 | 0.0 | 100.0 | 1,821 | 0.0 |
| 35-39 | 91.1 | 3.4 | 1.4 | 3.2 | 0.9 | 0.0 | 100.0 | 1,869 | 0.0 |
| 40-44 | 94.5 | 2.3 | 0.7 | 1.6 | 0.8 | 0.0 | 100.0 | 1,160 | 0.0 |
| 45-49 | 97.2 | 1.2 | 0.5 | 1.0 | 0.2 | 0.0 | 100.0 | 878 | 0.0 |
| 50-54 | 99.1 | 0.2 | 0.1 | 0.4 | 0.1 | 0.1 | 100.0 | 1,140 | 0.0 |
| 55-59 | 99.3 | 0.2 | 0.1 | 0.3 | 0.0 | 0.1 | 100.0 | 792 | 0.0 |
| 60-64 | 99.7 | 0.1 | 0.0 | 0.2 | 0.0 | 0.0 | 100.0 | 606 | 0.0 |
| 65+ | 99.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 100.0 | 1,201 | 0.0 |
| Missing/Don't know | 82.2 | 0.0 | 0.0 | 0.0 | 0.0 | 17.8 | 100.0 | 8 | 0.0 |
| **Residence** | | | | | | | | | |
| Urban | 41.1 | 28.8 | 6.9 | 18.6 | 3.8 | 0.8 | 100.0 | 7,662 | 1.5 |
| Rural | 76.2 | 17.6 | 2.5 | 3.1 | 0.2 | 0.4 | 100.0 | 22,219 | 0.0 |
| **Region** | | | | | | | | | |
| Coastal | 62.3 | 19.7 | 3.9 | 11.2 | 2.6 | 0.3 | 100.0 | 6,892 | 0.0 |
| Mountainous | 78.4 | 16.1 | 1.9 | 3.1 | 0.1 | 0.4 | 100.0 | 9,023 | 0.0 |
| Plateau and Desert | 62.5 | 23.7 | 4.5 | 7.5 | 1.0 | 0.7 | 100.0 | 13,965 | 0.0 |
| Total | 67.2 | 20.5 | 3.6 | 7.1 | 1.1 | 0.5 | 100.0 | 29,881 | 0.0 |

Note: Six women for whom age was not reported are not shown separately.
-- Less than 0.05 percent

Urban women are more likely to have attended school than rural women. Fifty-nine percent of females in urban areas have attended school compared with only 24 percent of females in rural areas. By region, the proportion of women with no education is higher in the Mountainous region (78 percent) than in the Coastal (62 percent) or the Plateau and Desert region (63 percent).

Table 2.5.2 shows that two-thirds of males age six and over have some education, and that 5 percent have completed at least secondary education. The differentials in the level of education among the male population presented in this table indicate that they follow the same pattern found in the female population.

Tables 2.5.1 and 2.5.2 indicate that there is a large gap between male and female education. The proportion of males who have some education is twice that of females—67 percent compared with 33 percent, respectively. This gap widens as the educational level increases. For example, only 12 percent of women have completed at least primary education compared with 37 percent of males.

## School Attendance

Table 2.6 presents the school attendance rates of the household population age 6 to 24 years according to age, sex, and urban-rural residence. A school attendance rate is the number of persons attending school at a specific age group per hundred persons in that age group. Fifty-eight percent of children age 6-15 are in school; and school attendance in urban areas (80 percent) is more than 29 percentage points higher than rural enrollment (51 percent).

Table 2.5.2 Educational level of the male household population

Percent distribution of the de jure male household population age 6 and over by highest level of education completed, and median number of years of schooling, according to selected background characteristics, Yemen 1997

| Background characteristic | No Education | Incomplete primary | Complete Primary | Incomplete secondary | Complete secondary | Missing | Total | Number | Median years of schooling |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | | | | | | | | | |
| 6-10 | 36.9 | 59.8 | 0.2 | 0.2 | 0.0 | 2.9 | 100.0 | 5,263 | 0.2 |
| 10-14 | 7.3 | 65.0 | 13.0 | 14.4 | 0.0 | 0.2 | 100.0 | 6,183 | 3.7 |
| 15-19 | 5.2 | 18.9 | 11.0 | 63.7 | 1.1 | 0.1 | 100.0 | 4,514 | 7.3 |
| 20-24 | 6.8 | 12.1 | 9.4 | 55.5 | 16.2 | 0.1 | 100.0 | 2,817 | 8.9 |
| 25-29 | 16.2 | 12.6 | 11.0 | 39.6 | 20.5 | 0.1 | 100.0 | 2,129 | 7.6 |
| 30-34 | 34.3 | 14.5 | 14.1 | 25.1 | 11.8 | 0.2 | 100.0 | 1,581 | 5.1 |
| 35-39 | 52.8 | 9.4 | 11.0 | 17.1 | 9.3 | 0.4 | 100.0 | 1,694 | 0.0 |
| 40-44 | 70.5 | 5.2 | 6.1 | 11.8 | 6.2 | 0.1 | 100.0 | 1,199 | 0.0 |
| 45-49 | 78.9 | 5.5 | 3.8 | 6.6 | 5.1 | 0.1 | 100.0 | 998 | 0.0 |
| 50-54 | 83.8 | 4.5 | 3.5 | 5.1 | 2.9 | 0.2 | 100.0 | 847 | 0.0 |
| 55-59 | 89.3 | 3.1 | 2.5 | 3.5 | 1.5 | 0.0 | 100.0 | 712 | 0.0 |
| 60-64 | 93.4 | 2.4 | 0.7 | 2.5 | 0.8 | 0.2 | 100.0 | 767 | 0.0 |
| 65+ | 96.8 | 1.2 | 0.8 | 0.9 | 0.2 | 0.1 | 100.0 | 1,640 | 0.0 |
| Missing/Don't know | 65.6 | 0.0 | 0.0 | 0.0 | 0.0 | 34.4 | 100.0 | 8 | 0.0 |
| **Residence** | | | | | | | | | |
| Urban | 21.2 | 28.9 | 8.8 | 30.6 | 9.7 | 0.9 | 100.0 | 8,133 | 4.9 |
| Rural | 36.7 | 31.0 | 7.6 | 21.2 | 3.0 | 0.5 | 100.0 | 22,219 | 2.0 |
| **Region** | | | | | | | | | |
| Coastal | 34.7 | 31.0 | 7.0 | 21.4 | 5.4 | 0.5 | 100.0 | 7,224 | 2.4 |
| Mountainous | 38.5 | 29.9 | 7.1 | 21.1 | 2.8 | 0.6 | 100.0 | 8,719 | 1.9 |
| Plateau and Desert | 27.9 | 30.5 | 8.8 | 26.3 | 5.8 | 0.7 | 100.0 | 14,410 | 3.6 |
| Total | 32.6 | 30.4 | 7.9 | 23.7 | 4.8 | 0.6 | 100.0 | 30,352 | 2.8 |

Note: Eleven men for whom age was not reported are not shown separately.

Table 2.6 shows that the gender differences in school attendance are large. For example, while 75 percent of boys age 6-15 are attending school, this figure is only 40 percent for girls age 6-15. Similar differences by gender are observed in the attendance rates for the other age groups, with the gap increasing with age of child. Boys are more than three times as likely as girls at age 16-20 and more than four times as likely at age 21-24 to be attending school. The gender disparity in school attendance widens substantially in rural areas at higher ages.

Table 2.6 School Enrollment

Percentage of the de jure household population age 6-24 years enrolled in school by age group, sex, and residence, Yemen 1997

| Age group | Male | | | Female | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| 6-10 | 80.2 | 63.4 | 67.1 | 75.9 | 31.5 | 41.2 | 78.1 | 47.8 | 54.5 |
| 11-15 | 90.2 | 81.4 | 83.6 | 74.6 | 25.7 | 38.4 | 82.6 | 54.7 | 61.9 |
| 6-15 | 85.1 | 71.5 | 74.8 | 75.3 | 29.0 | 39.9 | 80.4 | 50.9 | 57.9 |
| 16-20 | 58.5 | 50.2 | 52.7 | 39.0 | 8.5 | 17.2 | 48.9 | 29.2 | 34.9 |
| 21-24 | 31.8 | 22.7 | 25.8 | 14.3 | 2.4 | 6.0 | 23.5 | 11.9 | 15.6 |

## 2.3 Employment Status of Household Population

In the household questionnaire, three questions were asked about the employment status of household members age 10 years and over.[1] Table 2.7 shows that, overall, 50 percent of men were working at the time of the interview with very little difference in urban and rural areas (48 percent and 52 percent, respectively). Thirty-six percent declared that they were nonworking students, 6 percent were classified as unemployed, and 2 percent were handicapped.

Table 2.7 Activity status of household population

Percent distribution of the de jure household population age 10-64 years by current activity status, according to residence and sex, Yemen 1997

| Activity status | Urban | | | Rural | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Currently working | 47.5 | 4.6 | 26.6 | 51.5 | 3.6 | 27.1 | 50.4 | 3.8 | 27.0 |
| Unemployed, worked before | 2.6 | 0.1 | 1.4 | 2.0 | 0.0 | 1.0 | 2.2 | -- | 1.1 |
| Housewife, working | NA | 2.6 | 1.3 | NA | 24.9 | 12.7 | NA | 19.0 | 9.5 |
| Student, working | 1.5 | 0.1 | 0.8 | 2.9 | 0.3 | 1.6 | 2.5 | 0.3 | 1.4 |
| Unemployed, never worked before | 6.8 | 0.7 | 3.8 | 5.2 | 0.4 | 2.7 | 5.6 | 0.5 | 3.0 |
| Housewife | NA | 60.9 | 29.6 | NA | 59.0 | 30.0 | NA | 59.5 | 29.9 |
| Student | 38.7 | 29.7 | 34.3 | 34.9 | 9.8 | 22.1 | 36.0 | 15.1 | 25.5 |
| Income recipient | 0.5 | 0.1 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 |
| Retired | 0.9 | 0.1 | 0.5 | 0.3 | 0.0 | 0.2 | 0.5 | -- | 0.3 |
| Handicapped | 1.1 | 0.9 | 1.0 | 1.7 | 1.3 | 1.5 | 1.5 | 1.2 | 1.3 |
| Don't know/Missing | 0.5 | 0.2 | 0.4 | 1.0 | 0.4 | 0.7 | 0.9 | 0.4 | 0.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number | 6,646 | 6,283 | 12,929 | 16,795 | 17,396 | 34,190 | 23,441 | 23,678 | 47,119 |

Note: Activity status categories are those used in the census.
NA = Not applicable
-- Less than 0.05 percent

For women, only 4 percent were working at the time of the survey; 79 percent were classified as either housewives (60 percent) or housewives and working (19 percent). Fifteen percent reported that they were students, and 1 percent were handicapped.

## 2.4 Household Environment

### Housing Characteristics

The physical characteristics of the household have an important bearing on environmental exposure to disease, as well as reflecting the household's economic condition. Respondents to the Household Questionnaire were asked about a number of questions about their housing situation, including type of dwelling, source of drinking water, type of toilet facilities, floor material, total number of rooms and number of rooms used for sleeping, type of cooking fuel, and type of salt used for cooking. Table 2.8 summarizes this information by residence.

[1] Status categories were the same as those used in the census.

Table 2.8 Housing characteristics

Percent distribution of households by selected housing characteristics, according to urban-rural residence, Yemen 1997

| Characteristic | Urban | Rural | Total |
|---|---|---|---|
| **Type of household** | | | |
| Single house | 74.6 | 87.1 | 84.0 |
| Apartment | 19.3 | 1.5 | 5.9 |
| Hut | 1.3 | 10.3 | 8.1 |
| Sandaka | 4.5 | 0.6 | 1.6 |
| Other | 0.3 | 0.4 | 0.4 |
| Missing | 0.0 | -- | – |
| Total | 100.0 | 100.0 | 100.0 |
| **Main floor material** | | | |
| Earth | 7.6 | 39.3 | 31.5 |
| Stone/Mud | 3.0 | 12.3 | 10.0 |
| Gypsum | 4.9 | 1.2 | 2.1 |
| Wood | 0.2 | 0.0 | 0.1 |
| Tile | 31.5 | 1.4 | 8.8 |
| Marble | 0.1 | -- | -- |
| Cement | 46.0 | 33.3 | 36.4 |
| Other materials | 0.0 | -- | -- |
| Hut, Sandaka, Other | 6.6 | 11.8 | 10.5 |
| Missing | 0.1 | 0.6 | 0.5 |
| Total | 100.0 | 100.0 | 100.0 |
| **Number of persons per room** | | | |
| <3 | 68.7 | 51.8 | 55.9 |
| 3-4 | 22.0 | 28.6 | 27.0 |
| 5-6 | 5.5 | 10.5 | 9.2 |
| 7 + | 3.8 | 8.9 | 7.6 |
| Missing /Don't know | 0.1 | 0.2 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 |
| Mean number of persons per room | 2.6 | 3.2 | 3.1 |
| **Persons per sleeping room** | | | |
| <3 | 39.2 | 29.5 | 31.9 |
| 3-4 | 40.5 | 38.0 | 38.6 |
| 5-6 | 13.3 | 17.7 | 16.6 |
| 7 + | 7.0 | 14.5 | 12.7 |
| Missing /Don't know | 0.1 | 0.3 | 0.3 |
| Mean number of persons per sleeping room | 3.5 | 4.2 | 4.0 |
| **Source of drinking water** | | | |
| Piped into residence | 66.3 | 19.2 | 30.8 |
| Piped outside | 2.5 | 7.8 | 6.4 |
| Artesian well | 4.3 | 13.1 | 11.0 |
| Well | 1.0 | 32.0 | 24.3 |
| Spring | 0.2 | 15.6 | 11.8 |
| Uncovered pond | 0.4 | 3.5 | 2.7 |
| Covered pond | 0.4 | 3.7 | 2.8 |
| Tanker truck | 7.8 | 4.2 | 5.1 |
| Bottled water | 14.6 | 0.1 | 3.7 |
| From the neighbors | 2.4 | 0.5 | 1.0 |
| Other | 0.1 | 0.3 | 0.3 |
| Missing | -- | 0.1 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 |
| **Time to water source** | | | |
| Water within 15 minutes | 85.5 | 40.5 | 51.7 |
| Median time to source | 0.0 | 14.9 | 9.8 |
| **Light** | | | |
| Government light | 85.2 | 14.9 | 32.3 |
| Cooperative light | 3.5 | 3.9 | 3.8 |
| Private light | 0.8 | 4.7 | 3.7 |
| Generator | 0.4 | 3.5 | 2.7 |
| Gas | 2.8 | 10.1 | 8.3 |
| Kerosene | 6.1 | 61.9 | 48.1 |
| No light | 1.2 | 0.7 | 0.8 |
| Other | 0.1 | 0.1 | 0.1 |
| Missing | 0.0 | -- | -- |
| Total | 100.0 | 100.0 | 100.0 |

| Characteristic | Urban | Rural | Total |
|---|---|---|---|
| **Farm animals in living area** | | | |
| No | 75.1 | 21.2 | 34.5 |
| Yes | 24.6 | 78.7 | 65.3 |
| Missing | 0.4 | 0.1 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 |
| **Type of toilet facility** | | | |
| Connected flush toilet | 36.4 | 1.4 | 10.0 |
| Disconnected F. toilet | 20.0 | 3.1 | 7.3 |
| Traditional pit | 8.5 | 22.0 | 18.6 |
| Improved pit | 26.7 | 16.7 | 19.2 |
| Uncovered toilet | 4.6 | 13.4 | 11.2 |
| In the nature | 3.5 | 43.3 | 33.4 |
| Other | 0.3 | 0.1 | 0.1 |
| Missing | 0.0 | 0.1 | – |
| Total | 100.0 | 100.0 | 100.0 |
| **Fuel for cooking**[1] | | | |
| Gas | 85.2 | 50.7 | 59.2 |
| Wood | 14.6 | 80.3 | 64.0 |
| Kerosene | 5.7 | 9.6 | 8.6 |
| Coal/Charcoal | 0.4 | 0.4 | 0.4 |
| Electricity | 0.2 | 0.1 | 0.1 |
| Cows dung | 0.1 | 3.1 | 2.4 |
| Other | 0.3 | 0.1 | 0.2 |
| **Type of Salt** | | | |
| Iodized salt | 69.6 | 29.0 | 39.0 |
| Non-iodized salt | 3.5 | 3.6 | 3.6 |
| Local salt/salt not analyzed | 26.5 | 67.1 | 57.1 |
| Missing | 0.4 | 0.2 | 0.3 |
| Total | 100.0 | 100.0 | 100.0 |
| **Garbage disposal** | | | |
| Garbage collector | 6.9 | 0.9 | 2.4 |
| Dumped in special place | 65.0 | 15.4 | 27.7 |
| Burned | 2.0 | 4.6 | 3.9 |
| Thrown in street | 26.0 | 79.0 | 65.9 |
| Other | 0.1 | -- | -- |
| Missing | 0.1 | 0.1 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 |
| **Household possessions** | | | |
| Radio/cassette recorder | 66.3 | 45.9 | 51.0 |
| Radio | 26.1 | 25.7 | 25.8 |
| Any radio | 73.1 | 57.1 | 61.1 |
| Black & White television | 34.3 | 20.1 | 23.6 |
| Color television | 58.4 | 11.3 | 23.0 |
| Any television | 83.4 | 29.2 | 42.6 |
| Video | 17.0 | 1.5 | 5.3 |
| Refrigerator | 56.2 | 7.7 | 19.7 |
| Gas, electric range | 82.4 | 43.0 | 52.7 |
| Water heater | 23.2 | 2.6 | 7.7 |
| Sewing machine | 30.3 | 10.1 | 15.1 |
| Electric fan | 38.3 | 4.6 | 12.9 |
| Washing machine | 51.3 | 4.4 | 16.0 |
| Telephone | 26.2 | 1.3 | 7.5 |
| Air conditioner | 11.1 | 0.3 | 2.9 |
| Vacuum cleaner | 20.5 | 1.4 | 6.1 |
| Blender | 45.7 | 5.0 | 15.0 |
| Bicycle | 11.4 | 2.0 | 4.3 |
| Motorcycle | 3.3 | 1.5 | 2.0 |
| Private Car | 20.7 | 10.2 | 12.8 |
| Taxi | 5.7 | 3.1 | 3.7 |
| Satellite dish | 14.1 | 0.5 | 3.9 |
| Number of households | 2,645 | 8,056 | 10,701 |

-- Less than 0.05 percent
[1] multiple answers allowed

*Type of dwelling:* The majority of Yemenis live in separate houses (84 percent). There are more singles homes in rural areas than in urban areas (87 percent and 75 percent, respectively). Huts are second with only 8 percent, followed by apartments with 6 percent. As expected, the majority of huts are found in rural areas (10 percent), and most apartments are in cities (19 percent).

*Floor of dwelling*: More than 36 percent of households live in dwellings with cement floors, 42 percent have earth or mud/stone floors; only 9 percent of households are in dwellings with tile floors. There are substantial differences in the flooring materials in urban and rural areas. Among urban households, 32 percent have a tile floor compared with 1 percent of rural households. Conversely, 51 percent of rural households live in dwellings that have earth or mud/stone floors compared with only 11 percent of urban households.

*Measure of crowding*: Information on the number of persons per sleeping room was collected in the 97 YDMCHS in order to provide a measure of crowding. Table 2.8 shows that 32 percent of households have one or two persons per sleeping room, and 39 percent have three to four persons per sleeping room. The mean is 4.0 persons per sleeping room. Rural households are more crowded than urban households. The mean number of persons per sleeping room in rural areas is 4.2 compared with 3.5 in urban areas. The average number of persons per room (3.1) is lower than the average number of persons per sleeping room (4.0).

Crowding is further exacerbated by the presence of animals in the living quarters at night. Sixty-five percent of households keep farm animals in their living area. In rural areas, the proportion exceeds three-quarters (79 percent) compared with one-quarter (25 percent) in urban areas.

*Fuel used for cooking*: Overall, the majority of households (64 percent) use wood as a fuel for cooking, followed by gas as the second most common source of fuel (59 percent). Gas is used by 85 percent of urban households compared with 51 percent of rural households. Conversely, 80 percent of rural households use wood compared with 15 percent of urban areas. Other limited sources of fuel for cooking are kerosene (9 percent), and cow dung (2 percent).

*Source of lighting*: The percentage of households supplied with electricity is about 43 percent of all households. As expected, electricity is more available in urban areas than in rural areas. Nine in ten urban households use electricity for lighting, compared with less than three in ten rural households. The majority of households in rural areas use kerosene lamps for lighting (62 percent).

*Sources of drinking water*: In Yemen, 37 percent of households have access to piped water, mainly within their dwelling (31 percent). The other main sources of drinking water are wells (24 percent), spring water (12 percent) and artesian wells (11 percent).

The survey data for urban areas indicate that about seven in ten households are connected to the public water supply; in 1991-92, this figure was almost nine in ten households. The proportion has fallen during the last few years due, probably, to housing expansion, which has outstripped expansion of the water supply network.

In rural areas, however, wells are a common source for drinking water. Nearly half of rural households (45 percent) get their water from wells. The majority of these households have wells without pumps (32 percent). Springs are the source of drinking water for 16 percent of rural households.

Table 2.8 also shows that about 52 percent of all households can get water within 15 minutes. About 86 percent of urban households obtain water within 15 minutes, compared with only 41 percent of rural households. Overall, the median time to obtain drinking water is 10 minutes.

*Sanitation system*: Only 17 percent of Yemeni households have a modern flush toilet; almost half of households have traditional pit toilets or latrines. One-third of households have no toilet facilities. There are differences in types of toilet facilities available to households by urban-rural residence. More than half of households in urban areas (56 percent) have a flush toilet, and 40 percent have a pit or latrine. Only 4 percent of urban households have no toilet facilities. In comparison, less than 5 percent of rural households have a flush toilet, 52 percent have a pit or latrine, and 43 percent report no toilet facilities.

*Garbage disposal*: Table 2.8 indicates that about two-thirds of Yemeni households (66 percent) dispose of garbage by throwing it in the street, and 28 percent dump it in a special place. Four percent of households burn their garbage, and 2 percent give it to the garbage collector. A majority of urban households (65 percent) dispose of their garbage in garbage containers, and 26 percent throw it in the street. In rural areas, eight of ten households dispose of their garbage by throwing it in the street. This represents a slight decrease from the 1991-92 survey, where nine of ten households threw garbage in the street.

*Iodine used in food salt*: The type of salt used for cooking is included in the Yemen survey in order to assess the presence or absence of iodine in the diet, which has health implication. Interviewers were provided with a special solution to confirm the presence or absence of iodine in the salt. Table 2.8 shows that only 39 percent of households use iodized salt. Looking at the patterns by urban-rural residence, it is clear that urban households (70 percent) use more iodized salt than rural households (29 percent). The table also shows that 57 percent of all households use local salt (not analyzed). This kind of salt is used primarily in rural areas (67 percent); only 27 percent of urban households use local salt. Local salt is commonly used in rural areas because it is low in cost and easily available.

**Household Possessions**

Table 2.8 also provides information on household ownership of durable goods and other possessions. With regard to durable goods, more than four in ten households (43 percent) in Yemen own a television (color or black white), more than six in ten households (61 percent) own a radio (radio or radio with cassette recorder), more than one in two households (53 percent) own a stove, two in ten (20 percent) own a refrigerator, and more than one in seven own a washing machine, a blender, or a sewing machine. Possession of other durable goods varies from 2 percent for a motorcycle to 13 percent for an electric fan. Urban households are more likely to have the convenience of these items than rural households. For example, 56 percent of households in urban areas own a refrigerator compared with 8 percent in rural areas. Similarly, 82 percent of urban households own a cooking stove compared with 43 percent of households in rural areas.

Table 2.8 also includes information on household ownership of a means of transportation. Almost 17 percent of households own a private car or a taxi, and 2 percent own a motorcycle.

## 2.5 Background Characteristics of Respondents

**General Characteristics**

Table 2.9 presents the distribution of the 10,414 respondents to the individual questionnaire by various background characteristics including age, marital status, urban-rural residence, region and education level. As noted in Chapter 1, ever-married women age 15-49 who were usual residents were eligible to be interviewed in the 1997 YDMCHS. Among the ever-married women in the sample, 94 percent are currently married, 3 percent are widowed, and 3 percent are divorced. In addition, three-fourth of the respondents live in rural areas.

Table 2.9 Background characteristics of respondents

Percent distribution of ever-married women and currently married women by selected background characteristics, Yemen 1997

| Background characteristic | Ever-married | | | Currently married | | |
|---|---|---|---|---|---|---|
| | Weighted percent | Weighted | Un-weighted | Weighted percent | Weighted | Un-weighted |
| **Age** | | | | | | |
| 15-19 | 10.7 | 1,110 | 1,082 | 10.9 | 1,063 | 1,028 |
| 20-24 | 19.1 | 1,992 | 1,931 | 19.4 | 1,902 | 1,843 |
| 25-29 | 18.7 | 1,943 | 1,964 | 19.0 | 1,855 | 1,862 |
| 30-34 | 16.1 | 1,680 | 1,701 | 16.2 | 1,585 | 1,596 |
| 35-39 | 17.0 | 1,766 | 1,778 | 16.7 | 1,637 | 1,654 |
| 40-44 | 10.5 | 1,091 | 1,101 | 10.2 | 999 | 1,004 |
| 45-49 | 8.0 | 833 | 857 | 7.6 | 746 | 763 |
| **Marital status** | | | | | | |
| Married | 94.0 | 9,786 | 9,750 | 100 | 9,786 | 9,750 |
| Widowed | 2.7 | 284 | 288 | NA | NA | NA |
| Divorced | 2.9 | 307 | 337 | NA | NA | NA |
| Separated | 0.4 | 37 | 39 | NA | NA | NA |
| **Residence** | | | | | | |
| Urban | 25.2 | 2,620 | 2,945 | 24.8 | 2,427 | 2,718 |
| Rural | 74.8 | 7,794 | 7,469 | 75.2 | 7,359 | 7,032 |
| **Region** | | | | | | |
| Coastal | 22.9 | 2,381 | 2,490 | 22.8 | 2,226 | 2,307 |
| Mountainous | 30.0 | 3,125 | 2,897 | 30.2 | 2,952 | 2,735 |
| Plateau and Desert | 47.1 | 4,908 | 5,027 | 47.1 | 4,608 | 4,708 |
| **Education** | | | | | | |
| Illiterate | 84.2 | 8,765 | 8,524 | 84.3 | 8,248 | 7,991 |
| Literate | 5.5 | 571 | 623 | 5.4 | 528 | 577 |
| Primary complete | 6.1 | 638 | 709 | 6.1 | 595 | 657 |
| Preparatory complete | 1.9 | 198 | 243 | 1.9 | 185 | 226 |
| Secondary + | 2.3 | 241 | 315 | 2.4 | 230.0 | 299 |
| **Currently attending school** | | | | | | |
| Yes | 1.0 | 103 | 107 | 0.9 | 93.0 | 95 |
| No | 99 | 10,307 | 10,304 | 99 | 9,690 | 9,652 |
| Missing | -- | 3.0 | 3.0 | -- | 3.0 | 3 |
| Total | 100.0 | 10,414 | 10,414 | 100.0 | 9,786 | 9,750 |

NA = Not applicable
-- Less than 0.05 percent

Looking at the age distribution in Table 2.9, almost half of the 1997 YDMCHS respondents are under age 30 and around one-fifth are age 40 and over. The percentage of women in the age group 15-19 is smaller than that in 20-24 age group. This is due to the fact that only ever-married women were interviewed, and there has been a trend toward delayed marriage among Yemeni women age 15-19.

With regard to education, the majority of respondents are illiterate (84 percent); however, this is down from the 1991-92 survey when 89 percent were illiterate. The proportion of women who can read and write has increased to about 6 percent compared with about 1 percent in 1991-92. The percentage of women who have completed primary education or higher is only 10 percent; among them 2 percent have completed secondary education or higher. Among ever-married women, 1 percent were attending school at the time of the survey.

## Differentials in Education

Table 2.10 shows the percent distribution of respondents by the highest level of education attained, according to age, residence, and region. As expected, the level of education decreases with increasing age of the respondent. For example, the percentage of women age 15-19 who have completed at least primary school is more than twice the percentage among women age 30-34 (19 percent and 9 percent, respectively).

Table 2.10 Respondents level of education by background characteristics

Percent distribution of ever-married women by the highest level of education completed, according to selected background characteristics, Yemen 1997

| Background characteristic | Level of education | | | | | Total | Number of women |
|---|---|---|---|---|---|---|---|
| | Illiterate | Literate | Primary | Preparatory | Secondary+ | | |
| **Age** | | | | | | | |
| 15-19 | 70.7 | 10.0 | 13.1 | 4.4 | 1.8 | 100.0 | 1,110 |
| 20-24 | 73.7 | 8.0 | 11.4 | 3.7 | 3.1 | 100.0 | 1,992 |
| 25-29 | 82.4 | 6.3 | 6.6 | 1.3 | 3.4 | 100.0 | 1,943 |
| 30-34 | 86.5 | 4.7 | 5.0 | 1.4 | 2.5 | 100.0 | 1,680 |
| 35-39 | 91.3 | 3.4 | 2.5 | 1.0 | 1.8 | 100.0 | 1,766 |
| 40-44 | 94.9 | 2.5 | 0.7 | 0.5 | 1.4 | 100.0 | 1,091 |
| 45-49 | 97.2 | 1.5 | 0.3 | 0.5 | 0.5 | 100.0 | 833 |
| **Residence** | | | | | | | |
| Urban | 63.7 | 9.6 | 13.7 | 5.3 | 7.7 | 100.0 | 2,620 |
| Rural | 91.0 | 4.1 | 3.6 | 0.8 | 0.5 | 100.0 | 7,794 |
| **Region** | | | | | | | |
| Coastal | 76.3 | 5.9 | 10.4 | 2.6 | 4.8 | 100.0 | 2,381 |
| Mountainous | 93.5 | 2.9 | 2.5 | 0.9 | 0.3 | 100.0 | 3,125 |
| Plateau and Desert | 82.1 | 7.0 | 6.4 | 2.2 | 2.4 | 100.0 | 4,908 |
| Total | 84.2 | 5.5 | 6.1 | 1.9 | 2.3 | 100.0 | 10,414 |

Women in urban areas are more educated than those in rural areas. The proportion of urban women who have completed at least secondary school is 8 percent compared with less than 1 percent among women in rural areas. Educational levels are lowest among women from the Mountainous region, where nearly 94 percent of women are illiterate. The highest levels are found in the Coastal region, where 76 percent of women are illiterate.

## Reasons for Leaving School

Women age 15 to 24 years who had attended school but were not currently attending were asked in the YDMCHS why they had stopped attending school. One of the most important determinants of a woman's social and economic status is her level of education. Knowledge of the reasons why women leave school can provide guidance for policies designed to enhance women's status.

Table 2.11 shows the percent distribution of ever-married women age 15-24 years by whether they are currently attending school and, if not, their reasons for leaving school, according to highest level of education attended.

Table 2.11 School attendance and reasons for leaving school

Percent distribution of women 15 to 24 by current school enrollment and percent distribution of women not currently attending school by reason for leaving school, according to highest level of education attended and residence, Yemen 1997

| School attendance/ Reason for not attending school | Incomplete primary | Complete primary | More than primary | Total |
|---|---|---|---|---|
| URBAN | | | | |
| **Currently attending school** | | | | |
| Yes | 2.7 | 0.7 | 17.1 | 9.2 |
| No | 97.3 | 99.3 | 82.9 | 90.8 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| **Reason not attending school** | | | | |
| Got pregnant | 1.2 | 0.0 | 4.3 | 2.3 |
| Got married | 20.6 | 38.3 | 39.2 | 32.8 |
| Take care of children | 2.4 | 4.9 | 3.4 | 3.4 |
| Family need help | 8.6 | 7.4 | 2.0 | 5.4 |
| Could not pay school | 4.1 | 3.3 | 4.9 | 4.3 |
| Need to earn money | 0.6 | 0.3 | 0.4 | 0.4 |
| Graduated/Enough school | 12.5 | 9.5 | 27.1 | 18.2 |
| Did not like school | 22.3 | 11.7 | 7.2 | 13.3 |
| School not accessible | 4.9 | 5.1 | 2.9 | 4.1 |
| Parents refused | 12.6 | 14.7 | 4.9 | 9.7 |
| Other | 8.7 | 4.1 | 3.5 | 5.4 |
| Don't know/Missing | 1.4 | 0.6 | 0.3 | 0.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Number | 143 | 95 | 187 | 424 |
| RURAL | | | | |
| **Currently Attending School** | | | | |
| Yes | 2.6 | 1.9 | 20.4 | 6.8 |
| No | 97.4 | 98.1 | 79.6 | 93.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| **Reason not attending school** | | | | |
| Got pregnant | 0.2 | 0.0 | 0.0 | 0.1 |
| Got married | 17.3 | 34.4 | 41.3 | 25.7 |
| Take care of children | 2.7 | 1.5 | 2.2 | 2.4 |
| Family need help | 15.4 | 14.7 | 2.5 | 12.6 |
| Could not pay school | 4.3 | 2.9 | 2.3 | 3.6 |
| Need to earn money | 0.0 | 0.7 | 1.8 | 0.5 |
| Graduated/Enough school | 9.2 | 11.9 | 26.0 | 13.2 |
| Did not like school | 16.8 | 6.2 | 4.5 | 12.1 |
| School not accessible | 15.4 | 12.5 | 7.5 | 13.2 |
| Parents refused | 9.7 | 9.5 | 6.3 | 9.0 |
| Other | 5.8 | 4.6 | 5.5 | 5.5 |
| Don't know/Missing | 3.1 | 1.1 | 0.0 | 2.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Number | 326 | 111 | 114 | 551 |
| TOTAL | | | | |
| **Currently attending school** | | | | |
| Yes | 2.6 | 1.4 | 18.4 | 7.9 |
| No | 97.4 | 98.6 | 81.6 | 92.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| **Reason not attending school** | | | | |
| Got pregnant | 0.5 | 0.0 | 2.7 | 1.1 |
| Got married | 18.3 | 36.2 | 40.0 | 28.8 |
| Take care of children | 2.7 | 3.0 | 3.0 | 2.8 |
| Family need help | 13.3 | 11.3 | 2.2 | 9.5 |
| Could not pay school | 4.2 | 3.1 | 3.9 | 3.9 |
| Need to earn money | 0.2 | 0.5 | 0.9 | 0.5 |
| Graduated/Enough school | 10.2 | 10.8 | 26.7 | 15.4 |
| Did not like school | 18.5 | 8.8 | 6.2 | 12.6 |
| School not accessible | 12.2 | 9.1 | 4.6 | 9.2 |
| Parents refused | 10.6 | 11.9 | 5.4 | 9.3 |
| Other | 6.7 | 4.3 | 4.3 | 5.4 |
| Don't know/Missing | 2.6 | 0.8 | 0.2 | 1.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Number | 468 | 206 | 301 | 975 |

Only a small proportion of the respondents age 15-24 years (8 percent) who have attended school are continuing their education. The proportion currently attending school is highest among those who have more than primary education.

Three in ten women (29 percent) who were currently not in school reported that they left because they got married. The proportion mentioning this reason is higher among those who had completed at least primary school than those who had not. Fifteen percent of women who dropped out of school reported that they left because they graduated or had had enough school, while 13 percent cited a dislike for school. The other important reasons for stopping school attendance were "family needed help" (10 percent), "school not accessible" (9 percent), and "parents refused that their daughter continues going to school" (9 percent).

## 2.6 Access to Mass Media

Table 2.12 shows the percentage of respondents exposed to different types of mass media by age, residence, and level of education. It is important to know which persons are more/less likely to be reached by the media for purposes of planning programs intended to spread information about health and family planning. Ten percent of women read newspapers or magazines at least once a week, 34 percent watch local television at least once a week, and 31 percent listen to the local radio at least once a week. Less than 5 percent of women have access (at least once a week) to all three media. More than half of the respondents (51 percent) have no access to mass media.

Table 2.12 Access to mass media

Percentage of ever-married women who usually read a newspaper once a week, watch local television, or listen to local radio, by selected background characteristics, Yemen 1997

| Background characteristic | No mass media | Read newspaper weekly | Watch local television | Listen to local radio | All three media | Number of women |
|---|---|---|---|---|---|---|
| **Age** | | | | | | |
| 15-19 | 43.6 | 18.3 | 35.2 | 40.0 | 8.2 | 1,110 |
| 20-24 | 44.5 | 16.4 | 36.4 | 36.8 | 8.0 | 1,992 |
| 25-29 | 51.6 | 11.5 | 32.2 | 31.6 | 5.2 | 1,943 |
| 30-34 | 53.6 | 8.8 | 32.3 | 29.4 | 3.5 | 1,680 |
| 35-39 | 52.2 | 6.0 | 34.6 | 27.6 | 2.1 | 1,766 |
| 40-44 | 56.1 | 3.7 | 32.8 | 24.2 | 1.4 | 1,091 |
| 45-49 | 58.1 | 1.7 | 30.3 | 25.6 | 0.8 | 833 |
| **Residence** | | | | | | |
| Urban | 16.9 | 25.6 | 73.5 | 44.3 | 12.6 | 2,620 |
| Rural | 62.2 | 5.0 | 20.2 | 26.8 | 1.8 | 7,794 |
| **Region** | | | | | | |
| Coastal | 49.9 | 13.2 | 37.0 | 24.2 | 3.8 | 2,381 |
| Mountainous | 64.0 | 3.6 | 16.9 | 28.7 | 1.2 | 3,125 |
| Plateau and Desert | 42.8 | 12.9 | 42.7 | 36.2 | 6.9 | 4,908 |
| **Education** | | | | | | |
| Illiterate | 57.9 | 1.2 | 27.7 | 27.4 | 0.4 | 8,765 |
| Literate | 17.0 | 46.9 | 61.5 | 51.9 | 21.4 | 571 |
| Primary complete | 14.5 | 55.8 | 64.2 | 51.8 | 26.7 | 638 |
| Preparatory complete | 4.2 | 75.8 | 71.4 | 54.9 | 31.0 | 198 |
| Secondary + | 8.8 | 75.1 | 70.6 | 46.9 | 32.6 | 241 |
| Total | 50.8 | 10.2 | 33.6 | 31.2 | 4.5 | 10,414 |

As expected, access to all three mass media is higher for women in urban areas than in rural areas. Access to at least one type of mass media is 83 percent for women in urban areas, compared with 38 percent in rural areas. Printed material and television are less accessible to people in rural areas because of lower education levels and limited electrification. Young women under 25 years of age and those who are literate or educated are more likely to read newspapers, watch television, and listen to the radio than other women. Women in the Plateau and Desert region are more exposed to media than women in the other two regions. For example, 43 percent of women in the Plateau and Desert region say they watch television once a week, compared with 37 percent of women in the Coastal region and 17 percent of women in the Mountainous region.

## 2.7 Women's Employment Status

The YDMCHS collected information from women regarding their employment, including their current work status, whether they had worked before marriage or after marriage, and whether they had worked during the year before the survey. Women who were currently working were then asked a number of questions about the kind of work they were doing and whether they were paid in cash or not. Those who earned cash for their work were asked who made the decision about how their earnings were used. If they had small children, they were asked about the arrangements they had for child care when they were working.

Table 2.13 shows that less than 7 percent of respondents worked before marriage, less than 7 percent worked after marriage, and one-fourth (26 percent) worked before and after marriage. The majority of women (61 percent), however, never worked. A high percentage of women employed before and after marriage is found in rural areas (31 percent), in the Mountainous region (32 percent), and among women who are illiterate (28 percent). This is due to the participation of these women in agricultural work. A high proportion of women with secondary education or higher (32 percent) also reported working before and after marriage.

Table 2.13 Respondents' work status

Percent distribution of ever-married women by work status in relation to marriage, by background characteristics, Yemen 1997

| Background characteristic | Work status and marriage | | | | | Total | Number of women |
|---|---|---|---|---|---|---|---|
| | Worked before marriage | Worked before and after marriage | Worked after marriage | Never worked | Other | | |
| **Residence** | | | | | | | |
| Urban | 7.5 | 10.3 | 5.2 | 76.8 | 0.2 | 100.0 | 2,620 |
| Rural | 6.4 | 30.9 | 7.1 | 55.3 | 0.3 | 100.0 | 7,794 |
| **Region** | | | | | | | |
| Coastal | 6.3 | 12.4 | 6.2 | 74.8 | 0.2 | 100.0 | 2,381 |
| Mountainous | 6.1 | 32.8 | 7.0 | 53.7 | 0.4 | 100.0 | 3,125 |
| Plateau and Desert | 7.2 | 27.7 | 6.6 | 58.3 | 0.2 | 100.0 | 4,908 |
| **Education** | | | | | | | |
| Illiterate | 6.8 | 27.8 | 6.5 | 58.5 | 0.3 | 100.0 | 8,765 |
| Literate | 6.8 | 12.1 | 5.3 | 75.5 | 0.4 | 100.0 | 571 |
| Primary complete | 4.6 | 10.1 | 4.2 | 81.0 | 0.1 | 100.0 | 638 |
| Preparatory complete | 6.9 | 14.8 | 8.1 | 70.2 | 0.0 | 100.0 | 198 |
| Secondary + | 5.7 | 31.6 | 19.1 | 43.5 | 0.0 | 100.0 | 241 |
| Total | 6.7 | 25.7 | 6.6 | 60.7 | 0.2 | 100.0 | 10,414 |

## Current Employment

Table 2.14 presents the percent distribution of respondents according to current and past employment. For those respondents who were currently working, the table provides information on whether the woman was working full-time or not. Overall, 29 percent of women were engaged in some economic activity. Most women who were not working at the time of the survey did not report recent work experience; only 1 percent of respondents said that they had worked in the 12-month period before the survey. One-third of the women (11 percent) who were working reported that they were employed full-time (five or more days per week).

Table 2.14 Employment

Percent distribution of women by employment status and continuity of employment, according to selected background characteristics, Yemen 1997

| Background characteristic | Not currently employed | | Currently employed | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Did not work in last 12 months | Worked in last 12 months | All year | | | | Missing | Total | Number of women |
| | | | 5+ days per week | <5 days per week | Season-ally | Occasion-ally | | | |
| **Age** | | | | | | | | | |
| 15-19 | 73.8 | 1.5 | 7.8 | 1.2 | 14.3 | 1.3 | 0.0 | 100.0 | 1,110 |
| 20-24 | 75.9 | 0.9 | 8.6 | 0.5 | 12.7 | 1.4 | 0.0 | 100.0 | 1,992 |
| 25-29 | 73.4 | 0.7 | 10.4 | 0.8 | 13.3 | 1.3 | 0.1 | 100.0 | 1,943 |
| 30-34 | 70.4 | 1.1 | 11.3 | 0.7 | 14.3 | 2.1 | 0.1 | 100.0 | 1,680 |
| 35-39 | 68.2 | 0.5 | 11.6 | 0.5 | 17.2 | 2.0 | 0.0 | 100.0 | 1,766 |
| 40-44 | 61.8 | 0.9 | 14.3 | 1.0 | 19.6 | 2.3 | 0.1 | 100.0 | 1,091 |
| 45-49 | 63.1 | 1.1 | 14.0 | 0.4 | 20.1 | 1.2 | 0.1 | 100.0 | 833 |
| **Residence** | | | | | | | | | |
| Urban | 89.8 | 0.7 | 6.4 | 0.2 | 1.4 | 1.4 | 0.1 | 100.0 | 2,620 |
| Rural | 64.1 | 1.0 | 12.3 | 0.9 | 20.0 | 1.8 | -- | 100.0 | 7,794 |
| **Region** | | | | | | | | | |
| Coastal | 82.7 | 0.9 | 7.7 | 0.5 | 7.2 | 0.9 | 0.1 | 100.0 | 2,381 |
| Mountainous | 62.0 | 0.7 | 12.2 | 0.5 | 23.5 | 1.1 | 0.0 | 100.0 | 3,125 |
| Plateau and Desert | 70.0 | 1.1 | 11.4 | 0.9 | 14.0 | 2.4 | 0.1 | 100.0 | 4,908 |
| **Education** | | | | | | | | | |
| Illiterate | 68.7 | 1.0 | 10.9 | 0.7 | 17.0 | 1.8 | 0.0 | 100.0 | 8,765 |
| Literate | 85.1 | 1.0 | 3.9 | 0.1 | 7.5 | 2.4 | 0.0 | 100.0 | 571 |
| Primary complete | 87.2 | 0.2 | 5.1 | 0.4 | 6.1 | 0.9 | 0.1 | 100.0 | 638 |
| Preparatory complete | 78.7 | 0.6 | 13.7 | 0.6 | 5.9 | 0.0 | 0.4 | 100.0 | 198 |
| Secondary+ | 52.6 | 0.8 | 38.6 | 1.0 | 5.8 | 1.0 | 0.2 | 100.0 | 241 |
| Total | 70.5 | 0.9 | 10.8 | 0.7 | 15.3 | 1.7 | -- | 100.0 | 10,414 |

-- Less than 0.05 percent

As Table 2.14 shows, women in the 40-49 age group are more likely to be currently employed than younger women. As seen in other countries (El-Zanaty et al., 1996), the comparatively small proportion of working young women may be related to their greater child care responsibilities. The majority of women who work seasonally live in rural areas (20 percent compared with only 1 percent in urban areas). Regional

differences show that women in the Mountainous region are by far the most likely to be working (37 percent). This is due to the extensive farming activities in this part of the country. In terms of education, illiterate women and highly educated women are the most likely to be employed: 30 percent of women who are illiterate and 47 percent of women who completed secondary or higher are currently working.

### Employer and Form of Earnings

According to Table 2.15, more than two-thirds (68 percent) of employed women age 15-49 work for a relative, and almost all do not earn cash (67 percent). Twenty percent of women are self-employed, only one-fourth of whom earn cash and three-fourths of whom do not. Twelve percent of women are employed by nonrelatives, and the majority earn cash (9 percent).

Table 2.15 Employer and form of earnings

Percent distribution of employed women by employer and whether or not they receive cash earnings, according to selected background characteristics, Yemen 1997

| Background characteristic | Self-employed | | Employed by a nonrelative | | Employed by a relative | | Missing | Total | Number of women |
|---|---|---|---|---|---|---|---|---|---|
| | Earns cash | Does not earn cash | Earns cash | Does not earn cash | Earns cash | Does not earn cash | | | |
| **Age** | | | | | | | | | |
| 15-19 | 2.2 | 7.9 | 2.9 | 2.8 | 1.5 | 82.8 | 0.0 | 100.0 | 274 |
| 20-24 | 4.5 | 8.6 | 7.8 | 1.8 | 0.7 | 76.7 | 0.0 | 100.0 | 461 |
| 25-29 | 3.7 | 15.7 | 11.7 | 4.4 | 1.1 | 63.4 | 0.0 | 100.0 | 503 |
| 30-34 | 6.1 | 16.9 | 13.2 | 2.2 | 0.7 | 61.0 | 0.0 | 100.0 | 479 |
| 35-39 | 6.0 | 20.1 | 9.0 | 2.5 | 1.5 | 60.7 | 0.2 | 100.0 | 552 |
| 40-44 | 6.1 | 14.1 | 10.2 | 2.5 | 1.1 | 66.0 | 0.0 | 100.0 | 406 |
| 45-49 | 3.4 | 19.9 | 8.0 | 4.0 | 0.4 | 64.4 | 0.0 | 100.0 | 298 |
| **Residence** | | | | | | | | | |
| Urban | 23.7 | 3.5 | 62.9 | 0.6 | 0.0 | 9.4 | 0.0 | 100.0 | 250 |
| Rural | 3.1 | 16.2 | 4.5 | 3.0 | 1.1 | 72.1 | -- | 100.0 | 2,722 |
| **Region** | | | | | | | | | |
| Coastal | 8.2 | 7.5 | 40.7 | 7.0 | 1.5 | 35.0 | 0.0 | 100.0 | 391 |
| Mountainous | 2.2 | 22.4 | 2.6 | 2.9 | 0.8 | 69.2 | 0.0 | 100.0 | 1,166 |
| Plateau and Desert | 6.0 | 11.2 | 6.4 | 1.7 | 1.0 | 73.7 | 0.1 | 100.0 | 1,416 |
| **Education** | | | | | | | | | |
| Illiterate | 3.9 | 15.8 | 5.0 | 3.2 | 0.9 | 71.2 | 0.0 | 100.0 | 2,659 |
| Literate | 27.1 | 14.6 | 3.4 | 0.0 | 2.4 | 52.6 | 0.0 | 100.0 | 79 |
| Primary complete | 14.1 | 13.1 | 16.3 | 0.0 | 0.8 | 54.2 | 1.3 | 100.0 | 80 |
| Preparatory complete | 1.7 | 5.9 | 72.7 | 0.0 | 0.0 | 19.6 | 0.0 | 100.0 | 41 |
| Secondary+ | 3.4 | 3.1 | 90.4 | 0.0 | 3.2 | 0.0 | 0.0 | 100.0 | 112 |
| Total | 4.8 | 15.1 | 9.4 | 2.8 | 1.0 | 66.8 | 0.0 | 100.0 | 2,972 |

-- Less than 0.05 percent

Urban women who work are less likely to work for relatives and more likely to be paid in cash than are rural women. Working women in the Mountainous region are more likely to be self-employed (25 percent) than women in the two other regions (16-17 percent), and women in the Coastal region are more likely to earn cash for their work. More than 90 percent of employed women with secondary education or higher work for nonrelatives compared with 8 percent of illiterate women who are working.

## Occupation

Table 2.16 gives the percent distribution of women age 15-49 who are employed by current occupation and the type of agricultural land worked, according to background characteristics. Most employed women (83 percent) are occupied in agriculture, almost nine in ten of whom work on family land or their own land. Only 17 percent of working women have non-agricultural jobs and more than half of these women are engaged in professional, technical and clerical occupations or in sales and services.

Table 2.16 Occupation

Percent distribution of currently employed women by current occupation and agricultural land worked, according to background characteristics, occupation codes may need some rearrangement depending on the cso definition of the categories of occupation, Yemen 1997

| | Agricultural | | | Nonagricultural | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Background characteristic | Family/ own land | Rented land | Other's land | Prof. tech./ manag. | Sales/ services | Skilled manual | Unskilled manual | Missing | Total | Number of women |
| **Age** | | | | | | | | | | |
| 15-19 | 78.2 | 4.8 | 5.6 | 1.2 | 2.3 | 6.1 | 1.8 | 0.0 | 100.0 | 274 |
| 20-24 | 75.6 | 3.6 | 4.7 | 6.1 | 4.4 | 4.1 | 1.3 | 0.0 | 100.0 | 461 |
| 25-29 | 67.8 | 5.9 | 7.2 | 7.2 | 5.6 | 5.2 | 1.2 | 0.0 | 100.0 | 503 |
| 30-34 | 68.0 | 4.0 | 8.5 | 5.9 | 5.8 | 5.4 | 2.5 | 0.0 | 100.0 | 479 |
| 35-39 | 68.9 | 4.3 | 6.9 | 6.0 | 6.1 | 5.0 | 2.5 | 0.3 | 100.0 | 552 |
| 40-44 | 72.0 | 3.5 | 7.4 | 3.5 | 4.4 | 5.1 | 3.9 | 0.2 | 100.0 | 406 |
| 45-49 | 70.0 | 6.4 | 8.3 | 2.1 | 4.2 | 6.4 | 2.7 | 0.0 | 100.0 | 298 |
| **Residence** | | | | | | | | | | |
| Urban | 8.8 | 1.1 | 1.1 | 50.5 | 27.0 | 1.2 | 10.1 | 0.4 | 100.0 | 250 |
| Rural | 76.7 | 4.9 | 7.5 | 0.8 | 2.9 | 5.6 | 1.5 | 0.1 | 100.0 | 2,722 |
| **Region** | | | | | | | | | | |
| Coastal | 34.4 | 1.2 | 20.0 | 20.8 | 9.6 | 7.0 | 6.8 | 0.2 | 100.0 | 391 |
| Mountainous | 79.9 | 6.1 | 5.0 | 0.7 | 2.1 | 5.2 | 1.1 | 0.0 | 100.0 | 1,166 |
| Plateau and Desert | 73.7 | 4.2 | 5.0 | 4.2 | 6.0 | 4.8 | 2.0 | 0.1 | 100.0 | 1,416 |
| **Education** | | | | | | | | | | |
| Illiterate | 75.4 | 4.8 | 7.6 | 0.2 | 4.0 | 5.6 | 2.3 | 0.1 | 100.0 | 2,659 |
| Literate | 60.1 | 2.7 | 3.0 | 4.0 | 25.2 | 3.1 | 1.8 | 0.0 | 100.0 | 79 |
| Primary complete | 55.9 | 5.5 | 2.4 | 9.5 | 19.4 | 2.7 | 4.5 | 0.0 | 100.0 | 80 |
| Preparatory complete | 22.9 | 2.6 | 3.0 | 66.4 | 4.4 | 0.0 | 0.7 | 0.0 | 100.0 | 41 |
| Secondary + | 2.3 | 0.0 | 0.0 | 93.8 | 2.7 | 0.7 | 0.5 | 0.0 | 100.0 | 112 |
| Total | 71.0 | 4.6 | 7.0 | 5.0 | 4.9 | 5.2 | 2.2 | 0.1 | 100.0 | 2,972 |

As expected, employment in nonagricultural occupations is more common among women who live in urban areas and among those who have more formal education. More than four in ten women (44 percent) in the Coastal region work in nonagricultural activities compared with 9 percent of women in the Mountainous region and 17 percent of women in the Plateau and Desert region.

## Control of Earnings

Information on who decides how to use the cash earned by employed women can be used as a measure of the status of women, particularly of her independence in decisionmaking and control over

resources. Table 2.17 shows that almost half of the women who receive cash for work (46 percent) decide for themselves how to use the money, while 41 percent decide jointly with their partners how the earnings are used. Nine percent of women who earn cash decide jointly with someone other than their partner how to spend their money, and in only 4 percent of cases, women say that the decision as to how to use their earnings is made by their partner.

Table 2.17 Earnings

Percent distribution of women receiving cash earnings by person who decides on use of earnings, according to background characteristics, Yemen 1997

| Background characteristic | Person who decides how earnings will be used | | | | | Total | Number of women |
|---|---|---|---|---|---|---|---|
| | Self | Husband | Jointly with husband | Someone else | Jointly with someone else | | |
| **Age** | | | | | | | |
| 15-19 | * | * | * | * | * | 100.0 | 18 |
| 20-24 | 37.3 | 6.9 | 25.1 | 2.8 | 27.9 | 100.0 | 59 |
| 25-29 | 51.9 | 5.7 | 35.2 | 0.0 | 7.3 | 100.0 | 83 |
| 30-34 | 48.6 | 1.2 | 43.9 | 1.1 | 5.2 | 100.0 | 95 |
| 35-39 | 41.3 | 3.3 | 52.5 | 0.0 | 2.9 | 100.0 | 91 |
| 40-44 | 50.5 | 4.0 | 41.2 | 0.0 | 4.3 | 100.0 | 71 |
| 45-49 | (33.7) | (2.3) | (51.0) | (0.0) | (13.0) | 100.0 | 35 |
| **Residence** | | | | | | | |
| Urban | 48.5 | 2.2 | 38.2 | 0.0 | 11.1 | 100.0 | 216 |
| Rural | 42.9 | 5.3 | 43.4 | 1.8 | 6.5 | 100.0 | 236 |
| **Region** | | | | | | | |
| Coastal | 37.1 | 1.7 | 50.4 | 1.6 | 9.2 | 100.0 | 197 |
| Mountainous | 53.9 | 7.1 | 31.0 | 0.0 | 8.0 | 100.0 | 65 |
| Plateau and Desert | 51.4 | 5.0 | 34.5 | 0.6 | 8.5 | 100.0 | 190 |
| **Education** | | | | | | | |
| Illiterate | 46.4 | 4.1 | 41.4 | 1.2 | 6.9 | 100.0 | 261 |
| Literate | (53.2) | (0.0) | (29.1) | (0.0) | (17.7) | 100.0 | 26 |
| Primary complete | (61.6) | (4.8) | (28.0) | (0.0) | (5.5) | 100.0 | 25 |
| Preparatory complete | (34.9) | (2.6) | (34.4) | (0.0) | (28.1) | 100.0 | 30 |
| Secondary + | 41.1 | 4.2 | 47.4 | 1.0 | 6.4 | 100.0 | 109 |
| **Current marital status** | | | | | | | |
| Not married | 66.6 | NA | NA | 4.1 | 29.3 | 100.0 | 63 |
| Currently married | 42.1 | 4.5 | 47.6 | 0.4 | 5.4 | 100.0 | 389 |
| Total | 45.6 | 3.8 | 40.9 | 0.9 | 8.7 | 100.0 | 452 |

Note: Figures in parentheses are based on 25 to 49 women; an asterisk indicates that a figure is based on fewer than 25 women and has been suppressed.

Two-thirds of women who are widowed or divorced (67 percent) say they alone decide how to use their earnings. Among currently married women, 42 percent say that they make the decision, while 48 percent report that the decision is made jointly with their husband.

Urban women and those in the Mountainous region and the Plateau and Desert region are more likely to decide for themselves how to spend their earnings than rural women and women in other regions. With respect to education differentials, working women are more likely to decide jointly with their husband how to spend the money they earn if they have completed secondary school or higher than if they have less education.

**Child Care While Working**

Table 2.18 presents the distribution of employed women by whether they have a child under six years of age, and if so, the type of caretaker used by the mother while at work away of home. Sixty-nine percent of employed women have a child under six years of age, and 95 percent of these women work away from home. More than one-third of women (36 percent) use relatives other than the husband to look after their children while at work, while more than four in ten women leave their children in the care of another child, either female (30 percent) or male (13 percent). Seven percent of working mothers with pre-school age children look after their own children while working.

Working mothers in rural areas, those living outside the Coastal region, and those who are illiterate are more likely than other working mothers to say they leave their children with another child while at work. Use of other children as child care providers is also high among working mothers who are in agriculture.

Table 2.18 Child care while working

Percent distribution of currently employed women by whether they have a child under six years of age and percent distribution of employed mothers who have a child under six by person who cares for child while mother is at work, according to selected background characteristics, Yemen 1997

| Background characteristic | Employed women: No child < 6 | Employed women: One or more children < 6 | Percentage of employed women with children < 6 who work at home | Number of women | Child's caretaker while mother is at work away from home: Re-spon-dent | Husband | Other relatives | Neighbors/ friends | Servants/ hired help | Institu-tional care | Other female child | Other male child | Left at home alone | Not worked since last birth | Missing | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residence** | | | | | | | | | | | | | | | | |
| Urban | 36.4 | 63.6 | 20.2 | 250 | 11.8 | 5.9 | 39.8 | 3.9 | 6.0 | 7.9 | 13.4 | 7.9 | 3.0 | 0.4 | 0.0 | 100.0 |
| Rural | 30.6 | 69.4 | 3.5 | 2,722 | 7.1 | 1.6 | 36.2 | 3.3 | 0.0 | --- | 30.8 | 13.0 | 7.4 | 0.6 | 0.1 | 100.0 |
| **Region** | | | | | | | | | | | | | | | | |
| Coastal | 32.2 | 67.8 | 7.3 | 391 | 9.9 | 4.9 | 41.2 | 2.3 | 2.3 | 2.4 | 20.9 | 14.1 | 2.0 | 0.2 | 0.0 | 100.0 |
| Mountainous | 31.5 | 68.5 | 2.4 | 1,166 | 6.0 | 1.7 | 36.6 | 2.7 | 0.0 | 0.0 | 31.9 | 10.4 | 9.9 | 0.6 | 0.2 | 100.0 |
| Plateau and Desert | 30.4 | 69.6 | 6.1 | 1,416 | 7.8 | 1.3 | 35.0 | 4.2 | 0.2 | 0.5 | 30.1 | 14.2 | 6.1 | 0.6 | 0.0 | 100.0 |
| **Education** | | | | | | | | | | | | | | | | |
| Illiterate | 30.6 | 69.4 | 4.0 | 2,659 | 7.5 | 1.7 | 34.2 | 3.4 | 0.0 | --- | 31.5 | 13.5 | 7.5 | 0.6 | 0.1 | 100.0 |
| Literate | 39.4 | 60.6 | 35.7 | 79 | 0.0 | 0.0 | 62.5 | 0.0 | 1.6 | --- | 19.8 | 12.6 | 3.5 | 0.0 | 0.0 | 100.0 |
| Primary complete | 40.3 | 59.7 | 14.7 | 80 | 12.9 | 6.2 | 56.2 | 0.0 | 0.0 | 2.0 | 16.6 | 3.7 | 2.4 | 0.0 | 0.0 | 100.0 |
| Preparatory complete | 37.6 | 62.4 | 0.0 | 41 | 4.8 | 0.0 | 70.3 | 8.0 | 0.0 | 4.5 | 5.5 | 2.5 | 4.3 | 0.0 | 0.0 | 100.0 |
| Secondary + | 26.2 | 73.8 | 1.9 | 112 | 5.5 | 6.8 | 53.3 | 4.6 | 8.6 | 9.8 | 6.2 | 2.2 | 2.2 | 0.6 | 0.0 | 100.0 |
| **Employer** | | | | | | | | | | | | | | | | |
| Family | 30.5 | 69.5 | 1.1 | 2,015 | 7.5 | 1.8 | 38.6 | 3.4 | 0.0 | 0.0 | 29.4 | 11.2 | 7.1 | 0.7 | 0.2 | 100.0 |
| Someone else | 30.1 | 69.9 | 0.8 | 364 | 6.2 | 2.9 | 36.1 | 3.2 | 3.0 | 3.8 | 24.9 | 13.3 | 6.4 | 0.2 | 0.0 | 100.0 |
| Self-employed | 33.4 | 66.6 | 20.9 | 591 | 7.8 | 1.7 | 26.6 | 3.2 | 0.0 | 0.3 | 34.4 | 18.4 | 7.6 | 0.1 | 0.0 | 100.0 |
| **Occupation** | | | | | | | | | | | | | | | | |
| Agricultural | 30.1 | 69.9 | 0.9 | 2,361 | 7.3 | 1.5 | 35.8 | 3.2 | 0.0 | 0.0 | 30.3 | 13.6 | 7.6 | 0.6 | 0.1 | 100.0 |
| Non-agricultural | 34.9 | 65.1 | 21.1 | 609 | 8.2 | 4.8 | 40.6 | 4.1 | 3.0 | 4.1 | 24.8 | 6.3 | 3.7 | 0.4 | 0.1 | 100.0 |
| **Employment status** | | | | | | | | | | | | | | | | |
| All year, full week | 31.1 | 68.9 | 4.4 | 1,126 | 8.0 | 2.5 | 34.7 | 3.5 | 1.0 | 1.4 | 27.8 | 12.5 | 8.2 | 0.4 | 0.0 | 100.0 |
| All year, part week | 29.5 | 70.5 | 13.7 | 72 | 6.9 | 1.8 | 42.8 | 0.0 | 0.0 | 0.0 | 28.0 | 17.6 | 1.0 | 1.9 | 0.0 | 100.0 |
| Seasonal | 31.4 | 68.6 | 1.5 | 1,594 | 6.7 | 1.4 | 38.1 | 3.5 | 0.0 | 0.0 | 30.4 | 12.7 | 6.3 | 0.7 | 0.2 | 100.0 |
| Occasional | 29.2 | 70.8 | 34.0 | 175 | 11.0 | 3.7 | 26.2 | 2.0 | 0.0 | 0.0 | 37.6 | 8.7 | 10.9 | 0.0 | 0.0 | 100.0 |
| Total | 31.1 | 68.9 | 4.8 | 2,972 | 7.4 | 1.9 | 36.4 | 3.4 | 0.4 | 0.5 | 29.6 | 12.6 | 7.1 | 0.6 | 0.1 | 100.0 |

-- Less than 0.05 percent
NA = Not applicable

# CHAPTER 3

# FERTILITY

One of the main objectives of the 1997 Yemen Demographic and Maternal and Child Health Survey (YDMCHS) is to examine issues related to fertility and childbearing. This chapter deals with the following topics: fertility levels, trends, and differentials; future indicators of fertility; the age at which Yemeni women begin childbearing; birth intervals and adolescent fertility (i.e. before age 20). The estimates of fertility in this chapter are based on the data recorded in the birth histories of ever-married women age 15-49 years.

Although the birth histories in the YDMCHS cover only ever-married women, it is possible to calculate fertility levels for all women of childbearing age, based on the assumption that never-married women have not given birth.

Present, past and future estimates of fertility are based on carefully gathered survey data. First, women were asked a series of questions about all the live births that occurred in their lifetime. To encourage getting complete data, women were asked the number of male and female children who (a) lived at home with the family, (b) lived elsewhere and (c) had died. The interviewers verified the information given by respondents to reconcile the total births in the above-mentioned categories with the total reported by the women.

Second, complete data on every child born were collected from the birth histories. The table of live births for every woman included for each live birth the name of the child, sex, date of birth (month or season and year), and the age at death for those who died. The birth history also included information on whether any document, such as birth certificate, was used to ensure the date or year of birth.

Third, the number of stillbirths, miscarriages, and abortions were recorded. Finally, married women were asked if they were pregnant at the time of the interview. This was done to obtain estimates of future fertility.

In spite of efforts taken to minimize errors in the collection of data on births, birth histories are affected by underreporting of the number of live births and errors in specifying birth dates. Reasons for not obtaining accurate information on the number of births include underreporting of births and omission of births (especially regarding children who died following birth or were married and left the household). Also, some women, who had no surviving children, may have declared themselves childless. Problems of this kind usually occur in communities where the level of female literacy is very low.

## 3.1 Levels and Differentials in Fertility

Table 3.1 presents age-specific fertility rates and other summary indicators calculated from survey data such as the crude birth rate (CBR), the general fertility rate (GFR) and the total fertility rate (TFR).

The crude birth rate is the number of births per 1,000 population. It is an unrefined indicator of fertility, but used commonly because of ease of understanding.

The general fertility rate is the number of births per 1,000 women age 15-44. The age-specific fertility rate is the number of births per 1,000 women in a specified age group. The total fertility rate is a

Table 3.1 Current fertility

Age-specific and cumulative fertility rates and the crude birth rate for the three years preceding the survey, by urban-rural residence, Yemen 1997

| Age group | Urban | Rural | Total |
|---|---|---|---|
| 15-19 | 85 | 113 | 105 |
| 20-24 | 237 | 296 | 279 |
| 25-29 | 246 | 323 | 301 |
| 30-34 | 227 | 269 | 258 |
| 35-39 | 143 | 215 | 196 |
| 40-44 | 56 | 123 | 105 |
| 45-49 | 8 | 67 | 54 |
| TFR 15-49 | 5.01 | 7.03 | 6.48 |
| TFR 15-44 | 4.97 | 6.69 | 6.22 |
| GFR | 167 | 221 | 206 |
| CBR | 35.2 | 40.6 | 39.2 |

Note: Rates are for the period 1-36 months preceding the survey. Rates for age group 45-49 may be slightly biased due to truncation
TFR: Total fertility rate, expressed per woman
GFR: General fertility rate (births divided by number of women 15-44) expressed per 1,000 women.
CBR: Crude birth rate, expressed per 1,000 population.

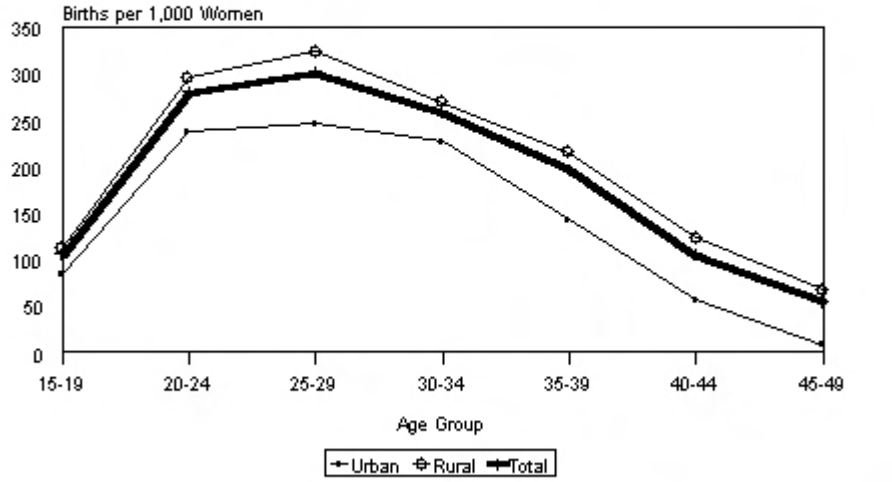
summary indicator of the number of births a woman would have during her childbearing years if the current age-specific fertility rates prevailed. It is calculated by summing the age-specific fertility rates.

The crude birth rate in Yemen (for 1996) is 39.2 births per 1,000 population. There is a clear differential in this rate by residence, 40.6 in rural and 35.2 in urban areas. The general fertility rate in Yemen is 206 per 1,000 women, with the rate being much higher in rural areas (221) than in urban areas (167).

On the basis of births during the three years preceding the survey, the total fertility rate (TFR) in Yemen is 6.5 births per woman, which is considered one of highest rate in the world. The TFR in rural areas is 7.0 compared with 5.0 in urban areas. In other words, rural women will, on average, have two more births than their urban counterparts.

The age-specific fertility rates calculated on the basis of the three years preceding the survey indicate that the highest rate is for women age 25–29, as shown in Figure 3.1. In addition, the figure shows that a substantial proportion of women continue to bear children in their later years. The age-specific fertility rate rises from

**Figure 3.1**
**Age-Specific Fertility Rates**
**By Urban-Rural Residence**




YDMCHS-97

105 births per 1,000 in age group 15-19 to 301 births per 1,000 in age group 25-29 and then falls gradually to 54 births per 1,000 in age group 45-49.

Urban-rural differentials in the total fertility rate have already been noted. The age-specific fertility rates also show the pattern of higher fertility in rural areas compared with urban areas for all age groups.

Looking at age-specific fertility rates from another perspective indicates that a Yemeni woman bears about two (1.9) children by the time she reaches the age of 25 years, and has 3 more children between ages 25 and 34. When she reaches the age of 40, she will have had an average of 5.7 births and, by the age of 50, a total of 6.5 births.

Table 3.2 and Figure 3.2 present fertility differentials according to residence, region, and level of education. The urban-rural differences have already been discussed. By region, the fertility rates are similar for the Mountainous region (6.8 births) and the Plateau and Desert region (6.6 births), but are almost one birth lower in the Coastal region (5.8 births).

The current levels of fertility differ even more by the level of education. The total fertility rate is 6.9 births for illiterate women or 2.2 more births than for women who have completed primary education (4.7 births). As the educational level of women rises, the fertility rate decreases. Among women who have completed the secondary level or higher, this rate falls to 3.1 births.

Table 3.2 also shows the mean number of live births for women age 40-49. This is an indicator of completed fertility or cumulative fertility for women who are approaching the end of their childbearing years. A comparison of the total fertility rate and the cumulative fertility rate gives an indication of fertility trends over time. For all women, the mean number of live births is 8.4, which indicates that fertility has been falling in Yemen in all groups (see Figure 3.2).

Table 3.2 Fertility by background characteristics

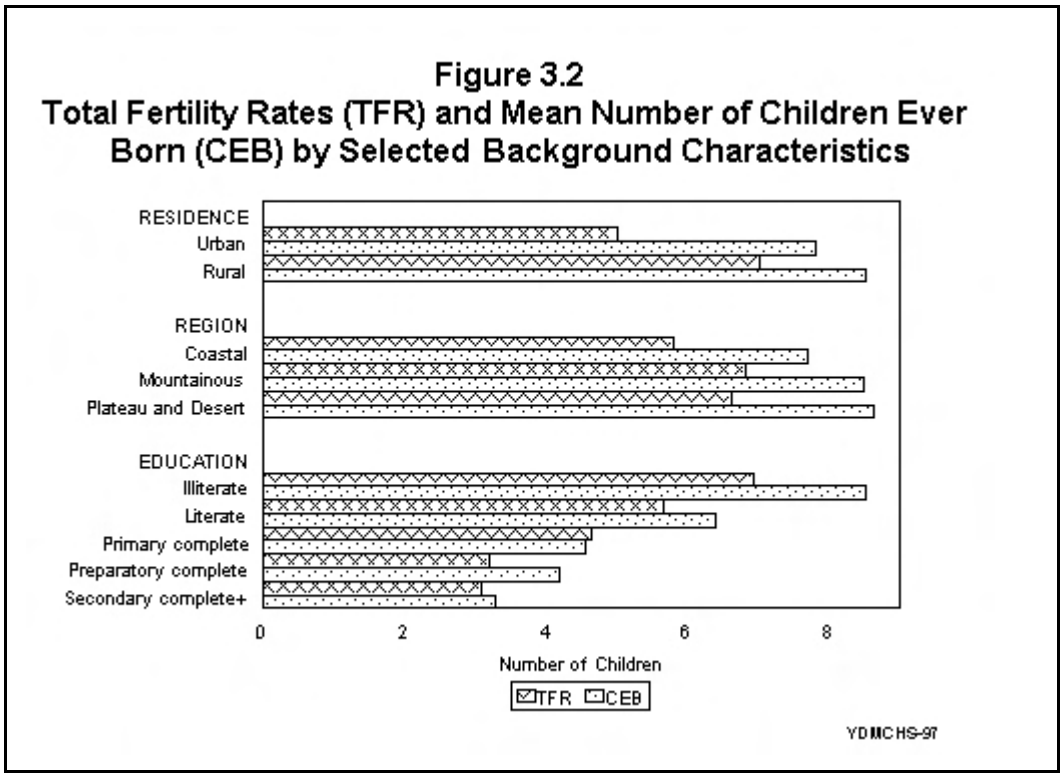
Total fertility rate for the three years preceding the survey and mean number of children ever born to women age 40-49, by selected background characteristics, Yemen 1997

| Background characteristic | Total fertility rate[1] | Percentage currently pregnant | Mean number of children ever born to women age 40-49 |
|---|---|---|---|
| **Residence** | | | |
| Urban | 5.01 | 8.97 | 7.82 |
| Rural | 7.03 | 12.20 | 8.54 |
| **Region** | | | |
| Coastal | 5.81 | 8.23 | 7.72 |
| Mountainous | 6.83 | 12.61 | 8.51 |
| Plateau and Desert | 6.64 | 12.10 | 8.63 |
| **Education** | | | |
| Illiterate | 6.93 | 12.77 | 8.52 |
| Literate | (5.68) | 5.81 | 6.40 |
| Primary complete | (4.65) | 11.00 | 4.57 |
| Preparatory complete | [3.21] | 5.07 | 4.18 |
| Secondary complete+ | [3.08] | 5.77 | 3.30 |
| Total | 6.48 | 11.29 | 8.37 |

Note: Rates in parentheses are based on 500-999 women; rates in squared brackets are based on 250-499 women.
[1]Women age 15-49 years

## 3.2 Fertility Trends

Table 3.3 shows the trends in age-specific fertility rates and total fertility rates based on the 1991/92 and 1997 YDMCHS surveys and the 1994 census. The fertility rates decreased slowly between the 1991/92 YDMCHS survey and the 1994 census and slightly faster between the census and the 1997 YDMCHS. Between the two surveys, the fertility rate dropped from 7.7 to 6.5 births per woman, or 1.2 births, during a period of just six years. The drop may be due to a number




of factors including an increase in the use of family planning methods, an increase in education levels, or social, cultural, and economic factors in Yemen. Despite the drop in fertility rates, overall, fertility in Yemen has remained high compared with neighboring countries in the Middle East and Africa[1].

Figure 3.3 shows the trends in age-specific fertility rates between the 1991/92 and 1997 surveys. These results indicate that the fertility rates, including the crude birth and general fertility rates, may continue to fall in the future.

Table 3.4 shows the age-specific fertility rates for successive five-year periods prior to the survey. It should be noted that rates shown in brackets are partially truncated due to the fact that the data are limited to women who were under 50 years at the time of the survey. Even so, information available in the table should be treated with caution due to the possible occurrence of omission or errors in specifying the dates of events, especially by older women and for periods in the distant past.

Table 3.3 Trends in fertility rates

Age-specific fertility rates (per 1,000 women) and total fertility rates, Yemen 1991-1997

| Age group | YDMCHS[1] 1991/92 | CENSUS[2] 1994 | YDMCHS[1] 1997 |
|---|---|---|---|
| 15-19 | 102 | 66 | 105 |
| 20-24 | 283 | 283 | 279 |
| 25-29 | 315 | 346 | 301 |
| 30-34 | 284 | 315 | 258 |
| 35-39 | 258 | 258 | 196 |
| 40-44 | 172 | 143 | 105 |
| 45-49 | 120 | 73 | 54 |
| TFR 15-49 | 7.7 | 7.4 | 6.48 |
| TFR 15-44 | 7.1 | 7.1 | 6.22 |
| GFR | 238 | U | 206 |
| CBR | 40 | 47 | 42.5 |

U = Unknown (not available)
[1] Rates are for the 36-month period preceding the survey.
[2] Rates are for the 12-month period preceding the census.

[1] The TRFs for some selected countries are Morocco (1995) = 3.3, Egypt (1995) = 3.6, Jordan (1997) = 4.4, Kenya (1988) = 4.7, Tanzania (1996) = 5.8, Eritrea (1995) = 6.1, Mali (1996) = 6.7, and Uganda (1995) = 6.9.

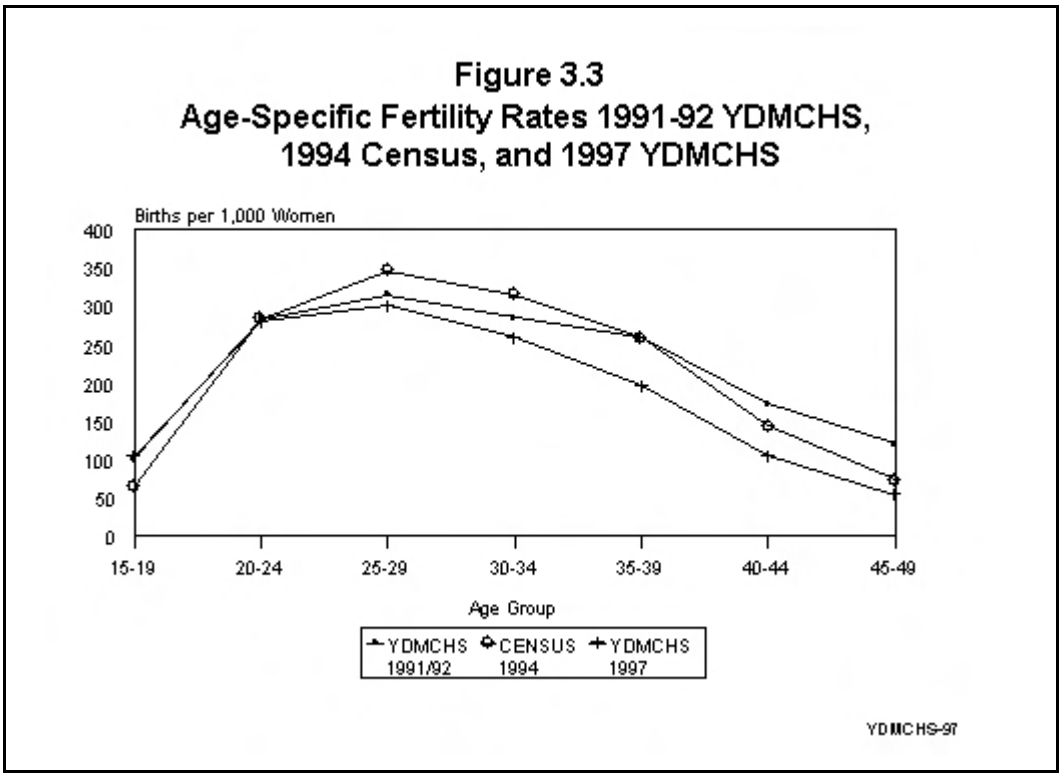



Table 3.4 Trends in age-specific fertility rates

Age-specific fertility rates for five-year periods preceding the survey, Yemen 1997

| Age 5-year group | Number of years preceding the survey | | | |
|---|---|---|---|---|
| | 0-4 | 5-9 | 10-14 | 15-19 |
| 15-19 | 110 | 186 | 238 | 239 |
| 20-24 | 286 | 356 | 396 | 389 |
| 25-29 | 304 | 371 | 415 | 418 |
| 30-34 | 267 | 325 | 379 | 428 |
| 35-39 | 200 | 262 | [377] | - |
| 40-44 | 115 | [204] | - | - |
| 45-49 | [62] | - | - | - |

Note: Age-specific fertility rates are per 1,000 women. Rates in brackets are truncated.

Table 3.4 shows that fertility was at a high level during the period 15-19 years prior to the survey, i.e. during the years 1978-1982; followed by the period 10-14 years prior to the survey, i.e. during the years 1983-1987. In comparison with the other two periods that follow, the fertility rates show a decrease for nearly all age groups. This trend in declining fertility is supported by other statistical sources, such as the results of the 1994 census, especially among younger women, for whom higher levels of education, later age at marriage, and other social, cultural, and health factors play a role.

Table 3.5 shows the changes in fertility by number of years since first marriage. The pattern is similar to that observed in Table 3.4. Fertility levels were higher during the period 10-14 before the survey years and drop during the period 0-4 years prior to the survey. Furthermore, women who were married for more than 15 years reported low fertility compared with those who were married for a shorter period. This may be due to women who married a long time ago having difficulty remembering births that occurred during earlier periods of their marriage.

Table 3.5 Fertility rates by number of years since first marriage

Fertility rates for ever-married women by number of years since first marriage, for five-year periods preceding the survey, Yemen 1997

| Years since first birth | Number of years preceding the survey | | | |
|---|---|---|---|---|
| | 0-4 | 5-9 | 10-14 | 15-19 |
| <5 | 327 | 360 | 369 | 340 |
| 5-9 | 348 | 411 | 437 | 413 |
| 10-14 | 313 | 374 | 424 | 424 |
| 15-19 | 268 | 328 | 393 | [432] |
| 20-24 | 189 | 265 | [367] | - |
| 25-29 | 112 | [199] | - | - |

Note: Fertility rates are per 1,000 woman. Rate in brackets are truncated.

## 3.3 Children Ever Born

Table 3.6 shows the number of children ever born (CEB) to all women and to currently married women. These data which reflect cumulative fertility over time, indicate that women who are currently married have had, on average, 5 births, whereas the average number of births to all women is 3.5 births. About 27 percent of married women gave birth to 8 or more children; and 1 in 8 women gave birth to 10 or more children. The differences in the mean number of births between all women and married women is due to the marital status of women under 25 years; a large proportion of women under 20 years and a substantial proportion of those 20-24 years have not yet married.

The mean number of births increases with age reflecting the natural family growth process. For example, the mean for women age 25-29 is 3.6 births, for those age 30-34 it is 5.6 births, and, for those age 35-39 years it reaches 7.1 births. At age 45-49, the end of the reproductive years, the mean is 8.8 births. The high level of fertility among Yemeni women is evident from the high percentage of married women in their forties who gave birth to large numbers of children during their reproductive years; 39 percent of women age 40-44 and 46 percent of those age 45-49 have 10 or more births.

Results in Table 3.6 show that early childbearing is not common in Yemen. Twelve percent of women who are 15-19 years gave birth to at least one child, compared with about 61 percent of women age 20-24 years. Early childbearing is further discussed in section 3.6 of this chapter. The proportion of women in their late forties, who have never given birth is an indication of primary (permanent) sterility. In Yemen, 1.4 percent of currently married women age 45-49 are childless.

Table 3.6 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 ever born and living, according to five-year age groups, Yemen 1997

| Age group | Number of children ever born | | | | | | | | | | | | Number of women | Mean no. of CEB | Mean no. of living children |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ | Total | | | |
| ALL WOMEN | | | | | | | | | | | | | | | |
| 15-19 | 87.9 | 8.0 | 3.1 | 0.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 4,137 | 0.17 | 0.15 |
| 20-24 | 39.0 | 18.8 | 19.9 | 12.1 | 6.4 | 2.5 | 1.1 | 0.2 | 0.0 | 0.0 | 0.0 | 100.0 | 2,738 | 1.41 | 1.24 |
| 25-29 | 14.4 | 7.1 | 12.4 | 15.2 | 16.1 | 14.6 | 9.1 | 5.8 | 3.4 | 1.3 | 0.6 | 100.0 | 2,147 | 3.55 | 3.09 |
| 30-34 | 7.4 | 3.5 | 4.5 | 8.0 | 10.8 | 11.6 | 15.0 | 13.6 | 10.9 | 7.0 | 7.7 | 100.0 | 1,748 | 5.57 | 4.77 |
| 35-39 | 4.3 | 1.9 | 2.7 | 4.3 | 5.8 | 7.8 | 11.8 | 12.9 | 14.7 | 11.3 | 22.4 | 100.0 | 1,804 | 7.07 | 5.99 |
| 40-44 | 4.2 | 1.5 | 2.1 | 2.7 | 4.9 | 5.6 | 7.4 | 9.9 | 13.9 | 12.2 | 35.7 | 100.0 | 1,107 | 8.02 | 6.60 |
| 45-49 | 2.3 | 0.4 | 1.4 | 2.7 | 4.4 | 4.1 | 5.5 | 8.6 | 12.4 | 14.6 | 43.7 | 100.0 | 839 | 8.83 | 7.05 |
| Total | 36.4 | 7.7 | 7.6 | 6.6 | 6.3 | 5.7 | 5.7 | 5.4 | 5.4 | 4.2 | 9.0 | 100.0 | 14,521 | 3.51 | 2.96 |
| CURRENTLY MARRIED WOMEN | | | | | | | | | | | | | | | |
| 15-19 | 54.9 | 29.7 | 11.8 | 3.0 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 1,063 | 0.65 | 0.56 |
| 20-24 | 15.4 | 25.1 | 28.0 | 17.0 | 9.1 | 3.5 | 1.5 | 0.3 | 0.0 | 0.0 | 0.0 | 100.0 | 1,902 | 1.97 | 1.74 |
| 25-29 | 5.0 | 6.9 | 13.3 | 16.9 | 18.4 | 16.5 | 10.3 | 6.6 | 3.9 | 1.5 | 0.7 | 100.0 | 1,855 | 4.00 | 3.48 |
| 30-34 | 3.2 | 2.3 | 4.5 | 8.4 | 10.7 | 12.5 | 16.2 | 14.6 | 11.9 | 7.5 | 8.3 | 100.0 | 1,585 | 5.94 | 5.10 |
| 35-39 | 1.6 | 1.4 | 2.2 | 4.4 | 5.7 | 8.2 | 11.9 | 13.3 | 15.6 | 11.7 | 24.0 | 100.0 | 1,637 | 7.39 | 6.25 |
| 40-44 | 2.2 | 1.3 | 1.5 | 2.5 | 4.3 | 5.1 | 7.2 | 10.3 | 14.0 | 13.0 | 38.6 | 100.0 | 999 | 8.38 | 6.91 |
| 45-49 | 1.4 | 0.2 | 1.0 | 2.5 | 3.5 | 3.7 | 5.3 | 8.9 | 12.4 | 15.2 | 45.8 | 100.0 | 746 | 9.06 | 7.27 |
| Total | 11.0 | 10.2 | 10.6 | 9.4 | 8.7 | 8.0 | 8.0 | 7.6 | 7.7 | 5.9 | 12.9 | 100.0 | 9,786 | 4.95 | 4.19 |

The last column in Table 3.6 shows the mean number of living children. The difference between the number of children ever born and the number who are still living is small among married women under 30, but increases for those age 30 and above.

## 3.4 Birth Intervals

A birth Interval is defined as the length of time between two successive live births. Short birth intervals adversely affect the health of mothers and their children's chances of survival. The risk of a child dying increases if the interval between the child's birth and a previous birth is less than 24 months.

Table 3.7 shows birth intervals for five-year periods preceding the survey. About 37 percent of births in Yemen have intervals of less than two years; (about one-fifth are less than 18 months apart). One-third of births have an interval of 24-35 months, and one-third are at least three years apart. The mean birth interval is 28 months in Yemen. The lowest mean birth interval (19 months) is for women in the youngest age groups. For births for which the preceding child died, the mean birth interval is 23 months. This is because the death of a newborn leads to a shortening of the period of postpartum amenorrhea (temporary sterility)—which results from the cessation of breastfeeding—and hence the shortening of the birth interval. The birth interval increases with increasing age of the mother; the longest interval, 35 months, is among women in their forties. Birth intervals are longer (33 months) among women who completed secondary education or higher. With respect to the other characteristics mentioned in Table 3.7, the mean birth interval varies between 26 and 30 months.

Table 3.7 Birth intervals

Percent distribution of births in the five years preceding the survey by number of months since previous birth, according to demographic and socioeconomic characteristics, Yemen 1997

| Demographic/ Socioeconomic characteristic | Number of months since previous birth | | | | | Total | Number of births | Median number of months since previous birth |
|---|---|---|---|---|---|---|---|---|
| | 7-17 | 18-23 | 24-35 | 36-47 | 48+ | | | |
| **Age of mother** | | | | | | | | |
| 15-19 | 40.6 | 32.4 | 21.5 | 4.5 | 1.0 | 100.0 | 215 | 19.2 |
| 20-29 | 23.1 | 19.3 | 33.8 | 14.7 | 9.1 | 100.0 | 4,761 | 25.8 |
| 30-39 | 16.2 | 15.5 | 31.7 | 18.3 | 18.3 | 100.0 | 4,511 | 30.4 |
| 40 + | 11.6 | 13.3 | 26.4 | 22.1 | 26.7 | 100.0 | 1,192 | 35.1 |
| **Birth order** | | | | | | | | |
| 2-3 | 23.3 | 18.3 | 32.3 | 13.6 | 12.5 | 100.0 | 3,196 | 26.1 |
| 4-6 | 18.5 | 16.8 | 32.5 | 17.8 | 14.3 | 100.0 | 3,561 | 28.3 |
| 7 + | 16.6 | 16.9 | 30.9 | 18.6 | 17.1 | 100.0 | 3,921 | 30.0 |
| **Sex of preceding birth** | | | | | | | | |
| Male | 18.7 | 16.7 | 31.8 | 17.1 | 15.6 | 100.0 | 5,527 | 28.9 |
| Female | 19.8 | 17.9 | 31.9 | 16.5 | 13.9 | 100.0 | 5,152 | 27.8 |
| **Survival status of preceding birth** | | | | | | | | |
| Dead | 32.9 | 18.7 | 23.8 | 11.7 | 12.9 | 100.0 | 1,208 | 23.4 |
| Living | 17.5 | 17.1 | 32.9 | 17.5 | 15.0 | 100.0 | 9,471 | 28.8 |
| **Residence** | | | | | | | | |
| Urban | 18.5 | 16.5 | 30.7 | 15.2 | 19.1 | 100.0 | 2,339 | 28.5 |
| Rural | 19.5 | 17.5 | 32.1 | 17.3 | 13.6 | 100.0 | 8,340 | 28.2 |
| **Region** | | | | | | | | |
| Coastal | 17.0 | 17.5 | 30.4 | 17.7 | 17.4 | 100.0 | 2,279 | 28.8 |
| Mountainous | 20.1 | 17.8 | 30.9 | 17.6 | 13.6 | 100.0 | 3,279 | 28.1 |
| Plateau and Desert | 19.7 | 16.9 | 33.1 | 16.0 | 14.3 | 100.0 | 5,122 | 28.1 |
| **Education** | | | | | | | | |
| Illiterate | 19.0 | 17.1 | 32.1 | 17.3 | 14.5 | 100.0 | 8,993 | 28.4 |
| Literate | 17.4 | 18.4 | 31.8 | 13.5 | 18.9 | 100.0 | 576 | 27.9 |
| Primary complete | 21.6 | 16.8 | 31.6 | 13.8 | 16.2 | 100.0 | 573 | 27.8 |
| Preparatory complete | 23.2 | 13.5 | 30.3 | 11.6 | 21.3 | 100.0 | 155 | 28.6 |
| Secondary complete+ | 17.6 | 13.7 | 23.6 | 18.7 | 26.4 | 100.0 | 182 | 33.0 |
| Total | 19.3 | 17.3 | 31.8 | 16.8 | 14.8 | 100.0 | 10,679 | 28.3 |

Note: First births are excluded. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth.

## 3.5 Age at First Birth

The age at which women begin childbearing has important demographic and health considerations. For example, the magnitude of childbearing among women under 20 is a cause of concern among health specialists. The complications of pregnancy and childbirth are particularly high before the age of 20 and after the age of 34 years. In addition, early childbearing results in large families that can negatively affect the economic and social status of women and their participation in the labor force.

A large proportion of Yemeni women in the age group 20-49 years gave first birth before age 20. The proportion varies from 42 percent for women age 45-49 to 58 percent for women age 25-29 and 30-34 years

(see Table 3.8). The proportion of women age 25-49 who first gave birth after the age of 24 years, increases with age from 4 to 24 percent, indicating a tendency toward early childbearing in Yemen.

The last column in Table 3.8 shows the median age at first birth by age group. Median age is not shown for age groups in which the proportion of women who have no live births exceeds 50 percent. The medians for the different age groups indicate a gradual decrease in age at first birth. The median age at first birth is 21 years for women in the age group 45-49 and 20 years for women in the age group 40-44. It continues to decrease reaching 19 years for the age group 30-34 before increasing to 19.2 for the women age 25-29. In spite of the possibility of childbearing starting at a younger age than in the past, the probable occurrence of errors in reporting dates of first births and dates of deliveries of mothers are relevant, as mentioned earlier. The problem caused by the omission of some births or misreporting of dates of their occurrence may affect information that older women provide. Older women, more than younger women, are liable to forget the timing of some births due to the length of time having passed since those births. This results in birth dates being pushed toward the period of the survey and to a higher age at first birth than when they actually occurred.

Table 3.8 Age at first birth

Percent distribution of women 15-49 by age at first birth, according to current age, Yemen 1997

| Current age | Women with no births | Age at first birth | | | | | | Total | Number of women | Median age at first birth |
|---|---|---|---|---|---|---|---|---|---|---|
| | | <15 | 15-17 | 18-19 | 20-21 | 22-24 | 25+ | | | |
| 15-19 | 87.9 | 1.2 | 8.0 | 2.9 | NA | NA | NA | 100.0 | 4,137 | a |
| 20-24 | 39.0 | 4.0 | 20.6 | 20.5 | 11.9 | 4.0 | NA | 100.0 | 2,738 | a |
| 25-29 | 14.4 | 7.2 | 30.4 | 20.2 | 12.5 | 11.2 | 4.1 | 100.0 | 2,147 | 19.2 |
| 30-34 | 7.4 | 7.9 | 32.6 | 17.2 | 14.6 | 12.3 | 7.9 | 100.0 | 1,748 | 19.0 |
| 35-39 | 4.3 | 5.9 | 29.8 | 20.9 | 15.6 | 13.0 | 10.5 | 100.0 | 1,804 | 19.4 |
| 40-44 | 4.2 | 6.8 | 27.6 | 16.7 | 14.8 | 17.0 | 12.9 | 100.0 | 1,107 | 19.9 |
| 45-49 | 2.3 | 5.6 | 21.1 | 15.0 | 15.1 | 17.1 | 23.9 | 100.0 | 839 | 21.1 |

NA = Not applicable
[a] Medians were not calculated for these cohorts because less than 50 percent of the women in the age group *x* to *x+4* have had a birth by age *x*.

Table 3.9 shows the median age at first birth by current age according to selected background characteristics. Overall, median age at first birth for women age 25-49 is 19.5 years, which differs by less than one year from the median age for almost all categories in the table. An exception is the median age at first birth for women with preparatory education; the median age is almost four years higher than the overall median. In the Coastal region, median age at first birth is 20.3 years, or almost one year higher than in the other two regions.

## 3.6 Early Childbearing

Reference was made earlier to the concerns of health specialists regarding the adverse health effects of early childbearing (adolescent fertility). It was mentioned that 12 percent of Yemeni women age 15-19 years have given birth to at least one child (Table 3.6). Table 3.10 shows the percentage of women age 15-19 who were pregnant in the past but had no live births at the time of the survey, the percentage who are mothers, and the percentage who were pregnant at the time of the survey but had no live births.

Table 3.9 Median age at first birth

Median age at first birth among women age 25-49 years, by current age and selected background characteristics, Yemen 1997

| Background characteristic | Current age | | | | | Women age |
|---|---|---|---|---|---|---|
| | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 25-49 |
| **Residence** | | | | | | |
| Urban | 20.2 | 19.1 | 19.0 | 18.4 | 19.3 | 19.3 |
| Rural | 18.9 | 19.0 | 19.5 | 20.4 | 21.7 | 19.5 |
| **Region** | | | | | | |
| Coastal | 20.8 | 20.3 | 19.8 | 19.9 | 21.0 | 20.3 |
| Mountainous | 18.9 | 18.6 | 19.6 | 20.3 | 21.8 | 19.5 |
| Plateau and Desert | 18.8 | 18.7 | 18.9 | 19.6 | 20.6 | 19.1 |
| **Education** | | | | | | |
| Illiterate | 18.8 | 18.7 | 19.3 | 19.8 | 21.0 | 19.3 |
| Literate | 19.5 | 20.1 | 18.8 | 20.3 | * | 19.6 |
| Primary complete | 19.6 | 20.0 | 20.1 | * | * | 19.9 |
| Preparatory complete | a | (21.9) | (21.0) | * | * | 23.3 |
| Secondary complete+ | a | 26.8 | (24.2) | * | * | a |
| Total | 19.2 | 19.0 | 19.4 | 19.9 | 21.1 | 19.5 |

Note: Figures in parentheses are based on 25 to 49 women; an asterisk indicates that a figure is based on fewer than 25 women and had been suppressed.
[a] Medians are not calculated for these cohorts because less than 50 percent of women in these 25 cohorts have had a birth by age 25.

The sum of these three groups of women age 15-19 represents the total percentage of women who started childbearing early (Table 3.10). One in 6 women under age 20 (16 percent) either had been pregnant in the past, was a mother, or was currently pregnant with her first child. Two percent of women age 15 have started childbearing; half of them have become mothers. The proportion increases rapidly to 14 percent among women age 17, and 29 percent among those age 18. Almost 40 percent of women age 19 have started childbearing.

The proportion of women who started childbearing early is higher in rural areas (17 percent) than in urban areas (14 percent). Teenage childbearing is less common in the Coastal region (12 percent) than in the other regions (17-18 percent).

Overall, the relationship between level of educational and early childbearing is irregular; however, women who have completed preparatory school are least likely to start childbearing early (9 percent), while illiterate are most likely to start early (20 percent).

Table 3.10 Adolescent fertility

Percentage of women age 15-19 who had a pregnancy in the past but no live birth, percentage who are mothers, percentage who are pregnant with their first child, and the percentage who have started childbearing by selected background characteristics, Yemen 1997

| Background characteristic | Percentage of teenagers who: Had pregnancy in the past, no live birth | Are mothers | Are currently pregnant, no live birth | Have started child-bearing | Number of teenagers |
|---|---|---|---|---|---|
| **Age** | | | | | |
| 15 | 0.4 | 1.0 | 0.6 | 2.0 | 1,040 |
| 16 | 0.8 | 3.2 | 2.0 | 5.9 | 851 |
| 17 | 1.4 | 9.3 | 2.9 | 13.6 | 716 |
| 18 | 0.9 | 20.1 | 7.7 | 28.7 | 896 |
| 19 | 1.0 | 34.0 | 4.4 | 39.4 | 634 |
| **Residence** | | | | | |
| Urban | 0.6 | 10.3 | 3.0 | 14.0 | 1,138 |
| Rural | 1.0 | 12.8 | 3.5 | 17.3 | 2,984 |
| **Region** | | | | | |
| Coastal | 0.4 | 10.2 | 1.8 | 12.4 | 1,007 |
| Mountainous | 0.8 | 11.8 | 4.1 | 16.7 | 1,182 |
| Plateau and Desert | 1.1 | 13.1 | 3.8 | 18.0 | 1,957 |
| **Education** | | | | | |
| Illiterate | 1.0 | 15.4 | 4.1 | 20.4 | 2,267 |
| Literate | 0.7 | 7.6 | 1.3 | 9.6 | 657 |
| Primary complete | 1.2 | 11.9 | 3.9 | 17.0 | 585 |
| Preparatory complete | 0.3 | 6.2 | 2.7 | 9.2 | 384 |
| Secondary complete+ | 0.8 | 6.2 | 5.2 | 12.2 | 124 |
| Total | 0.9 | 12.1 | 3.4 | 16.3 | 4,137 |

# CHAPTER 4

# FAMILY PLANNING

Information on contraceptive use is of particular interest to policymakers, program managers, and researchers in the areas of population and family planning. Providing easy access to reliable and safe methods of family planning increases women's control over there own fertility. This chapter describes women's knowledge of family planning methods and sources where they can be obtained, use of contraception, sources of information about family planning, and exposure to media messages about family planning. Differentials in knowledge and use are also discussed. In addition, problems with current methods, reasons for first use and current use, and reasons for not intending to use a method in future are included in this chapter.

## 4.1 Knowledge of Family Planning Methods and Sources

Familiarity with contraceptive methods and sources for methods are among the prerequisites for the adoption of fertility regulation. Knowledge of methods is a necessary but not sufficient condition for use. The Yemen Demographic and Maternal Child Health Survey (YDMCHS) provides information on the level of knowledge of family planning methods and providers of family planning services. Knowledge of contraceptive methods was assessed through a series of questions combining spontaneous recall and prompting procedure. Respondents were first asked to name all the contraceptive methods they had heard of (spontaneous knowledge). For methods they did not mention, a brief description was read and they were asked if they had ever heard of the method (probed knowledge). For each method recognized, they were asked if they had ever used the method and whether they knew a place to obtain the method. In the 1997 YDMCHS, information was sought about eight modern methods—the pill, IUD, injectables, vaginal methods (diaphragm, jelly, foam), implants, condoms, and female and male sterilization—as well as three traditional methods—periodic abstinence (safe period or rhythm method), withdrawal, and prolonged breastfeeding. Other methods mentioned by respondents, such as herbs or Arab medicine were also recorded. It should be noted that information about implants was not sought in the 1991-92 YDMCHS.

Table 4.1 indicates that 84 percent of currently married women have heard of at least one family planning method and slightly less than four-fifths reported knowing a modern method. This indicates a substantial increase in contraceptive knowledge in Yemen since the 1991-92 survey (see Figure 4.1). The most widely known method is the pill, which is known to more than 75 percent of currently married women. About two–thirds of the women have heard of the IUD, 56 percent know about injectables, and 48 percent have heard of female sterilization. Knowledge of other modern methods is much lower: condoms and male sterilization (24 percent, each), vaginal methods (19 percent), and implants (6 percent).

About 7 in 10 women know of a traditional method, mainly prolonged breastfeeding (61 percent), while periodic abstinence and withdrawal are known by smaller proportions of respondents.

The results presented in Table 4.1 shows that more than half of currently married women (53 percent) know a source for modern methods, almost double the proportion reported in the 1991-92 survey.

Knowledge of sources for specific methods shows that 44 percent of currently married women know a source for the pill. Only 37 percent, 29 percent, and 28 percent, respectively, know a source for the IUD, injectables and female sterilization. Sources for other methods are even less well known.

Table 4.1 Knowledge of contraceptive methods and a source for methods

Percentage of ever-married women and currently married women who know specific contraceptive method, and who know a source for the methods, by specific method, Yemen 1997

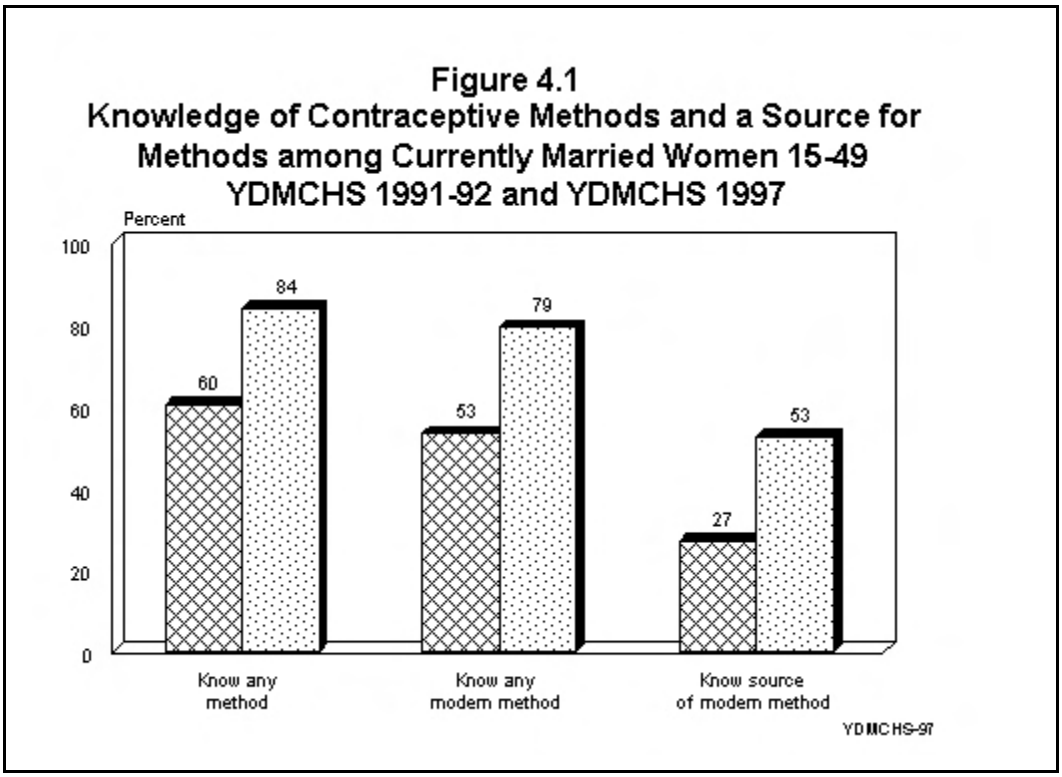
| Contraceptive method | Know method | | Know a source | |
|---|---|---|---|---|
| | Ever-married women | Currently married women | Ever-married women | Currently married women |
| **Any method** | 83.6 | 83.8 | NA | NA |
| **Modern method** | 79.1 | 79.2 | 52.2 | 52.5 |
| Pill | 75.9 | 76.1 | 44.2 | 44.4 |
| IUD | 64.4 | 64.4 | 36.3 | 36.5 |
| Injectables | 55.5 | 55.7 | 28.7 | 28.7 |
| Diaphragm/foam/jelly | 19.1 | 19.2 | 11.8 | 11.9 |
| Condom | 23.9 | 24.1 | 13.6 | 13.8 |
| Female sterilization | 47.4 | 47.7 | 28.0 | 28.2 |
| Male sterilization | 23.4 | 23.6 | 14.4 | 14.5 |
| Implants | 5.4 | 5.5 | 3.3 | 3.4 |
| **Any traditional method** | 65.1 | 65.4 | NA | NA |
| Safe period | 32.4 | 32.6 | NA | NA |
| Withdrawal | 28.3 | 28.6 | NA | NA |
| Prolonged breastfeeding | 60.7 | 61.0 | NA | NA |
| Other traditional methods | 5.8 | 5.9 | NA | NA |
| Herb, Arab medicine | 4.8 | 4.8 | NA | NA |
| Soap, salt | 0.7 | 0.7 | NA | NA |
| Other methods | 1.3 | 1.3 | NA | NA |
| **Any traditional/folk method** | 65.5 | 65.8 | NA | NA |
| Number of women | 10,414 | 9,786 | 10,414 | 9,786 |
| Mean number of methods | 4.4 | 4.5 | 1.8 | 1.8 |

NA = Not applicable

The percentage of currently married women, who know at least one modern contraceptive method and know a source for the methods, by various background characteristics, is presented in Table 4.2. Only small differences by age exist in knowledge of modern methods among women 15-49; 78 to 81 percent of women 20-49, and 73 percent of the women 15-19 have heard of a modern method of family planning.

There is a greater variation in the level of contraceptive knowledge by residence and region. More than 9 in 10 urban women know of at least one modern method compared with less than 75 percent of rural women. Knowledge of modern methods is much higher in the Plateau and Desert (85 percent) and Coastal regions (82 percent) than in the Mountainous region (68 percent).

There are substantial differences in knowledge of contraceptive methods by education. Among illiterate women, 76 percent know a modern method compared with 93 percent of women who have completed primary education, and 98 percent of women with secondary or higher education. The differences in knowledge of family planning by education may account, in large part, for the greater knowledge of family planning in urban areas and in the Plateau and Desert region, since a greater proportion of educated women live in those areas.




Differentials in knowledge of service providers show relatively more variability than differentials in knowledge of modern methods (see Table 4.2). By age groups, between 53 and 55 percent of currently married women age 20-44 know a source for a modern contraceptive method. Older and younger women are less likely to know about service providers. The differences are much greater by residence. Eighty-one percent of urban women know a source, compared with only 43 percent of rural women. Regionally, a woman in the Plateau and Desert region (62 percent) is more likely to know a source for a contraceptive method than a woman who lives in the Mountainous region (36 percent). The most striking differences in knowledge of service providers are by level of education. Only 47 percent of illiterate women know a source. Among women who have completed primary school, knowledge of service providers is more than 70 percent higher (82 percent), while knowledge of a source is twice as high among women who have completed at least secondary school (93 percent).

## 4.2 Ever Use of Contraception

In the YDMCHS, all respondents who reported knowledge of a specific method were asked if they had ever used the method. As shown in Table 4.3, 38 percent of ever-married women have used a method to regulate their fertility at some point in their lives. The 1997 ever-use rate is almost double the rate in the 1991-92 YDMCHS. Twenty-three percent have used a modern method, a substantial increase since the 1991-92 survey which reported a 13 percent rate of ever-use. A quarter of ever-married women have used traditional methods (including prolonged breastfeeding); thus, the majority of ever-users have had experience with modern methods, and some have used more than one method. Currently married women and ever-married women have about the same level of experience with ever use of contraceptive.

Table 4.2 Knowledge of modern contraceptive methods and a source for methods, by selected background characteristics

Percentage of currently married women who know any contraceptive method who know a modern method, and who know a source for a modern method, by selected background characteristics, Yemen 1997

| Background characteristic | Know any method | Know a modern method[1] | Know a source for modern method | Number of women |
|---|---|---|---|---|
| **Age** | | | | |
| 15-19 | 76.5 | 72.5 | 41.8 | 1,063 |
| 20-24 | 85.7 | 81.3 | 54.9 | 1,902 |
| 25-29 | 83.2 | 78.2 | 53.1 | 1,855 |
| 30-34 | 86.6 | 81.4 | 55.3 | 1,585 |
| 35-39 | 84.7 | 80.5 | 54.8 | 1,637 |
| 40-44 | 83.4 | 79.6 | 52.6 | 999 |
| 45-49 | 83.3 | 78.1 | 48.3 | 746 |
| **Residence** | | | | |
| Urban | 96.9 | 96.2 | 81.2 | 2,427 |
| Rural | 79.5 | 73.6 | 43.0 | 7,359 |
| **Region** | | | | |
| Coastal | 85.1 | 82.0 | 55.4 | 2,226 |
| Mountainous | 74.7 | 68.3 | 36.0 | 2,952 |
| Plateau and Desert | 89.0 | 84.9 | 61.6 | 4,608 |
| **Education** | | | | |
| Illiterate | 81.7 | 76.4 | 47.1 | 8,248 |
| Literate | 94.1 | 92.5 | 73.9 | 528 |
| Primary complete | 94.6 | 93.4 | 81.6 | 595 |
| Preparatory complete | 96.4 | 96.4 | 84.9 | 185 |
| Secondary complete+ | 98.4 | 98.4 | 93.1 | 230 |
| Total | 83.8 | 79.2 | 52.5 | 9,786 |

[1]Includes pill, IUD, injection, vaginal methods (diaphragm/foam/jelly), condom, female sterilization, male sterilization, and implants.

The age differentials for ever use among currently married women indicate that the rate for women age 15-19 is only 13 percent; it increases to 34 percent for women age 20-24, and to 42 percent among women age 25-29. Ever-use peaks at 45 to 47 percent among women in their thirties before declining to 39 percent among women age 45-49. The modern methods most used by married women are the pill (16 percent) and the IUD (7 percent). Overall, however, the most widely used method is prolonged breastfeeding (20 percent).

## 4.3 Number of Children at First Use of Contraception

Table 4.4 shows the percent distribution of ever-married women by the number of living children at the time they first used contraception. Fourteen percent of women, or 38 percent of ever-users start using contraception before having their second child. This tendency to begin using contraception early—probably for the purpose of spacing births—is most noticeable among younger women, i.e. women under 35 years of age.

Table 4.3 Ever use of contraception

Among ever-married women and currently married women, the percentage who have ever used a contraceptive method, by specific method and age, Yemen 1997

| | | | Modern method | | | | | | | | Traditional method | | | | Folk method | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | Any method | Any modern method | Pill | IUD | Inject-ables | Dia-phragm/ foam/ jelly | Con-dom | Female steri-liza-tion | Male steri-liza-tion | Im-plants | Any trad. method | Safe period | With-draw-al | Pro-longed breast-feeding | Any folk meth-od | Herbs, Arab medi-cine | Soap, salt | Other | Any trad./ folk method | Number of women |
| EVER-MARRIED WOMEN | | | | | | | | | | | | | | | | | | | | |
| 15-19 | 13.3 | 5.9 | 4.5 | 1.1 | 1.1 | 0.1 | 0.6 | 0.0 | 0.0 | 0.0 | 9.9 | 1.3 | 2.1 | 7.6 | 0.2 | 0.2 | 0.0 | 0.0 | 9.9 | 1,110 |
| 20-24 | 32.9 | 15.6 | 10.8 | 4.4 | 1.9 | 1.1 | 2.0 | 0.0 | 0.0 | 0.0 | 24.1 | 4.5 | 5.9 | 19.1 | 0.6 | 0.5 | 0.0 | 0.2 | 24.3 | 1,992 |
| 25-29 | 41.4 | 23.9 | 16.8 | 7.0 | 4.7 | 1.1 | 3.3 | 0.3 | 0.0 | 0.0 | 29.2 | 5.5 | 7.6 | 22.4 | 1.0 | 0.9 | 0.1 | 0.1 | 29.5 | 1,943 |
| 30-34 | 44.1 | 27.7 | 20.8 | 9.5 | 4.4 | 2.2 | 3.0 | 0.7 | 0.1 | 0.1 | 29.6 | 6.4 | 8.2 | 22.3 | 1.2 | 0.7 | 0.3 | 0.3 | 30.0 | 1,680 |
| 35-39 | 45.0 | 30.0 | 20.6 | 10.5 | 5.8 | 2.5 | 3.8 | 2.3 | 0.2 | 0.1 | 27.9 | 5.1 | 7.2 | 21.9 | 1.6 | 1.4 | 0.1 | 0.5 | 28.7 | 1,766 |
| 40-44 | 42.4 | 28.0 | 19.5 | 7.0 | 5.8 | 1.9 | 2.4 | 4.7 | 0.6 | 0.0 | 24.4 | 3.3 | 5.1 | 20.3 | 1.6 | 1.1 | 0.2 | 0.4 | 25.8 | 1,091 |
| 45-49 | 38.1 | 24.4 | 16.4 | 5.2 | 5.1 | 2.6 | 2.1 | 3.8 | 0.3 | 0.1 | 22.6 | 3.2 | 4.1 | 18.7 | 1.5 | 0.8 | 0.3 | 0.4 | 23.1 | 833 |
| Total | 37.7 | 22.5 | 15.9 | 6.7 | 4.0 | 1.6 | 2.6 | 1.4 | 0.1 | -- | 25.0 | 4.5 | 6.2 | 19.6 | 1.1 | 0.8 | 0.1 | 0.3 | 25.4 | 10,414 |
| CURRENTLY MARRIED WOMEN | | | | | | | | | | | | | | | | | | | | |
| 15-19 | 13.3 | 5.9 | 4.4 | 1.1 | 1.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 9.9 | 1.4 | 2.0 | 7.6 | 0.2 | 0.2 | 0.0 | 0.0 | 10.0 | 1,063 |
| 20-24 | 33.6 | 16.1 | 11.0 | 4.5 | 2.0 | 1.1 | 2.1 | 0.0 | 0.0 | 0.0 | 24.6 | 4.7 | 6.1 | 19.4 | 0.6 | 0.5 | 0.0 | 0.3 | 24.8 | 1,902 |
| 25-29 | 42.0 | 24.1 | 16.8 | 7.2 | 4.7 | 1.2 | 3.4 | 0.3 | 0.0 | 0.0 | 29.7 | 5.6 | 7.8 | 22.8 | 0.9 | 0.8 | 0.0 | 0.1 | 30.0 | 1,855 |
| 30-34 | 45.2 | 28.7 | 21.5 | 9.8 | 4.6 | 2.4 | 3.1 | 0.8 | 0.1 | 0.1 | 30.4 | 6.5 | 8.7 | 22.8 | 1.3 | 0.7 | 0.3 | 0.3 | 30.8 | 1,585 |
| 35-39 | 46.8 | 31.5 | 21.6 | 11.0 | 6.2 | 2.7 | 3.9 | 2.5 | 0.2 | 0.1 | 28.9 | 5.3 | 7.7 | 22.7 | 1.7 | 1.4 | 0.1 | 0.5 | 29.8 | 1,637 |
| 40-44 | 43.8 | 28.7 | 20.1 | 7.1 | 6.1 | 1.9 | 2.5 | 4.9 | 0.6 | 0.0 | 24.8 | 3.4 | 5.0 | 20.6 | 1.6 | 1.1 | 0.2 | 0.5 | 26.3 | 999 |
| 45-49 | 39.4 | 25.4 | 17.1 | 5.4 | 5.2 | 2.5 | 2.0 | 4.2 | 0.3 | 0.1 | 23.5 | 3.4 | 4.5 | 19.3 | 1.6 | 0.9 | 0.4 | 0.4 | 24.0 | 746 |
| Total | 38.6 | 23.1 | 16.3 | 6.9 | 4.2 | 1.7 | 2.7 | 1.4 | 0.1 | -- | 25.6 | 4.7 | 6.4 | 20.0 | 1.1 | 0.8 | 0.1 | 0.3 | 26.1 | 9,786 |

-- Less than 0.05 percent

Table 4.4 Number of children at first use of contraception

Percent distribution of ever-married women by number of living children at the time of first use of contraception, according to current age, Yemen 1997

| Current age | Never used contraception | Number of living children at time of first use of contraception | | | | | | Total | Number of women | Median number of children |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4+ | Missing | | | |
| 15-19 | 86.7 | 1.4 | 9.9 | 1.5 | 0.3 | 0.1 | 0.0 | 100.0 | 1,110 | 0.5 |
| 20-24 | 67.1 | 1.3 | 20.4 | 7.1 | 2.6 | 1.4 | 0.1 | 100.0 | 1,992 | 0.7 |
| 25-29 | 58.6 | 0.6 | 17.5 | 8.0 | 6.7 | 8.6 | -- | 100.0 | 1,943 | 1.3 |
| 30-34 | 55.9 | 0.7 | 12.7 | 6.4 | 5.3 | 18.9 | 0.1 | 100.0 | 1,680 | 2.4 |
| 35-39 | 55.0 | 0.2 | 10.4 | 5.3 | 4.6 | 24.4 | 0.1 | 100.0 | 1,766 | 3.5 |
| 40-44 | 57.6 | 0.5 | 9.7 | 5.0 | 3.1 | 24.1 | 0.0 | 100.0 | 1,091 | 3.7 |
| 45-49 | 61.9 | 0.1 | 8.8 | 3.8 | 2.2 | 23.0 | 0.3 | 100.0 | 833 | 4.2 |
| Total | 62.3 | 0.7 | 13.7 | 5.8 | 3.9 | 13.4 | 0.1 | 100.0 | 10,414 | 1.7 |

-- Less than 0.05 percent

## 4.4 Reason For First Use of Contraception

The YDMCHS questionnaire also obtained information on a woman's childbearing intentions at the time contraception was first used. These data are used in Table 4.5 to demonstrate the extent of interest in limiting or spacing births at the time of first use. Overall, 82 percent of ever-users began using contraceptive to delay the next birth, while 18 percent started using because they wanted no more children.

The proportion of women who began using family planning to avoid the next birth increases rapidly with the number of children the woman has at the time of first use. Among women with four or more children at the time of first use, 40 percent reported that they wanted no more children (see Figure 4.2).

The proportion of ever-users who adopted a family planning method for the first time for the purpose of spacing births rather than for limiting family size was higher among urban women than rural women, higher among more educated women than among those who are illiterate, and higher among those living in the Coastal region than in the Mountainous region.

## 4.5 Current Use of Contraception

The contraceptive prevalence rate (including prolonged breastfeeding) for currently married women (pregnant and non-pregnant) is 21 percent (see Table 4.6), or more than double the proportion in 1991-92. Almost half are using a modern method.

The modern methods most commonly used are the pill (4 percent) and the IUD (3 percent). One percent of women use injectables and the same proportion use female sterilization; 8 percent depend on prolonged breastfeeding, 2 percent use withdrawal, and 1 percent use periodic abstinence.

Table 4.6 also shows the percent distribution of currently married women by contraceptive method currently used, according to age. The pattern of differentials in current use of contraception by age is similar to the pattern for ever-use of contraception, i.e., women in their thirties have the highest level of use.

Table 4.5 Reproductive intentions at first use of contraception

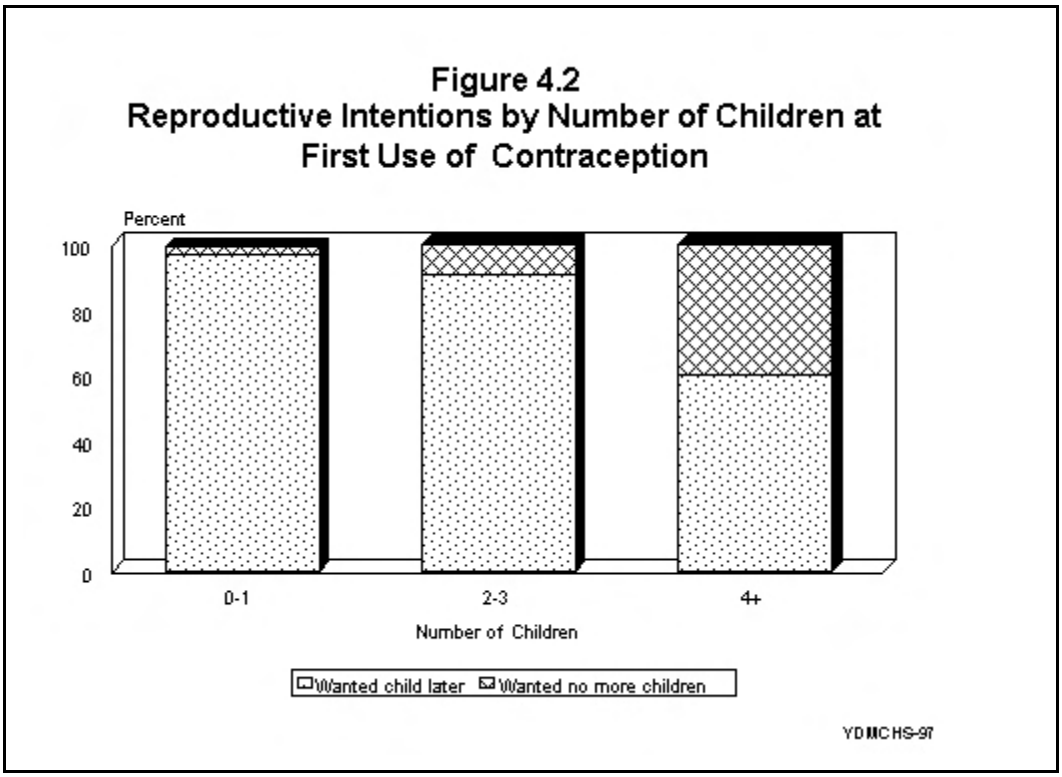
Percent distribution of ever-married women who have ever used a contraceptive method by reproductive intentions at the time of first use, according to selected background characteristics, Yemen 1997

| Background characteristic | Wanted child later | Wanted no more children | Other | Missing | Total | Number of women |
|---|---|---|---|---|---|---|
| **Age** | | | | | | |
| 15-19 | 96.2 | 3.2 | 0.5 | 0.0 | 100.0 | 147 |
| 20-24 | 93.7 | 5.4 | 0.6 | 0.3 | 100.0 | 655 |
| 25-29 | 87.7 | 11.4 | 0.8 | 0.1 | 100.0 | 805 |
| 30-34 | 83.8 | 16.1 | 0.1 | 0.0 | 100.0 | 741 |
| 35-39 | 75.3 | 23.8 | 0.3 | 0.6 | 100.0 | 795 |
| 40-44 | 67.8 | 32.2 | 0.0 | 0.0 | 100.0 | 462 |
| 45-49 | 68.6 | 31.0 | 0.0 | 0.4 | 100.0 | 318 |
| **Residence** | | | | | | |
| Urban | 86.0 | 13.6 | 0.3 | 0.1 | 100.0 | 1,553 |
| Rural | 79.2 | 20.1 | 0.4 | 0.3 | 100.0 | 2,371 |
| **Region** | | | | | | |
| Coastal | 89.9 | 9.9 | 0.1 | 0.2 | 100.0 | 774 |
| Mountainous | 75.2 | 23.5 | 0.7 | 0.6 | 100.0 | 922 |
| Plateau and Desert | 81.9 | 17.7 | 0.3 | 0.1 | 100.0 | 2,227 |
| **Education** | | | | | | |
| Illiterate | 79.0 | 20.3 | 0.4 | 0.3 | 100.0 | 3,005 |
| Literate | 89.7 | 10.3 | 0.0 | 0.0 | 100.0 | 296 |
| Primary complete | 91.1 | 8.5 | 0.4 | 0.0 | 100.0 | 349 |
| Preparatory complete | 91.7 | 7.4 | 0.9 | 0.0 | 100.0 | 108 |
| Secondary complete + | 94.1 | 5.9 | 0.0 | 0.0 | 100.0 | 166 |
| **Children at first use** | | | | | | |
| 0-1 | 96.6 | 2.4 | 0.8 | 0.2 | 100.0 | 1,508 |
| 2-3 | 90.7 | 9.3 | 0.0 | 0.0 | 100.0 | 1,008 |
| 4+ | 60.0 | 39.8 | 0.1 | 0.1 | 100.0 | 1,398 |
| Total | 81.9 | 17.5 | 0.3 | 0.2 | 100.0 | 3,924 |

Table 4.7 and Figure 4.3 highlights the differentials in contraceptive prevalence among currently married women, by residence, region, level of education, and current family size. A large difference in prevalence is observed between urban and rural areas. Thirty-six percent of urban women are using a contraceptive method, compared with only 16 percent of rural women. The prevalence rate in urban areas is more than twice that in rural areas. Prevalence in the Plateau and Desert region is also about twice as high as in the Mountainous region. Pronounced differences in current use exist by level of education. The proportion of married women using contraception increases dramatically from 18 percent among illiterate women to 32 percent among those with primary school completed, and then jumps to 49 percent among women with at least secondary education.

Contraceptive use increases with the number of living children. Current use is negligible among childless women and is 16 percent among women with one child. One in 4 women who has three or more children is currently using a method of contraception.

Figure 4.4 compares contraceptive prevalence by age and number of living children for the 1991-92 YDMCHS and the current survey. Since 1991-92, contraceptive use has doubled in the age group 20-24 (from 9 to 19 percent) and increased even more dramatically among women age 25-29 and 45-49. Except for childless women, contraceptive use has increased substantially in all groups regardless of the number of children.




## 4.6 Knowledge of the Fertile Period

Table 4.8 shows the percent distribution of currently married women who are using periodic abstinence and of ever-married women by knowledge of the fertile period. The most common response, given by 36 percent of women and 47 percent of users, was that risk of pregnancy was greatest after a woman's period ends. Only 8 percent of ever-married women and 29 percent of users correctly identified the middle of the cycle as the time a women is most likely to get pregnant. Six percent of periodic abstinence users compared with 3 percent of ever-married women believe that the most fertile time in the ovulatory cycle occurs just before the period begins. Almost one-third of ever-married women and 11 percent of users of periodic abstinence say they do not know when a woman is most likely to get pregnant during the ovulatory cycle.

## 4.7 Consultation Before Using the Pill

Table 4.9 presents the proportion of current users of the pill and nonusers who used the pill as their last method, by person consulted before use of the method, according to selected background characteristics.

Overall, 71 percent of women consulted doctors and 6 percent nurses/midwives; pharmacists were consulted by 4 percent while 3 percent consulted friends or neighbors. Eleven percent did not consult anyone.

For past users, about 73 percent consulted doctors, 5 percent nurses/midwives, and 4 percent pharmacists while 9 percent did not consult anyone. For current users, the most likely persons to be consulted are again doctors (69 percent), nurses/ midwives (8 percent), and pharmacists (4 percent). About 13 percent of current users did not consult anyone before use.

Table 4.6 Current use of contraception by age

Percent distribution of currently married women by contraceptive method currently used, according to age, Yemen 1997

| | | Modern method | | | | | | | | Traditional method | | | | Folk method | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | **Any method** | **Any modern method** | Pill | IUD | Inject-ables | Dia-phragm/ foam/ jelly | Con-dom | Female steri-liza-tion | Male steri-liza-tion | **Any trad. method** | Safe period | With-draw-al | Pro-longed breast-feeding | **Any folk meth-od** | Herbs, Arab medi-cine | Other | Not currently using | Total | Number of women |
| 15-19 | **8.6** | **2.7** | 1.2 | 0.8 | 0.5 | 0.0 | 0.1 | 0.0 | 0.0 | **6.0** | 0.1 | 0.8 | 5.1 | **0.0** | 0.0 | 0.0 | 91.4 | 100.0 | 1,063 |
| 20-24 | **18.7** | **6.1** | 3.0 | 2.5 | 0.4 | 0.0 | 0.1 | 0.0 | 0.0 | **12.6** | 0.9 | 1.3 | 10.3 | **0.1** | 0.1 | 0.0 | 81.3 | 100.0 | 1,902 |
| 25-29 | **24.2** | **9.8** | 4.1 | 3.4 | 1.6 | -- | 0.4 | 0.3 | 0.0 | **14.2** | 1.4 | 2.1 | 10.7 | **0.2** | 0.2 | 0.0 | 75.8 | 100.0 | 1,855 |
| 30-34 | **24.8** | **12.1** | 5.6 | 4.0 | 1.1 | 0.2 | 0.2 | 0.8 | 0.1 | **12.7** | 1.8 | 1.9 | 9.0 | **0.1** | 0.1 | 0.0 | 75.2 | 100.0 | 1,585 |
| 35-39 | **25.8** | **14.7** | 5.4 | 4.3 | 1.8 | -- | 0.5 | 2.5 | 0.2 | **10.9** | 1.3 | 2.2 | 7.4 | **0.2** | 0.1 | -- | 74.2 | 100.0 | 1,637 |
| 40-44 | **21.5** | **12.9** | 3.4 | 2.7 | 1.4 | 0.1 | 0.3 | 4.8 | 0.2 | **8.0** | 1.4 | 1.6 | 5.0 | **0.6** | 0.2 | 0.4 | 78.5 | 100.0 | 999 |
| 45-49 | **14.7** | **9.9** | 2.4 | 1.6 | 1.1 | 0.2 | 0.0 | 4.2 | 0.3 | **4.8** | 0.6 | 1.9 | 2.2 | **0.1** | 0.0 | 0.1 | 85.3 | 100.0 | 746 |
| Total | **20.8** | **9.8** | 3.8 | 3.0 | 1.2 | 0.1 | 0.3 | 1.4 | 0.1 | **10.8** | 1.1 | 1.7 | 8.0 | **0.2** | 0.1 | 0.1 | 79.2 | 100.0 | 9,786 |

-- Less than 0.05 percent

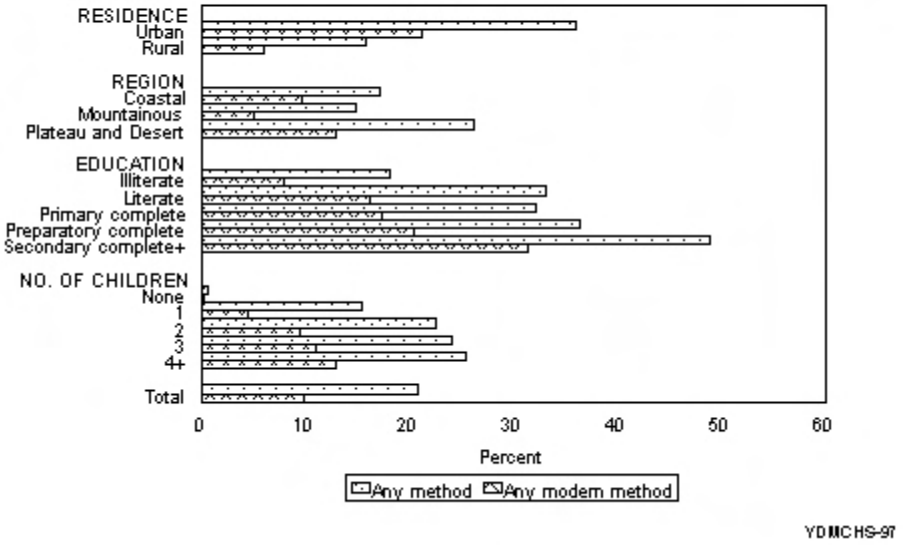
Table 4.7 Current use of contraception by background characteristics

Percent distribution of currently married women by contraceptive method currently used, according to selected background characteristics, Yemen 1997

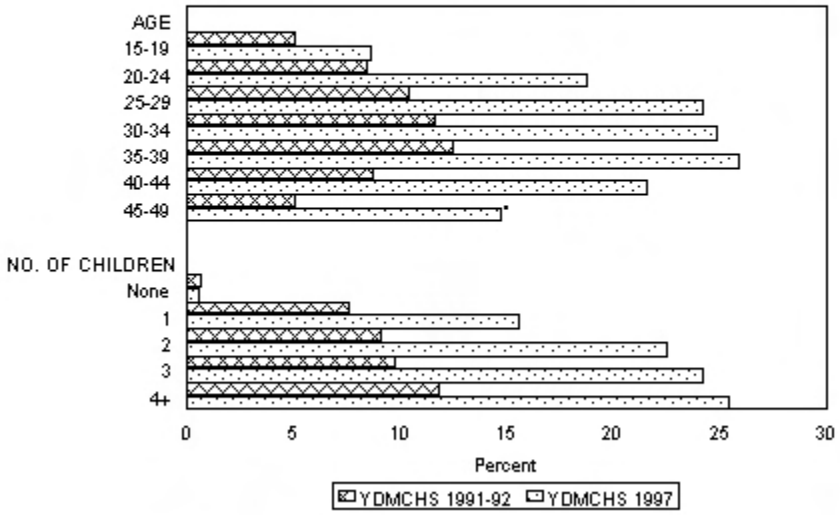
| Background characteristic | Any method | Modern method: Any modern method | Pill | IUD | Inject-ables | Dia-phragm/ foam/ jelly | Con-dom | Female steri-liza-tion | Male steri-liza-tion | Traditional method: Any trad. method | Safe period | With-draw-al | Pro-longed breast-feeding | Folk method: Any folk meth-od | Herbs, Arab medi-cine | Other | Not currently using | Total | Number of women |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residence** | | | | | | | | | | | | | | | | | | | |
| Urban | **36.0** | **21.2** | 9.2 | 7.3 | 1.0 | 0.2 | 0.8 | 2.4 | 0.3 | **14.5** | 3.1 | 4.3 | 7.2 | **0.3** | 0.2 | 0.1 | 64.0 | 100.0 | 2,427 |
| Rural | **15.8** | **6.1** | 2.1 | 1.6 | 1.2 | -- | 0.1 | 1.1 | 0.0 | **9.6** | 0.5 | 0.9 | 8.2 | **0.1** | 0.1 | 0.1 | 84.2 | 100.0 | 7,359 |
| **Region** | | | | | | | | | | | | | | | | | | | |
| Coastal | **17.2** | **9.6** | 6.5 | 1.7 | 0.1 | 0.1 | 0.1 | 1.0 | 0.2 | **7.3** | 2.1 | 1.2 | 4.0 | **0.3** | 0.2 | -- | 82.8 | 100.0 | 2,226 |
| Mountainous | **14.9** | **5.1** | 1.9 | 1.0 | 1.2 | 0.1 | -- | 1.0 | 0.0 | **9.7** | 0.3 | 0.9 | 8.5 | **0.0** | 0.0 | -- | 85.1 | 100.0 | 2,952 |
| Plateau and Desert | **26.3** | **12.9** | 3.8 | 4.9 | 1.7 | 0.1 | 0.4 | 1.9 | 0.1 | **13.2** | 1.3 | 2.5 | 9.5 | **0.2** | 0.1 | 0.1 | 73.7 | 100.0 | 4,608 |
| **Education** | | | | | | | | | | | | | | | | | | | |
| Illiterate | **18.1** | **8.0** | 2.6 | 2.3 | 1.3 | -- | 0.2 | 1.5 | 0.1 | **9.9** | 0.6 | 1.2 | 8.1 | **0.2** | 0.1 | -- | 81.9 | 100.0 | 8,248 |
| Literate | **33.1** | **16.2** | 9.3 | 4.3 | 0.2 | 0.3 | 0.5 | 1.6 | 0.0 | **16.4** | 2.7 | 4.2 | 9.5 | **0.6** | 0.3 | 0.2 | 66.9 | 100.0 | 528 |
| Primary complete | **32.2** | **17.4** | 10.0 | 5.6 | 0.6 | 0.1 | 0.3 | 0.7 | 0.1 | **14.8** | 4.1 | 4.5 | 6.2 | **0.0** | 0.0 | 0.0 | 67.8 | 100.0 | 595 |
| Preparatory complete | **36.5** | **20.5** | 7.8 | 8.9 | 0.0 | 0.0 | 1.8 | 1.7 | 0.2 | **15.7** | 4.8 | 4.3 | 6.7 | **0.3** | 0.3 | 0.0 | 63.5 | 100.0 | 185 |
| Secondary complete + | **49.0** | **31.4** | 15.5 | 12.8 | 0.5 | 0.4 | 1.6 | 0.2 | 0.4 | **17.6** | 8.4 | 4.3 | 4.8 | **0.0** | 0.0 | 0.0 | 51.0 | 100.0 | 230 |
| **Number of living children** | | | | | | | | | | | | | | | | | | | |
| None | **0.6** | **0.3** | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | **0.3** | 0.1 | 0.2 | 0.0 | **0.0** | 0.0 | 0.0 | 99.4 | 100.0 | 1,182 |
| 1 | **15.5** | **4.5** | 2.7 | 1.1 | 0.5 | 0.0 | -- | 0.2 | 0.0 | **11.0** | 0.8 | 0.9 | 9.3 | **0.0** | 0.0 | 0.0 | 84.5 | 100.0 | 1,146 |
| 2 | **22.5** | **9.5** | 4.6 | 3.7 | 0.4 | 0.0 | 0.3 | 0.5 | 0.0 | **13.0** | 1.6 | 1.9 | 9.5 | **0.0** | 0.0 | 0.0 | 77.5 | 100.0 | 1,082 |
| 3 | **24.2** | **11.0** | 5.0 | 3.9 | 0.9 | 0.0 | 0.4 | 0.7 | 0.1 | **13.1** | 1.4 | 1.7 | 10.0 | **0.1** | 0.1 | 0.0 | 75.8 | 100.0 | 1,087 |
| 4+ | **25.4** | **12.9** | 4.5 | 3.8 | 1.8 | 0.1 | 0.3 | 2.3 | 0.1 | **12.2** | 1.3 | 2.2 | 8.7 | **0.3** | 0.2 | 0.1 | 74.6 | 100.0 | 5,289 |
| Total | **20.8** | **9.8** | 3.8 | 3.0 | 1.2 | 0.1 | 0.3 | 1.4 | 0.1 | **10.8** | 1.1 | 1.7 | 8.0 | **0.2** | 0.1 | 0.1 | 79.2 | 100.0 | 9,786 |

– Less than 0.05 percent

## Figure 4.3
## Contraceptive Prevalence by Selected Background Characteristics




## Figure 4.4
## Trends in Contraceptive Use Among Currently Married Women 1991-92 YDMCHS and 1997 YDMCHS



4.8 Knowledge of the fertile period

Percent distribution of currently married women who are using periodic abstinence and of ever-married women by knowledge of the fertile period during the ovulatory cycle, Yemen 1997

| Knowledge of the fertile period | Currently married women who are using periodic abstinence | Ever-married women |
|---|---|---|
| **Believe fertile period is:** | | |
| During period | 0.0 | 0.1 |
| After period ends | 46.9 | 35.6 |
| Middle of the cycle | 29.1 | 7.9 |
| Before period begins | 5.5 | 3.2 |
| At any time | 7.2 | 22.0 |
| Other | 0.0 | 0.1 |
| Don't know | 11.3 | 31.1 |
| Missing | 0.0 | 0.1 |
| Total | 100.0 | 100.0 |
| Number | 112 | 10,414 |

The differentials in consulting medical professionals before starting use of the pill by residence and education are small.

## 4.8 Knowledge of Contraceptive Effects of Breastfeeding

Information on knowledge of the contraceptive effect of breastfeeding is shown in Table 4.10. About 4 in 10 currently married women believe that breastfeeding does not affect the chances of becoming pregnant. About 20 percent of women either do not know about the contraceptive effects of breastfeeding or believe that breastfeeding increases the risk of pregnancy. Only 32 percent correctly reported that breastfeeding can reduce the risk of pregnancy.

Differentials in knowledge of the contraceptive effects of breastfeeding by age show that correct knowledge is lowest among women under 20 (24 percent), and ranges from 32 to 34 percent among other age cohorts.

Correct knowledge of the contraceptive effect of breastfeeding is higher among women in urban areas, and in the Plateau and Desert region. Compared with illiterate and less educated women (32-37 percent), knowledge that breastfeeding can decrease pregnancy risk is slightly higher among those who have completed preparatory education and much higher among those with secondary or higher education (45 percent).

One in five women has at some time used breastfeeding to avoid pregnancy, 8 percent report they currently rely on breastfeeding as a contraceptive method which is the same percentage as reported current use of the method (see Table 4.6).

Four percent of currently married women meet the criteria for use of the lactational amenorrheic method (LAM) of family planning[1].

## 4.9 Timing of Sterilization

Table 4.11 shows the distribution of sterilized women by the age at which they had the procedure, according to the number of years prior to survey the procedure was done. The information is useful in understanding when a Yemeni woman is likely to want to use this method of contraception.

[1] Lactational amenorrheic method users are currently married women who are breastfeeding a child under six months of age, are still postpartum amenorrheic, and not feeding the child anything but breast milk, or breast milk and plain water.

Table 4.9 Consultation before using the pill

Percent distribution of women currently using the pill and women who are not using any method but who used the pills as their last method by person consulted before using the method, according to selected background characteristics, Yemen 1997

| Background characteristic | Doctor | Nurse/ midwife | Pharma- cist | Daya/ grand- mother | Neighbor/ friend | No one | Other | Missing | Total | Number of women |
|---|---|---|---|---|---|---|---|---|---|---|
| CURRENT USERS | | | | | | | | | | |
| **Residence** | | | | | | | | | | |
| Urban | 68.0 | 9.6 | 2.8 | 0.0 | 3.0 | 12.8 | 3.2 | 0.7 | 100.0 | 223 |
| Rural | 69.3 | 4.6 | 4.7 | 0.0 | 1.8 | 13.4 | 5.8 | 0.4 | 100.0 | 152 |
| **Education** | | | | | | | | | | |
| Illiterate | 65.3 | 5.7 | 3.9 | 0.0 | 3.1 | 16.4 | 5.0 | 0.7 | 100.0 | 217 |
| Literate | 63.8 | 16.7 | 3.0 | 0.0 | 1.2 | 5.7 | 8.4 | 1.1 | 100.0 | 49 |
| Primary complete | 73.7 | 5.3 | 5.5 | 0.0 | 0.0 | 13.8 | 1.8 | 0.0 | 100.0 | 59 |
| Preparatory complete | (72.2) | (15.9) | (0.0) | (0.0) | (4.4) | (7.6) | (0.0) | (0.0) | 100.0 | 14 |
| Secondary complete+ | (84.5) | (6.9) | (0.9) | (0.0) | (4.0) | (3.7) | (0.0) | (0.0) | 100.0 | 36 |
| Total | 68.5 | 7.6 | 3.6 | 0.0 | 2.5 | 13.0 | 4.2 | 0.6 | 100.0 | 376 |
| PAST USERS | | | | | | | | | | |
| **Residence** | | | | | | | | | | |
| Urban | 69.8 | 6.8 | 3.3 | 0.2 | 1.8 | 9.9 | 8.3 | 0.0 | 100.0 | 309 |
| Rural | 75.4 | 3.6 | 5.3 | 0.0 | 3.3 | 9.0 | 3.4 | 0.0 | 100.0 | 335 |
| **Education** | | | | | | | | | | |
| Illiterate | 74.3 | 3.7 | 4.0 | 0.0 | 3.0 | 9.9 | 5.0 | 0.0 | 100.0 | 472 |
| Literate | 64.1 | 6.0 | 8.5 | 0.0 | 1.6 | 9.1 | 10.8 | 0.0 | 100.0 | 66 |
| Primary complete | 66.6 | 13.1 | 3.0 | 0.8 | 1.7 | 5.7 | 9.1 | 0.0 | 100.0 | 71 |
| Preparatory complete | * | * | * | * | * | * | * | * | 100.0 | 15 |
| Secondary complete + | (85.3) | (7.0) | (3.8) | (0.0) | (0.0) | (4.0) | (0.0) | (0.0) | 100.0 | 20 |
| Total | 72.7 | 5.1 | 4.3 | 0.1 | 2.6 | 9.4 | 5.8 | 0.0 | 100.0 | 644 |
| TOTAL | | | | | | | | | | |
| **Residence** | | | | | | | | | | |
| Urban | 69.0 | 7.9 | 3.1 | 0.1 | 2.3 | 11.1 | 6.2 | 0.3 | 100.0 | 532 |
| Rural | 73.5 | 3.9 | 5.1 | 0.0 | 2.8 | 10.4 | 4.2 | 0.1 | 100.0 | 488 |
| **Education** | | | | | | | | | | |
| Illiterate | 71.5 | 4.3 | 4.0 | 0.0 | 3.0 | 11.9 | 5.0 | 0.2 | 100.0 | 689 |
| Literate | 64.0 | 10.6 | 6.2 | 0.0 | 1.4 | 7.7 | 9.8 | 0.5 | 100.0 | 115 |
| Primary complete | 69.8 | 9.5 | 4.1 | 0.4 | 0.9 | 9.4 | 5.7 | 0.0 | 100.0 | 131 |
| Preparatory complete | (71.8) | (10.6) | (1.8) | (0.0) | (2.1) | (13.7) | (0.0) | (0.0) | 100.0 | 30 |
| Secondary complete + | 84.8 | 6.9 | 1.9 | 0.0 | 2.6 | 3.8 | 0.0 | 0.0 | 100.0 | 56 |
| Total | 71.2 | 6.0 | 4.0 | 0.1 | 2.5 | 10.7 | 5.2 | 0.2 | 100.0 | 1,020 |

Note: Figures in parentheses are based on 25 to 49 women; as asterisk indicates that a figure is based on fewer than 25 women and had been suppressed.

The data indicate that women who decide to be sterilized generally have the procedure done later in their reproductive years. Over one-third (34 percent) of sterilized women had the operation at age 35-39, while 27 percent were sterilized at age 30-34. One in five sterilized women had the procedure when she was in her forties. The median age at sterilization is 34 years.

Table 4.10 Perceived contraceptive effect of breastfeeding

Percent distribution of currently married women by perceived risk of pregnancy associated with breastfeeding and percentage of currently married women who previously relied and who currently rely on breastfeeding to avoid pregnancy and percentage who meet lactational amenorrheic method (LAM) criteria, according to selected background characteristics, Yemen 1997

| Background characteristic | Perceived risk of pregnancy associated with breastfeeding | | | | | | Reliance on breastfeeding to avoid pregnancy | | Meet LAM criteria | Number of women |
|---|---|---|---|---|---|---|---|---|---|---|
| | Un-changed | In-creased | De-creased | Depends | Don't know/ Missing | Total | Previ-ously | Cur-rently | | |
| **Age** | | | | | | | | | | |
| 15-19 | 29.7 | 2.1 | 24.3 | 5.9 | 37.9 | 100.0 | 7.6 | 5.1 | 4.4 | 1,063 |
| 20-24 | 37.4 | 3.3 | 32.2 | 8.3 | 18.8 | 100.0 | 19.4 | 10.3 | 5.8 | 1,902 |
| 25-29 | 37.4 | 5.0 | 34.1 | 8.9 | 14.6 | 100.0 | 22.8 | 10.7 | 5.1 | 1,855 |
| 30-34 | 42.1 | 4.1 | 32.8 | 9.4 | 11.6 | 100.0 | 22.8 | 9.0 | 4.8 | 1,585 |
| 35-39 | 42.0 | 4.7 | 34.1 | 8.4 | 10.8 | 100.0 | 22.7 | 7.4 | 3.5 | 1,637 |
| 40-44 | 42.4 | 2.9 | 33.1 | 10.0 | 11.5 | 100.0 | 20.6 | 5.0 | 2.0 | 999 |
| 45-49 | 36.3 | 6.0 | 33.8 | 11.6 | 12.2 | 100.0 | 19.3 | 2.2 | 0.6 | 746 |
| **Residence** | | | | | | | | | | |
| Urban | 36.4 | 5.4 | 37.6 | 9.3 | 11.3 | 100.0 | 23.6 | 7.2 | 3.3 | 2,427 |
| Rural | 39.2 | 3.6 | 30.6 | 8.6 | 18.0 | 100.0 | 18.8 | 8.2 | 4.5 | 7,359 |
| **Region** | | | | | | | | | | |
| Coastal | 34.4 | 5.7 | 30.2 | 7.7 | 22.0 | 100.0 | 10.8 | 4.0 | 3.7 | 2,226 |
| Mountainous | 41.2 | 3.7 | 28.2 | 9.3 | 17.6 | 100.0 | 19.6 | 8.5 | 4.8 | 2,952 |
| Plateau and Desert | 38.8 | 3.5 | 36.0 | 8.9 | 12.8 | 100.0 | 24.7 | 9.5 | 4.1 | 4,608 |
| **Education** | | | | | | | | | | |
| Illiterate | 39.1 | 3.8 | 31.5 | 8.6 | 17.0 | 100.0 | 19.7 | 8.1 | 4.4 | 8,248 |
| Literate | 36.7 | 4.5 | 36.5 | 8.5 | 13.9 | 100.0 | 21.7 | 9.5 | 4.3 | 528 |
| Primary complete | 38.2 | 6.6 | 32.3 | 10.2 | 12.6 | 100.0 | 20.7 | 6.2 | 3.5 | 595 |
| Preparatory complete | 33.3 | 2.7 | 42.2 | 8.2 | 13.6 | 100.0 | 22.0 | 6.7 | 1.0 | 185 |
| Secondary complete+ | 28.4 | 6.0 | 44.5 | 11.1 | 10.1 | 100.0 | 22.2 | 4.8 | 3.1 | 230 |
| Total | 38.5 | 4.0 | 32.3 | 8.8 | 16.3 | 100.0 | 20.0 | 8.0 | 4.2 | 9,786 |

The data indicate that women who were sterilized in the four years preceding the survey were older, on average, than women who were sterilized four to seven years preceding the survey. For example, in the most recent period 30 percent of sterilizations were done by age 35 compared with 43 percent in the period four to seven years before the survey.

## 4.10 Problems With Current Method of Contraception

Problems experienced while using a family planning method may reduce the effectiveness of the method or lead to termination of use. An understanding of the problems users experience is therefore, important to improving family planning service delivery in Yemen.

In order to obtain information about problems associated with use of specific contraceptive methods, women who were using a modern method were asked if they had experienced any problems with their current method, and if so, what the problems were (Table 4.12).

4.11 Timing of sterilization

Percent distribution of sterilized women by age at the time of sterilization, according to the number of years since the operation, Yemen 1997

| Years since sterilization | Age at sterilization | | | | | | Total | Number of women | Median age |
|---|---|---|---|---|---|---|---|---|---|
| | <25 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | | | |
| <4 | 1.3 | 9.5 | 19.6 | 40.1 | 23.8 | 5.7 | 100.0 | 64 | 35.8 |
| 4-7 | 2.6 | 7.7 | 32.9 | 31.4 | 25.3 | U | 100.0 | 44 | 33.9 |
| 8+ years | (6.8) | (29.6) | (34.2) | (26.7) | (2.6) | U | 100.0 | 34 | NC |
| Total | 3.0 | 13.8 | 27.2 | 34.2 | 19.1 | 2.6 | 100.0 | 142 | 34.2 |

Note: Figures in parentheses are based on 25-49 women.
U = Unknown (Not available)
NC = Not calculated due to censoring

Table 4.12 Problems with current method of contraception

Percent distribution of currently married women who are using a modern contraceptive method by the main problem with the current method, Yemen 1997

| Main problem | Pill | IUD | Inject-ables | Condom | Female sterilization | Total |
|---|---|---|---|---|---|---|
| No problem | 66.9 | 59.2 | 61.3 | (90.4) | 65.7 | 64.6 |
| Health concerns | 31.1 | 36.8 | 36.5 | (9.6) | 33.3 | 32.8 |
| Method not efficient | 0.3 | 0.0 | 0.0 | (0.0) | 0.0 | 0.1 |
| Uncomfortable w/use | 1.4 | 3.9 | 2.2 | (0.0) | 0.5 | 2.2 |
| Other | 0.0 | 0.1 | 0.0 | (0.0) | 0.0 | 0.0 |
| Don't know/Missing | 0.3 | 0.0 | 0.0 | (0.0) | 0.6 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 376 | 293 | 113 | 25 | 138 | 960 |

Note: Total includes less than 25 users of vaginal methods and male sterilization. Figures in parentheses are based on 25-49 cases.

Ten percent of condom users and a sizeable proportion of women using injectables, the IUD, female sterilization, and the pill reported having problems with their methods. Around 40 percent of IUD and injectables users, and one-third of pill users reported having a problem with their method. Health concerns were the most frequently cited problem regarding the IUD (38 percent), injectables (38 percent), female sterilization (33 percent) and the pill (31 percent). All condom users who reported any problem, mentioned health concerns. One to four percent of women using modern methods reported that the method was uncomfortable to use.

The high proportion of women who report health concern regarding the pill, the IUD, and injectables underscores the need to provide information and assurances to current and potential users of these methods.

Table 4.13 Source for modern contraceptive methods

Percent distribution of currently married women who are using modern contraceptive methods by most recent source, according to specific methods, Yemen 1997

| Source | Pill | IUD | Injec-tables | Condom | Female sterili-zation | All modern methods[1] |
|---|---|---|---|---|---|---|
| **Public** | 51.3 | 48.0 | 19.6 | (33.4) | 73.7 | 49.4 |
| General hospital | 18.4 | 23.8 | 13.2 | (11.9) | 73.7 | 27.8 |
| Health center | 9.5 | 2.7 | 4.8 | (0.0) | 0.0 | 5.1 |
| Primary health care center | 1.2 | 1.2 | 0.0 | (0.0) | 0.0 | 0.8 |
| MCH center | 20.0 | 16.2 | 0.8 | (18.0) | 0.0 | 13.4 |
| Mobile clinic | 0.0 | 0.4 | 0.8 | (0.0) | 0.0 | 0.2 |
| Yemen Family Care Association | 2.2 | 3.6 | 0.0 | (3.5) | 0.0 | 2.1 |
| **Private (medical)** | 45.1 | 51.4 | 75.1 | (61.8) | 21.6 | 47.5 |
| Private dispensary | 1.0 | 8.8 | 16.1 | 0.0) | 7.1 | 6.2 |
| Private hospital | 1.0 | 8.6 | 4.8 | (0.0) | 11.6 | 5.3 |
| Cooperative health Inst. | 0.8 | 1.3 | 1.2 | (0.0) | 1.1 | 1.1 |
| Private doctor | 2.3 | 32.3 | 26.5 | (0.0) | 1.8 | 14.3 |
| Public field worker | 0.2 | 0.0 | 0.0 | (0.0) | 0.0 | 0.1 |
| Pharmacy | 39.8 | 0.5 | 26.4 | (61.8) | 0.0 | 20.6 |
| **Other private** | 0.2 | 0.3 | 0.0 | (0.0) | 0.0 | 0.2 |
| Other | 0.2 | 0.3 | 0.0 | (0.0) | 0.0 | 0.2 |
| Don't know | 2.9 | 0.0 | 4.6 | (4.8) | 0.6 | 1.9 |
| Missing | 0.6 | 0.3 | 0.7 | (0.0) | 4.1 | 1.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 376 | 293 | 113 | 25 | 142 | 964 |

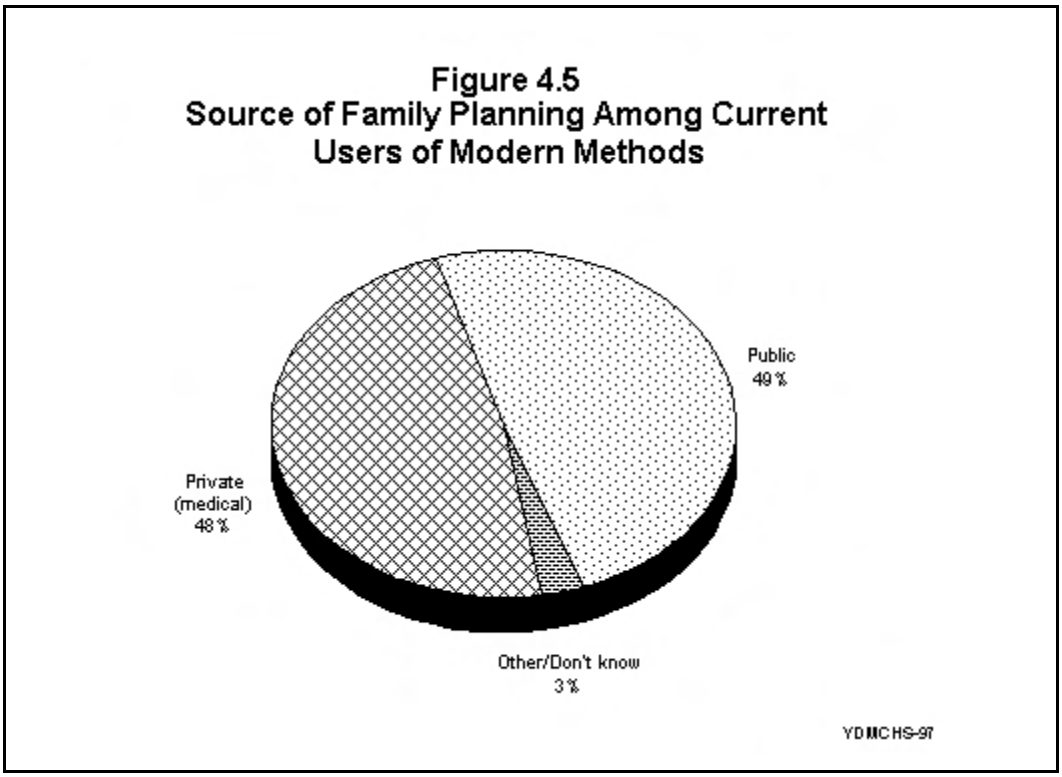
Note: Figures in parentheses are based on 25-49 cases.
[1] Includes vaginal methods and male sterilization which are not shown separately because there are fewer than 25 cases of each method.

## 4.11 Sources of Contraceptive Methods

The identification of sources of contraceptive methods for current users is important in order to evaluate the role played by various providers of family planning services and supplies in the public and private sectors. Women who were using a modern method of contraception at the time of the survey were asked where they obtained the method the last time.

As shown in Table 4.13 and Figure 4.5 the gap between public and private medical sources has almost disappeared. The public sector provided contraceptives to 57 percent of users in 1991-92. In 1997, this figure has dropped to 49 percent. General hospitals (28 percent) and MCH centers (13 percent) are the main public sources. Among private sources, pharmacies provide contraceptives to 21 percent of users while private doctors provide methods to 14 percent.

Public and private sources are almost equally likely to serve IUD users; for pill users, public sources have a slight edge over private medical sources (51 versus 45 percent); for other methods, the source of family planning varies by the method used. For example, more than three-fourths of sterilizations are performed by the public sector (general hospitals), whereas the private medical sector provides injectables to three-fourths of users of that method.




## 4.12 Intention to Use Contraception in the Future

Women who were not using any contraceptive method at the time of the survey were asked if they would use a family planning method in the future. Those who responded in the affirmative were also asked how long they would wait to use a method and what method they would prefer to use.

Table 4.14 shows the percent distribution of currently married women who were not using contraception by intention to use in the future. The results in the table are presented according to the number of living children (including current pregnancy). Sixty-four percent of currently married women who were not using any method indicated that they did not intend to use a method in the future (compared with 83 percent in the 1991-92 survey).

One-quarter of nonusers expressed a desire to use some method, 9 percent in the next 12 months and 4 percent after 12 months; 11 percent were unsure about when they would use a method, and another 12 percent were not sure whether or not they would use a method.

The method preferences of potential future users are shown in Table 4.15. The pill is the most popular choice (34 percent), the IUD is second (20 percent), followed by injectables (10 percent). Female sterilization is the preferred method for 5 percent of women, but less than 1 percent of women mentioned male sterilization method, vaginal methods, condoms, or implants. Women's preferences differ by timing of intended use (in the next 12 months or later). However, the pill, the IUD, and injectables are the most popular methods regardless of timing.

Table 4.14 Future use of contraception

Percent distribution of currently married women who are not using a contraceptive method by intention to use in the future, according to number of living children, Yemen 1997

| Future intention | Number of living children[1] 0 | 1 | 2 | 3 | 4+ | Total |
|---|---|---|---|---|---|---|
| Intend to use in next 12 months | 1.5 | 6.7 | 11.4 | 12.0 | 10.0 | 9.0 |
| Intend to use later (after 12 months) | 2.8 | 4.9 | 4.5 | 5.4 | 3.6 | 4.0 |
| Unsure as to timing | 17.5 | 11.8 | 12.2 | 9.6 | 8.5 | 10.5 |
| Unsure as to intention | 18.8 | 14.4 | 11.1 | 10.9 | 10.8 | 12.2 |
| Do not intend to use | 59.4 | 62.0 | 60.7 | 62.0 | 66.9 | 64.2 |
| Missing | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 908 | 974 | 882 | 849 | 4,137 | 7,750 |

[1]Includes current pregnancy

Table 4.15 Preferred method of contraception for future use

Percent distribution of currently married women who are not using a contraceptive method but who intend to use in the future by preferred method, according to intended use, Yemen 1997

| Preferred method of contraception | Intend to use: In next 12 months | After 12 months | Unsure as to timing | Total |
|---|---|---|---|---|
| Pill | 27.8 | 38.9 | 38.2 | 34.4 |
| IUD | 21.1 | 17.9 | 18.9 | 19.6 |
| Injectables | 11.6 | 10.3 | 8.0 | 9.8 |
| Diaphragm/Foam/Jelly | 0.2 | 0.0 | 0.1 | 0.1 |
| Condom | 0.6 | 1.3 | 0.4 | 0.6 |
| Female Sterilization | 6.1 | 5.9 | 2.7 | 4.5 |
| Male Sterilization | 0.3 | 0.0 | 0.0 | 0.1 |
| Implants | 0.6 | 0.7 | 0.2 | 0.4 |
| Periodic Abstinence | 4.1 | 3.1 | 2.8 | 3.3 |
| Withdrawal | 1.8 | 1.2 | 1.4 | 1.5 |
| Prolonged Breastfeeding | 11.6 | 4.0 | 6.0 | 7.8 |
| Folk method | 1.3 | 0.9 | 1.2 | 1.2 |
| Whatever doctor prescribes/ whatever is convenient | 5.5 | 4.7 | 5.6 | 5.4 |
| Don't know/Missing | 7.4 | 11.3 | 14.5 | 11.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 695 | 308 | 816 | 1,818 |

## 4.13 Reasons for Not Intending to Use Contraception

Currently married women who indicated that they did not intend to use a contraceptive method in the future were asked their reason for nonuse. The percent distribution of these women by reasons proffered for not intending to use a contraceptive method is presented in Table 4.16. The results in the table are shown by (a) two broad age groups and (b) fertility intentions by past experience with contraception. "Other" is a residual category of fertility intentions and includes women who could not be assigned to the categories "want more" or "want to limit".

Table 4.16 Reasons for not intending to use contraception

Percent distribution of currently married women who are not using a contraceptive method and who do not intend to use in the future by main reason for nonuse, according to age, fertility intentions, and ever use of contraception, Yemen 1997

| Main reason for not intending to use contraception | Age | | Fertility intentions | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Want more | | Want to limit | | | |
| | 15-29 | 30-49 | Used method | Never used method | Used method | Never used method | Other[1] | Total |
| Wants more children | 33.7 | 13.4 | 43.4 | 44.8 | (21.8) | 23.0 | 2.8 | 22.6 |
| Fear side effects | 11.4 | 12.4 | 12.8 | 7.9 | (26.1) | 8.0 | 15.2 | 11.9 |
| Health concerns | 5.8 | 9.3 | 9.4 | 3.6 | (22.3) | 4.3 | 11.0 | 7.7 |
| Interferes with body | 0.1 | 0.1 | 0.0 | 0.1 | ( 0.0) | 0.0 | 0.1 | 0.1 |
| Knows no method | 6.4 | 6.9 | 0.5 | 6.8 | ( 0.0) | 11.5 | 6.8 | 6.7 |
| Knows no source | 1.4 | 1.2 | 0.0 | 1.0 | ( 0.0) | 2.0 | 1.5 | 1.3 |
| Lack of access | 1.2 | 0.6 | 1.4 | 0.8 | ( 0.0) | 0.9 | 0.9 | 0.9 |
| Cost too much | 0.6 | 1.2 | 0.5 | 0.5 | ( 0.0) | 0.0 | 1.5 | 1.0 |
| Inconvenient to use | 0.5 | 2.0 | 3.2 | 0.5 | ( 0.0) | 0.0 | 2.0 | 1.4 |
| Religion prohibits | 17.1 | 17.3 | 6.7 | 16.3 | ( 7.9) | 25.8 | 18.2 | 17.2 |
| Respondent opposed | 2.3 | 1.8 | 3.0 | 2.3 | ( 3.7) | 4.1 | 1.5 | 2.0 |
| Husband opposed | 10.6 | 7.8 | 6.6 | 7.5 | ( 5.0) | 9.9 | 10.6 | 9.1 |
| Others opposed | 0.4 | 0.1 | 0.5 | 0.3 | ( 0.0) | 0.6 | 0.1 | 0.2 |
| God's will | 1.4 | 2.3 | 2.2 | 1.3 | ( 1.8) | 2.6 | 2.3 | 1.9 |
| Infrequent sex | 1.8 | 2.9 | 4.8 | 1.9 | ( 0.0) | 1.3 | 2.8 | 2.4 |
| Menopausal/hysterectomy | 0.3 | 8.2 | 0.8 | 0.1 | ( 0.0) | 0.0 | 9.0 | 4.6 |
| Subfecund/infecund | 1.0 | 8.9 | 1.1 | 0.8 | ( 0.0) | 2.4 | 9.7 | 5.3 |
| Other | 1.4 | 1.5 | 2.4 | 1.3 | ( 0.0) | 0.9 | 1.6 | 1.4 |
| Don't know | 2.5 | 2.1 | 0.4 | 2.1 | (11.5) | 2.7 | 2.5 | 2.3 |
| Missing | 0.1 | 0.1 | 0.4 | 0.1 | ( 0.0) | 0.0 | 0.0 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 2,253 | 2,720 | 223 | 2,007 | 35 | 212 | 2,496 | 4,973 |

Note: Figures in parentheses are based on 25-49 women
[1]Answers other than "want more" or "want no more" to the question on future reproductive intentions.

The reasons expressed by women for not intending to use family planning can be broadly grouped into the following categories: reasons related to contraceptive methods, attitude toward family planning, fatalistic attitude, and "other" reasons. The reasons related to contraceptive methods are lack of knowledge, side effects, inconvenience of use, and difficulty obtaining methods.

Twenty-three percent of women said they wanted more children and 10 percent reported that they were either menopausal or subfecund. Only 8 percent of nonusers said they would not use a contraceptive method because they lacked knowledge of methods or their sources while 1 percent mentioned lack of access to methods. Twelve percent of women had no plan to use contraception because of fear of side effects, 1 percent considered contraceptive methods inconvenient to use, and 1 percent said the cost of methods was too high.

About 28 percent of women gave attitudinal reasons. Although 2 percent were personally opposed to family planning, the remaining women in this category were split between religious prohibition (17 percent) and disapproval of husbands (9 percent). Two percent of women were fatalistic as far as family size was concerned and implied there was little they could do to control their fertility.

Younger women were more likely to mention wanting more children and older women were more likely to say they were menopausal or infecund/subfecund. The major difference in other reasons by age was health concerns and husband's disapproval. Younger women mentioned health concerns more often and older women mentioned husband's disapproval more often.

Among those who reported wanting more children, the major reason for not using contraception was desire to have more children (around 44 percent) whether they had or had not used a contraceptive method in the past, followed by religious prohibition on contraceptive use (16 percent), fear of side effects, and lack of knowledge of contraceptive methods among those who have never used a method. Among those who had had experience with contraceptive methods and wanted more children, the other important reasons for not intending to use were the side effects associated with contraceptive use (13 percent) and health concerns (9 percent).

Among those who reported wanting to limit family size but had never used a method, surprisingly, 23 percent said they would not use a method because they wanted more children. An even higher proportion (26 percent) does not intend to use because they believe that religion prohibits using family planning methods. One in seven women either does not know a method or does not know a source for a method.

## 4.14 Exposure to Family Planning Messages in the Electronic Media

Radio and television are the major sources of information about family planning. Information on the level of public exposure to family planning messages through various media allows policymakers to ensure the use of the most effective media for target groups. To assess the effectiveness of such media for dissemination of family planning information, respondents in the survey were asked if they had heard messages about family planning on radio or seen them on television in the few months preceding the survey.

Table 4.17 indicates that one-third of women either heard a family planning message on the radio or saw one on television during the few months preceding the interview. However, only 14 percent of women reported being exposed to family planning messages on both the radio *and* television. Overall, one-fourth of women heard a family planning message on the radio and 22 percent saw one on television.

Table 4.17 Heard about family planning on radio and television

Percent distribution of women by whether they have heard a radio and/or television message about family planning in the few months prior to the interview, according to selected background characteristics, Yemen 1997

| Background characteristic | Heard about family planning on radio or television: Radio and television | Radio only | Tele-vision only | Neither | Missing | Total | Number |
|---|---|---|---|---|---|---|---|
| **Age** | | | | | | | |
| 15-19 | 11.6 | 12.1 | 6.3 | 70.0 | 0.0 | 100.0 | 1,110 |
| 20-24 | 14.8 | 12.4 | 7.0 | 65.8 | 0.0 | 100.0 | 1,992 |
| 25-29 | 14.1 | 10.7 | 8.4 | 66.7 | -- | 100.0 | 1,943 |
| 30-34 | 14.6 | 9.1 | 7.5 | 68.8 | -- | 100.0 | 1,680 |
| 35-39 | 15.6 | 10.0 | 7.3 | 67.1 | 0.1 | 100.0 | 1,766 |
| 40-44 | 11.3 | 9.6 | 9.0 | 70.1 | 0.0 | 100.0 | 1,091 |
| 45-49 | 13.4 | 7.9 | 7.1 | 71.6 | 0.0 | 100.0 | 833 |
| **Residence** | | | | | | | |
| Urban | 27.5 | 6.8 | 19.8 | 45.9 | -- | 100.0 | 2,620 |
| Rural | 9.4 | 11.7 | 3.4 | 75.5 | -- | 100.0 | 7,794 |
| **Region** | | | | | | | |
| Coastal | 11.3 | 5.9 | 12.9 | 69.8 | 0.0 | 100.0 | 2,381 |
| Mountainous | 9.7 | 13.4 | 2.2 | 74.8 | 0.1 | 100.0 | 3,125 |
| Plateau and Desert | 18.0 | 10.8 | 8.3 | 62.9 | -- | 100.0 | 4,908 |
| **Education** | | | | | | | |
| Illiterate | 11.1 | 10.5 | 5.9 | 72.5 | -- | 100.0 | 8,765 |
| Literate | 25.2 | 11.7 | 12.5 | 50.6 | 0.0 | 100.0 | 571 |
| Primary complete | 29.3 | 10.0 | 15.8 | 44.9 | 0.0 | 100.0 | 638 |
| Preparatory complete | 33.6 | 11.6 | 20.6 | 34.1 | 0.0 | 100.0 | 198 |
| Secondary complete + | 35.2 | 7.5 | 22.6 | 34.8 | 0.0 | 100.0 | 241 |
| Total | 14.0 | 10.5 | 7.5 | 68.0 | -- | 100.0 | 10,414 |

-- Less than 0.05 percent

Differences in exposure to family planning messages on radio and television are generally small across age groups. Urban women are more likely to report exposure to family planning messages than rural women (54 and 25 percent, respectively). By region, the proportion of women who were exposed to family planning message during the few months before the interview varied from 25 percent in the Mountainous region to 37 percent in the Plateau and Desert region. Women who had completed primary school were slightly more likely to have been exposed to family planning messages through the broadcast media than less educated women. The proportion of women who heard a radio message and/or saw a television message increases from 28 percent among illiterate women to 65 percent among women with at least secondary education.

## 4.15 Acceptability of Media Messages on Family Planning

To determine the level of acceptance of the dissemination of family planning information through the media, women where asked in the YDMCHS whether it was acceptable to disseminate family planning information on the radio and television.

Overall, a majority of the women interviewed reported that it was acceptable to use radio (57 percent) for family planning massages (see Table 4.18). Acceptability of television was slightly lower (55 percent). Three-fourths of those who listen to local radio and 82 percent of those who watch local television consider broadcast of family planning messages on the respective media acceptable. Attitudes toward family planning messages on radio and television are similar according to various background characteristics.

Table 4.18 Acceptability of media messages on family planning

Percent of ever-married women by acceptability of messages about family planning on the radio or television, by selected background characteristics, Yemen 1997

| Background characteristic | Acceptability of radio message | | | Acceptability of TV message | | | Total | Number of women |
|---|---|---|---|---|---|---|---|---|
| | Not accept-able | Accept-able | Don't know/ Missing | Not accept-able | Accept-able | Don't know/ Missing | | |
| **Age** | | | | | | | | |
| 15-19 | 25.0 | 57.0 | 18.0 | 26.7 | 54.6 | 18.7 | 100.0 | 1,110 |
| 20-24 | 24.0 | 58.9 | 17.2 | 25.4 | 56.7 | 17.8 | 100.0 | 1,992 |
| 25-29 | 24.4 | 59.5 | 16.1 | 25.7 | 56.9 | 17.4 | 100.0 | 1,943 |
| 30-34 | 24.6 | 58.2 | 17.2 | 25.9 | 56.3 | 17.8 | 100.0 | 1,680 |
| 35-39 | 25.5 | 55.5 | 19.0 | 26.9 | 53.4 | 19.7 | 100.0 | 1,766 |
| 40-44 | 26.4 | 53.2 | 20.5 | 25.9 | 52.5 | 21.5 | 100.0 | 1,091 |
| 45-49 | 28.2 | 51.1 | 20.7 | 29.6 | 49.2 | 21.2 | 100.0 | 833 |
| **Residence** | | | | | | | | |
| Urban | 19.1 | 74.3 | 6.6 | 12.1 | 81.8 | 6.1 | 100.0 | 2,620 |
| Rural | 27.1 | 51.0 | 21.8 | 31.1 | 45.8 | 23.1 | 100.0 | 7,794 |
| **Region** | | | | | | | | |
| Coastal | 25.4 | 47.3 | 27.4 | 22.7 | 48.8 | 28.5 | 100.0 | 2,381 |
| Mountainous | 27.7 | 49.9 | 22.4 | 33.4 | 42.5 | 24.1 | 100.0 | 3,125 |
| Plateau and Desert | 23.4 | 66.1 | 10.6 | 23.6 | 65.7 | 10.7 | 100.0 | 4,908 |
| **Education** | | | | | | | | |
| Illiterate | 26.8 | 52.9 | 20.3 | 28.9 | 49.8 | 21.3 | 100.0 | 8,765 |
| Literate | 17.5 | 74.4 | 8.0 | 17.7 | 74.2 | 8.1 | 100.0 | 571 |
| Primary complete | 16.0 | 77.3 | 6.6 | 12.0 | 81.8 | 6.2 | 100.0 | 638 |
| Preparatory complete | 14.4 | 84.7 | 0.9 | 10.2 | 88.2 | 1.5 | 100.0 | 198 |
| Secondary complete + | 16.3 | 83.0 | 0.8 | 5.3 | 94.0 | 0.8 | 100.0 | 241 |
| **Watch local television** | | | | | | | | |
| Yes | 19.1 | 74.5 | 6.4 | 12.1 | 81.6 | 6.4 | 100.0 | 3,504 |
| No | 28.2 | 48.0 | 23.9 | 33.6 | 41.3 | 25.1 | 100.0 | 6,910 |
| **Listens to local radio** | | | | | | | | |
| Yes | 15.4 | 76.8 | 7.8 | 20.7 | 70.0 | 9.3 | 100.0 | 3,249 |
| No | 29.5 | 47.9 | 22.6 | 28.9 | 48.0 | 23.1 | 100.0 | 7,163 |
| Total | 25.1 | 56.9 | 18.0 | 26.3 | 54.9 | 18.8 | 100.0 | 10,414 |

Acceptability of family planning messages on radio and television varies slightly by age. Rural respondents (27 percent) are more likely than urban respondents (19 percent) to view family planning messages on the radio as unacceptable. There is more support for having family planning message on the radio among women in the Plateau and Desert region (66 percent) than women in the other regions (47 to 50 percent). Acceptability of family planning messages increases with education from 53 to 83 percent.

## 4.16 Exposure to Family Planning Messages in the Print Media

Respondents were asked if they had been exposed to a family planning message through newspaper(s)/magazines, posters, or leaflets/brochures (i.e., print media) during the few months prior to the interview. The results are presented in Table 4.19.

Less than 4 percent of women received a message about family planning from the print media. Newspapers/magazines were the source of family planning messages for 3 percent of respondents, while posters and leaflets/brochures were the source for 2 percent and 1 percent, respectively. Women in rural areas have almost no exposure to family planning messages in the print media (1 percent), compared with 11 percent in urban areas. Exposed to messages in the print media increases substantially with level of education. Only 18 percent of women who have completed primary education are exposed to family planning messages in the print media, compared with 40 percent of women who have completed secondary education. Similarly, young women (who are probably more educated than older women) are more likely to receive a message about family planning from print media. Only 1 percent of women in the Mountainous region compared with around 5 percent in the other two regions is exposed to family planning messages in the print media.

Table 4.19 Family planning messages in print

Percentage of ever-married women who have received a message about family planning from the print media in the few months prior to the interview, according to selected background characteristics, Yemen 1997

| Background characteristic | Any print media | Newspaper/ magazine | Poster | Leaflet/ brochure | Number of women |
|---|---|---|---|---|---|
| **Age** | | | | | |
| 15-19 | 5.2 | 3.7 | 2.6 | 2.2 | 1,110 |
| 20-24 | 4.9 | 3.7 | 2.6 | 1.8 | 1,992 |
| 25-29 | 4.9 | 3.7 | 3.1 | 1.6 | 1,943 |
| 30-34 | 3.8 | 3.0 | 2.4 | 0.9 | 1,680 |
| 35-39 | 2.3 | 1.6 | 1.3 | 1.0 | 1,766 |
| 40-44 | 2.2 | 1.4 | 1.3 | 0.9 | 1,091 |
| 45-49 | 1.4 | 1.0 | 0.7 | 0.5 | 833 |
| **Residence** | | | | | |
| Urban | 10.9 | 7.5 | 6.3 | 3.2 | 2,620 |
| Rural | 1.4 | 1.2 | 0.8 | 0.7 | 7,794 |
| **Region** | | | | | |
| Coastal | 5.5 | 3.4 | 3.3 | 1.1 | 2,381 |
| Mountainous | 1.1 | 1.1 | 0.6 | 0.5 | 3,125 |
| Plateau and Desert | 4.6 | 3.5 | 2.6 | 1.9 | 4,908 |
| **Education** | | | | | |
| Illiterate | 0.9 | 0.5 | 0.5 | 0.3 | 8,765 |
| Literate | 7.2 | 5.4 | 3.9 | 2.6 | 571 |
| Primary complete | 18.2 | 13.7 | 9.9 | 5.9 | 638 |
| Preparatory complete | 30.5 | 24.0 | 19.4 | 12.7 | 198 |
| Secondary complete + | 40.2 | 32.1 | 23.7 | 14.7 | 241 |
| Total | 3.8 | 2.8 | 2.2 | 1.3 | 10,414 |

## 4.17 Contact with Family Planning Providers

Table 4.20 shows the percentage of ever-married women who visited a health facility or physician for any reason in the 12 months prior to interview and the percentage who received information about family planning during the visit. About one-third of women visited a health facility in the 12 month prior to the interview and 21 percent of those who visited received information about family planning.

Table 4.20 Contact with family planning providers

Percentage of ever-married women who visited a health facility or a physician for any reason in the 12 months prior to interview and percentage of ever-married women who received information about family planning (FP) during the visit, according to current user status and selected background characteristics, Yemen 1997

| Background characteristic | Not using FP | | | Using FP | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Visited health facility | Discussed FP | No. of women who visited health facility | Visited health facility | Discussed FP | No. of women who visited health facility | Visited health facility | Discussed FP | No. of women who visited health facility |
| **Age** | | | | | | | | | |
| 15-19 | 30.1 | 13.5 | 307 | 49.0 | 21.4 | 45 | 31.7 | 14.5 | 352 |
| 20-24 | 32.7 | 16.0 | 534 | 47.9 | 29.7 | 170 | 35.4 | 19.3 | 705 |
| 25-29 | 31.4 | 17.0 | 469 | 51.6 | 34.1 | 232 | 36.1 | 22.6 | 701 |
| 30-34 | 30.5 | 18.4 | 392 | 46.5 | 34.7 | 183 | 34.2 | 23.6 | 575 |
| 35-39 | 28.6 | 14.8 | 384 | 48.3 | 38.1 | 204 | 33.3 | 22.9 | 588 |
| 40-44 | 25.4 | 15.3 | 222 | 47.4 | 32.1 | 103 | 29.8 | 20.6 | 325 |
| 45-49 | 25.3 | 13.0 | 182 | 47.5 | 42.2 | 52 | 28.2 | 19.6 | 235 |
| **Residence** | | | | | | | | | |
| Urban | 47.5 | 16.4 | 828 | 58.0 | 32.8 | 509 | 51.0 | 22.6 | 1,337 |
| Rural | 25.1 | 15.5 | 1,664 | 41.4 | 35.1 | 480 | 27.5 | 19.9 | 2,144 |
| **Region** | | | | | | | | | |
| Coastal | 34.8 | 11.9 | 696 | 53.6 | 23.8 | 206 | 37.9 | 14.6 | 902 |
| Mountainous | 21.4 | 13.1 | 573 | 36.4 | 29.5 | 160 | 23.5 | 16.6 | 734 |
| Plateau and Desert | 33.1 | 19.3 | 1,223 | 51.3 | 38.4 | 623 | 37.6 | 25.7 | 1,846 |
| **Education** | | | | | | | | | |
| Illiterate | 27.0 | 14.8 | 1,960 | 44.8 | 34.6 | 669 | 30.0 | 19.8 | 2,629 |
| Literate | 43.2 | 14.5 | 171 | 53.0 | 42.1 | 93 | 46.2 | 24.2 | 264 |
| Primary complete | 50.4 | 21.9 | 225 | 60.0 | 25.0 | 115 | 53.3 | 23.0 | 340 |
| Preparatory complete | 49.9 | 17.6 | 65 | 66.2 | 36.5 | 45 | 55.5 | 25.3 | 110 |
| Secondary complete + | 54.3 | 25.2 | 70 | 60.4 | 29.3 | 68 | 57.2 | 27.2 | 138 |
| Total | 29.8 | 15.8 | 2,492 | 48.5 | 33.9 | 989 | 33.4 | 20.9 | 3,481 |

Among family planning users, 49 percent had contact with a health facility and 34 percent got information about family planning. Among nonusers of family planing, only 30 percent visited a health facility and half of them got information from health service providers. Although a lower proportion of women in rural areas and women with less education visited health facilities, a proportionately lower proportion received information about family planning. For example, 51 and 28 percent of women, respectively, visited health facilities in urban and rural areas, but 23 and 20 percent of those who visited health facilities, respectively, received information on family planning in urban and rural areas.

## 4.18 Discussion of Family Planning with Husband

While husband-wife communication about family planning and agreement to use contraception is not necessary for adoption of certain methods, its absence may be a serious impediment to use. Interspousal communication is therefore an important intermediate step along the path to eventual adoption and sustained use of contraception. Lack of discussion may reflect a lack of personal interest, hostility to the subject, or a customary reticence in talking about sex-related matters. In order to gain

insight about spousal communication regarding family planning, currently married respondents in the YDMCHS were asked how often they had talked to their spouse about family planning in the past year. Data for currently married nonsterilized women are shown in Table 4.21.

Table 4.21 Discussion of family planning with husband

Percent distribution of currently married nonsterilized women who know a contraceptive method by the number of times family planning was discussed with their husband in the past year, according to age, Yemen 1997

| | Discussed family planning with husband | | | | | |
|---|---|---|---|---|---|---|
| Age | Never | Once or twice | More often | Missing | Total | Number of women |
| 15-19 | 46.4 | 29.5 | 23.9 | 0.2 | 100.0 | 813 |
| 20-24 | 40.0 | 28.3 | 31.7 | 0.1 | 100.0 | 1,630 |
| 25-29 | 36.1 | 28.2 | 35.6 | 0.1 | 100.0 | 1,537 |
| 30-34 | 36.9 | 27.7 | 35.2 | 0.1 | 100.0 | 1,359 |
| 35-39 | 41.4 | 21.5 | 36.9 | 0.1 | 100.0 | 1,344 |
| 40-44 | 49.6 | 21.4 | 28.9 | 0.1 | 100.0 | 783 |
| 45-49 | 53.7 | 22.8 | 23.5 | 0.0 | 100.0 | 588 |
| Total | 41.5 | 26.1 | 32.2 | 0.1 | 100.0 | 8,053 |

About 42 percent of women said they had not talked to their husband about family planning in the year preceding the survey while 26 percent had discussed it once or twice and 32 percent had discussed it more often. Women in the oldest and the youngest cohorts were least likely to have discussed family planning with their husband.

Use of family planning is facilitated when both husband and wife approve of its use. Table 4.22 shows the percent distribution of couples by wife's perception of her husband's attitude toward family planning, according to selected background characteristics. In 40 percent of couples, both husband and wife approve of family planning; in 22 percent both disapprove. In 12 percent of couples, the wife approves but the husband does not, while in 4 percent, the husband approves but the wife does not. There are marked differentials by level of education: the higher the wife's level of education, the more likely it is the couple approves of family planning. Partly for this reason, couples in urban areas are twice as likely to approve of family planning as those in rural areas. Couples' approval of family planning is highest in the Plateau and Desert region (48 percent) and lowest in the Mountainous region (29 percent).

Table 4.22 Attitudes of couples toward family planning

Percent distribution of currently married, nonsterilized women who know of a contraceptive method by wife's attitude toward family planning and wife's perception of her husband's attitude toward family planning, according to selected background characteristics, Yemen 1997

| Background characteristic | Both approve | Woman approves: Husband dis-approves | Woman approves: Husband's attitude unknown | Woman disapproves: Husband approves | Woman disapproves: Husband's attitude unknown | Both dis-approve | Respon-dent unsure | Missing | Total | Wife approves | Husband approves | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Age** | | | | | | | | | | | | |
| 15-19 | 32.7 | 11.5 | 12.6 | 3.2 | 8.8 | 20.2 | 10.9 | 0.0 | 100.0 | 56.9 | 36.6 | 813 |
| 20-24 | 40.3 | 13.5 | 7.2 | 3.2 | 4.7 | 22.0 | 9.1 | 0.1 | 100.0 | 61.0 | 44.4 | 1,630 |
| 25-29 | 44.8 | 12.5 | 5.3 | 2.5 | 5.4 | 21.3 | 8.0 | 0.2 | 100.0 | 62.7 | 48.7 | 1,537 |
| 30-34 | 45.2 | 12.3 | 5.4 | 3.0 | 4.8 | 19.0 | 10.0 | 0.4 | 100.0 | 62.9 | 49.0 | 1,359 |
| 35-39 | 41.5 | 10.7 | 5.1 | 4.4 | 4.6 | 21.5 | 12.0 | 0.2 | 100.0 | 57.4 | 47.7 | 1,344 |
| 40-44 | 33.5 | 11.5 | 5.9 | 5.0 | 7.5 | 23.5 | 13.0 | 0.1 | 100.0 | 50.9 | 40.3 | 783 |
| 45-49 | 31.1 | 10.6 | 6.9 | 4.5 | 7.7 | 25.0 | 14.2 | 0.0 | 100.0 | 48.6 | 37.0 | 588 |
| **Residence** | | | | | | | | | | | | |
| Urban | 61.2 | 11.0 | 4.7 | 3.0 | 2.5 | 12.8 | 4.6 | 0.1 | 100.0 | 77.0 | 65.7 | 2,285 |
| Rural | 31.7 | 12.4 | 7.3 | 3.7 | 7.0 | 24.9 | 12.7 | 0.2 | 100.0 | 51.5 | 36.5 | 5,768 |
| **Region** | | | | | | | | | | | | |
| Coastal | 36.5 | 8.5 | 6.3 | 3.4 | 8.1 | 24.4 | 12.8 | 0.1 | 100.0 | 51.4 | 41.6 | 1,868 |
| Mountainous | 28.7 | 13.0 | 8.3 | 3.4 | 8.4 | 23.4 | 14.6 | 0.2 | 100.0 | 50.1 | 33.3 | 2,176 |
| Plateau and Desert | 47.9 | 13.1 | 5.8 | 3.6 | 3.2 | 19.0 | 7.1 | 0.2 | 100.0 | 66.9 | 52.6 | 4,009 |
| **Education** | | | | | | | | | | | | |
| Illiterate | 34.5 | 12.6 | 6.8 | 3.9 | 6.4 | 23.7 | 12.1 | 0.2 | 100.0 | 53.8 | 39.6 | 6,608 |
| Literate | 59.2 | 9.6 | 6.2 | 1.9 | 4.3 | 14.4 | 4.4 | 0.0 | 100.0 | 75.0 | 61.8 | 488 |
| Primary complete | 65.0 | 10.9 | 5.5 | 1.8 | 2.6 | 10.6 | 3.2 | 0.4 | 100.0 | 81.4 | 67.8 | 558 |
| Preparatory complete | 66.0 | 11.3 | 4.6 | 2.3 | 1.9 | 12.4 | 1.5 | 0.0 | 100.0 | 82.0 | 69.1 | 174 |
| Secondary complete+ | 82.3 | 5.1 | 5.5 | 1.3 | 1.0 | 4.6 | 0.2 | 0.0 | 100.0 | 93.0 | 83.6 | 225 |
| Total | 40.1 | 12.0 | 6.6 | 3.5 | 5.7 | 21.5 | 10.4 | 0.2 | 100.0 | 58.7 | 44.8 | 8,053 |

# CHAPTER 5

# PROXIMATE DETERMINANTS OF FERTILITY

This chapter explores a number of factors other than contraception which affect a woman's chances of becoming pregnant and, thus, help to determine fertility levels in Yemen. They include marriage, postpartum amenorrhea, postpartum abstinence, and menopause. Marriage patterns have a major effect on fertility because they influence the onset of exposure to the risk of pregnancy. Populations in which women marry young are usually characterized by early childbearing and high lifetime fertility. Postpartum amenorrhea and postpartum abstinence, which determine the length of time a woman is insusceptible to pregnancy following childbirth, affect birth intervals and, thus fertility levels. Finally, the onset of menopause is important because the probability of becoming pregnant decreases as women near the end of their reproductive years and increasing proportions become infecund.

In the YDMCHS, questions about the proximate determinants of fertility were included in the individual questionnaire, which was administered only to ever-married women. However, a number of the tables which examine proximate determinants in this chapter are based on all women, i.e., on ever-married *plus* never-married women. In constructing these tables, the denominators have been expanded to the ratio of all women to ever-married women reported in the household questionnaire. The inflation factors are calculated by single years of age, either for the population as a whole or, in cases where the results are presented by background characteristics, separately for each category of the characteristic concerned.

## 5.1 Current Marital Status

Table 5.1 presents the distribution of women 15-49 by current marital status. Overall, 67 percent of women are currently married, 2 percent are widowed, 2 percent are divorced, and less than 0.5 percent are separated. Twenty-eight percent of women have never married. Currently, about three-fourths of women 15-19 and one-fourth of those 20-24 have not married. By age 50, almost all women marry. Widowhood increases with age; 6 and 8 percent of women 40-44 and 45-49, respectively, are widows. Divorced women are less than 1 percent among women 15-19 and 2 to 3 percent among women age 20 and over.

Table 5.1 Current marital status

Percent distribution of all women by current marital status, according to age, Yemen 1997

| | Marital status | | | | | | |
|---|---|---|---|---|---|---|---|
| Age | Never married | Married | Widowed | Divorced | Separated | Total | Number of women |
| 15-19 | 73.2 | 25.7 | 0.1 | 0.9 | 0.2 | 100.0 | 4,137 |
| 20-24 | 27.2 | 69.5 | 0.5 | 2.5 | 0.3 | 100.0 | 2,738 |
| 25-29 | 9.5 | 86.4 | 1.0 | 2.8 | 0.4 | 100.0 | 2,147 |
| 30-34 | 3.9 | 90.7 | 2.2 | 3.0 | 0.3 | 100.0 | 1,748 |
| 35-39 | 2.1 | 90.8 | 4.0 | 2.8 | 0.3 | 100.0 | 1,804 |
| 40-44 | 1.5 | 90.2 | 6.0 | 2.2 | 0.2 | 100.0 | 1,107 |
| 45-49 | 0.8 | 88.9 | 8.3 | 2.0 | 0.2 | 100.0 | 839 |
| Total | 28.3 | 67.4 | 2.0 | 2.1 | 0.3 | 100.0 | 14,521 |

## 5.2 Marriage Between Relatives

In Yemen, as in other Arab countries, marriage between blood relatives (consanguineous marriages), usually occurs between cousins. In the YDMCHS, currently married women who had married only once were asked "Is there a blood relation between you and your husband?" Women who were not currently married and those who had married more than once were asked, "Was there a blood relation between you and your (first) husband?" Table 5.2 indicates that 4 in 10 women had married a blood relative. One-fourth of ever-married women had married a first cousin on their father's side, 10 percent had married a first cousin on their mother's side, and 6 percent had married other relatives. There are indications that consanguineous marriages are becoming more common in Yemen. For example, 30 percent of women age 45-49 years had married a blood relative compared with 44 percent among women 20-24, an increase of almost 50 percent. Women who had married at younger ages and those who were married for shorter durations were more likely to have married a relative. Consanguineous marriages occur about equally among women in urban and rural areas and are slightly more likely to be found among women living in the Coastal than in the other regions. There is no relationship between prevalence of marriage between blood relatives and women's level of education. However, a slightly higher proportion of literate women or women who have completed primary schooling have married relatives than women in other education categories.

## 5.3 Remarriage

Marriage is not as stable in Yemen as it might appear from the small proportion of women who are currently divorced or widowed; remarriage is relatively common. Although, a large proportion of women (91 percent) have married only once; 9 percent have married more than once (see Table 5.3).

Not surprisingly, the proportion of women who have married more than once gradually increases with age because divorce and widowhood also increase with age. The proportion of women who have married at least twice increases from around 5 percent among women age 20-24 to 11 percent among women 30-34, and then rises to 16 percent among women in their forties. Dissolution of marriage is as likely to occur among women in rural areas as in urban areas. In the Coastal region, the proportion marrying only once is slightly higher than in the other regions. Illiterate women are more likely to have married more than once than women who are literate or have completed some level of education.

## 5.4 Polygyny

As a Muslim country, Yemen considers polygyny legal. Islam permits a man to have up to four wives at a time, provided the husband treats all of them equally. In order to collect information on the practice of polygyny, all currently married women in the survey were asked whether their husbands had other wives and if so, what was her rank. Table 5.4 shows the percentage of currently married women in polygynous marriages by age and selected background characteristics. Seven percent[1] of currently married women live in a polygynous marriage. Women living in urban areas and in the Coastal region are less likely to have co-wives (4-5 percent) than women in rural areas and the Mountainous region (8-9 percent). Although there is no clear-cut relationship between education and polygyny, polygyny is most common among illiterate women and least common among women with secondary or higher education.

The proportion of women living in a polygynous marriage increases with age from 4 percent among women age 15-19 percent to 10 percent among women 45-49. In general, this same pattern is seen for most background characteristics.

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[1] Four percent have one co-wife and 3 percent have two co-wives.

Table 5.2 Consanguinity

Percent distribution of ever-married women by relationship to their first husband, according to selected background characteristics, Yemen 1997

| Background characteristic | First cousin: Father's side | First cousin: Mother's side | Other relative | Not related | Missing | Total | Number of women |
|---|---|---|---|---|---|---|---|
| **Age** | | | | | | | |
| 15-19 | 28.3 | 10.7 | 7.9 | 52.9 | 0.2 | 100.0 | 1,110 |
| 20-24 | 27.0 | 10.6 | 6.8 | 55.4 | 0.2 | 100.0 | 1,992 |
| 25-29 | 23.7 | 9.5 | 6.4 | 60.2 | 0.3 | 100.0 | 1,943 |
| 30-34 | 23.9 | 9.8 | 5.7 | 60.4 | 0.3 | 100.0 | 1,680 |
| 35-39 | 22.0 | 9.3 | 5.6 | 62.8 | 0.3 | 100.0 | 1,766 |
| 40-44 | 22.3 | 8.2 | 5.1 | 64.2 | 0.2 | 100.0 | 1,091 |
| 45-49 | 20.9 | 6.3 | 3.1 | 69.6 | 0.1 | 100.0 | 833 |
| **Age at first marriage** | | | | | | | |
| <15 | 26.2 | 8.5 | 5.9 | 59.1 | 0.3 | 100.0 | 2,830 |
| 15 | 25.1 | 9.0 | 5.8 | 60.0 | 0.2 | 100.0 | 2,301 |
| 16-17 | 22.9 | 9.8 | 6.1 | 61.0 | 0.2 | 100.0 | 2,619 |
| 18-19 | 23.2 | 11.0 | 5.7 | 59.8 | 0.3 | 100.0 | 1,361 |
| 20-21 | 23.0 | 11.9 | 5.9 | 59.0 | 0.1 | 100.0 | 726 |
| 22-23 | 18.9 | 7.6 | 8.4 | 64.6 | 0.4 | 100.0 | 280 |
| 24+ | 21.1 | 8.0 | 6.3 | 64.7 | 0.0 | 100.0 | 296 |
| **Years since first marriage** | | | | | | | |
| < 5 | 27.3 | 10.4 | 7.2 | 55.0 | 0.1 | 100.0 | 2,042 |
| 5-9 | 25.8 | 10.2 | 6.8 | 56.9 | 0.2 | 100.0 | 1,763 |
| 10-14 | 22.1 | 10.4 | 6.2 | 61.0 | 0.3 | 100.0 | 1,722 |
| 15-19 | 23.7 | 9.1 | 5.5 | 61.3 | 0.3 | 100.0 | 1,573 |
| 20-24 | 23.5 | 9.3 | 5.4 | 61.4 | 0.4 | 100.0 | 1,596 |
| 25+ | 21.9 | 7.1 | 4.4 | 66.6 | 0.1 | 100.0 | 1,717 |
| **Residence** | | | | | | | |
| Urban | 21.2 | 9.4 | 8.0 | 61.3 | 0.1 | 100.0 | 2,620 |
| Rural | 25.2 | 9.5 | 5.3 | 59.8 | 0.3 | 100.0 | 7,794 |
| **Region** | | | | | | | |
| Coastal | 27.0 | 11.4 | 6.7 | 54.8 | -- | 100.0 | 2,381 |
| Mountainous | 23.0 | 8.9 | 4.4 | 63.3 | 0.4 | 100.0 | 3,125 |
| Plateau and Desert | 23.5 | 8.9 | 6.6 | 60.7 | 0.2 | 100.0 | 4,908 |
| **Education** | | | | | | | |
| Illiterate | 24.4 | 9.1 | 5.5 | 60.7 | 0.2 | 100.0 | 8,765 |
| Literate | 24.3 | 11.0 | 9.3 | 55.0 | 0.4 | 100.0 | 571 |
| Primary complete | 22.4 | 12.7 | 8.1 | 56.4 | 0.4 | 100.0 | 638 |
| Preparatory complete | 18.7 | 12.7 | 6.6 | 61.6 | 0.4 | 100.0 | 198 |
| Secondary complete+ | 24.7 | 6.7 | 9.0 | 59.6 | 0.0 | 100.0 | 241 |
| Total | 24.2 | 9.5 | 6.0 | 60.1 | 0.2 | 100.0 | 10,414 |

--Less than 0.05 percent

Table 5.3 Remarriage

Percentage of ever-married women who had married only once by current age and selected background characteristics, Yemen 1997

| Background characteristic | Current age | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| **Residence** | | | | | | | | |
| Urban | 98.5 | 95.6 | 92.8 | 88.6 | 87.8 | 87.1 | 80.1 | 90.7 |
| Rural | 98.2 | 96.8 | 92.3 | 88.7 | 85.1 | 83.4 | 84.9 | 90.5 |
| **Region** | | | | | | | | |
| Coastal | 99.8 | 96.4 | 95.0 | 92.2 | 88.2 | 87.7 | 86.8 | 92.4 |
| Mountainous | 98.5 | 96.5 | 92.5 | 88.7 | 83.3 | 82.1 | 83.0 | 90.0 |
| Plateau and Desert | 97.6 | 96.6 | 91.2 | 86.7 | 86.1 | 83.9 | 82.6 | 90.0 |
| **Education** | | | | | | | | |
| Illiterate | 97.8 | 96.1 | 91.8 | 88.2 | 85.7 | 84.4 | 83.5 | 89.7 |
| Literate | 100.0 | 96.9 | 95.1 | 93.1 | 80.6 | (84.3) | * | 94.1 |
| Primary complete | 99.6 | 99.0 | 95.6 | 90.0 | 87.8 | * | * | 95.9 |
| Preparatory complete | 98.5 | 93.9 | 87.3 | (84.7) | (91.7) | * | * | 92.7 |
| Secondary complete+ | * | 99.2 | 97.7 | 96.0 | (95.1) | * | * | 97.6 |
| Total | 98.3 | 96.5 | 92.4 | 88.7 | 85.8 | 84.4 | 83.8 | 90.6 |

Note: Figures in parentheses are based on 25 to 49 women; an asterisk indicates that a figure is based on fewer than 25 women and has been suppressed.

Table 5.4 Polygyny

Percentage of currently married women in a polygynous marriage by age and selected background characteristics, Yemen 1997

| Background characteristic | Age of woman | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| **Residence** | | | | | | | | |
| Urban | 2.5 | 4.5 | 5.0 | 4.9 | 7.1 | 6.4 | 7.1 | 5.3 |
| Rural | 3.8 | 5.7 | 6.9 | 9.2 | 9.5 | 9.0 | 11.2 | 7.6 |
| **Region** | | | | | | | | |
| Coastal | 1.8 | 1.9 | 2.6 | 6.7 | 7.1 | 4.8 | 3.2 | 4.2 |
| Mountainous | 4.0 | 7.6 | 8.4 | 10.0 | 8.8 | 11.4 | 12.3 | 8.7 |
| Plateau and Desert | 3.8 | 5.4 | 6.9 | 7.5 | 9.8 | 8.5 | 12.8 | 7.4 |
| **Education** | | | | | | | | |
| Illiterate | 4.0 | 5.8 | 7.0 | 8.5 | 8.9 | 8.2 | 10.4 | 7.6 |
| Literate | 3.6 | 4.2 | 5.4 | 5.9 | 14.4 | 9.7 | * | 5.9 |
| Primary complete | 1.6 | 4.4 | 0.5 | 4.2 | 3.8 | * | * | 3.4 |
| Preparatory complete | 2.9 | 6.3 | (15.8) | (11.2) | (0.0) | * | * | 6.8 |
| Secondary complete+ | * | 0.0 | 2.7 | 0.0 | (5.3) | * | * | 1.4 |
| Total | 3.5 | 5.4 | 6.4 | 8.1 | 8.8 | 8.4 | 10.3 | 7.1 |

Note: Figures in parentheses are based on 25 to 49 women; an asterisk indicates that a figure is based on fewer than 25 women and has been suppressed.

## 5.5 Age at First Marriage

Table 5.5 shows the percentage of women who have ever been married by specific exact ages, as well as the median age at first marriage, according to women's current ages. Overall, among women age 20-49, almost 8 percent were married by age 13, one-fourth by age 15, and three-fourths by age 20. Almost 90 percent had married by exact age 25. The median age at marriage for women 20-49 is 16.5 years; for women age 25-49 the median age is 16.0 years. The medians for age groups 20-49 and 25-49 are higher than the medians estimated for the same age groups in the 1991-92 YDMCHS, indicating a slight delaying of marriage by Yemeni women.

Table 5.5 Age at first marriage

Percentage of ever-married women who were first married by specific exact ages and median age at first marriage, according to current age, Yemen 1997

| Current age | Percentage of women who were first married by exact age: 13 | 15 | 18 | 20 | 22 | 25 | Percentage who had never married | Number of women | Median age at first marriage |
|---|---|---|---|---|---|---|---|---|---|
| 15-19 | 1.4 | 6.2 | NA | NA | NA | NA | 73.2 | 4,137 | a |
| 20-24 | 2.8 | 14.0 | 48.4 | 63.6 | NA | NA | 27.2 | 2,738 | 18.2 |
| 25-29 | 5.9 | 23.9 | 64.3 | 75.6 | 83.4 | 88.4 | 9.5 | 2,147 | 16.6 |
| 30-34 | 10.5 | 29.5 | 71.0 | 80.8 | 88.1 | 92.1 | 3.9 | 1,748 | 16.0 |
| 35-39 | 9.7 | 29.8 | 75.1 | 86.5 | 91.7 | 95.0 | 2.1 | 1,804 | 15.9 |
| 40-44 | 10.3 | 30.8 | 74.8 | 83.9 | 92.5 | 96.6 | 1.5 | 1,107 | 15.8 |
| 45-49 | 13.7 | 33.6 | 77.7 | 87.5 | 93.4 | 96.7 | 0.8 | 839 | 15.7 |
| 20-49 | 7.6 | 24.8 | 65.3 | 77.1 | 84.0 | 87.6 | 10.4 | 10,384 | 16.5 |
| 25-49 | 9.3 | 28.6 | 71.4 | 81.9 | 88.9 | 92.9 | 4.4 | 7,646 | 16.0 |

NA = Not applicable
[a] The median age was not calculated because less than 50 percent of the women in the age group *x* to *x+4* were first married by age *x*.

Data in the last column of Table 5.5 imply that there has been a slow but steady increase over the past 25 years in the age at which Yemeni women first marry. The median age has increased from 15.7 years among women age 45-49 to 16.6 years among those 25-29 and to 18.2 years among women age 20-24.

That women are postponing marriage can be seen in Table 5.5, which shows the percentage of women who were first married, by exact ages 13, 15, 18, 20, and 25, according to current age. For example, 30 percent of women over age 30 had married by age 15 compared with 14 and 6 percent of women age 20-24 and 15-19, respectively. Also, 64 percent of women 20-24 were married by age 20 compared with 81-88 percent among those over 30.

Table 5.6 examines differences in the median age at first marriage for women 20-49 by selected background characteristics. The age group 15-19 is not included in the table because less than 50 percent of teenage women had married by age 15. As noted above, the median ages at marriage for women 20-49 and 25-49 in Yemen are 16.5 and 16.0 years, respectively. The median age at first marriage is slightly higher for urban women than for rural women. In the Coastal region, women marry one year later than in the Mountainous or the Plateau and Desert region. Overall, the higher the level of education, the higher is the

median age at first marriage. Among women 25-49, the median age at first marriage for women who are illiterate is 16 years; for women who have completed primary schooling the median is 18 years, or two years higher. The difference in median age at first marriage between those who have completed primary and those who have completed at least secondary school is more than six years.

Table 5.6 Median age at first marriage

Median age at first marriage among women age 20-49 years, by current age and selected background characteristics, Yemen 1997

| Background characteristic | Current age | | | | | | Women age 20-49 | Women age 25-49 |
|---|---|---|---|---|---|---|---|---|
| | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | | |
| **Residence** | | | | | | | | |
| Urban | 19.4 | 17.8 | 16.2 | 15.8 | 15.7 | 15.6 | 16.9 | 16.3 |
| Rural | 17.9 | 16.3 | 16.0 | 15.9 | 15.9 | 15.7 | 16.3 | 15.9 |
| **Region** | | | | | | | | |
| Coastal | 19.6 | 18.0 | 17.2 | 16.5 | 16.0 | 15.9 | 17.4 | 16.8 |
| Mountainous | 17.4 | 16.2 | 15.7 | 15.8 | 15.9 | 15.6 | 16.1 | 15.8 |
| Plateau and Desert | 18.0 | 16.2 | 15.8 | 15.7 | 15.8 | 15.6 | 16.2 | 15.8 |
| **Education** | | | | | | | | |
| Illiterate | 17.5 | 16.2 | 15.8 | 15.7 | 15.8 | 15.6 | 16.0 | 15.8 |
| Literate | 18.1 | 17.2 | 17.0 | 16.7 | 16.4 | 18.2 | 17.5 | 17.0 |
| Primary complete | 18.0 | 17.6 | 18.2 | 18.2 | 19.4 | 17.0 | 18.0 | 17.9 |
| Preparatory complete | a | 22.7 | 21.3 | 19.3 | 20.7 | 17.7 | a | 20.9 |
| Secondary complete+ | a | b | 24.8 | 22.3 | 23.8 | 24.5 | a | 24.3 |
| Total | 18.2 | 16.6 | 16.0 | 15.9 | 15.8 | 15.7 | 16.5 | 16.0 |

Note: Medians are not shown for women 15-19 because less than 50 percent have married by age 15 in all subgroups shown in the table.
[a] The median age was not calculated because less than 50 percent of the women in the age group were first married by age 20.
[b] The median age was not calculated because less than 50 percent of the women in the age group were first married by age 25.

## 5.6 Age Difference Between Spouses

Table 5.7 examines the differences in age between currently married women and their husbands. Thirty-nine percent of women are married to men who are the same age or at most four years older. The majority of women are married to men much older than they are. For 33 percent of currently married women, the husbands are 5-9 years older, and for another 14 percent they are 10-14 years older. One in 10 women is married to a man at least 15 years older than her, half of them to men 20 or more years older.

That the difference in ages between spouses is decreasing is indicated by the lower mean age differences for younger women. The mean difference in husband's and wife's ages has decreased from 8 years for women in their forties to around 6 years for women under 30. The regional differences are small.

Women who have married more than once are more likely to be married to older men than women who have married only once. Although 7 percent of women who have married more than once are married to younger men, almost 1 in 7 women has a husband who is at least 20 years older than her. The mean age difference between spouses is 9.5 years for women who have married more than once or three years higher

than the average difference for women who have married only once. In a polygynous marriage, the gap between husband's and wife's ages increases dramatically according to rank of the woman. The first wife—as in the country as whole—is, on average, 7 years younger than her husband; the second wife is almost 16 years younger. The pattern continues with the third wife who is much younger than her husband, although the results are based on a small number of cases.

Table 5.7 Age difference between spouses

Percent distribution of currently married couples by age difference between spouses and mean age difference, according to selected background characteristics of the wife, Yemen 1997

| Background characteristics of wife | Wife older | Number of years by which husband is older than wife | | | | | Husband's age missing | Total | Number of women | Mean age difference (years) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0-4 | 5-9 | 10-14 | 15-19 | 20+ | | | | |
| **Age** | | | | | | | | | | |
| 15-19 | 0.8 | 42.6 | 39.4 | 10.1 | 3.8 | 2.2 | 1.1 | 100.0 | 1,063 | 6.2 |
| 20-24 | 2.6 | 46.7 | 30.5 | 12.4 | 3.4 | 3.4 | 0.9 | 100.0 | 1,902 | 6.0 |
| 25-29 | 2.9 | 41.0 | 35.1 | 12.6 | 3.6 | 3.8 | 1.0 | 100.0 | 1,855 | 6.3 |
| 30-34 | 2.4 | 35.5 | 34.3 | 15.0 | 5.2 | 6.2 | 1.4 | 100.0 | 1,585 | 7.2 |
| 35-39 | 3.9 | 37.8 | 29.8 | 14.0 | 6.5 | 7.2 | 0.9 | 100.0 | 1,637 | 7.4 |
| 40-44 | 4.5 | 28.7 | 29.1 | 20.5 | 7.7 | 8.3 | 1.2 | 100.0 | 999 | 8.2 |
| 45-49 | 3.2 | 29.0 | 28.5 | 19.9 | 11.4 | 6.3 | 1.9 | 100.0 | 746 | 8.3 |
| **Region** | | | | | | | | | | |
| Coastal | 2.7 | 36.0 | 35.0 | 14.9 | 5.3 | 5.3 | 0.9 | 100.0 | 2,226 | 7.2 |
| Mountainous | 3.1 | 40.9 | 30.9 | 13.2 | 5.4 | 5.1 | 1.5 | 100.0 | 2,952 | 6.6 |
| Plateau and Desert | 2.9 | 38.6 | 32.4 | 14.6 | 5.3 | 5.1 | 1.0 | 100.0 | 4,608 | 6.9 |
| **Number of unions** | | | | | | | | | | |
| One | 2.5 | 40.1 | 33.2 | 13.9 | 4.9 | 4.2 | 1.2 | 100.0 | 8,884 | 6.6 |
| More than one | 7.2 | 25.2 | 25.5 | 17.8 | 9.5 | 14.1 | 0.8 | 100.0 | 896 | 9.5 |
| **Type of union** | | | | | | | | | | |
| Monogamy | 2.9 | 40.1 | 33.4 | 13.7 | 4.8 | 3.9 | 1.1 | 100.0 | 9,095 | 6.5 |
| Polygyny | | | | | | | | | | |
| Rank 1 | 4.2 | 35.4 | 28.8 | 18.2 | 6.2 | 5.7 | 1.5 | 100.0 | 248 | 7.1 |
| Rank 2 | 1.3 | 11.1 | 17.6 | 23.6 | 15.4 | 30.6 | 0.3 | 100.0 | 373 | 15.5 |
| Rank 3+ | 1.2 | 5.2 | 5.9 | 15.4 | 22.1 | 49.3 | 0.9 | 100.0 | 47 | 20.8 |
| Total | 2.9 | 38.7 | 32.5 | 14.3 | 5.3 | 5.2 | 1.1 | 100.0 | 9,786 | 6.9 |

Note: Mean age difference is calculated by subtracting the mean age of wives from the mean age of husbands. Total includes women for whom the information on number of unions and the wife's rank was missing.

## 5.7 Ideal Age at Marriage for Women

All women surveyed in the YDMCHS were asked: "In your opinion, what is the most suitable age for your daughter/a girl to marry?" The results are presented in Table 5.8.

Adolescent marriages are still considered desirable by majority of women in Yemen. Six percent of ever-married women consider marriage before age 15 as the most suitable age for marriage and 5 percent mentioned ideal age at marriage when a girl reaches "adolescence." One percent would like a daughter/a girl to marry when she finishes school. Almost one-quarter consider 15 to be an ideal age for girls to marry and another one-quarter think 16 to 19 is the most suitable age. Only one-third of ever-married women consider age 20 or older as the ideal age at marriage for girls.

The proportion of women who mentioned 20 years or older as the ideal age at marriage increases with decreasing age of women, except for women 15-19, who have married during adolescence. Those under age 20 have the lowest proportion favoring marriage at age 20 or later. Not surprisingly, almost half of urban women compared with one-quarter of rural women consider age 20 or above as the most suitable age for daughters to marry. The proportion of women in the Plateau and Desert region who favor marriage at 20 years or later is higher than that in the other regions.

Education is strongly associated with favoring a late marriage for daughters. Only one-quarter of illiterate women compared with three-quarters of women with secondary or higher education would like their daughter/girl to marry after her twentieth birthday.

How does the respondent's attitude toward age at marriage for daughter compare with the age at which she herself was married? Table 5.9 presents the percent distribution of ever-married women by ideal age at marriage for daughter/girl relative to the respondent's age at marriage. The majority of women want their daughters/girls to marry at an age that is higher than the age at which they themselves were married; 14 percent want them to marry at the same age at which they were married. Overall, less than one-quarter (23 percent) of women reported an ideal age at marriage for their daughter that was lower than their own age at marriage. It is interesting to note that one-third of women who have at least completed secondary level consider earlier marriage as ideal. Some groups have a high proportion of women whose ideal age of marriage for their daughters is later than their own: urban women (63 percent), women who have completed the primary level (65 percent), and women who have completed preparatory level (71 percent).

## 5.8 Postpartum Amenorrhea and Insusceptibility

The risk of pregnancy following a birth is influenced by two factors: breastfeeding and sexual abstinence. Breastfeeding prolongs postpartum protection from conception through its effect on the length of the period of amenorrhea (the period prior to return of menses) following a birth. More frequent breastfeeding for longer durations as well as delays in the age at which supplementary foods are introduced are associated with longer periods of postpartum amenorrhea. 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 amenorrheic or abstaining following a birth.

The percentage of births occurring during the three years preceding the survey for which mothers are postpartum amenorrheic, postpartum abstaining, and postpartum insusceptible is shown in Table 5.10, according to the number of months since the birth. These distributions are based on current status information, i.e., on the proportions of births occurring *x* months before the survey for which mothers were amenorrheic, abstaining, and insusceptible at the time of the survey. Thus, the results presented in the table

Table 5.8 Ideal age at marriage for women

Percent distribution of ever-married women by age at first marriage considered most suitable for daughter/girl, according to background characteristics of women, Yemen 1997

| Background characteristics | Age at first marriage considered most suitable for daughter/girl | | | | | | | Non-numerical response | When reaches adol-escense | God's will | Other | Missing | Total | Median age at first marriage | Number of women |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <15 | 15 | 16-17 | 18-19 | 20-21 | 22-23 | 24+ | | | | | | | | |
| **Age** | | | | | | | | | | | | | | | |
| 15-19 | 5.9 | 26.1 | 17.8 | 12.2 | 20.1 | 1.9 | 3.7 | 1.6 | 4.3 | 2.0 | 3.5 | 0.9 | 100.0 | 18.0 | 1,110 |
| 20-24 | 5.2 | 23.4 | 13.8 | 11.1 | 27.6 | 3.4 | 5.9 | 0.6 | 3.7 | 3.0 | 1.3 | 0.9 | 100.0 | 18.9 | 1,992 |
| 25-29 | 5.5 | 22.8 | 15.3 | 10.6 | 25.5 | 3.7 | 5.5 | 0.8 | 4.0 | 3.2 | 2.7 | 0.5 | 100.0 | 18.7 | 1,943 |
| 30-34 | 4.9 | 20.4 | 16.0 | 11.9 | 25.1 | 2.9 | 5.7 | 1.3 | 4.4 | 3.8 | 3.0 | 0.7 | 100.0 | 18.9 | 1,680 |
| 35-39 | 5.2 | 20.8 | 15.6 | 12.0 | 24.7 | 2.9 | 5.3 | 1.1 | 4.6 | 4.6 | 2.3 | 0.9 | 100.0 | 18.9 | 1,766 |
| 40-44 | 5.2 | 24.7 | 12.7 | 13.6 | 21.5 | 2.4 | 5.1 | 0.5 | 5.0 | 6.0 | 2.1 | 1.2 | 100.0 | 18.7 | 1,091 |
| 45-49 | 7.4 | 21.1 | 16.8 | 9.1 | 22.9 | 2.5 | 4.4 | 1.0 | 8.0 | 3.8 | 2.1 | 0.8 | 100.0 | 18.6 | 833 |
| **Residence** | | | | | | | | | | | | | | | |
| Urban | 2.5 | 12.5 | 10.5 | 14.3 | 34.5 | 5.4 | 11.4 | 2.5 | 1.5 | 2.6 | 1.5 | 0.8 | 100.0 | 20.3 | 2,620 |
| Rural | 6.4 | 26.0 | 16.9 | 10.5 | 21.1 | 2.1 | 3.2 | 0.4 | 5.6 | 4.1 | 2.7 | 0.8 | 100.0 | 18.1 | 7,794 |
| **Region** | | | | | | | | | | | | | | | |
| Coastal | 5.3 | 21.4 | 19.6 | 9.6 | 22.2 | 3.1 | 7.6 | 1.5 | 1.5 | 5.6 | 1.8 | 0.9 | 100.0 | 18.5 | 2,381 |
| Mountainous | 6.9 | 26.5 | 13.8 | 10.6 | 20.0 | 2.3 | 2.7 | 0.3 | 7.1 | 5.5 | 3.4 | 0.7 | 100.0 | 18.3 | 3,125 |
| Plateau and Desert | 4.6 | 20.7 | 14.1 | 13.0 | 28.5 | 3.3 | 5.8 | 1.1 | 4.5 | 1.6 | 2.0 | 0.8 | 100.0 | 19.0 | 4,908 |
| **Education** | | | | | | | | | | | | | | | |
| Illiterate | 6.2 | 24.9 | 16.2 | 10.7 | 22.1 | 2.4 | 3.8 | 0.8 | 5.3 | 4.2 | 2.7 | 0.9 | 100.0 | 18.3 | 8,765 |
| Literate | 2.0 | 15.5 | 14.1 | 15.3 | 36.0 | 3.2 | 7.3 | 0.9 | 1.1 | 1.9 | 2.2 | 0.5 | 100.0 | 20.1 | 571 |
| Primary complete | 1.7 | 10.5 | 12.0 | 16.3 | 35.5 | 5.5 | 13.0 | 2.3 | 0.7 | 1.3 | 0.3 | 1.0 | 100.0 | 20.3 | 638 |
| Preparatory complete | 0.9 | 5.6 | 6.9 | 15.1 | 45.8 | 6.3 | 16.8 | 2.3 | 0.0 | 0.2 | 0.0 | 0.0 | 100.0 | 20.5 | 198 |
| Secondary complete+ | 0.6 | 1.4 | 2.3 | 14.4 | 37.6 | 12.3 | 25.5 | 3.8 | 0.3 | 1.0 | 0.3 | 0.5 | 100.0 | 20.9 | 241 |
| Total | 5.5 | 22.6 | 15.3 | 11.5 | 24.5 | 3.0 | 5.3 | 1.0 | 4.6 | 3.7 | 2.4 | 0.8 | 100.0 | 18.7 | 10,414 |

are based on cross-sectional data, representing the experience of mothers of all births at a single point in time rather than showing the cohort of births over time. The data are grouped in two-month intervals to minimize the fluctuations in the distributions. The prevalence/incidence mean is obtained by dividing the number of mothers who are amenorrheic, abstaining, and insusceptible by the average number of births per month over the 36-month period.

Table 5.9 Ideal age at first marriage for daughters

Percent distribution of ever-married women by age at marriage considered ideal for their daughters relative to respondent's age at marriage, according to selected background characteristics, Yemen 1997

| Background characteristic | Age at marriage considered ideal for daughters relative to respondent's age at marriage: Earlier than her marriage | Same as her marriage | Later than her marriage | Non-numerical response | Total | Number of women |
|---|---|---|---|---|---|---|
| **Residence** | | | | | | |
| Urban | 17.8 | 9.9 | 63.4 | 8.9 | 100.0 | 2,620 |
| Rural | 24.2 | 14.6 | 47.6 | 13.6 | 100.0 | 7,794 |
| **Region** | | | | | | |
| Coastal | 25.8 | 16.4 | 46.6 | 11.2 | 100.0 | 2,381 |
| Mountainous | 22.1 | 14.4 | 46.3 | 17.2 | 100.0 | 3,125 |
| Plateau and Desert | 21.3 | 11.5 | 57.2 | 10.0 | 100.0 | 4,908 |
| **Education** | | | | | | |
| Illiterate | 22.7 | 13.8 | 49.8 | 13.7 | 100.0 | 8,765 |
| Literate | 23.4 | 11.1 | 58.9 | 6.6 | 100.0 | 571 |
| Primary complete | 17.9 | 12.0 | 64.6 | 5.5 | 100.0 | 638 |
| Preparatory complete | 16.0 | 10.1 | 71.4 | 2.6 | 100.0 | 198 |
| Secondary complete+ | 32.9 | 13.0 | 48.3 | 5.9 | 100.0 | 241 |
| Total | 22.6 | 13.5 | 51.5 | 12.4 | 100.0 | 10,414 |

The percentage of births for which mothers are amenorrheic declines from 93 percent in the two-months immediately following a birth to 68 percent in the 2-3 months after a birth. By the period 6-7 months following a birth, fewer than half of the mothers (48 percent) are still amenorrheic, and by 12-13 months, only one-fifth of mothers have not resumed menstruation.

As in other Islamic countries, many couples in Yemen observe the traditional practice of abstaining from sexual relations for a period of 40 days (*Nifas)* following a birth. Reflecting this tradition, the proportion of births for which mothers are still abstaining decreases dramatically from 76 percent in the two-month period immediately following a birth to 19 percent at 2-3 months after a birth.

The combined effects of postpartum amenorrhea and postpartum abstinence are reflected in the period of postpartum insusceptibility following a birth. The duration of postpartum amenorrhea is the major determinant of the length of time a Yemeni woman is insusceptible to the risk of pregnancy. The median duration of amenorrhea is 6 months, as is the median duration of insusceptibility, while the duration of abstinence is less than 2 months. Overall, the proportion insusceptible at any duration postpartum is 1 to 2 percentage points higher than the proportion amenorrheic. The median and mean duration of insusceptibility are 6.4 and 9.4 months, respectively. The prevalence/incidence mean is 9.2 months.

Table 5.11 presents differentials in the median duration of postpartum amenorrhea, postpartum abstinence, and postpartum insusceptibility, according to selected background characteristics. Although the period of postpartum abstinence is about the same for both younger and older women, the period of amenorrhea and the period of insusceptibility are longer for older than younger women. The median duration of amenorrhea and insusceptibility is higher among women in rural than urban areas, illiterate than literate women, and women who have completed some level of schooling. The shortest period of insusceptibility is for woman who have completed secondary or higher education.

## 5.9 Menopause

After age 30, the risk of pregnancy declines with age as increasing proportions of women become infecund. Although the onset of infecundability is difficult to determine for an individual woman, there are ways of estimating it for the population. Table 5.12 presents data on menopause for women age 30-49. Eleven percent of women age 42-43 are currently menopausal; among younger women the percentages are much smaller (1 to 6 percent). Menopause sets in faster after age 42-43 and rises to 26 percent among women 48-49.

Table 5.10 Postpartum amenorrhea, abstinence and insusceptibility

Percentage of births in the three years preceding the survey for which mothers are postpartum amenorrheic, abstaining and insusceptible, by number of months since birth, and median and mean durations, Yemen 1997

| Months since birth | Amenorrheic | Abstaining | Insusceptible | Number of births |
|---|---|---|---|---|
| < 2 | 93.1 | 75.6 | 95.0 | 349 |
| 2-3 | 68.4 | 19.4 | 72.3 | 493 |
| 4-5 | 57.7 | 8.0 | 60.4 | 462 |
| 6-7 | 48.3 | 4.5 | 49.4 | 481 |
| 8-9 | 38.3 | 4.7 | 40.0 | 502 |
| 10-11 | 29.8 | 3.5 | 30.9 | 394 |
| 12-13 | 20.2 | 3.3 | 22.8 | 488 |
| 14-15 | 16.4 | 3.6 | 19.3 | 411 |
| 16-17 | 15.5 | 2.0 | 16.5 | 426 |
| 18-19 | 13.1 | 1.8 | 14.6 | 398 |
| 20-21 | 9.0 | 3.4 | 11.6 | 408 |
| 22-23 | 6.2 | 1.6 | 7.4 | 284 |
| 24-25 | 3.0 | 1.0 | 4.0 | 473 |
| 26-27 | 2.1 | 0.3 | 2.3 | 467 |
| 28-29 | 1.3 | 0.6 | 1.9 | 399 |
| 30-31 | 2.3 | 0.9 | 3.2 | 472 |
| 32-33 | 2.3 | 0.9 | 3.2 | 407 |
| 34-35 | 1.9 | 0.9 | 2.7 | 340 |
| Total | 24.4 | 7.1 | 26.0 | 7,653 |
| Median | 6.1 | 1.7 | 6.4 | - |
| Mean | 8.9 | 3.1 | 9.4 | - |
| Prevalence/ Incidence mean[1] | 8.6 | 2.5 | 9.2 | - |

[1]The prevalence-incidence mean is borrowed from epidemiology and is defined as the number of children whose mothers are amenorrheic (prevalence) divided by the average number of births per month (incidence).

Table 5.11 Median duration of postpartum insusceptibility by background characteristics

Median number of months of postpartum amenorrhea, postpartum abstinence, and postpartum insusceptibility, by selected background characteristics, Yemen 1997

| Background characteristic | Postpartum amenorrhea | Postpartum abstinence | Postpartum insuscep-tibility | Number of births |
|---|---|---|---|---|
| **Age** | | | | |
| <30 | 5.4 | 1.8 | 5.9 | 4,534 |
| 30+ | 7.8 | 1.6 | 8.3 | 3,119 |
| **Residence** | | | | |
| Urban | 5.1 | 1.6 | 5.4 | 1,716 |
| Rural | 6.5 | 1.8 | 7.0 | 5,937 |
| **Region** | | | | |
| Coastal | 6.5 | 1.8 | 6.9 | 1,678 |
| Mountainous | 6.2 | 1.6 | 6.5 | 2,320 |
| Plateau and Desert | 5.7 | 1.8 | 6.1 | 3,655 |
| **Education** | | | | |
| Illiterate | 6.5 | 1.7 | 7.0 | 6,427 |
| Literate | 3.8 | 1.5 | 4.3 | 436 |
| Primary complete | 4.8 | 2.1 | 4.8 | 500 |
| Preparatory complete | 2.4 | 0.6 | 4.8 | 140 |
| Secondary complete+ | 3.3 | 1.8 | 3.8 | 150 |
| Total | 6.1 | 1.7 | 6.4 | 7,653 |

Note: Medians are based on current status.

Table 5.12 Menopause

Percentage of nonpregnant, nonamenorrheic currently married women whose last period occurred six or more months preceding the survey or who report that they are menopausal, Yemen 1997

| Age | Percentage menopausal | Number of women |
|---|---|---|
| 30-34 | 1.3 | 1,680 |
| 35-39 | 2.7 | 1,766 |
| 40-41 | 6.0 | 484 |
| 42-43 | 10.8 | 471 |
| 44-45 | 17.3 | 339 |
| 46-47 | 23.6 | 335 |
| 48-49 | 26.2 | 295 |
| Total | 6.8 | 5,369 |

# CHAPTER 6

# FERTILITY PREFERENCES

The subject of reproductive preferences is of fundamental importance for population policy and for family planning programs. Whether couples want to cease childbearing or delay the next pregnancy determines the demand for family planning and the potential impact on the rate of reproduction. In the YDMCHS, women were asked a series of questions to ascertain their fertility preferences, for example, their desire to have a (another) child and the length of time they want to wait before having a (another) child. The data on fertility preferences of women and contraceptive use allow estimation of the demand for spacing (have another child later) and limiting births (have no more children) and unmet need for family planning. Another indicator of fertility preferences, perhaps the most common measure of reproductive preference, is the number of children desired. A comparison of respondents' stated ideal family size and their past reproductive behavior provides a measure of excess fertility and the wanted total fertility rates.

## 6.1 Future Reproductive Preferences

In order to obtain information on future childbearing preferences, nonsterilized, currently married women were asked the question: "Would you like to have a (another) child or would you prefer not to have any (more) children?" The words in parentheses were used for women who had already given birth. For pregnant women, the question was prefixed by the wording, "After the child you are expecting, ...". Women who wanted additional children were then asked how long they would like to wait before the birth of their next child. The small number of sterilized women who were not asked questions on future reproductive preferences are considered to want no more children in the tabulations regarding fertility preferences.

Table 6.1 and Figure 6.1 show the future reproductive intentions of currently married women by number of living children (including any current pregnancy). Overall, almost half of women do not want any more children in future (including 2 percent who are sterilized), 22 percent want to delay having another child for at least two years, and 17 percent of women desire to have another child soon. Thus, 7 in 10 currently married women may be considered to have a potential need for family planning services either for spacing or limiting births. Fertility preferences have changed substantially since the 1991-92 YDMCHS survey; the proportion of women who want to cease childbearing has increased from 36 percent to 49 percent.

The desire for an additional child in the future is strongly related (negatively) to the number of living children a woman has. Eighty-four percent of women who have not yet begun childbearing want a birth, and an overwhelming majority of them want to have a birth soon. Less than one-third of women who have one child express a desire to have another child soon and almost half would like to wait at least two years. Beginning with women who have three children, the percentage wanting another child either soon or later decreases with the number of children. The proportion who want no more children (including women who are sterilized but excluding women who have declared themselves infecund) increases from 42 percent among women with three or more children to 82 percent among women with seven or more children.

Fertility preferences vary by women's age in a somewhat similar pattern as they vary by number of living children (see Table 6.2). As expected, some older women declare themselves infecund and those who have achieved their fertility desires are more likely to want to limit childbearing. Younger women tend to want to delay having another child if they want additional children, and both the percentages of women wanting a child soon and wanting a child later decrease with age.

Table 6.1 Fertility Preferences by number of children

Percent distribution of currently married women by desire for children, according to number of living children, Yemen 1997

| Desire for more children | Number of living children[1] | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7+ | |
| Have another soon[2] | 69.3 | 31.4 | 17.5 | 14.4 | 10.0 | 8.0 | 5.2 | 2.8 | 16.9 |
| Have another later[3] | 11.5 | 45.5 | 44.9 | 30.8 | 25.5 | 16.5 | 12.2 | 4.4 | 21.8 |
| Wants, unsure timing | 3.3 | 3.7 | 4.2 | 4.2 | 3.9 | 2.8 | 1.8 | 1.0 | 2.8 |
| Undecided | 4.4 | 4.1 | 5.0 | 4.4 | 5.3 | 5.2 | 4.7 | 3.6 | 4.4 |
| Wants no more | 2.6 | 13.8 | 24.9 | 41.6 | 51.8 | 61.5 | 67.4 | 78.5 | 47.8 |
| Sterilized | 0.2 | 0.2 | 0.5 | 0.8 | 0.7 | 1.6 | 2.4 | 3.3 | 1.5 |
| Declared infecund | 8.5 | 0.9 | 3.0 | 3.6 | 2.6 | 4.2 | 6.3 | 6.0 | 4.5 |
| Missing | 0.1 | 0.4 | 0.0 | 0.1 | 0.3 | 0.1 | 0.0 | 0.4 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 915 | 1,152 | 1,125 | 1,112 | 1,041 | 982 | 944 | 2,515 | 9,786 |

[1]Includes current pregnancy
[2] Want next birth within two years
[3] Want to delay next birth for two or more years

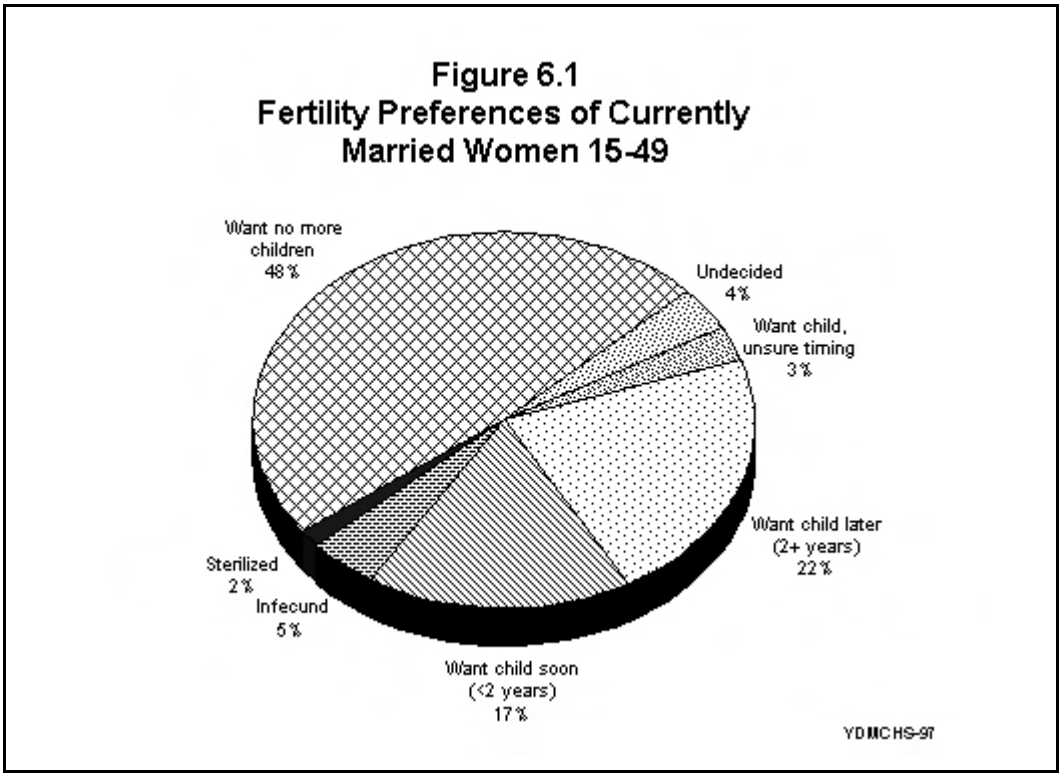


Table 6.2 Fertility preferences by age

Percent distribution of currently married women by desire for children, according to age, Yemen 1997

| Desire for more children | Age of woman | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| Have another soon [1] | 38.5 | 24.7 | 16.1 | 12.7 | 9.5 | 8.1 | 5.4 | 16.9 |
| Have another later [2] | 37.8 | 39.5 | 28.5 | 17.0 | 8.7 | 2.6 | 1.7 | 21.8 |
| Wants, unsure timing | 2.6 | 3.8 | 3.8 | 3.2 | 2.5 | 1.1 | 0.7 | 2.8 |
| Undecided | 4.7 | 4.6 | 4.9 | 4.5 | 3.9 | 3.8 | 4.2 | 4.4 |
| Wants no more | 14.8 | 25.5 | 44.9 | 59.5 | 68.9 | 68.4 | 60.1 | 47.8 |
| Sterilized | 0.0 | 0.0 | 0.3 | 0.9 | 2.6 | 5.0 | 4.5 | 1.5 |
| Declared infecund | 1.4 | 1.5 | 1.4 | 1.9 | 3.6 | 11.1 | 23.1 | 4.5 |
| Missing | 0.2 | 0.3 | 0.0 | 0.2 | 0.3 | 0.1 | 0.3 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 1,063 | 1,902 | 1,855 | 1,585 | 1,637 | 999 | 746 | 9,786 |

[1] Want next birth within two years
[2] Want to delay next birth for two or more years

Table 6.3 presents the percentage of currently married women who want no more children, by number of living children and selected background characteristics. Urban women are more likely to report that they want to cease childbearing than rural women (55 percent versus 47 percent). Around half of women in the Mountainous and the Plateau and Desert regions and a little less in the Coastal region (44 percent) want no more children. Also, half of women who are illiterate, and around 40 percent of those with less than secondary education want to cease childbearing. The lowest percentage of women who want no more children by level of education is among women who have completed secondary school or have higher education (37 percent), probably because they marry later, start childbearing later and have not yet completed their family. These variations generally hold at each parity.

The bottom panel of Table 6.3 examines the relation of current family composition to desire to have no more children. Except for women with no children, the lowest percentage of women who want to stop child bearing are those who have children of only one gender (21 and 28 percent). More than half of women who have the same number of boys as girls, and around two-thirds of women with an unequal number of boys and girls want no more children. There are only slight differences by family composition in the percentage of women wanting no more children when they have one or two children. Fertility preferences differ dramatically by family composition when women have more than two children. Among women with three or more children, from 27 to 31 percent of those with girls only want no more children compared with 50 to 61 percent of those with boys only. The corresponding percentages for women with other family compositions are 39 to 83 percent. The percentages wanting no more children are higher when women have more boys than girls or have the same number of boys and girls.

## 6.2 Preferred Sex of Next Child

In the YDMCHS nonpregnant, currently married women who desired to have more children were asked whether they would prefer their next child to be a boy or a girl. Table 6.4 presents the results on preferred sex of next child by number of living children and number of sons.

Table 6.3 Want 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, Yemen 1997

| Background characteristic | Number of living children[1] | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7+ | |
| **Residence** | | | | | | | | | |
| Urban | 1.5 | 16.6 | 29.5 | 53.2 | 60.2 | 73.2 | 79.8 | 88.8 | 55.3 |
| Rural | 3.1 | 13.0 | 23.8 | 37.8 | 49.6 | 59.8 | 66.9 | 79.7 | 47.3 |
| **Region** | | | | | | | | | |
| Coastal | 0.0 | 11.6 | 26.2 | 39.6 | 45.4 | 55.2 | 62.9 | 78.0 | 43.6 |
| Mountainous | 4.7 | 14.3 | 26.6 | 41.2 | 55.5 | 63.9 | 69.6 | 78.9 | 49.5 |
| Plateau and Desert | 2.9 | 14.9 | 24.2 | 44.7 | 54.1 | 66.1 | 73.2 | 85.1 | 51.9 |
| **Education** | | | | | | | | | |
| Illiterate | 3.0 | 11.6 | 22.3 | 39.8 | 51.2 | 62.6 | 68.9 | 81.6 | 51.1 |
| Literate | 2.8 | 16.3 | 38.9 | 48.4 | 47.4 | 58.2 | (80.3) | 80.9 | 40.9 |
| Primary complete | 2.7 | 18.5 | 32.0 | 51.4 | 61.9 | 66.5 | * | (92.9) | 39.0 |
| Preparatory complete | (1.9) | 24.3 | (43.4) | (52.3) | (64.7) | * | * | * | 40.7 |
| Secondary complete+ | (0.0) | 24.7 | 22.5 | 60.4 | (74.1) | * | * | * | 36.8 |
| **Family composition** | | | | | | | | | |
| No living children | 2.8 | 19.0 | NA | NA | NA | NA | NA | NA | 6.5 |
| All boys | NA | 11.5 | 23.3 | 49.9 | 61.3 | (60.1) | * | * | 28.4 |
| All girls | NA | 13.3 | 25.3 | 27.1 | 30.7 | (31.3) | * | * | 21.2 |
| Boys = girls | NA | NA | 27.1 | 48.5 | 56.5 | 64.4 | 69.3 | 79.9 | 54.8 |
| Boys > girls | NA | NA | NA | 44.4 | 55.7 | 65.3 | 76.0 | 83.2 | 70.2 |
| Boys < girls | NA | NA | NA | 39.4 | 47.9 | 64.3 | 65.0 | 81.4 | 67.3 |
| Total | 2.8 | 14.0 | 25.4 | 42.5 | 52.5 | 63.1 | 69.8 | 81.8 | 49.3 |

Note: Women who have been sterilized are considered to want no more children. Figures in parentheses are based on 25-49 unweighted cases, and an asterisk indicates that the figure is based on fewer than 25 cases and has been suppressed.
[1]Includes current pregnancy
NA = Not applicable

There is a slight preference for sons when women have not started childbearing and it persists at higher family sizes. The majority of women report no gender preference for the first child, 44 percent say "either," and 14 percent say they would accept "God's will." Women desire to have both boys and girls but, as family size increases, the desire to have a son increases more rapidly than the desire for a girl. For example, among women with one child, 57 percent of those who have no son would like their next child to be a boy while only 51 percent of women who have no daughter want a daughter. Among women with four children, 83 percent who do not have a son want a son while 64 percent of women with no daughter want a daughter. Proportions wanting an additional son among women who have one son are 28, 47, and 61 percent for women with two, three, and four children, respectively. Among women who have only one daughter, the proportions wanting an additional daughter are 10, 35, and 47 percent, respectively.

Table 6.4 Preferred sex of next child

Percent distribution of currently married, nonpregnant women who want another child, by gender preference of next child, according to number of living children and sons, Yemen 1997

| Number of children and sons | Gender preference | | | | | Total | Number of women |
|---|---|---|---|---|---|---|---|
| | Son | Daughter | No preference | God's will | Missing/ Other | | |
| **No children** | | | | | | | |
| No sons | 28.3 | 13.1 | 44.2 | 14.2 | 0.3 | 100.0 | 770 |
| **One child** | | | | | | | |
| No sons | 56.6 | 3.2 | 28.6 | 10.7 | 0.8 | 100.0 | 367 |
| One son | 8.0 | 51.2 | 29.1 | 11.7 | 0.0 | 100.0 | 366 |
| **Two children** | | | | | | | |
| No sons | 72.4 | 1.4 | 13.3 | 12.8 | 0.0 | 100.0 | 146 |
| One son | 28.1 | 9.5 | 41.1 | 20.5 | 0.9 | 100.0 | 271 |
| Two sons | 5.4 | 66.9 | 20.5 | 7.2 | 0.0 | 100.0 | 156 |
| **Three children** | | | | | | | |
| No sons | 76.4 | 0.0 | 7.0 | 16.6 | 0.0 | 100.0 | 65 |
| One son | 47.3 | 1.9 | 36.1 | 13.9 | 0.8 | 100.0 | 134 |
| Two sons | 14.7 | 35.3 | 36.9 | 12.7 | 0.4 | 100.0 | 181 |
| Three sons | (0.0) | (83.4) | (11.3) | (5.3) | (0.0) | 100.0 | 66 |
| **Four children** | | | | | | | |
| No sons | 82.6 | 2.9 | 12.7 | 1.8 | 0.0 | 100.0 | 38 |
| One son | 61.2 | 5.4 | 21.2 | 12.0 | 0.2 | 100.0 | 89 |
| Two sons | 28.4 | 6.3 | 41.0 | 24.3 | 0.0 | 100.0 | 99 |
| Three sons | 15.7 | 46.8 | 25.0 | 11.6 | 1.0 | 100.0 | 83 |
| Four sons | 12.4 | 64.1 | 11.4 | 12.1 | 0.0 | 100.0 | 19 |
| **Five children+** | | | | | | | |
| No sons | 86.4 | 0.0 | 10.6 | 3.0 | 0.0 | 100.0 | 25 |
| One son | 73.0 | 0.7 | 11.8 | 14.6 | 0.0 | 100.0 | 65 |
| Two sons | 39.2 | 2.2 | 40.4 | 18.3 | 0.0 | 100.0 | 110 |
| Three sons | 29.2 | 19.4 | 33.6 | 17.9 | 0.0 | 100.0 | 139 |
| Four sons | 20.3 | 26.4 | 43.7 | 8.5 | 1.1 | 100.0 | 104 |
| Five sons or more | 16.1 | 53.2 | 22.6 | 7.1 | 1.1 | 100.0 | 76 |
| **Family composition** | | | | | | | |
| No living children | 28.3 | 13.1 | 44.2 | 14.2 | 0.3 | 100.0 | 770 |
| All boys | 6.4 | 60.0 | 24.0 | 9.6 | 0.0 | 100.0 | 622 |
| All girls | 64.9 | 2.4 | 21.3 | 11.0 | 0.4 | 100.0 | 641 |
| Boys = Girls | 27.9 | 8.5 | 42.1 | 21.0 | 0.5 | 100.0 | 430 |
| Boys > Girls | 16.1 | 38.1 | 33.0 | 12.0 | 0.8 | 100.0 | 460 |
| Boys < Girls | 51.9 | 3.1 | 30.1 | 14.6 | 0.2 | 100.0 | 447 |
| Total | 32.6 | 21.2 | 32.4 | 13.3 | 0.3 | 100.0 | 3,369 |

Note: Figures in parentheses are based on 25-49 unweighted cases.

## 6.3 Need for Family Planning

One of the major concerns of family planning programs is to define the size of the potential demand for contraception and to identify women who are most in need of contraceptive services. Table 6.5 presents estimates of unmet need and met need for family planning services, and the total demand for services in Yemen as a whole and for various subgroups.

Table 6.5 Need for family planning services

Percentage of currently married women with unmet need, met need, and total demand for family planning services by selected background characteristics, Yemen 1997

| Background characteristic | Unmet need for family planning[1] | | | Met need for family planning (currently using)[2] | | | Total demand for family planning | | | Percentage of demand satis-fied | Number of women |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | For spacing | For limiting | Total | For spacing | For limiting | Total | For spacing | For limiting | Total | | |
| **Age** | | | | | | | | | | | |
| 15-19 | 27.3 | 4.9 | 32.3 | 6.5 | 2.1 | 8.6 | 33.9 | 7.0 | 40.9 | 21.1 | 1,063 |
| 20-24 | 27.9 | 8.1 | 36.0 | 12.2 | 6.5 | 18.7 | 40.1 | 14.7 | 54.7 | 34.2 | 1,902 |
| 25-29 | 21.5 | 20.2 | 41.7 | 11.8 | 12.4 | 24.2 | 33.2 | 32.7 | 65.9 | 36.7 | 1,855 |
| 30-34 | 17.5 | 27.4 | 44.9 | 6.9 | 18.0 | 24.8 | 24.3 | 45.4 | 69.8 | 35.6 | 1,585 |
| 35-39 | 9.0 | 33.3 | 42.3 | 3.2 | 22.6 | 25.8 | 12.2 | 55.9 | 68.0 | 37.8 | 1,637 |
| 40-44 | 3.2 | 34.9 | 38.1 | 1.5 | 20.0 | 21.5 | 4.7 | 54.9 | 59.6 | 36.0 | 999 |
| 45-49 | 1.3 | 24.1 | 25.3 | 0.8 | 13.9 | 14.7 | 2.1 | 37.9 | 40.1 | 36.8 | 746 |
| **Residence** | | | | | | | | | | | |
| Urban | 15.2 | 18.1 | 33.3 | 12.1 | 23.9 | 36.0 | 27.4 | 42.0 | 69.3 | 52.0 | 2,427 |
| Rural | 17.9 | 22.5 | 40.3 | 5.5 | 10.3 | 15.8 | 23.4 | 32.7 | 56.1 | 28.1 | 7,359 |
| **Region** | | | | | | | | | | | |
| Coastal | 17.3 | 18.9 | 36.1 | 6.3 | 10.8 | 17.2 | 23.6 | 29.7 | 53.3 | 32.2 | 2,226 |
| Mountainous | 16.2 | 24.3 | 40.5 | 5.0 | 9.9 | 14.9 | 21.2 | 34.2 | 55.4 | 26.9 | 2,952 |
| Plateau and Desert | 17.8 | 20.7 | 38.5 | 9.0 | 17.4 | 26.3 | 26.8 | 38.1 | 64.9 | 40.6 | 4,608 |
| **Education** | | | | | | | | | | | |
| Illiterate | 16.4 | 23.4 | 39.8 | 5.5 | 12.6 | 18.1 | 21.9 | 36.0 | 57.8 | 31.2 | 8,248 |
| Literate | 18.3 | 12.2 | 30.4 | 13.6 | 19.6 | 33.1 | 31.8 | 31.7 | 63.6 | 52.1 | 528 |
| Primary complete | 25.8 | 10.8 | 36.5 | 16.2 | 16.0 | 32.2 | 42.0 | 26.8 | 68.7 | 46.8 | 595 |
| Preparatory complete | 22.5 | 7.8 | 30.3 | 14.4 | 22.1 | 36.5 | 37.0 | 29.8 | 66.8 | 54.6 | 185 |
| Secondary complete+ | 18.0 | 7.7 | 25.7 | 23.6 | 25.4 | 49.0 | 41.6 | 33.2 | 74.7 | 65.6 | 230 |
| Total | 17.2 | 21.4 | 38.6 | 7.2 | 13.6 | 20.8 | 24.4 | 35.0 | 59.4 | 35.0 | 9,786 |

[1] Unmet need for *spacing* includes pregnant women whose pregnancy was mistimed, amenorrheic women whose last birth was mistimed, and women who are neither pregnant nor amenorrheic and who are not using any method of family planning but 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, amenorrheic women whose last child was unwanted, and women who are neither pregnant nor amenorrheic and who are not using any method of family planning but want no more children. Excluded from the unmet need category are menopausal or infecund women.

[2] Using for *spacing* is defined as women who are using some method of family planning and say they want to have another child or are undecided whether to have another. Using for *limiting* is defined as women who are using and who want no more children.

*Unmet need for family planning (*shown in columns 1-3 of Table 6.5) includes the following two groups of married women.

(1) Women who are in need of family planning for *spacing* purposes. This group includes pregnant women whose pregnancy was mistimed (i.e., wanted later); amenorrheic women whose last birth was mistimed; women who are neither pregnant nor amenorrheic and who are not using any family planning method and say they want to wait two or more years for their next birth; and women who are unsure whether they want another child or who want another child but are unsure when to have the birth.

(2) Women who are in need of family planning for *limiting* purposes. This group includes pregnant woman whose pregnancy was unwanted; amenorrheic women whose last child was unwanted; and women who are neither pregnant nor amenorrheic and who are not using any family planning method and say they want no more children.

Menopausal and infecund women are excluded from the unmet need category.

*Met need for family planning* (shown in columns 4-6 of Table 6.5) includes women who are currently using contraception. Using for *spacing* purposes refers to women who are using a family planning method and say they want to have another child or are undecided whether to have another. Using for *limiting* purposes refers to women who are using a family planning method and want no more children.

The *total demand for family planning* (shown in columns 7-9 of Table 6.5) represents the sum of unmet need and met need. The percentage of the total demand that is satisfied is shown in column 10 of Table 6.5.

According to Table 6.5, the total unmet need in Yemen is 39 percent, 17 percent for spacing and 21 percent for limiting. Unmet need rises with age from 32 percent among women age 15-19 to 45 percent among women age 30-34 and then declines to 38 percent among women age 40-44. More important, is the difference in type of unmet need by age. Younger women who have not completed their family goals have higher unmet need for spacing while older women have higher unmet need for limiting. More than one-quarter (27-28 percent) of women under 25 have unmet for spacing while one-third of women age 35-39 and 40-44 have unmet for limiting. Unmet need for spacing and limiting is about the same among currently married women 25-29. Unmet need for limiting is higher among rural than urban women and among women living in the Mountainous region than in the other regions. There is no association between overall unmet need and level of education but there is a negative relationship between education and unmet need for limiting. Illiterate women have much higher unmet need for limiting (23 percent) than women who are literate or women who have completed some level of schooling (8-12 percent).

By age, total demand for family planning shows a pattern similar to that of unmet need, peaking at age 30-34 at 70 percent; however, by residence, the pattern is reversed. Urban women have a higher total demand for family planning than rural women because urban areas also have a higher level of met need. Total demand for family planning generally increases with level of education.

The percentage of demand satisfied shows a different pattern from that of total demand for some characteristics and a similar pattern for other characteristics. For women 15-19 only 21 percent of demand is satisfied while 34-38 percent of demand is satisfied for other women. Family planning demand is satisfied for half of urban women compared with 28 percent of rural women. By region, the percentage of demand satisfied is highest in the Plateau and Desert region (41 percent) and lowest in the Mountainous region (27 percent). By education, the pattern for demand satisfied is similar to the pattern for total demand for family planning. Total demand satisfied varies from one-third for illiterate women to two-thirds for women who have completed secondary or higher education.

## 6.4 Ideal Number of Children

Another attitudinal dimension of childbearing considered in this chapter is the total number of children a woman would ideally like to have, if it were left entirely up to her. Information on what women consider the ideal family size was elicited through two questions. Respondent were asked: "If you could go back to the time you did not have children and could choose exactly the number of children to have in your whole life, how many would that be?" The question was slightly modified for women who had no children

at the time of the interview. To answer the question, a woman must undertake the difficult task of considering in the abstract, and independent of her actual family size, the number of children she would choose to have.

The results in Table 6.6 indicate that a fairly large proportion (almost the same as in the 1991-92 survey) gave non-numeric responses to the question on ideal family size (30 percent). The larger the current family size the greater is the likelihood of women giving non-numeric responses. Around one-fourth of women with fewer than five children, around one-third of women with five to eight children, and almost 4 in 10 women with larger families gave non-numeric answers. The failure to give a definite numerical answer suggests either an absence of conscious consideration of family size, or a belief that God or fate determines for a couple the number of children they would have.

Table 6.6 Ideal number of children

Percent distribution of ever-married women by ideal number of children and mean ideal number of children for ever-married women and for currently married women, according to number of living children, Yemen 1997

| Ideal number of children | Number of living children[1] | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ | |
| 0 | 2.6 | 2.0 | 3.4 | 4.3 | 4.6 | 4.9 | 5.5 | 4.9 | 4.8 | 5.7 | 5.3 | 4.1 |
| 1 | 2.3 | 3.2 | 2.0 | 1.3 | 1.4 | 1.4 | 1.1 | 1.4 | 1.7 | 1.6 | 0.5 | 1.7 |
| 2 | 20.9 | 16.3 | 17.3 | 11.1 | 11.7 | 11.9 | 10.7 | 9.1 | 10.3 | 9.1 | 6.2 | 12.9 |
| 3 | 6.1 | 8.3 | 7.2 | 8.9 | 3.4 | 4.1 | 4.7 | 3.3 | 4.2 | 3.9 | 4.1 | 5.6 |
| 4 | 23.1 | 24.6 | 24.2 | 19.6 | 24.2 | 13.6 | 9.9 | 13.8 | 13.8 | 13.9 | 13.9 | 18.6 |
| 5 | 5.8 | 6.7 | 6.0 | 7.9 | 5.0 | 10.1 | 4.5 | 3.2 | 4.1 | 5.3 | 4.3 | 5.9 |
| 6 | 7.5 | 9.1 | 8.5 | 11.1 | 11.9 | 10.7 | 15.6 | 9.2 | 7.0 | 7.7 | 10.3 | 10.0 |
| 7 | 1.3 | 1.2 | 1.2 | 1.7 | 1.9 | 1.6 | 2.1 | 6.2 | 0.8 | 0.9 | 0.5 | 1.8 |
| 8 | 1.4 | 1.2 | 1.9 | 2.5 | 2.6 | 4.0 | 5.0 | 5.1 | 9.7 | 3.9 | 2.9 | 3.4 |
| 9 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.5 | 0.6 | 0.9 | 0.7 | 3.1 | 0.7 | 0.6 |
| 10+ | 5.6 | 3.1 | 3.9 | 5.2 | 4.8 | 5.0 | 5.4 | 6.7 | 6.9 | 6.6 | 12.4 | 5.5 |
| Non-numeric response | 23.1 | 24.2 | 24.1 | 26.1 | 28.4 | 32.1 | 35.0 | 36.3 | 35.9 | 38.2 | 38.8 | 29.8 |
| Total | 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 | 1,027 | 1,279 | 1,205 | 1,178 | 1,092 | 1,026 | 993 | 899 | 681 | 491 | 543 | 10,414 |
| Mean ideal no. of children for ever-married women | 4.1 | 4.0 | 4.0 | 4.4 | 4.4 | 4.6 | 4.9 | 5.1 | 5.0 | 4.8 | 5.6 | 4.5 |
| Number of ever-married women | 790 | 969 | 915 | 871 | 782 | 697 | 646 | 572 | 437 | 303 | 332 | 7,313 |
| Mean ideal no. of children for currently married women | 4.2 | 4.1 | 4.1 | 4.5 | 4.5 | 4.6 | 4.8 | 5.1 | 5.0 | 4.8 | 5.6 | 4.5 |
| Number of currently married women | 707 | 890 | 849 | 823 | 748 | 666 | 614 | 558 | 415 | 295 | 325 | 6,889 |

Note: Means are calculated by excluding women who gave non-numerical responses.
[1]Includes current pregnancy

Overall, figures indicate that the mean number of children considered ideal is 4.5; about one-quarter of women consider four or five children the ideal number to have. Only 13 percent of women think two children are the ideal family size. A substantial proportion, about one-fifth, desire six or more children. Mean ideal family size reported in the current survey is almost one child lower than in the preceding survey. The proportion wanting two or fewer children has increased substantially (from 11 to 19 percent) and proportion desiring six or more has decreased slightly (from 27 to 21 percent).

Differentials in ideal family size by number of living children show ideal family size increases with actual number of children. Women with one or two children want around four children, women with six to nine children have an ideal family size around five, and women with 10 or more children want more than five children (5.6).

Table 6.7 shows the mean ideal number of children by age according to selected demographic characteristics. The ideal family size increases steadily from around 4.0 children for women under 25, to around 4.5 for women 25-34, and to 5.0 or more children for women over 35. On average, rural women want larger families (4.6 children) than urban women (4.1 children) but the gap is narrowing[1]. The difference is 0.5 children compared with 1.2 children in the 1991-92 survey. There are small differences among the regions; the mean ideal number of children ranges from 4.4 to 4.7. Differences by level of education are greater but are decreasing. The difference in the mean ideal family size between illiterate women and women who have completed secondary or higher education is less than one child. It is encouraging to note that the mean ideal family size for illiterate women has decreased by one child since the 1991-92 survey.

Table 6.7 Mean ideal number of children by background characteristics

Mean ideal number of children for ever-married women, by age and selected background characteristics, Yemen 1997

| Background characteristic | Age of woman | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| **Residence** | | | | | | | | |
| Urban | 3.6 | 3.7 | 3.9 | 4.2 | 4.3 | 4.6 | 5.2 | 4.1 |
| Rural | 4.0 | 4.3 | 4.5 | 4.9 | 4.9 | 5.5 | 5.0 | 4.6 |
| **Region** | | | | | | | | |
| Coastal | 4.3 | 4.4 | 4.6 | 4.7 | 4.8 | 5.2 | 5.3 | 4.7 |
| Mountainous | 4.1 | 4.2 | 4.4 | 4.7 | 4.6 | 5.3 | 4.7 | 4.5 |
| Plateau and Desert | 3.6 | 4.0 | 4.3 | 4.6 | 4.8 | 5.3 | 5.1 | 4.4 |
| **Education** | | | | | | | | |
| Illiterate | 4.0 | 4.2 | 4.5 | 4.7 | 4.8 | 5.3 | 5.1 | 4.6 |
| Literate | 3.3 | 3.9 | 4.1 | 4.8 | 4.5 | (4.5) | * | 4.0 |
| Primary complete | 3.5 | 3.9 | 4.1 | 4.3 | 4.6 | * | * | 4.0 |
| Preparatory complete | 3.8 | 3.7 | 3.7 | (3.7) | (5.4) | * | * | 3.9 |
| Secondary complete+ | * | 3.7 | 3.6 | 4.4 | (3.3) | * | * | 3.8 |
| Total | 3.9 | 4.1 | 4.4 | 4.7 | 4.8 | 5.3 | 5.0 | 4.5 |

Note: Figures in parentheses are based on 25-49 unweighted cases; an asterisk indicates that figure is based on fewer than 25 cases and has been suppressed.

[1] In the 1991-92 survey, ideal family size for rural women was 5.6 children compared with 4.4 children for urban women.

Table 6.8 examines women's perceptions of their husband's desire for children compared with their own. The table presents the data separately for women who have discussed family planning with their husband, and those who have not. The question asked of currently married women was, "Do you think that your husband wants the same number of children that you want, or does he want more or fewer than you want?"

Table 6.8 Husband's preferred family size relative to that of the woman

Percent distribution of currently married women by their perception of their husband's preferred family size relative to their own by spousal communication about family size, according to selected background characteristics, Yemen 1997

| | Have discussed family size with husband | | | | | | | Have not discussed family size with husband | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Background characteristic | Both want same | Hus-band wants more | Hus-band wants fewer | Don't know | Miss-ing | Total | Number of women | Both want same | Hus-band wants more | Hus-band wants fewer | Don't know | Miss-ing | Total | Number of women |
| **Age** | | | | | | | | | | | | | | |
| 15-19 | 46.9 | 41.8 | 10.0 | 1.3 | 0.0 | 100.0 | 568 | 11.7 | 16.6 | 3.2 | 68.4 | 0.2 | 100.0 | 487 |
| 20-24 | 42.7 | 45.7 | 8.0 | 3.6 | 0.0 | 100.0 | 1,141 | 11.8 | 27.9 | 4.7 | 55.5 | 0.0 | 100.0 | 753 |
| 25-29 | 44.4 | 45.4 | 7.7 | 2.5 | 0.0 | 100.0 | 1,102 | 15.3 | 30.6 | 3.2 | 50.9 | 0.0 | 100.0 | 746 |
| 30-34 | 43.1 | 43.8 | 9.3 | 3.8 | 0.0 | 100.0 | 935 | 14.7 | 30.9 | 4.0 | 50.4 | 0.0 | 100.0 | 640 |
| 35-39 | 45.9 | 44.3 | 8.2 | 1.6 | 0.0 | 100.0 | 912 | 16.2 | 25.4 | 6.5 | 51.5 | 0.4 | 100.0 | 717 |
| 40-44 | 41.1 | 47.0 | 8.5 | 3.4 | 0.0 | 100.0 | 511 | 17.5 | 22.7 | 5.6 | 54.2 | 0.0 | 100.0 | 485 |
| 45-49 | 46.2 | 43.2 | 8.6 | 1.6 | 0.3 | 100.0 | 378 | 15.5 | 24.5 | 6.0 | 54.0 | 0.0 | 100.0 | 361 |
| **Education** | | | | | | | | | | | | | | |
| Illiterate | 41.9 | 47.1 | 8.0 | 2.9 | 0.0 | 100.0 | 4,486 | 13.6 | 26.9 | 4.5 | 54.9 | 0.1 | 100.0 | 3,724 |
| Literate | 55.8 | 32.0 | 10.7 | 1.5 | 0.0 | 100.0 | 350 | 19.5 | 24.7 | 3.5 | 52.3 | 0.0 | 100.0 | 177 |
| Primary complete | 53.5 | 33.0 | 11.2 | 2.3 | 0.0 | 100.0 | 398 | 17.3 | 20.2 | 5.5 | 57.0 | 0.0 | 100.0 | 190 |
| Preparatory complete | 48.0 | 39.3 | 10.5 | 2.2 | 0.0 | 100.0 | 137 | 38.0 | 13.5 | 11.3 | 37.2 | 0.0 | 100.0 | 47 |
| Secondary complete+ | 53.9 | 36.9 | 8.3 | 0.9 | 0.0 | 100.0 | 179 | 38.6 | 18.9 | 10.6 | 31.9 | 0.0 | 100.0 | 51 |
| **Ideal number of children** | | | | | | | | | | | | | | |
| <3 | 46.6 | 42.2 | 8.9 | 2.2 | 0.0 | 100.0 | 1,133 | 17.7 | 28.2 | 6.5 | 47.6 | 0.0 | 100.0 | 651 |
| 3-4 | 51.8 | 37.6 | 8.6 | 1.9 | 0.1 | 100.0 | 1,552 | 17.9 | 25.3 | 5.2 | 51.7 | 0.0 | 100.0 | 827 |
| 5-6 | 45.4 | 45.4 | 7.3 | 1.8 | 0.0 | 100.0 | 941 | 16.2 | 28.6 | 2.2 | 52.7 | 0.3 | 100.0 | 648 |
| 7-9 | 46.3 | 46.6 | 5.5 | 1.7 | 0.0 | 100.0 | 312 | 16.0 | 20.8 | 2.8 | 60.4 | 0.0 | 100.0 | 256 |
| 10+ | 34.5 | 52.4 | 12.1 | 0.9 | 0.0 | 100.0 | 317 | 13.8 | 26.8 | 4.1 | 55.3 | 0.0 | 100.0 | 221 |
| Non-numeric response | 33.7 | 52.3 | 8.5 | 5.4 | 0.0 | 100.0 | 1,294 | 10.9 | 25.7 | 5.0 | 58.3 | 0.1 | 100.0 | 1,586 |
| Total | 44.2 | 44.6 | 8.5 | 2.7 | 0.0 | 100.0 | 5,549 | 14.6 | 26.2 | 4.7 | 54.4 | 0.1 | 100.0 | 4,188 |

Note: Exclude women for whom response to question of interspousal discussion on family size was missing.

Among women who have discussed family size with their husband, 44 percent report that they both want the same number of children; almost the same proportion report that their husband would like to have more children than they do; and less than 10 percent say their husband wants fewer children than they do. Differences by age are minimal; the major difference by education is between those who are illiterate and the rest of the population. Almost half of husbands of illiterate women compared with 32 to 39 percent of husbands of other women want more children than their wives.

There is a positive relationship between a woman's ideal family size and the husband wanting to have more children than his wife. This is seen most clearly regarding women with an ideal family size of 10 or more children—more than half reported that their husband wanted more children than they did.

Second, among women who have not discussed family size with their husband (see right panel of Table 6.8), not surprisingly, more than half of women report that they cannot say whether their husband wants more, fewer, or the same number of children as they do, 15 percent believe that they both want the same family size, and 26 percent think their husband wants more children than they do. A notable difference is by level of education. Women who have completed preparatory or higher levels of education are more likely than other women to report that their husband wants the same number of children as they do or fewer.

Table 6.9 Fertility planning status

Percent distribution of births in the five years preceding the survey (and current pregnancies) by fertility planning status, according to birth order and mother's age at birth, Yemen 1997

| Birth order and mother's age at birth | Planning status of birth at conception | | | | Total | Number of births[1] |
|---|---|---|---|---|---|---|
| | Wanted then | Wanted later | Not wanted | Missing | | |
| **Birth order** | | | | | | |
| 1 | 83.3 | 14.3 | 2.0 | 0.4 | 100.0 | 2,233 |
| 2 | 68.4 | 26.1 | 4.7 | 0.7 | 100.0 | 1,970 |
| 3 | 58.9 | 31.3 | 9.2 | 0.7 | 100.0 | 1,691 |
| 4+ | 42.9 | 22.9 | 33.6 | 0.6 | 100.0 | 8,429 |
| **Age at birth** | | | | | | |
| <20 | 71.3 | 23.8 | 4.7 | 0.2 | 100.0 | 2,123 |
| 20-24 | 63.2 | 27.9 | 8.1 | 0.8 | 100.0 | 3,890 |
| 25-29 | 53.9 | 24.3 | 21.2 | 0.6 | 100.0 | 3,242 |
| 30-34 | 44.8 | 20.9 | 33.5 | 0.8 | 100.0 | 2,680 |
| 35-39 | 39.9 | 16.0 | 43.5 | 0.6 | 100.0 | 1,636 |
| 40-44 | 33.0 | 12.8 | 54.0 | 0.2 | 100.0 | 606 |
| 45-49 | 31.4 | 11.6 | 56.9 | 0.0 | 100.0 | 148 |
| Total | 54.6 | 23.0 | 21.8 | 0.6 | 100.0 | 14,324 |

[1] Includes current pregnancies

## 6.5 Wanted and Unwanted Fertility

Two approaches have been used to measure fertility planning in Yemen using the survey data. The first is based on responses to a question about the planning status of prior births, i.e., whether a birth was planned (wanted then), unplanned or wanted later (mistimed), or not wanted at all (unwanted). Measures based on these data are likely to underestimate unplanned and unwanted fertility because women may rationalize mistimed or unwanted pregnancies and declare them as wanted once the children are born.

The second approach to measuring fertility planning is to calculate what the fertility rate would be if all unwanted births were avoided. Women were asked a series of questions regarding all of their children born in the five years preceding the survey (and any current pregnancy), to determine whether each conception was planned, unplanned, or mistimed (wanted at a later time). The answer to these questions provide a potentially powerful indicator of the degree to which couples successfully control their fertility. Also this information can be used to gauge the effect of the prevention of unwanted births on period fertility rates.

Table 6.9 shows the percent distribution of births in the five years preceding the survey (and current pregnancies) by fertility planning status. More than one in five births[2] were reported to be unwanted, and almost the same proportion were mistimed (wanted later) and only 55 percent were wanted when they occurred. The percentage of births wanted later than when they occurred increases from 14 percent for first-order births to 31 percent for third-order births and then declines to 23 percent for fourth- or higher order births. With a mean ideal family size of around four for all age groups and all family sizes, it is not surprising that only a small proportion of births of order three or lower are unwanted. However, one-third of births of order four or higher order are considered to be unwanted by respondents.

The planning status of births is also affected by the age of the mother. In general, the older the mother the larger the percentage of children that are unwanted at conception; more than half of the births to women age 40 and older are unwanted.

Table 6.10 presents wanted fertility rate. The *wanted fertility rate* is calculated in the same manner as the total fertility rate, but unwanted births are excluded from the numerator. For this purpose, unwanted births are those which exceed the number considered ideal by the respondent. Women who did not report a numeric ideal family size were assumed to want all their births. The wanted fertility rate represents the level of fertility that would have prevailed in the three years preceding the survey if all unwanted births had been prevented. A comparison of the total wanted fertility rate and total fertility rate suggests the potential demographic impact of the elimination of unwanted births.

Table 6.10 Wanted fertility rates

Total wanted fertility rates and total fertility rates for the three years preceding the survey, by selected background characteristics, Yemen 1997

| Background characteristic | Total wanted fertility rate | Total fertility rate |
|---|---|---|
| **Residence** | | |
| Urban | 3.4 | 5.0 |
| Rural | 5.1 | 7.0 |
| **Region** | | |
| Coastal | 4.6 | 5.8 |
| Mountainous | 4.7 | 6.8 |
| Plateau and Desert | 4.6 | 6.6 |
| **Education** | | |
| Illiterate | 5.0 | 6.9 |
| Literate | (3.8) | (5.7) |
| Primary complete | (3.7) | (4.6) |
| Preparatory complete | [2.2] | [3.2] |
| Secondary complete+ | [2.6] | [3.1] |
| Total | 4.6 | 6.5 |

Note: Rates are based on births to women 15-49 in the period 1-36 months preceding the survey. Fertility rates in parentheses are based on 500-599 women; fertility rates in square brackets are based on less than 500 women.

The total wanted fertility rate for Yemen is 4.6 children, roughly two children lower than the total fertility rate, or stated another way, the total wanted fertility rate is 71 percent of the observed total fertility rate. Overall, the gap between wanted and observed fertility is substantial and the ratio of wanted to total fertility varies in the narrow range of 0.66 to 0.83 for the categories shown in Table 6.10. It should be noted that the ratios total wanted fertility rate to total fertility rate of 0.80 and above pertain to the estimates based on a small number of cases.

[2] In this discussion, the word birth includes current pregnancy.

# CHAPTER 7

# INFANT AND CHILD MORTALITY

This chapter deals with indicators of infant and child mortality including levels, differentials, and future trends. Such indicators are regarded as a mirror reflecting the prevailing health status and living conditions of a community.

There has been a substantial improvement in the area of mortality compared with the conditions that prevailed in the first round of the YDMCHS survey in 1991-92. However, this improvement is still below the desired levels targeted by the national health programs and policies, especially because the current mortality levels are among the highest, compared with other countries.

In Yemen, health services in general and maternal and child medical services in particular have improved during the past six years. Nevertheless, there is a need for a strategy to expand these services throughout the administrative units of the country, taking into consideration climate, environmental conditions, the occurrence of epidemic diseases, as well as the population size and density of each unit.

Mortality levels have a major impact on fertility levels. When childhood mortality is high, women have more births in order to compensate for the loss of children through death and to achieve their targeted number of surviving children. Under these circumstances family planning is given little consideration and birth rates increase. Maternal and child health are weakened as a result and household living standards deteriorate.

By contrast, low mortality gives women a feeling of confidence in the survivorship of their children. They may then consider adopting family planning in order to decide on the timing of births and to achieve the preferred number of children. The result is improved maternal health status.

The data collected in the 1997 Yemen Demographic and Maternal and Child Health survey permit direct and indirect estimation of infant and child mortality. This chapter consists of seven sections dealing with the final results in the areas that are of interest to policymakers and planners of population and health programs:

1. Prevalence of child mortality
2. Levels of infant and child mortality
3. Differentials in infant and child mortality
4. Demographic characteristics and child mortality
5. Environmental factors and child mortality
6. Causes of death
7. High-risk fertility behavior.

## 7.1 Prevalence of Child Mortality

This section presents survey results on child mortality and concentration of child-loss in Yemen by selected background characteristics.

Table 7.1 indicates that the mean number of children ever born to ever-married women age 15-49 is 4.9; for urban women the mean is 4.7 while for rural women it is 5.0 children.

Table 7.1 Mean number of children ever born and proportion dead

Mean number of children ever born to ever-married women and the proportion dead, by current age of mother and number of years since first marriage, according to urban-rural residence, Yemen 1997

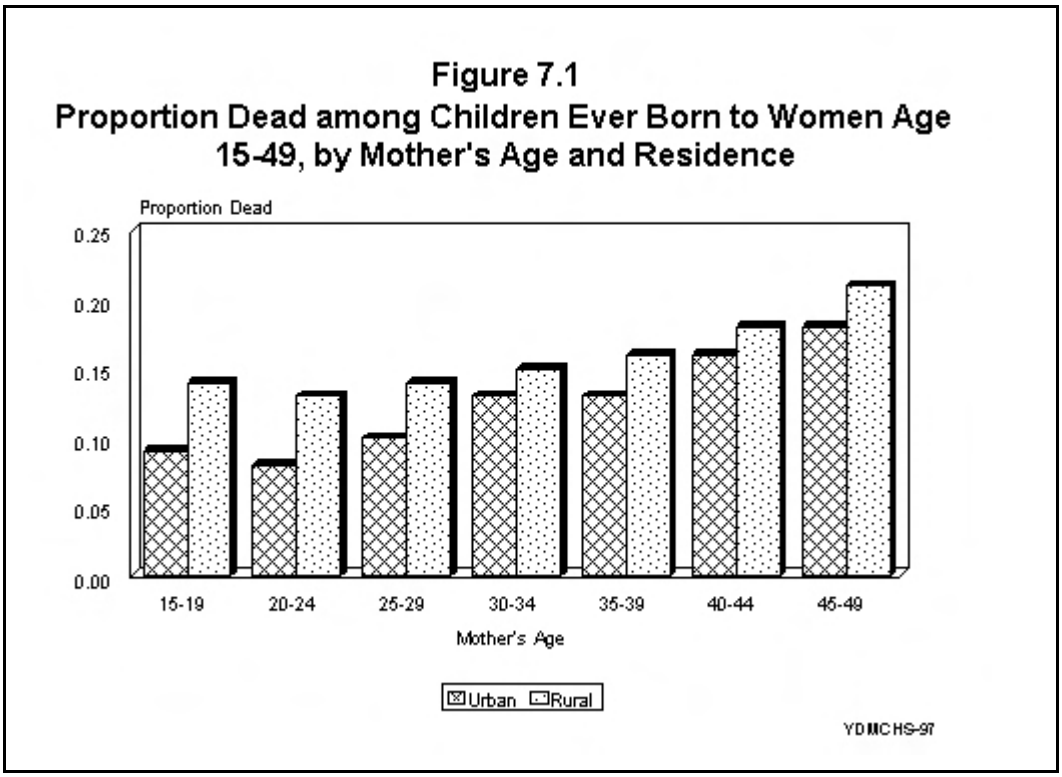
| Background characteristic | Urban | | Rural | | Total | |
|---|---|---|---|---|---|---|
| | Mean number | Proportion dead | Mean number | Proportion dead | Mean number | Proportion dead |
| **Mother's age** | | | | | | |
| 15-19 | 0.73 | 0.09 | 0.62 | 0.14 | 0.64 | 0.13 |
| 20-24 | 1.96 | 0.08 | 1.93 | 0.13 | 1.94 | 0.12 |
| 25-29 | 3.47 | 0.10 | 4.08 | 0.14 | 3.92 | 0.13 |
| 30-34 | 5.40 | 0.13 | 5.94 | 0.15 | 5.80 | 0.14 |
| 35-39 | 6.69 | 0.13 | 7.41 | 0.16 | 7.23 | 0.15 |
| 40-44 | 7.70 | 0.16 | 8.30 | 0.18 | 8.14 | 0.18 |
| 45-49 | 8.58 | 0.18 | 8.99 | 0.21 | 8.89 | 0.20 |
| **Years since first marriage** | | | | | | |
| <5 | 0.91 | 0.07 | 0.76 | 0.13 | 0.79 | 0.11 |
| 5-9 | 2.52 | 0.08 | 2.54 | 0.12 | 2.53 | 0.11 |
| 10-14 | 4.27 | 0.10 | 4.54 | 0.13 | 4.48 | 0.13 |
| 15-19 | 5.99 | 0.13 | 6.47 | 0.16 | 6.36 | 0.15 |
| 20-24 | 7.20 | 0.14 | 7.80 | 0.16 | 7.65 | 0.16 |
| 25-29 | 8.04 | 0.17 | 8.53 | 0.19 | 8.40 | 0.18 |
| 30+ | 8.96 | 0.17 | 9.20 | 0.22 | 9.15 | 0.21 |
| Total | 4.67 | 0.13 | 4.97 | 0.16 | 4.90 | 0.16 |

The mean number of children ever-born increases with women's age to 8.9 for women in the age group 45-49. The increase in the mean number of children born not only reflects the length of time these women have been bearing children, but also the differences in the birth rates of consecutive groups of women.

Table 7.1 also shows the differentials in the proportion dead among children ever born by urban-rural residence. Overall, 16 percent of children (1 in 6) do not survive (16 percent in rural areas and 13 percent in urban areas). Results also indicate that the proportion dead increases steadily with age of the mother and the duration since first marriage. The proportion dead among children ever born to ever-married women age 45-49 is 0.20, compared with 0.13 for women age 15-19. This difference is due to the fact that children of older mothers were, on average, born further in the past than children of younger mothers and, as a consequence, have higher levels of mortality than the children of younger mothers. (see Figure 7.1).

## 7.2 Infant and Child Mortality Levels

This section presents infant and child mortality levels, direct and indirect estimates, and trends and differentials in mortality rates. In the analysis of mortality among children under five years, the population is conventionally subdivided into categories which roughly reflect changes in the probability of dying and changes in the main causes of death.




Infant mortality can be defined as the probability of dying within the first year of life. This is usually taken as a rate per 1,000 live births, and called the infant mortality rate (IMR) or (${}_1q_0$). In order to differentiate between deaths due to or related to pregnancy, delivery and the mother's health status, infant mortality is subdivided into two categories:

(1) From the time of birth until the first month of life. This is referred to as under-one month infant mortality or neonatal mortality (NN).

(2) Between the first month and the first year of life. This is referred to as postneonatal mortality (PNN).

Child mortality can be defined as the probability of dying before or during selected ages of childhood. It could be after birth and within the first two years of life (${}_2q_0$) or within the first five years of life (${}_5q_0$) or between the first and fifth year of life (${}_4q_1$). The rates are presented in terms of deaths per 1,000 live births or per 1,000 survivors to the earlier birthday.

**Direct Measures of Mortality**

The computation of direct estimates of infant and child mortality depends on the detailed retrospective data collected in the survey on the reproductive history of women. Date of birth and survival status of each child and age at death for those who died were recorded in the birth history table. Using these data, infant and child mortality estimates were computed for five-year periods during the 25 years preceding the survey. Table 7.2 presents direct measures of infant and child mortality by sex and residence for five-year periods preceding the survey.

Table 7.2 and Figure 7.2 shows a decline in infant mortality levels from 138 deaths per 1,000 live births during the period 15-19 years preceding the survey to 75 deaths per 1,000 live births during the five years prior to the survey. Similarly, under-five child mortality has dropped from 203 deaths per 1,000 live births during the period 15-19 years preceding the survey to 105 deaths during the five years prior to the survey.

Differentials in mortality in the period 0-4 years before the survey by sex show higher mortality among males than females both before the first birthday and during the first five years of life. However, female mortality is higher than male mortality among children age 1 to 4 years. This may indicate a preference for male children, particularly in the provision of medical care.

The estimates in Table 7.2 indicate that all mortality rates have dropped during the 25 years preceding the survey. As expected, despite the overall drop in infant mortality, there is a slower drop in neonatal mortality (less than one month of age) compared with postneonatal mortality (between 1-11 months of age). The neonatal mortality rate dropped from 67 deaths per 1,000 live births during the period 20-24 years preceding the survey to 34 deaths per 1,000 live births during the period 0-4 years prior to the survey, while the postneonatal mortality rate (PNN) dropped from 119 deaths per 1,000 live births to 42 deaths for the same periods. In other words, neonatal mortality dropped by 49 percent and postneonatal by 65 percent.

Infant mortality has dropped from 186 deaths per 1,000 live births to 75 deaths per 1,000 live births, while child mortality (1-4 years) has dropped from 91 deaths per 1,000 live births during the period 20-24 years preceding the survey to 32 deaths per 1,000 live births during the five years prior to the survey, or a drop of 65 percent. Similarly, under-five mortality has dropped by 60 percent during the 20 years preceding the survey from 260 to 105 deaths per 1,000 live births during the five years preceding the survey.

Examining the differentials in infant and child mortality by residence show clear variations in mortality levels. The estimates indicate higher mortality rates in rural areas compared with urban areas. The mortality differences remains valid over all periods preceding the survey and also for all mortality rates. The infant and child mortality levels during the five years prior to the survey correspond to the estimates computed from the results of the 1991-92 Yemen Demographic and Maternal and Child Health Survey. During the same period, in rural areas the estimates for neonatal, postneonatal, infant, child, and under-five mortality rates are 34, 45, 79, 36, and 112 deaths per 1,000 live births, respectively, compared with 33, 31, 63, 18, and 80 deaths per 1,000 live births, respectively in urban areas.

It is also apparent that the relative decline in infant and child mortality is faster in the urban areas than in the rural areas. An exception is the decline in neonatal mortality, which is 48 percent in urban areas and 51 percent in rural areas. The differentials in urban and rural mortality levels for males and females are presented in Table 7.2 but are not discussed here.

## 7.3 Differentials in Infant and Child Mortality

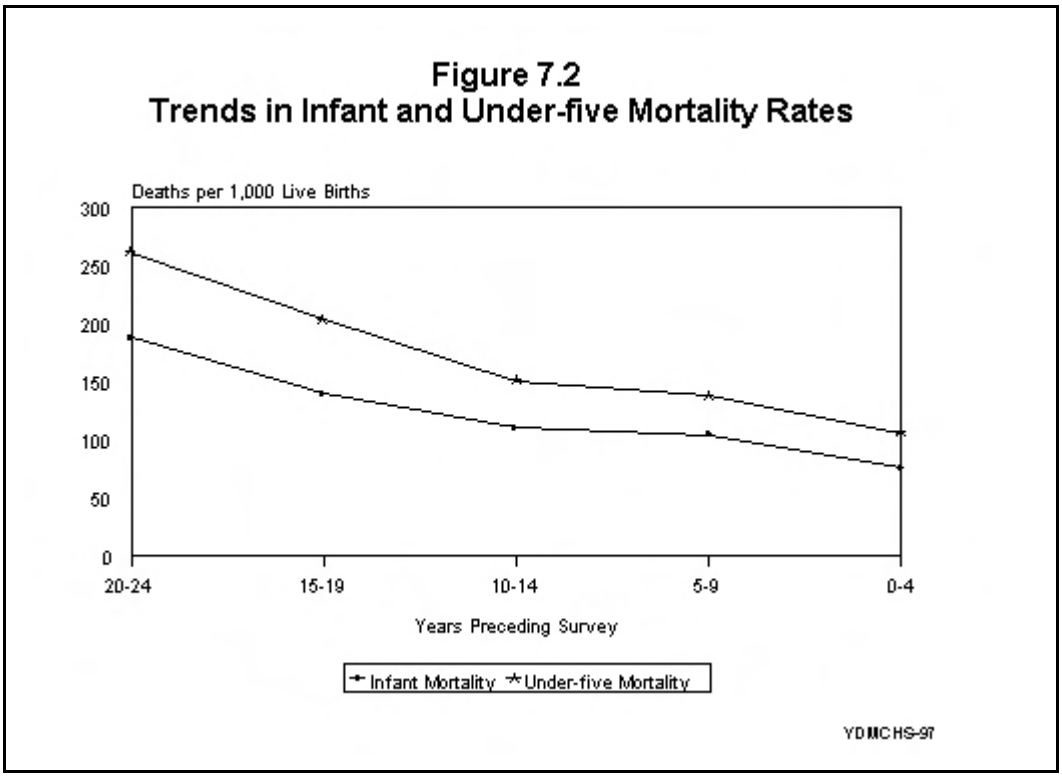
The importance of studying the differentials in infant and child mortality lies in identifying community groups in need of health programs and medical care, and also in presenting indicators on the most important determinants of the health status of the children. Differentials in infant and child mortality are examined with special attention given to selected background characteristics: residence, mother's level of education, maternal health care, and the habits of chewing qat and, smoking tobacco.

Table 7.2 Infant and child mortality by sex and residence

Infant and child mortality for five-year periods preceding the survey, by sex and residence, Yemen 1997

| Residence/ Years before survey | Neonatal mortality (NN) | | | Postneonatal mortality (PNN) | | | Infant mortality ($_1q_0$) | | | Child mortality ($_4q_1$) | | | Under-5 mortality ($_5q_0$) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| **Urban** | | | | | | | | | | | | | | | |
| 0-4 | 33.8 | 31.2 | 32.6 | 33.2 | 28.2 | 30.8 | 67.0 | 59.4 | 63.4 | 16.9 | 18.7 | 17.8 | 82.8 | 77.0 | 80.0 |
| 5-9 | 49.0 | 39.4 | 44.4 | 47.3 | 38.7 | 43.2 | 96.2 | 78.1 | 87.6 | 29.8 | 22.6 | 26.3 | 123.2 | 98.9 | 111.6 |
| 10-14 | 48.8 | 30.7 | 40.4 | 52.5 | 57.7 | 54.9 | 101.3 | 88.4 | 95.3 | 29.8 | 28.5 | 29.1 | 128.1 | 114.4 | 121.7 |
| 15-19 | 43.2 | 41.3 | 42.3 | 72.2 | 75.9 | 74.0 | 115.4 | 117.2 | 116.3 | 46.1 | 53.6 | 49.7 | 156.2 | 164.6 | 160.2 |
| 20-24 | 72.1 | 51.0 | 62.7 | (113.4) | (136.1) | 123.6 | (185.5) | (187.1) | 186.2 | * | * | (70.3) | * | * | (243.4) |
| **Rural** | | | | | | | | | | | | | | | |
| 0-4 | 38.4 | 29.1 | 33.9 | 52.0 | 37.1 | 44.9 | 90.4 | 66.1 | 78.8 | 32.9 | 39.4 | 36.0 | 120.3 | 102.9 | 112.0 |
| 5-9 | 54.1 | 43.2 | 48.8 | 61.5 | 55.9 | 58.8 | 115.6 | 99.2 | 107.6 | 38.5 | 42.5 | 40.4 | 149.6 | 137.4 | 143.7 |
| 10-14 | 48.7 | 39.9 | 44.5 | 72.3 | 66.4 | 69.5 | 121.0 | 106.3 | 114.0 | 50.7 | 51.7 | 51.2 | 165.6 | 152.5 | 159.3 |
| 15-19 | 69.9 | 53.5 | 61.8 | 89.2 | 79.7 | 84.6 | 159.1 | 133.2 | 146.4 | 78.6 | 90.2 | 84.3 | 225.2 | 211.4 | 218.4 |
| 20-24 | 80.4 | 56.0 | 69.7 | 123.0 | 111.6 | 117.6 | 203.4 | 167.6 | 186.3 | (102.4) | (97.5) | 100.0 | (285.0) | (248.7) | 267.7 |
| **Total** | | | | | | | | | | | | | | | |
| 0-4 | 37.4 | 29.6 | 33.6 | 47.8 | 35.0 | 41.7 | 85.2 | 64.6 | 75.3 | 29.3 | 34.7 | 31.9 | 112.0 | 97.1 | 104.8 |
| 5-9 | 53.0 | 42.4 | 47.8 | 58.3 | 52.3 | 55.4 | 111.3 | 94.7 | 103.3 | 36.4 | 38.1 | 37.2 | 143.7 | 129.2 | 136.6 |
| 10-14 | 48.7 | 37.8 | 43.5 | 67.6 | 64.3 | 66.0 | 116.3 | 102.1 | 109.6 | 45.2 | 45.9 | 45.5 | 156.2 | 143.3 | 150.1 |
| 15-19 | 62.8 | 50.2 | 56.6 | 84.7 | 78.7 | 81.7 | 147.5 | 128.9 | 138.4 | 69.5 | 80.1 | 74.7 | 206.8 | 198.7 | 202.7 |
| 20-24 | 78.0 | 54.6 | 67.0 | 120.2 | 118.5 | 119.4 | 198.1 | 173.1 | 186.4 | 91.2 | 90.4 | 90.8 | 271.3 | 247.8 | 260.3 |

Note: Figures in parentheses are based on 250-499 births; an asterisk indicates that a figures is based on fewer than 250 births and has been suppressed.




**Residence**

Table 7.3 presents direct estimates of infant and child mortality for the ten-year period preceding the survey by selected socioeconomic characteristics. The differences in mortality levels by residence are similar to those discussed earlier.

Mortality rates are higher in rural areas than in urban areas. The infant mortality rate is 94 deaths per 1,000 live births in rural areas compared with 75 deaths per 1,000 live births in urban areas. The child mortality rate ($_4q_1$) in rural areas is 38 deaths per 1,000 live births compared with 22 deaths per 1,000 live births in urban areas. The under-five mortality rate ($_5q_0$) in rural areas is 128 deaths per 1,000 live births compared with 96 deaths per 1,000 in urban areas. These substantial differences in mortality between urban and rural areas are due to the fact that the health situation in urban areas is far better than in rural areas. Usually, urban areas are better off in getting and receiving medical care and preventive services, although those services are still far from being adequate.

The differences in infant and under-five mortality by region are small. The infant mortality rate in the Coastal region is 95 deaths per 1,000 live births whereas there is no difference in infant mortality between the Mountainous and the Plateau and Desert regions, despite substantial differences between the latter two regions in non-infant and under-five mortality levels. Infant mortality rate in the two regions, the Mountainous and the Plateau and Desert, is 88 deaths per 1,000 live births, while child mortality rates in these regions are 38 and 27 deaths per 1,000 live births, respectively, compared with 47 deaths per 1,000 live births in the Coastal region.

Under-five mortality rates in the Coastal, Mountainous, and Plateau and Desert regions are 137, 122, and 113 deaths per 1,000 live births, respectively.

Table 7.3 Infant and child mortality by background characteristics

Infant and child mortality for the ten-year period preceding the survey, by selected background characteristics, Yemen 1997

| Characteristic | Neonatal mortality (NN) | Postneonatal mortality[1] (PNN) | **Infant mortality ($_1q_0$)** | Child mortality ($_4q_1$) | **Under-five mortality ($_5q_0$)** |
|---|---|---|---|---|---|
| **Residence** | | | | | |
| Urban | 38.4 | 37.0 | 75.4 | 22.0 | 95.8 |
| Rural | 41.5 | 52.1 | 93.6 | 38.2 | 128.2 |
| **Region** | | | | | |
| Coastal | 44.0 | 50.8 | 94.9 | 46.5 | 137.0 |
| Mountainous | 35.7 | 52.2 | 87.9 | 37.7 | 122.3 |
| Plateau and Desert | 42.7 | 45.5 | 88.3 | 27.3 | 113.2 |
| **Mother's education** | | | | | |
| Illiterate | 41.8 | 50.9 | 92.7 | 37.2 | 126.4 |
| Literate | 31.1 | 32.8 | 63.9 | 17.5 | 80.3 |
| Primary complete | 33.4 | 28.3 | 61.7 | 7.4 | 68.6 |
| Preparatory complete | (59.7) | (41.0) | (100.7) | * | * |
| Secondary complete+ | (22.5) | (29.7) | (52.1) | (6.8) | (58.6) |
| **Medical maternal care[2]** | | | | | |
| No antenatal/delivery care | 31.3 | 46.5 | 77.8 | 38.3 | 113.1 |
| Either antenatal or delivery | 38.9 | 37.6 | 76.5 | (26.9) | (101.3) |
| Both antenatal and delivery | 35.6 | 25.4 | 61.0 | * | * |
| **Use of qat and tobacco[2]** | | | | | |
| Qat and tobacco | 32.0 | 47.1 | 79.0 | * | * |
| Qat only | 39.5 | 44.1 | 83.6 | * | * |
| Tobacco only (cigarette/shisha) | * | * | * | * | * |
| Neither qat nor tobacco | 32.3 | 37.8 | 70.1 | 22.6 | 91.1 |
| Total | 40.8 | 48.7 | 89.5 | 34.6 | 121.0 |

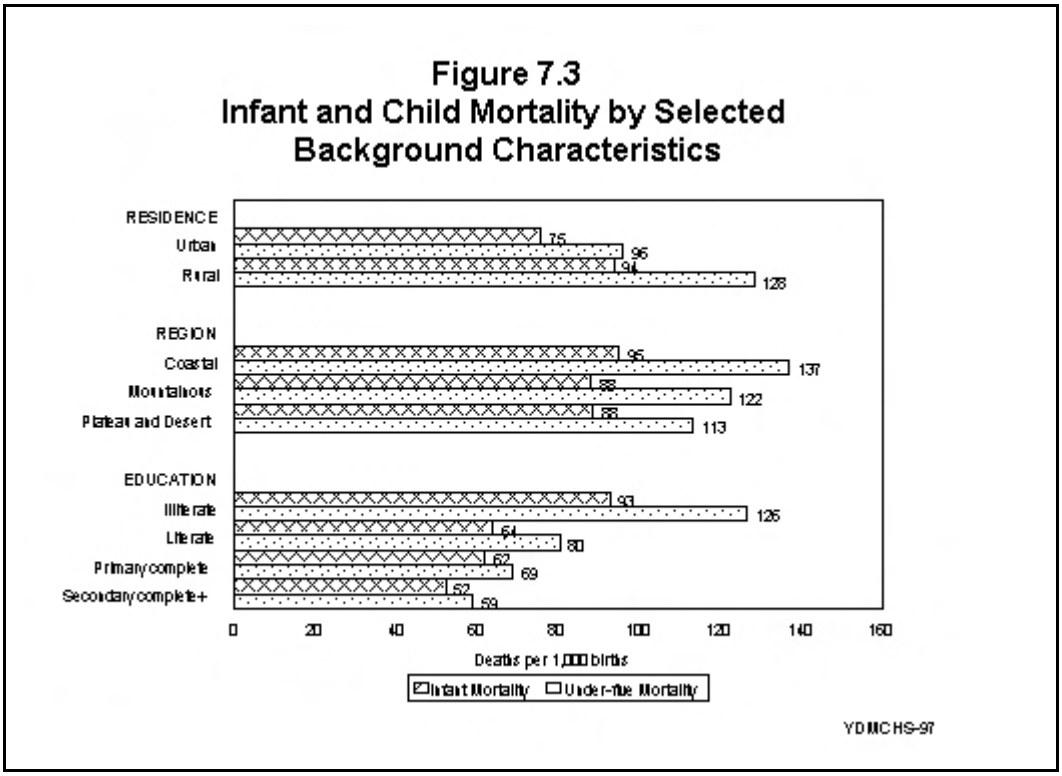
Note: Figures in parentheses are based on 250-499 births; an asterisk indicates that a figures is based on fewer than 250 births and has been suppressed.
[1] Computed as the difference between infant and neonatal mortality.
[2] Figures are for the five-year period preceding the survey.

## Mother's Level of Education

With regard to the level of education of the mother, Table 7.3 and Figure7.3 show the expected inverse relationship. The results provide strong evidence concerning the positive impact of mother's education on child's health and survival. It is clear that there is generally a drop in infant and child mortality when the level of mother's education increases.

The infant mortality rate for children born to illiterate mothers—93 deaths per 1,000 live births—drops to 62 deaths per 1,000 for children born to mothers who completed primary education. Infant mortality continues to drop to 52 deaths per 1,000 births for children born to mothers with secondary or higher education. The same pattern can be observed in under-five mortality by mother's education. It should be noted that the mortality levels of children born to mothers with preparatory education are the highest

among children born to non-illiterate mothers, but these results are based on small numbers of births.




It was observed that the levels of infant and child mortality in rural areas and among children born to illiterate mothers are almost the same. This result probably reflects the fact that the overwhelming majority of women in rural areas are illiterate.

**Medical Maternal Care**

Results presented in Table 7.3 show the close relationship between medical maternal care and infant and under-five child mortality levels. The infant mortality rate for children born to mothers who received no medical maternal care during pregnancy and/or delivery is 78 deaths per 1,000 live births; the rate drops to 61 deaths per 1,000 for children born to mothers who received medical maternal care both during pregnancy and delivery.

Similarly, the under-five mortality rate drops from 113 deaths per 1,000 live births for children born to mothers who received no medical maternal care to 101 deaths per 1,000 for children born to mothers who received medical maternal care during either pregnancy or delivery.

**Qat Chewing and Tobacco Smoking**

Qat chewing and tobacco smoking are considered bad and harmful habits in the Yemeni community because of their serious effect on family health status in general and on children in particular. Both habits also affect the household income and have a negative impact on the living standards of the household members, particularly mothers and children who may suffer from malnutrition and lack of appropriate medical care. In addition to a tendency of carelessness towards children, a direct relationship exists between

qat chewing and tobacco smoking and infant and child mortality during the five years preceding the survey.

Table 7.3 shows that qat chewing by itself or with tobacco smoking (cigarettes and/or water pipe) among mothers negatively affects the infant mortality rate—79-84 deaths per 1,000 live births compared with 70 deaths per 1,000 live births among mothers who neither chew qat nor smoke tobacco. However, the neonatal mortality rate is higher for children whose mother chewed qat but did not smoke tobacco. The differentials in child mortality and under-five mortality by use of these substances cannot be examined because of the small number of births in the sample.

## 7.4 Biodemographic Characteristics and Child Mortality

There are many factors associated (directly or indirectly) with mothers' and children's lives. The most important of these are: sex of child, age of mother at birth of child, birth order of child, and occurrence of birth spacing. Neonatal mortality is substantially higher for boys than for girls due to biological reasons. However, mortality after the first month should not be affected by the sex of the child. Children born to mothers under 18 years of age or to mothers older than 35 years at the time of birth are exposed to higher mortality risks.

Birth spacing is one of the factor most affecting early childhood survivorship. Mortality levels are consistently higher at all ages among children born less than 24 months after a previous birth. Consecutive births and pregnancy coming too soon after the pervious confinement leaves the mother little time to recover her health (maternal depletion), especially if a child is still not weaned when the next conception takes place.

Higher mortality risk is also expected for children whose birth order is four or higher.

All these factors have natural, physiological explanations that relate to the backgrounds of mothers and children. Mother's life and child survivorship are endangered and affected if pregnancy and delivery take place in circumstances related to any of these factors. Socioeconomic and health conditions play a role in further increasing the effects of these factors.

More attention and medical maternal care are needed for mothers and children exposed to these factors.

### Sex of Child

Table 7.4 shows direct estimates of infant and child mortality by selected biodemographic characteristics for the ten-year period preceding the survey. Infant mortality is higher for boys than for girls (98 versus 80 deaths per 1,000 live births, respectively). The higher rate for males is largely due to higher levels of neonatal mortality among boys than girls (45 versus 36 deaths per 1,000 live births, respectively). In addition, postneonatal mortality is also higher among boys than girls (53 versus 44 deaths per 1,000 live births, respectively).

The pattern reverses slightly in child mortality and shows higher mortality for girls than boys (36 versus 33 deaths per 1,000 live births, respectively). This reversal suggests there may be preference for boys and some tendency to provide greater care for boys than for girls during ages 1 to 4. Overall, however, under-five mortality remains higher for boys.

### Maternal Age at Birth

The association between infant mortality and maternal age at birth shows some of the expected pattern. The highest infant mortality risk occurs among children born to very young mothers—under age 20

Table 7.4 Infant and child mortality by biodemographic characteristics

Infant and child mortality for the ten-year period preceding the survey, by selected biodemographic characteristics, Yemen 1997

| Biodemographic 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 | 45.2 | 53.2 | 98.4 | 32.9 | 128.1 |
| Female | 36.1 | 43.9 | 80.0 | 36.4 | 113.5 |
| **Age of mother at birth** | | | | | |
| < 20 | 66.6 | 61.3 | 127.9 | 38.4 | 161.4 |
| 20-29 | 37.4 | 46.3 | 83.7 | 32.6 | 113.5 |
| 30-39 | 32.5 | 46.4 | 78.9 | 35.5 | 111.5 |
| 40-49 | 36.8 | 42.7 | 79.5 | (40.0) | (116.3) |
| **Birth order** | | | | | |
| 1 | 62.6 | 47.6 | 110.2 | 24.9 | 132.4 |
| 2-3 | 42.4 | 48.0 | 90.4 | 32.7 | 120.2 |
| 4-6 | 31.5 | 44.6 | 76.1 | 37.8 | 111.0 |
| 7+ | 38.4 | 54.1 | 92.5 | 37.1 | 126.2 |
| **Preceding birth interval** | | | | | |
| < 2 years | 54.1 | 70.2 | 124.2 | 47.6 | 165.9 |
| 2-3 years | 23.3 | 31.5 | 54.8 | 25.6 | 79.0 |
| 4 years + | 15.4 | 20.1 | 35.5 | 18.9 | 53.7 |
| **Size at birth[2]** | | | | | |
| Small or very small | 39.8 | 50.3 | 90.1 | (39.1) | (125.7) |
| Average or larger | 30.6 | 36.3 | 66.9 | 28.1 | 93.1 |

Note: Figures in parentheses are based on 250-499 births.
[1] Computed as the difference between infant and neonatal mortality.
[2] Figures are for the five-year period preceding the survey.

years (128 deaths per 1,000 live births). However, mortality rates for children born to women age 40-49 are not substantially different from those for children born to women age 20-39 (79-84 deaths per 1,000 births).

Mortality under-five is higher for children born to women in the youngest age group (161 deaths per 1,000 live births) compared with 112 to 116 death per 1,000 for children born to other women.

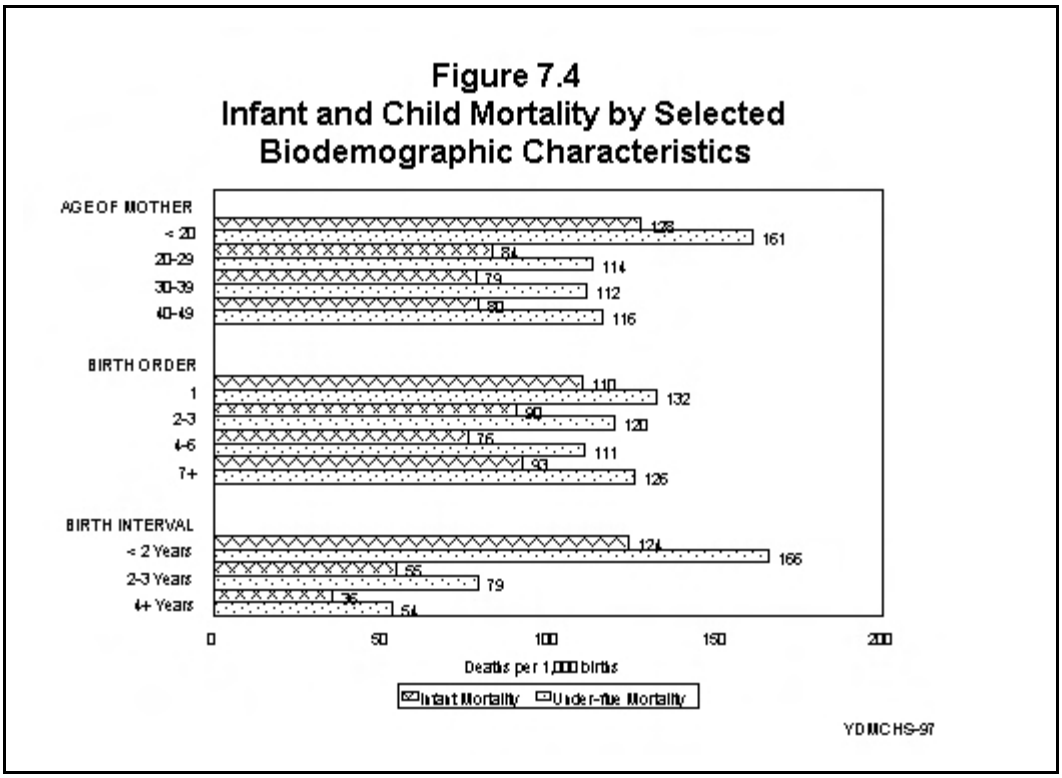
## Birth Order

Infant mortality risks are greater for first births—which are generally high risk—and especially first births to young mothers, who typically lack experience in pregnancy and child care and may not be physically prepared for motherhood. Mortality rates are also higher for births of order 7 or higher—(which generally occur among older mothers than for births of order 2 to 6.

The infant mortality rate is 110 deaths per 1,000 live births for first births, and decreases to 76 deaths per 1,000 for fourth- to sixth-order births, then increases for birth order 7 or higher. A similar pattern is observed for neonatal mortality and under-five mortality.

## Previous Birth Interval

The most significant differential in both infant and child mortality is associated with the length of the preceding birth interval (i.e., the length of time between the birth of a child and the birth of the next-older sibling). When the length of the previous birth interval is less than two years, the levels of infant, child, and under-five mortality are more than double the mortality levels that exist when the birth interval is two or more years. Infant mortality decreases from 124 deaths per 1,000 live births for birth intervals less than two years to 36-55 deaths per 1,000 for birth intervals of two years or more. The corresponding figures for under-five mortality are 166 and 54-79 deaths per 1,000 live births, respectively (see Figure 7.4). These differentials by preceding birth interval suggest that mortality risks for Yemeni children are substantially reduced when the interval between births is increased. The longer birth interval could easily be achieved by encouraging family planning among women of reproductive age.




## Child's Size at Birth

A child's size at birth can be an important indicator of mortality risks during early infancy. Size at birth is closely associated with mother's health, nutritional status, and maternal care during pregnancy. Mortality rates are affected by size at birth, because heavier or larger children are less likely to die. Table 7.4 indicates that mortality at all ages is higher among children who are characterized by their mothers as small or very small, compared with children who are described as average or larger.

## 7.5 Environmental Factors and Child Mortality

Children are the population group most vulnerable to surrounding environmental conditions. Their direct exposure to such conditions is a matter of concern in developing countries. Differentials in infant and child mortality are influenced by both negative and positive environmental factors.

Environmental factors may be broadly divided into two main categories. The first category, which is strongly influenced by community infrastructure, includes: source of drinking water, type of toilet facilities and sewerage system. The second category is more strongly influenced by the socioeconomic level of the household; it includes: flooring material, crowding, cleanliness of the area around the house, and whether farm animals and household members are living in the same dwelling.

This section examines the influence of environmental factors on infant and child mortality levels in Yemen during the ten-year period preceding the survey by urban-rural residence. It should be noted that the level of medical services has impact on these indicators. Under-five mortality rates are higher than other childhood mortality rates because older children are better able to move around in their environment and are more directly affected by conditions in the environment than their younger, less mobile siblings. Additionally, they are generally subject to less parental supervision and thus may more easily encounter harmful factors in the environment.

Table 7.5 indicates that mortality rates among all groups of children under five are higher in rural areas, according to environmental factors. Mortality rates are also higher among children under-five than among younger children. Type of toilet or sewerage facilities of the dwelling is one of the most influential environmental factors affecting child health. Neonatal, infant, and under-five mortality rates in dwellings with no toilet are 47, 108, and 157 deaths per 1,000 live births, respectively. These rates drop to 34, 65, and 81 deaths per 1,000, respectively, in dwellings with modern toilets.

Better flooring material is associated with lower rates of infant and non-infant child mortality. Neonatal, postneonatal and under-five mortality rates in dwellings with earth floors are 43, 99, and 142 deaths per 1,000 live births, respectively, while these rates decrease to 38, 79, and 99 deaths per 1,000, respectively, in dwellings with cement or wooden floors.

The cleanliness of the area around the house is the least influential environmental factors on the child's life. Neonatal, postneonatal and under-five mortality rates are 26, 63, and 105 deaths per 1,000 live births, respectively, when the area around the house has stagnant water. Surprisingly, these rates increase to 44, 89 and 121 deaths per 1,000, respectively, when the area around the house is clean.

In rural areas, the under-five mortality rate in dwellings where farm animals and household members live together is 129 deaths per 1,000 live births, the rate decreases to 125 deaths per 1,000 in dwellings with no farm animals.

## 7.6 Causes of Death

This section discusses the main causes of death in early childhood based on the information gathered on symptoms and types of illness that preceded the deaths. A question was asked in the survey about children whose birth and death occurred during the five-year period preceding the survey. Mothers were asked if their dead children had specific symptoms during the two-week period before death. The symptoms included diarrhea, vomiting, cough, difficult breathing, fever, rash, and convulsions. Table 7.6 shows the percentage of children who had each symptom before death, according to age at death.

Table 7.5 Infant and child mortality by environmental characteristics

Infant and child mortality for the ten-year period preceding the survey, by environmental characteristics, according to urban-rural residence, Yemen 1997

| Environmental characteristic | Urban | | | | | Rural | | | | | Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Neonatal mortality (NN) | Post-neonatal mortality (PNN) | Infant mortality ($_1q_0$) | Child mortality ($_4q_1$) | Under-five mortality ($_5q_0$) | Neonatal mortality (NN) | Post-neonatal mortality (PNN) | Infant mortality ($_1q_0$) | Child mortality ($_4q_1$) | Under-five mortality ($_5q_0$) | Neonatal mortality (NN) | Post-neonatal mortality (PNN) | Infant mortality ($_1q_0$) | Child mortality ($_4q_1$) | Under-five mortality ($_5q_0$) |
| **Type of floor** | | | | | | | | | | | | | | | |
| Tile/cement/wood | 39.1 | 33.6 | 72.7 | 16.9 | 88.4 | 37.9 | 44.6 | 82.5 | 24.8 | 105.3 | 38.3 | 40.6 | 78.9 | 21.9 | 99.1 |
| Earth/other | 35.8 | 50.0 | 85.8 | 42.4 | 124.5 | 43.8 | 56.9 | 100.8 | 47.1 | 143.1 | 43.1 | 56.3 | 99.4 | 46.7 | 141.5 |
| **Type of drinking water** | | | | | | | | | | | | | | | |
| Piped | 30.6 | 34.4 | 65.0 | 21.0 | 84.7 | 42.3 | 46.8 | 89.2 | 28.0 | 114.7 | 37.5 | 41.8 | 79.3 | 25.1 | 102.4 |
| Other | (44.1) | (46.2) | (90.3) | (39.6) | (126.4) | 40.5 | 50.0 | 90.5 | 41.0 | 127.8 | 40.6 | 49.9 | 90.5 | 41.0 | 127.8 |
| **Type of toilet facility** | | | | | | | | | | | | | | | |
| Flush | 29.0 | 28.6 | 57.6 | 15.7 | 72.5 | 50.4 | 35.9 | 86.3 | 23.3 | 107.6 | 34.1 | 30.4 | 64.5 | 17.5 | 80.8 |
| Bucket | 49.9 | 47.3 | 97.2 | 28.4 | 122.8 | 36.4 | 46.8 | 83.2 | 27.1 | 108.0 | 39.0 | 46.9 | 85.8 | 27.3 | 110.8 |
| Other | * | * | * | * | * | 47.1 | 60.9 | 108.0 | 54.9 | 156.9 | 47.0 | 60.6 | 107.6 | 54.9 | 156.6 |
| **Area around household** | | | | | | | | | | | | | | | |
| Clean | 47.0 | 35.2 | 82.2 | 21.5 | 101.9 | 42.6 | 48.6 | 91.2 | 39.2 | 126.8 | 43.6 | 45.5 | 89.2 | 35.0 | 121.1 |
| Dirty | 33.0 | 37.9 | 70.9 | 20.9 | 90.2 | 40.7 | 55.8 | 96.5 | 36.3 | 129.3 | 39.2 | 52.4 | 91.7 | 33.4 | 122.0 |
| Stagnant water/ sewage overflow | (20.3) | 42.2 | 62.5 | 29.3 | 90.0 | 36.1 | (27.7) | (63.8) | * | * | 25.7 | 37.1 | 62.9 | 44.8 | 104.9 |
| **Household crowding** | | | | | | | | | | | | | | | |
| 0-2 persons/room | 52.3 | 28.6 | 80.9 | 16.5 | 96.0. | 63.5 | 63.1 | 126.6 | 38.4 | 160.1 | 59.7 | 51.5 | 111.2 | 30.6 | 138.4 |
| 3-4 persons/room | 36.1 | 35.5 | 71.5 | 20.4 | 90.5. | 42.7 | 55.1 | 97.7 | 39.0 | 132.9 | 41.0 | 50.1 | 91.1 | 34.1 | 122.1 |
| 5+ persons/room | 31.1 | 46.7 | 77.9 | 29.0 | 104.6. | 34.3 | 46.3 | 80.5 | 37.6 | 115.1 | 33.8 | 46.3 | 80.2 | 36.3 | 113.5 |
| **Farm animals in household** | | | | | | | | | | | | | | | |
| Yes | 37.7 | 43.3 | 81.0 | 20.9 | 100.2 | 40.6 | 52.7 | 93.4 | 39.0 | 128.7 | 40.4 | 51.9 | 92.3 | 37.4 | 126.3 |
| No | 39.0 | 35.1 | 74.1 | 22.7 | 95.2 | 44.8 | 48.8 | 93.6 | 34.6 | 124.9 | 41.7 | 41.4 | 83.1 | 28.0 | 108.7 |
| Total | 38.4 | 37.0 | 75.4 | 22.0 | 95.8 | 41.5 | 52.1 | 93.6 | 38.2 | 128.2 | 40.8 | 48.7 | 89.5 | 34.6 | 121.0 |

Note: Figures in parentheses are based on 250-499 births; an asterisk indicates that a figures is based on fewer than 250 births and has been suppressed.

Table 7.6 Causes of death in early childhood

Among children born in the five years preceding the survey, the percentage reported to have died from specific symptoms or other causes, by age at death, Yemen 1997

| Symptom or cause | Age of child at death: < 1 month | 1 - 11 months | < 12 months | 12 - 59 months | Total |
|---|---|---|---|---|---|
| Diarrhea | 15.9 | 58.3 | 38.1 | 56.6 | 41.3 |
| Vomiting | 19.6 | 55.7 | 38.5 | 56.6 | 41.7 |
| Cough, difficult breathing | 17.6 | 41.7 | 30.2 | 53.4 | 34.3 |
| Fever, high temperature | 25.1 | 68.5 | 47.8 | 74.0 | 52.4 |
| Rash | 10.1 | 14.7 | 12.5 | 25.4 | 14.8 |
| Convulsions | 19.2 | 23.0 | 21.2 | 25.3 | 21.9 |
| Other symptoms | 13.8 | 4.5 | 8.9 | 4.5 | 8.1 |
| Total | 426 | 467 | 894 | 190 | 1,084 |

Such data from maternal recall should be regarded with care. Mention of a specific symptom occurring during the two weeks preceding the child's death, might not necessarily mean a direct association or correlation between the symptom and the death. A child may have suffered from more than one symptom during the period prior to death.

The results presented in Table 7.6 indicate that fever (25 percent), vomiting (20 percent), and difficult breathing and convulsions (18-19 percent) are the most common symptoms during the neonatal period. During the postneonatal period, the probable causes of child death are fever (69 percent), diarrhea (58 percent), vomiting (56 percent), and cough/difficult breathing (42 percent). For children one year of age and older, fever was again the most common symptom, associated with 74 percent of all deaths in that age group.

## 7.7 High-Risk Fertility Behavior

Scientific research and studies conducted in several countries have demonstrated a strong relationship between fertility patterns and children's chances of survival. As already mentioned, infants and young children have a higher risk of dying if they are born to very young mothers or older mothers, if they are born after a short interval, or if their mothers have already had many children.

In analysis of high-risk fertility behavior, mothers are classified as too young if they are less than 18 years of age at the time of the birth, and too old if they are 35 years or more. A short birth interval is one that is less than 24 months in length, and a high-order birth is one occurring after four or more previous births (i.e. birth order 5 or higher).

Births are also cross-classified by combinations of these characteristics. Thus a birth may have from zero to three potentially high-risk characteristics. Table 7.7 shows the percentage of births in the five years preceding the survey that fall in the various high-risk categories, as well as the distribution of currently

married women across these categories. It also shows the relative risk of dying for each risk category.

By studying the indicators presented in Table 7.7, fertility behavior factors can be identified that, if changed, could bring about a reduction in infant and child mortality. Mortality risks are represented here by the proportion of children born during the five years preceding the survey who had died by the time of the survey.

The *risk ratio* is the ratio of the proportion dead among children in a specific high-risk category to the proportion dead among children not in any high-risk category.

Only 11 percent of births (i.e., first births among women 18-34 years old) have an unavoidable risk. Sixty-eight percent of children born in the five years preceding the survey are in one or more elevated risk categories. High birth order (greater than 4) is the most common single high-risk category, accounting for 21 percent of births. Other single high-risk categories are births that occur less than two years after a previous birth (13 percent), births to women under 18 years (5 percent), and births to women age 35 years or older (1 percent).

Twenty-nine percent of births fall in multiple high-risk categories, such as births to women 35 years or older who already have four or more births (12 percent), and births that occur less than two years after a previous birth among women who already have four or more births (13 percent).

Table 7.7 High-risk fertility behavior

Percent distribution of children born in the five years preceding the survey by category of elevated risk of dying, and the percent distribution of currently married women at risk of conceiving a child with an elevated risk of dying, by category of increased risk, Yemen 1997

| Risk category | Births in 5 years preceding the survey | | Percentage of currently married women[a] |
|---|---|---|---|
| | Percentage of births | Risk ratio | |
| **Not in any high-risk category** | 20.3 | 1.00 | 15.1[b] |
| **Unavoidable risk category** | | | |
| **(First births among women 18-34)** | 11.3 | 1.71 | 8.6 |
| **Single high-risk category** | | | |
| Mother's age < 18 | 4.7 | 2.46 | 1.8 |
| Mother's age ≥ 35 | 0.7 | 2.40 | 2.7 |
| Birth interval < 24 months | 13.2 | 1.79 | 13.7 |
| Birth order > 4 | 20.7 | 1.14 | 12.6 |
| Subtotal | 39.3 | 1.54 | 30.9 |
| **Multiple high-risk category** | | | |
| Age <18 & birth interval <24[c] months | 0.8 | 2.29 | 0.4 |
| Age ≥35 & birth interval <24 months | 0.1 | 0.77 | 0.2 |
| Age ≥35 & birth order >4 | 11.5 | 1.10 | 25.4 |
| Age ≥35 & birth interval <24 months & birth order >4 | 3.9 | 2.15 | 7.2 |
| Birth interval <24 months & birth order >4 | 12.6 | 2.17 | 12.3 |
| Subtotal | 29.1 | 1.74 | 45.5 |
| **In any high-risk category** | 68.4 | 1.62 | 76.4 |
| Total | 100.0 | - | 100.0 |
| Number of births | 12,685 | - | 9,786 |

Note: Risk ratio is the ratio of the proportion dead among children in a specific high-risk category to the proportion dead among children *not in any high-risk category.*

[a] Women were assigned to risk categories according to the status they would have at the birth of a child, if the child were conceived at the time of the survey: age less than 17 years and 3 months, age older than 34 years and 2 months, latest birth less than 15 months ago, and latest birth of order 3 or higher.

[b] Includes sterilized women

[c] Includes the combined categories *Age <18 and birth order >4.*

The risk ratios in Table 7.7 compare specific high-risk categories with the reference category, children not in any high-risk category, which has a risk ratio of 1.0. The larger the risk ratio, the higher the level of mortality. Overall, children who fall in a single elevated risk category have a ratio of 1.5, whereas

children who are in multiple high-risk categories have a risk ratio of 1.7.

With regard to children who fall in multiple elevated risk categories, the three risk categories have almost the same risk ratio (2.2). First, are those born after a short birth interval whose mothers are 35 years or older and have had four or more births. Second, are children born after a short birth interval whose mothers are under 18 years. Third, are children whose birth orders are higher than four who were born less than 24 months after a previous birth.

Table 7.7 also shows the distribution of currently married women by potential risk category if they were to conceive at the time of the survey. The data reveal that 31 percent of currently married women have the potential to give birth to a child with a single elevated risk category, while 46 percent of women have the potential to give birth to a child with multiple high-risk factors. In all, 76 percent of married women have the potential to give birth to children at elevated risk of dying.

# CHAPTER 8

# MATERNAL AND CHILD HEALTH

This chapter presents findings on various issues related to maternal and child health including antenatal care and delivery assistance, immunization, and childhood illness and treatment. This information can be used to identify groups of women and children who are at risk because of nonuse of maternal and child health services.

Such information will assist policymakers in planning and developing appropriate strategies to improve the health conditions of this most vulnerable population group (women and children). The findings presented are based on data obtained from women who had at least one live birth in the five years preceding the survey.

## 8.1 Antenatal Care

Regular medical checkups during pregnancy are important to reduce the risk of illness and death for the mother and child during pregnancy and delivery. Antenatal questions asked for all births in the five-year period before the survey were number and timing of antenatal care visits, type of provider, type of health care facility, and number of tetanus toxoid injections.

### Antenatal Care Coverage

Table 8.1 shows the distribution of births during the five-year period before the YDMCHS 1997 by the source for antenatal care and the number and timing of antenatal care visits. A mother was considered to have received antenatal care if she reported visiting any provider or was visited by any provider for such care at least once prior to the birth.

The majority of Yemeni mothers do not receive antenatal care. Table 8.1 shows that women reported receiving antenatal care from trained medical personnel in only 34 percent of births in the five-year period before the survey. In more than nine in ten births for which mothers received antenatal care, the provider was a doctor. The current level of antenatal care coverage, however, is 33 percent higher than the level reported in the YDMCHS 1991-92, when mothers reported receiving antenatal care for only 26 percent of births (CSO, 1994).

The results in Table 8.1 and Figure 8.1 indicate that 35 percent of women receiving antenatal care had 2-3 visits during pregnancy. The median number of visits was 1.9 among births for which care was received.

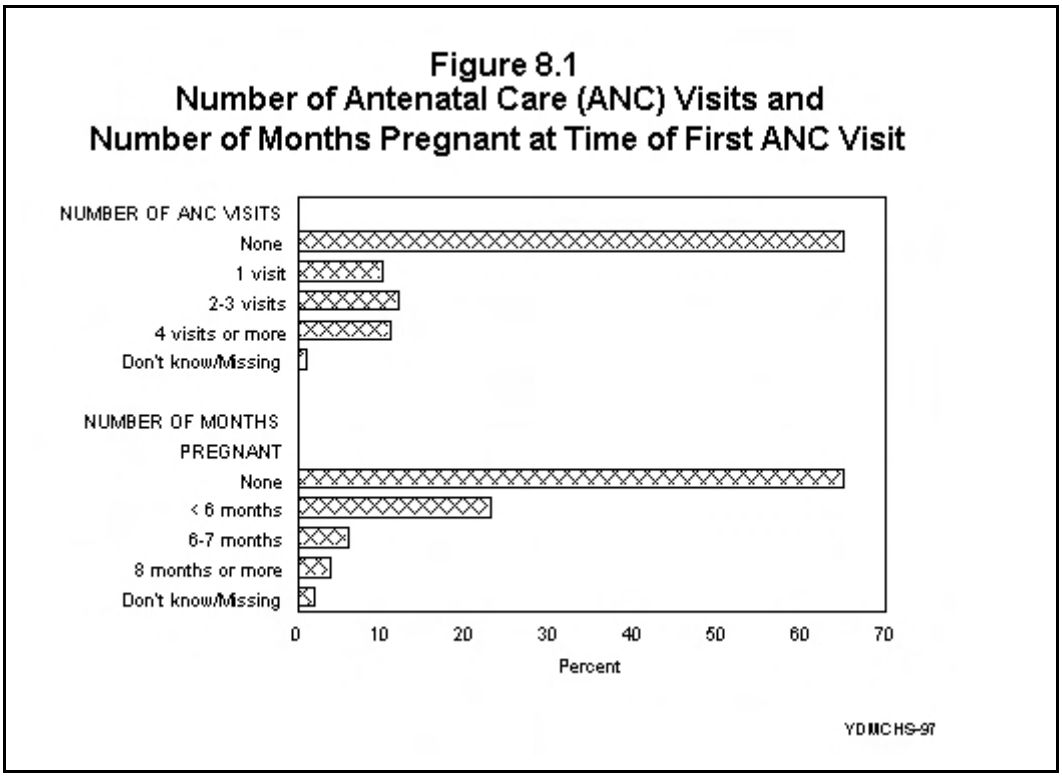
Among births for which any antenatal care was reported, two-thirds of the mothers started visits before the sixth month of pregnancy. The median duration of gestation at the first antenatal care visit was 4.3 months.

Table 8.1 Source of antenatal care, number of antenatal care visits and stage of pregnancy

Percent distribution of births in the five years preceding the survey by source for antenatal care (ANC), number of antenatal care visits, and by the stage of pregnancy at the time of the first visit, Yemen 1997

| Source of ANC/ Number and timing of visits | Percent |
|---|---|
| **Source for antenatal care** | |
| Doctor | 31.4 |
| Trained nurse/midwife | 2.9 |
| Traditional birth attendant | 0.6 |
| No one | 65.0 |
| Don't know/missing | 0.2 |
| **Number of ANC visits** | |
| 0 | 65.0 |
| 1 | 10.3 |
| 2-3 | 12.0 |
| 4+ | 11.4 |
| Don't know/missing | 1.4 |
| Total | 100.0 |
| Median number of visits | 1.9 |
| **Number of months pregnant at the time of first ANC visit** | |
| No antenatal care | 65.0 |
| Less than 6 months | 23.1 |
| 6-7 months | 6.3 |
| 8+ months | 4.2 |
| Don't know/missing | 1.5 |
| Total | 100.0 |
| Median number of months pregnant at first visit | 4.3 |
| Total | 12,685 |

Note: Figures are for births in the period 0-59 months preceding the survey.




**Differentials in Antenatal Care Indicators**

Table 8.2 shows that births to younger women (under age 20), births to women residing in the Coastal region, and first-order births, are more likely to receive antenatal care than others births. Regarding mother's education, women who had completed secondary or higher education are almost three times as likely to have received antenatal care from trained medical personnel as illiterate women (87 percent and 29 percent, respectively).

Table 8.2 also shows the differentials in the proportion of births for which mothers received regular antenatal care, i.e., births to women who had at least four antenatal care visits during the pregnancy. The level of regular antenatal care is slightly higher among births to younger women than births to older women. Antenatal care decreases with increasing birth order. Striking differentials are apparent by residence, region, and mother's education. The level of regular antenatal care is most common among births to urban mothers, mothers from the Coastal region, and mothers with secondary or higher education.

**Tetanus Toxoid Vaccinations and Supplements**

Neonatal tetanus is one of the major causes of death in young infants. It is recommended that women receive two tetanus toxoid injections during the first pregnancy. Booster injections are given once during each subsequent pregnancy to maintain full protection. In order to estimate the extent of tetanus toxoid coverage during pregnancy, the YDMCHS 1997 collected data on whether the women received tetanus toxoid vaccinations for each pregnancy in the five years preceding the survey and, if so, the number of injections. Table 8.3 shows that mothers received tetanus toxoid injections during pregnancy for less than one-fifth of births (17 percent). More than half of these women received at least two doses of tetanus toxoid vaccine.

Table 8.2 Antenatal care

Percent distribution of births in the five years preceding the survey by source of antenatal care (ANC) during pregnancy, according to selected background characteristics, Yemen 1997

| Background characteristic | Antenatal care provider[1] | | | | | Total | Percentage with four or more ANC visits | Number of births |
|---|---|---|---|---|---|---|---|---|
| | Doctor | Nurse/ Trained midwife | Traditional birth attendant | No one | Missing | | | |
| **Mother's age at birth** | | | | | | | | |
| < 20 | 34.6 | 3.7 | 0.8 | 60.8 | 0.1 | 100.0 | 12.7 | 1,919 |
| 20-34 | 31.6 | 2.7 | 0.6 | 64.9 | 0.2 | 100.0 | 11.5 | 8,701 |
| 35+ | 27.6 | 2.7 | 0.3 | 69.1 | 0.2 | 100.0 | 9.5 | 2,065 |
| **Birth order** | | | | | | | | |
| 1 | 37.5 | 4.0 | 1.0 | 57.3 | 0.2 | 100.0 | 15.3 | 1,998 |
| 2-3 | 34.4 | 3.2 | 0.4 | 62.0 | 0.0 | 100.0 | 12.8 | 3,204 |
| 4-5 | 29.9 | 2.1 | 0.8 | 66.9 | 0.2 | 100.0 | 11.8 | 2,460 |
| 6+ | 27.8 | 2.6 | 0.4 | 69.0 | 0.2 | 100.0 | 8.6 | 5,023 |
| **Residence** | | | | | | | | |
| Urban | 56.0 | 5.0 | 0.3 | 38.5 | 0.2 | 100.0 | 30.7 | 2,857 |
| Rural | 24.2 | 2.3 | 0.7 | 72.7 | 0.2 | 100.0 | 5.7 | 9,828 |
| **Region** | | | | | | | | |
| Coastal | 36.3 | 6.4 | 0.3 | 56.9 | 0.1 | 100.0 | 20.2 | 2,729 |
| Mountainous | 20.9 | 1.0 | 0.8 | 77.1 | 0.1 | 100.0 | 3.4 | 3,860 |
| Plateau and Desert | 35.8 | 2.5 | 0.6 | 60.9 | 0.2 | 100.0 | 12.4 | 6,096 |
| **Mother's education** | | | | | | | | |
| Illiterate | 26.8 | 2.2 | 0.6 | 70.3 | 0.2 | 100.0 | 7.6 | 10,827 |
| Literate | 49.2 | 5.1 | 0.3 | 45.2 | 0.2 | 100.0 | 21.6 | 683 |
| Primary complete | 59.1 | 8.5 | 0.6 | 31.4 | 0.4 | 100.0 | 34.8 | 755 |
| Preparatory complete | 64.4 | 4.2 | 0.7 | 30.8 | 0.0 | 100.0 | 41.1 | 191 |
| Secondary complete+ | 78.8 | 7.9 | 0.0 | 13.3 | 0.0 | 100.0 | 56.8 | 228 |
| Total | 31.4 | 2.9 | 0.6 | 65.0 | 0.2 | 100.0 | 11.4 | 12,685 |

Note: Figures are for births in the period 0-59 months preceding the survey. A birth is considered to have received antenatal care if there was at least one antenatal care consultation during the pregnancy.
[1] If the respondent mentioned more than one provider, only the most qualified provider is considered.

The younger a mother is, the more likely it is that a tetanus toxoid vaccination was received during pregnancy. Vaccination coverage decreases with increasing birth order of the child. Coverage levels are higher in urban areas and in the Coastal region than in rural areas and in the other regions. Education is positively related to protection against neonatal tetanus.

Table 8.3 also indicates that mothers of three-fourths of births in the five years preceding the survey did not receive any supplements (iron pills, folic acid, or vitamin tablets). The differentials by mother's age and birth order are small; however, rural women, women residing in the Coastal region, and women with preparatory or higher education, more than other women, reported that they received iron tablets or folic acid or vitamins during pregnancy.

## 8.2 Delivery Care

In this section, women were asked about the place of delivery and the person(s) assisting with the delivery. Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infection that can cause death or serious illness for both the mother and the child.

Table 8.3 Tetanus toxoid vaccinations and antenatal supplementation

Percent distribution of births in the five years preceding the survey by number of tetanus toxoid injections mother received during pregnancy and percentage who received iron tablets, folic acid tablets, and multiple vitamin tablets, according to selected background characteristics, Yemen 1997

| | Number of tetanus toxoid injections | | | | | Percentage receiving: | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Background characteristic | None | One dose | Two doses or more | Don't know/ Missing | Total | Iron tablets | Folic acid tablets | Multiple vitamin tablets | No supple-ments | Number of births |
| **Mother's age at birth** | | | | | | | | | | |
| < 20 | 79.8 | 8.4 | 11.0 | 0.8 | 100.0 | 20.9 | 13.1 | 20.9 | 75.6 | 1,919 |
| 20-34 | 81.7 | 8.1 | 9.0 | 1.2 | 100.0 | 21.1 | 13.2 | 20.6 | 75.2 | 8,701 |
| 35+ | 86.0 | 6.6 | 6.5 | 0.9 | 100.0 | 18.9 | 12.1 | 17.6 | 78.2 | 2,065 |
| **Birth order** | | | | | | | | | | |
| 1 | 76.0 | 8.6 | 14.1 | 1.3 | 100.0 | 23.8 | 15.8 | 23.6 | 72.4 | 1,998 |
| 2-3 | 80.4 | 9.2 | 9.4 | 1.0 | 100.0 | 22.3 | 13.7 | 21.5 | 74.2 | 3,204 |
| 4-5 | 82.8 | 7.5 | 8.7 | 1.1 | 100.0 | 19.4 | 12.6 | 19.8 | 77.0 | 2,460 |
| 6+ | 85.3 | 7.0 | 6.6 | 1.1 | 100.0 | 19.0 | 11.6 | 18.1 | 77.4 | 5,023 |
| **Residence** | | | | | | | | | | |
| Urban | 65.2 | 14.0 | 19.0 | 1.9 | 100.0 | 35.7 | 22.3 | 34.2 | 58.6 | 2,857 |
| Rural | 87.0 | 6.1 | 6.0 | 0.9 | 100.0 | 16.3 | 10.3 | 16.1 | 80.7 | 9,828 |
| **Region** | | | | | | | | | | |
| Coastal | 72.6 | 12.6 | 13.1 | 1.6 | 100.0 | 26.8 | 17.7 | 26.7 | 67.1 | 2,729 |
| Mountainous | 90.1 | 5.1 | 4.0 | 0.8 | 100.0 | 14.2 | 9.4 | 14.0 | 83.9 | 3,860 |
| Plateau and Desert | 81.3 | 7.5 | 10.1 | 1.1 | 100.0 | 22.0 | 13.2 | 21.1 | 74.4 | 6,096 |
| **Mother's education** | | | | | | | | | | |
| Illiterate | 85.9 | 6.3 | 6.8 | 1.0 | 100.0 | 17.5 | 11.0 | 17.5 | 79.2 | 10,827 |
| Literate | 70.8 | 12.2 | 15.0 | 2.0 | 100.0 | 32.4 | 19.4 | 32.6 | 61.6 | 683 |
| Primary complete | 57.4 | 18.0 | 22.7 | 1.9 | 100.0 | 37.7 | 26.3 | 34.3 | 56.9 | 755 |
| Preparatory complete | 54.1 | 21.6 | 23.4 | 0.8 | 100.0 | 50.1 | 29.0 | 39.5 | 47.1 | 191 |
| Secondary complete+ | 39.7 | 25.4 | 34.1 | 0.9 | 100.0 | 55.6 | 29.8 | 46.3 | 39.0 | 228 |
| Total | 82.1 | 7.9 | 8.9 | 1.1 | 100.0 | 20.7 | 13.0 | 20.2 | 75.7 | 12,685 |

Note: Figures are for births in the period 0-59 months preceding the survey.

## Place of Delivery

Table 8.4 indicates that only 16 percent of births in the five years preceding the survey took place in a health facility (Figure 8.2). Women less than 20 years are slightly more likely to deliver in a health facility than older women (21 percent, compared with 15 percent). Also, as birth order increases, the likelihood that delivery will take place in a health facility decreases—from 27 percent among first births to 13 percent among fourth or higher order births.

In urban areas, 31 percent of births occur in a health facility compared with 11 percent of births in rural areas. By region, 19 percent of births in both the Coastal and the Plateau and Desert regions take place in a health facility compared with 8 percent of births in the Mountainous region. By education, delivery in a health facility is much more common among mothers with secondary or higher education than among those with limited education or who are illiterate. Finally, the proportion of births taking place in a health facility is directly related to the number of antenatal care visits.

Table 8.4 Place of delivery

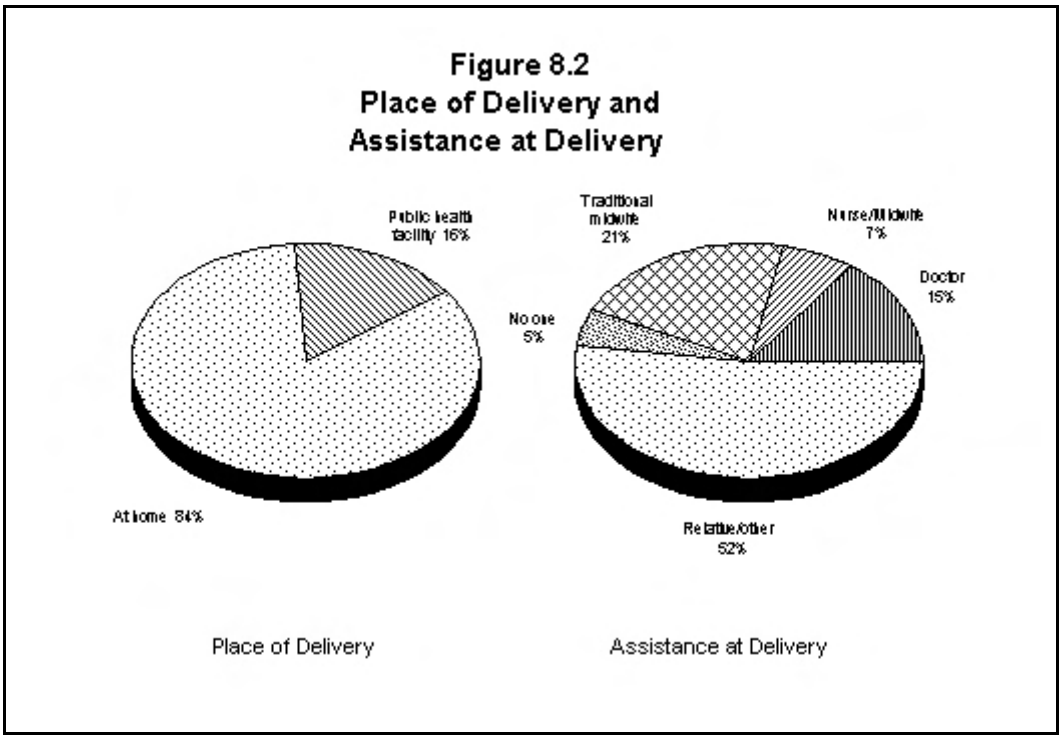
Percent distribution of births in the five years preceding the survey by place of delivery, according to selected background characteristics, Yemen 1997

| Background characteristic | Health facility | At home | Other | Missing | Total | Number of births |
|---|---|---|---|---|---|---|
| **Mother's age at birth** | | | | | | |
| < 20 | 21.0 | 78.8 | 0.1 | 0.1 | 100.0 | 1,919 |
| 20-34 | 14.4 | 85.3 | 0.0 | 0.3 | 100.0 | 8,701 |
| 35+ | 15.0 | 84.7 | 0.0 | 0.3 | 100.0 | 2,065 |
| **Birth order** | | | | | | |
| 1 | 26.8 | 73.0 | -- | 0.2 | 100.0 | 1,998 |
| 2-3 | 15.3 | 84.4 | 0.0 | 0.2 | 100.0 | 3,204 |
| 4-5 | 12.6 | 87.1 | 0.0 | 0.3 | 100.0 | 2,460 |
| 6+ | 12.6 | 87.1 | 0.0 | 0.3 | 100.0 | 5,023 |
| **Residence** | | | | | | |
| Urban | 30.6 | 69.1 | 0.0 | 0.3 | 100.0 | 2,857 |
| Rural | 11.1 | 88.6 | -- | 0.2 | 100.0 | 9,828 |
| **Region** | | | | | | |
| Coastal | 18.9 | 81.0 | 0.0 | 0.2 | 100.0 | 2,729 |
| Mountainous | 7.5 | 92.3 | 0.0 | 0.1 | 100.0 | 3,860 |
| Plateau and Desert | 19.1 | 80.5 | -- | 0.3 | 100.0 | 6,096 |
| **Mother's education** | | | | | | |
| Illiterate | 12.5 | 87.3 | 0.0 | 0.2 | 100.0 | 10,827 |
| Literate | 24.5 | 75.0 | 0.0 | 0.4 | 100.0 | 683 |
| Primary complete | 31.6 | 67.8 | 0.2 | 0.4 | 100.0 | 755 |
| Preparatory complete | 46.0 | 54.0 | 0.0 | 0.0 | 100.0 | 191 |
| Secondary complete+ | 52.4 | 47.6 | 0.0 | 0.0 | 100.0 | 228 |
| **Antenatal care visits** | | | | | | |
| None | 8.0 | 91.9 | 0.0 | 0.1 | 100.0 | 8,241 |
| 1-3 visits | 23.7 | 76.3 | 0.0 | 0.0 | 100.0 | 2,832 |
| 4 or more visits | 42.4 | 57.5 | 0.1 | 0.0 | 100.0 | 1,440 |
| Don't know/missing | 16.5 | 68.7 | 0.0 | 14.8 | 100.0 | 172 |
| Total | 15.5 | 84.2 | -- | 0.2 | 100.0 | 12,685 |

Note: Figures are for births in the period 0-59 months preceding the survey.
– Less than 0.05 percent

Table 8.5 presents information on the reasons for not delivering in a health facility. Six in ten women who did not use a health facility reported that it was better to deliver at home. Accessibility to health services (too far away) was the second reason for not using a health facility (17 percent). The third reason was the high cost of delivering in a health facility (12 percent). Six percent and 5 percent of mothers, respectively, mentioned premature birth and the non-availability of a health facility as reasons for delivering at home.

As expected, rural mothers were more likely than urban mothers to mention lack of accessibility to health services and high cost as reasons for not delivering in a health facility. Surprisingly, women with secondary or higher education preferred to deliver at home more often than illiterate women (71 percent and 58 percent, respectively).




**Assistance During Delivery**

Table 8.6 and Figure 8.2 present information on the person who provided assistance at delivery for births in the five years preceding the survey. If the mother was assisted by more than one type of provider, only the most qualified provider is considered.

Doctors (15 percent) or trained nurse/midwives (7 percent) assisted in about one-fifth (22 percent) of births in the five-year period. In the 1991-92 survey, the level of assistance by a health professional was only 16 percent. Traditional birth attendants provided assistance at delivery for another one-fifth (21 percent) of births, and relatives or friends assisted at more than half (52 percent) of births. Only 5 percent of birth were delivered without assistance.

Births to mothers under 20 years of age and first births are much more likely to be assisted by a health professional than other births. Medically assisted deliveries are more common for urban births, births to women living in the Coastal or Plateau and Desert regions, births to highly educated mothers, and births to mothers who had four or more antenatal visits.

## 8.3 Characteristics of Delivery

The survey collected information on several other aspects of delivery including the occurrence of caesarean sections and of low birth weight babies. In addition, the survey obtained information from women on whether they had experienced specific complications during or following delivery.

Table 8.5 Reason for not delivering at health facility

Percent distribution of births in the five years preceding the survey that were not delivered at a health facility by reason for not using a health facility, according to selected background characteristics, Yemen 1997

| Background characteristic | Services not available | Services too far away | Costs too high | Premature/ Sudden delivery | Home is better | Other | Missing | Total | Number of births |
|---|---|---|---|---|---|---|---|---|---|
| **Mother's age** | | | | | | | | | |
| < 20 | 4.6 | 15.9 | 6.1 | 8.2 | 65.0 | 0.2 | 0.0 | 100.0 | 1,512 |
| 20-34 | 5.2 | 17.4 | 12.4 | 5.5 | 59.4 | 0.0 | 0.1 | 100.0 | 7,424 |
| 35+ | 6.9 | 15.5 | 17.3 | 4.3 | 55.7 | 0.1 | 0.3 | 100.0 | 1,749 |
| **Birth order** | | | | | | | | | |
| 1 | 4.8 | 19.0 | 6.9 | 7.0 | 62.1 | 0.2 | 0.0 | 100.0 | 1,459 |
| 2-3 | 6.0 | 16.7 | 8.6 | 7.2 | 61.6 | -- | 0.0 | 100.0 | 2,707 |
| 4-5 | 5.2 | 17.8 | 11.8 | 6.1 | 59.0 | 0.0 | 0.1 | 100.0 | 2,144 |
| 6+ | 5.4 | 15.9 | 16.6 | 4.1 | 57.8 | -- | 0.2 | 100.0 | 4,376 |
| **Residence** | | | | | | | | | |
| Urban | 4.8 | 3.5 | 6.7 | 8.8 | 76.1 | 0.0 | 0.2 | 100.0 | 1,974 |
| Rural | 5.5 | 19.9 | 13.5 | 5.0 | 55.9 | 0.1 | 0.1 | 100.0 | 8,711 |
| **Region** | | | | | | | | | |
| Coastal | 8.7 | 9.4 | 8.7 | 5.5 | 67.7 | 0.1 | 0.0 | 100.0 | 2,209 |
| Mountainous | 5.8 | 24.2 | 18.2 | 4.0 | 47.6 | 0.1 | 0.2 | 100.0 | 3,564 |
| Plateau and Desert | 3.6 | 15.0 | 9.6 | 7.0 | 64.7 | 0.0 | 0.1 | 100.0 | 4,912 |
| **Mother's education** | | | | | | | | | |
| Illiterate | 5.6 | 17.9 | 13.4 | 5.0 | 58.0 | 0.1 | 0.1 | 100.0 | 9,447 |
| Literate | 3.9 | 11.3 | 4.4 | 9.3 | 70.7 | 0.0 | 0.4 | 100.0 | 513 |
| Primary complete | 4.1 | 9.8 | 2.1 | 9.5 | 74.6 | 0.0 | 0.0 | 100.0 | 513 |
| Preparatory complete | 4.1 | 4.0 | 11.2 | 14.0 | 66.7 | 0.0 | 0.0 | 100.0 | 103 |
| Secondary complete+ | 4.6 | 3.0 | 4.2 | 17.1 | 71.1 | 0.0 | 0.0 | 100.0 | 109 |
| Total | 5.4 | 16.9 | 12.3 | 5.7 | 59.6 | -- | 0.1 | 100.0 | 10,685 |

-- Less than 0.05 percent

## Caesarean Deliveries and Birth Weight

Caesarean sections are generally performed because the mother has medical problems or is experiencing a complicated delivery. Table 8.7 shows that only 1.4 percent of deliveries in the five-year period before the survey were by caesarean section. Caesarean section was less common for rural births, second- or higher- order births, births to illiterate mothers, and births in the Mountainous and Coastal regions.

Birth weight is an important determinant of the well-being of a newborn. Mortality risks during the neonatal period are considerably higher for low birth weight babies, i.e., for babies weighing less than 2.5 kilograms at birth. In order to obtain information about birth weight, each respondent was asked to assess the weight of her baby at birth. In addition, each mother was asked to report the actual weight in kilograms if the baby had been weighed at birth.

Mothers were also asked about their assessment of the baby's size, whether the child was very large, larger than average, average size, smaller than average, or very small at birth.

Table 8.6 Assistance during delivery

Percent distribution of births in the five years preceding the survey by type of assistance during delivery, according to selected background characteristics, Yemen 1997

| Background characteristic | Assistance during delivery[1] | | | | | | Total | Number of births |
|---|---|---|---|---|---|---|---|---|
| | Doctor | Nurse/ Trained midwife | Traditional birth attendant | Relative/ Other | No one | Don't know/ Missing | | |
| **Mother's age at birth** | | | | | | | | |
| < 20 | 21.2 | 7.2 | 21.4 | 48.0 | 2.1 | 0.1 | 100.0 | 1,919 |
| 20-34 | 13.7 | 6.9 | 21.7 | 53.0 | 4.4 | 0.2 | 100.0 | 8,701 |
| 35+ | 15.0 | 4.9 | 18.6 | 53.0 | 8.3 | 0.2 | 100.0 | 2,065 |
| **Birth order** | | | | | | | | |
| 1 | 26.6 | 9.4 | 19.5 | 42.6 | 1.7 | 0.2 | 100.0 | 1,998 |
| 2-3 | 14.2 | 7.6 | 22.0 | 53.1 | 2.9 | 0.1 | 100.0 | 3,204 |
| 4-5 | 12.2 | 6.6 | 21.7 | 54.3 | 4.8 | 0.3 | 100.0 | 2,460 |
| 6+ | 12.3 | 4.9 | 21.0 | 54.5 | 7.0 | 0.2 | 100.0 | 5,023 |
| **Residence** | | | | | | | | |
| Urban | 28.8 | 18.1 | 14.4 | 35.2 | 3.2 | 0.2 | 100.0 | 2,857 |
| Rural | 11.0 | 3.3 | 23.1 | 57.2 | 5.1 | 0.2 | 100.0 | 9,828 |
| **Region** | | | | | | | | |
| Coastal | 16.4 | 12.4 | 27.1 | 38.2 | 5.8 | 0.2 | 100.0 | 2,729 |
| Mountainous | 7.5 | 2.6 | 21.5 | 65.0 | 3.2 | 0.3 | 100.0 | 3,860 |
| Plateau and Desert | 19.2 | 6.6 | 18.3 | 50.5 | 5.2 | 0.2 | 100.0 | 6,096 |
| **Mother's education** | | | | | | | | |
| Illiterate | 12.5 | 4.4 | 21.9 | 55.9 | 5.0 | 0.2 | 100.0 | 10,827 |
| Literate | 23.2 | 12.5 | 18.1 | 42.1 | 3.9 | 0.2 | 100.0 | 683 |
| Primary complete | 28.5 | 21.1 | 18.5 | 29.3 | 2.2 | 0.4 | 100.0 | 755 |
| Preparatory complete | 40.8 | 20.7 | 13.6 | 22.5 | 2.3 | 0.0 | 100.0 | 191 |
| Secondary complete+ | 44.4 | 33.7 | 10.2 | 9.8 | 1.9 | 0.0 | 100.0 | 228 |
| **Antenatal care visits** | | | | | | | | |
| None | 8.4 | 3.3 | 22.9 | 59.8 | 5.5 | 0.1 | 100.0 | 8,241 |
| 1-3 visits | 21.6 | 10.0 | 20.9 | 44.4 | 3.1 | 0.0 | 100.0 | 2,832 |
| 4 or more visits | 39.9 | 18.8 | 11.9 | 25.8 | 3.5 | 0.1 | 100.0 | 1,440 |
| Don't know/missing | 15.7 | 10.5 | 17.7 | 38.5 | 4.8 | 12.8 | 100.0 | 172 |
| Total | 15.0 | 6.6 | 21.2 | 52.2 | 4.7 | 0.2 | 100.0 | 12,685 |

[1] If the respondent mentioned more than one person assisting the delivery, only the most qualified person was considered.

The proportion of low birth weight babies is difficult to estimate, since around 95 percent of mothers were unable to report how much their babies weighed at birth (mainly because they were delivered at home). Among the small proportion of births (3.5 percent) for which a birth weight was reported, 26 percent were reported to have a weight of less than 2.5 kilograms, which is considered low birth weight. According to the mother's own assessment, 28 percent of newborns were reported to be either small (18 percent) or very small (10 percent) while 72 percent were reported as average or large in size.

## Delivery Complications

Respondents were asked about specific signs and symptoms of complications at delivery: prolonged labor, excessive bleeding, vaginal infection, and convulsions. Table 8.8 shows that women reported having one or more of these four symptoms of complications in 47 percent of births. Prolonged labor, the most frequent complication, was reported in 33 percent of deliveries, vaginal infection occurred in 25 percent, excessive bleeding in 17 percent, and convulsions in 10 percent.

Table 8.7 Delivery characteristics: caesarean section, birth weight and size

Among births in the five years preceding the survey, the percentage of deliveries by caesarean section, and the percent distribution by birth weight and by the mother's estimate of baby's size at birth, according to selected background characteristics, Yemen 1997

| | | Birth weight | | | | Size of child at birth | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Background characteristic | Delivery by C-section | Less than 2.5 kg | 2.5 kg or more | Not weighed | Don't know | Very small | Smaller than average | Average or larger | Don't know | Number of births |
| **Mother's age at birth** | | | | | | | | | | |
| < 20 | 1.3 | 0.9 | 2.3 | 90.2 | 6.6 | 10.3 | 19.6 | 69.8 | 0.3 | 1,919 |
| 20-34 | 1.4 | 1.0 | 2.7 | 91.9 | 4.5 | 9.2 | 18.0 | 72.3 | 0.5 | 8,701 |
| 35+ | 1.5 | 0.7 | 2.5 | 92.4 | 4.3 | 10.9 | 16.5 | 72.3 | 0.2 | 2,065 |
| **Birth order** | | | | | | | | | | |
| 1 | 2.2 | 1.2 | 4.5 | 86.5 | 7.8 | 11.0 | 20.3 | 68.3 | 0.3 | 1,998 |
| 2-3 | 1.5 | 1.1 | 3.1 | 90.8 | 5.0 | 9.6 | 17.6 | 72.3 | 0.5 | 3,204 |
| 4-5 | 1.2 | 1.1 | 2.3 | 92.6 | 4.0 | 8.2 | 17.4 | 73.9 | 0.5 | 2,460 |
| 6+ | 1.1 | 0.7 | 1.6 | 94.0 | 3.8 | 9.8 | 17.7 | 72.1 | 0.4 | 5,023 |
| **Residence** | | | | | | | | | | |
| Urban | 2.4 | 3.1 | 9.1 | 77.3 | 10.6 | 9.0 | 17.9 | 72.5 | 0.6 | 2,857 |
| Rural | 1.1 | 0.3 | 0.7 | 95.9 | 3.1 | 9.8 | 18.1 | 71.7 | 0.4 | 9,828 |
| **Region** | | | | | | | | | | |
| Coastal | 0.9 | 1.4 | 5.7 | 85.3 | 7.5 | 12.1 | 17.7 | 69.7 | 0.5 | 2,729 |
| Mountainous | 0.8 | 0.1 | 0.5 | 97.7 | 1.7 | 10.9 | 19.1 | 69.6 | 0.4 | 3,860 |
| Plateau and Desert | 2.0 | 1.2 | 2.5 | 90.8 | 5.5 | 7.7 | 17.5 | 74.4 | 0.5 | 6,096 |
| **Mother's education** | | | | | | | | | | |
| Illiterate | 1.1 | 0.5 | 1.1 | 94.4 | 3.9 | 9.7 | 18.3 | 71.6 | 0.4 | 10,827 |
| Literate | 2.6 | 2.0 | 4.5 | 84.8 | 8.7 | 8.2 | 17.1 | 73.9 | 0.8 | 683 |
| Primary complete | 2.9 | 3.4 | 8.2 | 78.1 | 10.3 | 10.4 | 16.7 | 72.4 | 0.6 | 755 |
| Preparatory complete | 4.8 | 5.4 | 16.6 | 64.7 | 13.3 | 12.6 | 16.5 | 70.9 | 0.0 | 191 |
| Secondary complete+ | 2.5 | 6.2 | 35.8 | 50.4 | 7.6 | 6.4 | 12.2 | 81.4 | 0.0 | 228 |
| **Qat and tobacco use** | | | | | | | | | | |
| Qat and tobacco | 1.5 | 0.9 | 1.2 | 95.0 | 2.9 | 11.5 | 20.3 | 67.9 | 0.2 | 2,634 |
| Qat only | 1.5 | 0.8 | 1.7 | 93.1 | 4.4 | 10.6 | 20.8 | 67.0 | 1.6 | 2,628 |
| Cigarettes or shisha only | 0.0 | 0.9 | 2.0 | 93.7 | 3.3 | 10.5 | 16.6 | 72.3 | 0.5 | 237 |
| Neither qat nor tobacco | 1.4 | 1.0 | 3.5 | 89.9 | 5.6 | 8.5 | 16.2 | 75.2 | 0.1 | 7,185 |
| Total | 1.4 | 0.9 | 2.6 | 91.7 | 4.8 | 9.6 | 18.0 | 71.9 | 0.4 | 12,685 |

Note: Figures are for births in the period 0-59 months preceding the survey.

Among the small number of mothers who delivered by caesarean section, 69 percent said that they had had one or more complications, while 58 percent of those who reported an early neonatal death said that they had had one or more of these complications.

Delivery complications such as prolonged labor and vaginal infection are more common among mothers who use qat and tobacco or qat only than among mothers who don't use them. For example, the rate of vaginal infection is 19 percent among mothers who do not use qat or tobacco, while it is 32 percent among mothers who use qat and tobacco or qat only.

Table 8.8 Delivery complications

Percentage of births in the five years preceding the survey for which mothers had complications at delivery, according to antenatal and delivery characteristics, Yemen 1997

| Antenatal/ delivery care characteristic | Complication at delivery | | | | | Number of births |
|---|---|---|---|---|---|---|
| | Prolonged labor | Excessive bleeding | Vaginal infection | Convul-sions | None | |
| **Medical maternity care** | | | | | | |
| Antenatal and delivery care | 35.5 | 20.2 | 22.6 | 9.8 | 50.4 | 1,789 |
| Antenatal care only | 33.2 | 18.5 | 26.9 | 11.0 | 49.1 | 2,556 |
| Delivery care only | 50.0 | 22.7 | 26.1 | 14.1 | 41.7 | 979 |
| Neither antenatal nor delivery care | 30.4 | 15.3 | 24.3 | 9.9 | 55.6 | 7,360 |
| **Early neonatal death** | | | | | | |
| No | 33.0 | 17.1 | 24.6 | 10.4 | 52.7 | 12,388 |
| Yes | 42.6 | 22.4 | 28.8 | 12.1 | 42.4 | 296 |
| **Delivery by caesarean section** | | | | | | |
| No | 33.0 | 17.1 | 24.6 | 10.3 | 52.6 | 12,473 |
| Yes | 53.9 | 28.9 | 38.1 | 19.7 | 31.3 | 176 |
| **Qat and tobacco use** | | | | | | |
| Qat and tobacco | 38.3 | 22.3 | 32.1 | 13.8 | 44.8 | 2,634 |
| Qat only | 35.3 | 19.3 | 31.8 | 10.9 | 48.0 | 2,628 |
| Cigarettes or shisha only | 30.9 | 20.2 | 25.0 | 13.9 | 53.8 | 237 |
| Neither qat nor tobacco | 30.7 | 14.5 | 19.4 | 8.9 | 56.9 | 7,185 |
| Total | 33.2 | 17.2 | 24.7 | 10.4 | 52.5 | 12,685 |

Note: Figures are for births in the period 0-59 months preceding the survey. Births for which the information on delivery by caesarean section was not available are not shown separately.

## 8.4 Cutting of Umbilical Cord and Treatment of Cord Stump

The survey included questions about the instruments used in cutting the umbilical cord and the type of materials used for dressing the cord stump for babies not born in health facilities. The utilization of unsterile instruments and infected dressing are the main causes of neonatal tetanus. Results indicate that, for two-thirds of births at home, the most widespread method for cutting the umbilical cord is to use a new razor blade. For one-fourth of births, an ordinary pair of scissors is used; sterilized medical instruments are used for only 5 percent of births (data not shown). Compared with the results of the YDMCHS 1991-92, these results show a similar pattern regarding the instruments used to cut the umbilical cord (CSO, 1994).

With regard to treatment of the cord stump, the major difference between the 1991-92 survey and the 1997 survey is the inclusion in the current survey of the category "thread," which was probably part of the category "other" in the previous survey.

As Table 8.9 shows, for births occurring at home, the most common dressing used on the cord stump is a thread (58 percent). Use of most of the other methods declined between the two surveys: cauterization (hot iron) decreased from 22 percent in 1991-92 to 15 percent in 1997, *kohl* from 16 percent to 8 percent, and hot oil from 6 percent to 5 percent. Use of cotton or sterile dressing remained almost unchanged (4 percent) (CSO, 1994). For 6 percent of deliveries, the cord stump was left without any treatment at all.

8.9 Treatment of cord stump

Percent
1997

distribution of births in the five years preceding the survey that were not delivered at a health facility, by type of treatment of cord stump, according to selected

Background
characteristic

**Mother's age at birth**
< 20
20-34
35+

**Birth order**
1
2-3
4-5
6

**Residence**
Urban
Rural

**Region**
Coastal
Central
Plateau and Desert

**Mother's education**
Illiterate
Literate
Primary complete
Secondary complete+

Sterilized
dressing
Covered
with
soap
Covered
with
ash
Covered
with
cow
dung
Covered
with
coffee
sugar
Covered
with
earth
Covered
with
other
substance
Other
Bread

Table 8.9 also shows that the use of a sterilized dressing for cord treatment is more widespread in urban areas than in rural areas. More than one-fourth of mothers who at least have completed secondary education used sterilized dressing to treat the cord stump (26 percent) compared with (3 percent) of illiterate mothers.

The method of tying up a child's cord with a thread is more prevalent in urban areas (68 percent) than in rural areas (55 percent). This method is less widely used by illiterate women than other women. Using a thread to tie the cord is most common in the Plateau and Desert region (69 percent) and least common in the Coastal region (38 percent).

Use of cauterization and *kohl* in the treatment of the cord stump is more common in rural areas than in urban areas. Use of cauterization in the Coastal region is almost five times as common as in the Plateau and Desert region. It is also more common among illiterate mothers (16 percent) than among mothers with secondary or higher education (3 percent).

Use of traditional methods such as cauterization and *kohl* to treat the umbilical cord among mothers with higher education is minimal. For example, use of *kohl* for the treatment of a child's cord drops from 9 percent among illiterate mothers to no use at all among highly educated mothers.

There are no variations in the treatment of the umbilical cord by mother's age or birth order of the child.

## 8.5 Childhood Vaccination

The expanded program on immunization (EPI) follows the international guidelines recommended by the World Health Organization (WHO). In order to be considered fully vaccinated, a child should receive: a BCG vaccination against tuberculosis; three doses of DPT vaccine to prevent diphtheria, pertussis, and tetanus; three doses of polio vaccine (excluding polio 0); and a measles vaccination. WHO recommends that children receive all of these vaccines before their first birthday and that vaccinations be recorded on a health card that is given to the parents.

Information on vaccination coverage was collected in two ways: from the child's vaccination card (seen by the interviewer) and from the mother's verbal reports. The majority of health centers and health units in Yemen provide cards on which immunizations are recorded. If a mother was able to present such a card to the interviewer, this was used as the source of information, with the interviewer copying the dates of vaccinations directly from the card to the YDMCHS 1997 questionnaire. In addition to collecting vaccination information from cards, there were two ways of collecting data on vaccination coverage from the mother herself. If a vaccination card had been presented, but a vaccine had not been recorded on the card as being given, the mother was asked to recall whether or not that particular vaccine had been given. If the mother was not able to provide a card for the child at all, she was asked to recall whether or not the child had received BCG, polio, and DPT (including the number of doses) and measles vaccinations.

### Vaccination Coverage

Table 8.10 presents information on vaccination coverage according to the source of information used to determine coverage, i.e., the child vaccination card or the mother’s report. The results are shown for children age 12-23 months who, according to WHO standards, should be fully vaccinated. Only 28 percent of Yemeni children 12-23 months can be considered fully immunized. Twelve percent of children have received no vaccinations.

Table 8.10 Vaccinations by source of information

Percentage of children 12-23 months who had received specific vaccines at any time before the interview by source of information (vaccination card of mother's report), and the percentage vaccinated by 12 months of age, Yemen 1997

| Source of information | Percentage of children who received: | | | | | | | | | | | Percentage with a card | Number of children |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BCG | DPT1 | DPT2 | DPT3 | Polio0[1] | Polio1 | Polio2 | Polio3 | Measles | All[2] | None | | |
| **Vaccinated at any time before the survey** | | | | | | | | | | | | | |
| Vaccination card | 28.4 | 30.2 | 27.8 | 25.0 | 14.1 | 30.7 | 28.9 | 25.9 | 23.0 | 21.2 | 0.0 | 30.8 | 674 |
| Mother's report | 25.4 | 23.8 | 19.8 | 14.7 | 9.9 | 56.3 | 46.4 | 19.9 | 19.8 | 7.0 | 12.0 | 69.2 | 1,515 |
| Either source | 53.7 | 53.9 | 47.6 | 39.7 | 24.0 | 87.0 | 75.3 | 45.8 | 42.8 | 28.2 | 12.0 | 100.0 | 2,188 |
| **Vaccinated by 12 months of age** | 51.2 | 52.3 | 45.7 | 37.3 | 23.6 | 84.6 | 72.4 | 42.8 | 35.1 | 23.8 | 14.2 | - | 2,188 |

Note: For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as that for children with a written record of vaccinations.
[1] Polio 0 is given at birth.
[2] Children who are fully vaccinated (i.e., those who have received BCG measles, and three doses each of DPT and polio vaccines.

Coverage for BCG and the first two doses of DPT reaches 54 percent and 48 percent, respectively for children age 12-23 months. For the first two doses of polio, coverage exceeds 75 percent. Forty-three percent of children 12-23 months had also received the measles vaccine. The third doses of DPT and polio were received by 40 percent and 46 percent of children, respectively. These percentages reflect a dropout rate[1] of 26 percent for DPT and 47 percent for polio.

An additional dose of polio (polio 0) was recently introduced to the recommended schedule of childhood vaccinations; however, only 24 percent of children age 12-23 months had received it.

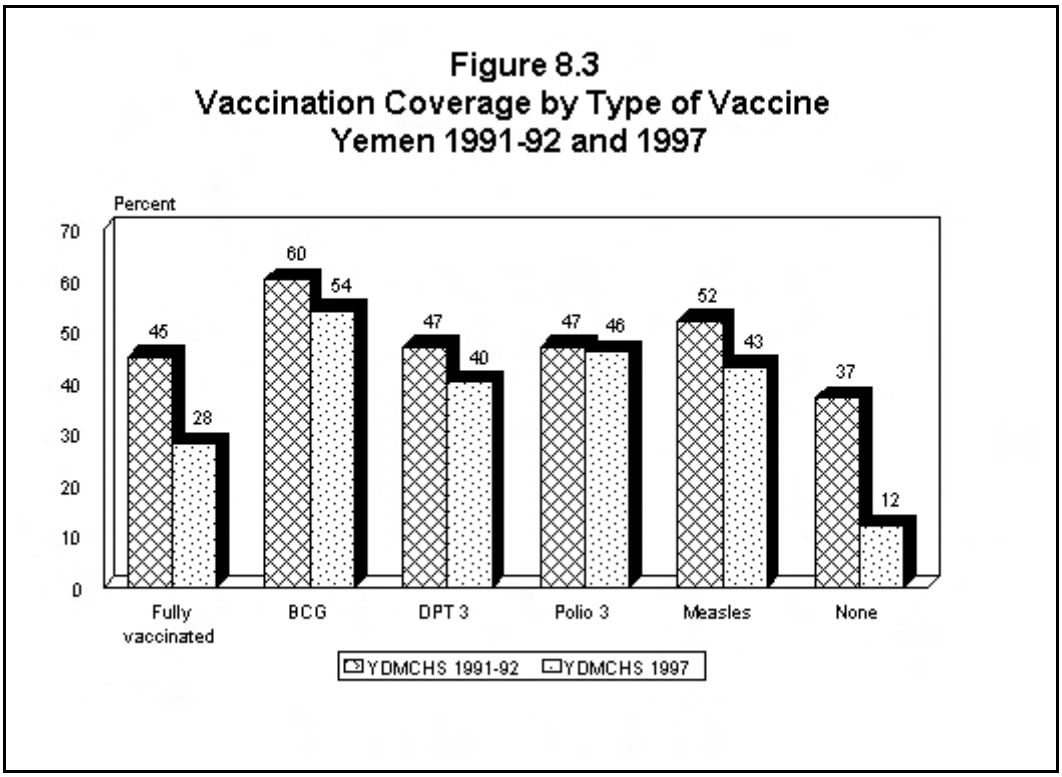
As Figure 8.3 shows, the levels of coverage for all vaccinations reported in the 1997 survey are slightly lower than the levels reported in the 1991-92 survey. Overall, the proportion of fully immunized children age 12-23 months has fallen by 17 percentage points, from 45 percent in 1991-92 to 28 percent in 1997. The decline can be explained in part by the high dropout rate between doses for both polio and DPT. However, the proportion of children who had not received any vaccination has also declined between the two surveys, from 37 percent in 1991-92 to only 12 percent in 1997.

### Immunization Coverage by Background Characteristics

Table 8.11 presents differentials in vaccination coverage among children age 12-23 months according to selected background characteristics. Results indicate that boys are somewhat more likely than girls to receive basic immunization. For most vaccinations, the difference is small: 1 to 6 percentage points more for boys than girls. Overall, the percentage of children fully immunized is 29 percent for boys and 27 for girls. Coverage generally decreases with increasing birth order of the child.

Urban children are much more likely to be immunized than rural children. Fifty-six percent of urban children are fully immunized compared with 20 percent of rural children. Coverage levels vary by region, with children in the Coastal region (35 percent) most likely to be fully immunized, followed by those in the Plateau and Desert region (33 percent). Coverage levels are lowest among children in the Mountainous

[1] Dropout rate = (Dose 1 - Dose 3) * 100/Dose 1




region (15 percent).

Immunization rates increase directly with the mother's level of education, from 24 percent among children of mothers who have no education, to 71 percent among children of mothers who had completed the secondary level or higher.

**Vaccination in the First Year**

Table 8.12 shows the percentage of children who received specific vaccinations during the first year of life, according to the child's current age. These results are useful for assessing trends in vaccination coverage during the first year of life since each age group in the table represents the experience of children during a specific period before the survey. For example, the data for children age 12-23 months refer to the performance of the immunization program during the year before the survey (i.e., roughly December 1996 to November 1997), and data for children age 24-35 months refer to the period December 1995 to November 1996, and so forth. Thus, the results in table 8.12 can be used to assess immunization coverage during the first year of life for each year for the period 1993-1997.

In interpreting the trend, it is important to understand the procedure used to derive immunization coverage estimates. For children with vaccination cards, information on the age at which vaccinations were received was taken directly from the card. For children whose information was based on the mother's report, coverage was assumed to be the same as that for children who had a vaccination card. As the first row of the table indicates, the percentage of children for whom vaccination cards were seen decreases with increasing age of the child, from 31 percent among children age 12-23 months to 21 percent among those 48-59 months. This decline probably reflects a greater tendency for mothers to have misplaced the vaccination cards of older children.

Table 8.11 Vaccinations by background characteristics

Percentage of children 12-23 months who had received specific vaccines by the time of the survey (according to the vaccination card or the mother's report), and the percentage with a vaccination card, according to selected background characteristics, Yemen 1997

| Background characteristic | Percentage of children who received: | | | | | | | | | | | Percentage with a card | Number of children |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BCG | DPT1 | DPT2 | DPT3 | Polio0[1] | Polio1 | Polio2 | Polio3 | Measles | All[2] | None | | |
| **Child's sex** | | | | | | | | | | | | | |
| Male | 56.5 | 56.4 | 48.9 | 41.1 | 25.3 | 87.5 | 76.1 | 46.7 | 45.4 | 29.3 | 11.4 | 31.7 | 1,112 |
| Female | 50.8 | 51.4 | 46.2 | 38.3 | 22.7 | 86.4 | 74.5 | 44.9 | 40.0 | 27.1 | 12.7 | 29.8 | 1,076 |
| **Birth order** | | | | | | | | | | | | | |
| 1 | 62.9 | 60.1 | 56.1 | 47.8 | 28.4 | 89.9 | 79.5 | 53.7 | 48.9 | 35.1 | 9.8 | 36.4 | 375 |
| 2-3 | 53.8 | 55.4 | 46.8 | 40.3 | 24.9 | 85.0 | 72.2 | 45.8 | 42.0 | 28.4 | 13.5 | 31.5 | 606 |
| 4-5 | 54.4 | 55.4 | 49.5 | 41.6 | 25.9 | 89.4 | 77.2 | 45.6 | 44.4 | 27.0 | 10.2 | 32.7 | 420 |
| 6+ | 48.9 | 49.1 | 43.1 | 34.5 | 20.3 | 85.8 | 74.7 | 42.2 | 39.5 | 25.4 | 13.0 | 26.5 | 788 |
| **Residence** | | | | | | | | | | | | | |
| Urban | 81.8 | 82.4 | 77.7 | 70.8 | 41.1 | 88.8 | 83.2 | 66.1 | 71.9 | 56.4 | 9.1 | 54.9 | 513 |
| Rural | 45.1 | 45.2 | 38.4 | 30.2 | 18.8 | 86.4 | 72.9 | 39.6 | 33.8 | 19.6 | 12.9 | 23.4 | 1,675 |
| **Region** | | | | | | | | | | | | | |
| Coastal | 60.6 | 61.3 | 56.1 | 47.1 | 27.3 | 91.0 | 79.5 | 49.5 | 46.5 | 34.7 | 8.4 | 42.1 | 463 |
| Mountainous | 37.8 | 38.6 | 31.6 | 24.1 | 17.2 | 83.8 | 68.2 | 36.6 | 28.7 | 15.3 | 15.1 | 19.2 | 649 |
| Plateau and Desert | 60.4 | 60.1 | 53.5 | 46.0 | 26.7 | 87.2 | 77.8 | 49.8 | 49.6 | 33.2 | 11.7 | 32.9 | 1,077 |
| **Mother's education** | | | | | | | | | | | | | |
| Illiterate | 48.4 | 48.8 | 42.1 | 34.2 | 20.7 | 86.0 | 73.0 | 42.6 | 37.8 | 24.0 | 13.0 | 26.9 | 1,818 |
| Literate | 76.1 | 74.8 | 71.6 | 58.7 | 33.2 | 88.7 | 84.6 | 52.2 | 64.6 | 37.5 | 10.4 | 40.8 | 124 |
| Primary complete | 77.9 | 77.1 | 70.8 | 65.4 | 37.0 | 91.3 | 84.4 | 62.6 | 65.2 | 49.6 | 7.5 | 49.8 | 157 |
| Preparatory complete | 88.7 | 91.9 | 90.2 | 81.2 | 57.2 | 97.6 | 94.1 | 68.2 | 68.7 | 55.0 | 2.4 | 64.6 | 43 |
| Secondary complete+ | 87.9 | 86.6 | 81.5 | 81.5 | 57.7 | 96.2 | 91.7 | 79.2 | 80.4 | 70.8 | 3.8 | 58.9 | 46 |
| Total | 53.7 | 53.9 | 47.6 | 39.7 | 24.0 | 87.0 | 75.3 | 45.8 | 42.8 | 28.2 | 12.0 | 30.8 | 2,188 |

Note: For children whose information is based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as that for children with a written record of vaccinations.
[1] Polio 0 is given at birth.
[2] Children who are fully vaccinated (i.e., those who have received BCG, measles, and three doses each of DPT and polio vaccines (excluding polio 0))

Overall, the results suggest that immunization coverage levels have increased slightly in the last five years. The proportion of children fully immunized by age 12-23 months has increased from 19 percent five years before the survey to 24 percent one year before the survey. It should be noted that these data may suffer from underreporting; estimates of the percentage of children vaccinated during the first year of life may become less accurate as the age of the children increases.

## 8.6 Acute Respiratory Infection and Fever

Acute respiratory infection (ARI), particularly pneumonia, is a common cause of death among infants and young children. Early diagnosis and treatment with antibiotics can prevent a large proportion of deaths from respiratory infection.

The prevalence of ARI was estimated by asking mothers whether their children under five years of age had been ill with coughing accompanied by short, rapid breathing during the two weeks preceding the survey. The results collected are subjective, reflecting the mother's perception of the child's illness.

Table 8.12 Vaccinations in first year of life by current age

Among children age 12 to 59 months, the percentage with a vaccination card and the percentage who had received specified vaccinations before their first birthday, according to current age of the child, Yemen 1997

| | Current age of child in months | | | | |
|---|---|---|---|---|---|
| Vaccine | 12-23 | 24-35 | 36-47 | 48-59 | Total |
| **Vaccination card seen by interviewer** | 30.8 | 27.0 | 22.5 | 20.7 | 25.2 |
| **Percentage vaccinated at 0-11 months[1]** | | | | | |
| BCG | 51.2 | 47.0 | 44.1 | 44.6 | 46.7 |
| DPT 1 | 52.3 | 47.0 | 42.4 | 40.6 | 45.5 |
| DPT 2 | 45.7 | 42.1 | 37.7 | 36.4 | 40.4 |
| DPT 3 | 37.3 | 34.4 | 29.9 | 30.5 | 33.0 |
| Polio 0[2] | 23.6 | 20.8 | 17.5 | 18.7 | 20.1 |
| Polio 1 | 84.6 | 75.0 | 69.9 | 66.9 | 74.0 |
| Polio 2 | 72.4 | 65.6 | 62.4 | 59.3 | 64.9 |
| Polio 3 | 42.8 | 38.8 | 34.9 | 35.3 | 37.9 |
| Measles | 35.1 | 33.1 | 29.3 | 29.5 | 31.7 |
| All vaccinations[3] | 23.8 | 22.0 | 18.6 | 19.2 | 20.9 |
| No vaccinations | 14.2 | 22.9 | 29.4 | 32.3 | 24.8 |
| Number of children | 2,188 | 2,323 | 2,239 | 2,306 | 9,057 |

[1] Information was obtained either from a vaccination card or from the mother if there was no written record. For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as that for children with a written vaccination record.
[2] Polio 0 is given at birth.
[3] Children who have received BCG, measles, and three doses each of DPT and polio vaccines (excluding polio 0)

## Prevalence and Treatment of Acute Respiratory Infection

The YDMCHS 1997 results indicate that the prevalence of cough with short, rapid breathing is 23 percent among children under five years of age (Table 8.13). ARI is most common among children age 6 to 11 months (29 percent), then decreases with increasing age to 20 percent among children age 48-59 months.

There are only minimal differences in the proportion of children with ARI symptoms by sex, birth order, residence, and region, but the differences by the mother's level of education are clear. The prevalence is higher among children of illiterate mothers (24 percent) than among children of mothers with at least secondary school or higher (17 percent). The prevalence of ARI is also higher among children whose mothers chew qat and smoke tobacco (30 percent) than among children whose mothers use neither qat nor tobacco (20 percent).

Thirty-two percent of children who have symptoms of ARI were taken to a health facility for treatment. The differences in the likelihood of seeking medical advice are shown in Table 8.13. Mother's level of education has the strongest association with the likelihood of consulting a health facility. Additionally, urban children and children of educated mothers are more likely to be taken to a health facility when they have ARI than rural children and children whose mothers are illiterate. Medical advice was sought slightly more often for children whose mothers used neither qat nor tobacco than for those whose mothers used both.

Table 8.13 Prevalence and treatment of acute respiratory infection and prevalence of fever

Percentage of children under five years who were ill with a cough accompanied by short, rapid breathing (acute respiratory infection) during the two weeks preceding the survey, the percentage of ill children who were taken to a health facility, and the percentage of children with fever during the two weeks preceding the survey, by selected background characteristics, Yemen 1997

| Background characteristic | Percentage of children with cough and rapid breathing | Percentage of children with cough and rapid breathing who were taken to a health facility or provider | Percentage of children with a fever | Number of children |
|---|---|---|---|---|
| **Child's age** | | | | |
| < 6 months | 22.6 | 28.5 | 34.9 | 1,250 |
| 6-11 months | 28.5 | 36.3 | 47.0 | 1,295 |
| 12-23 months | 26.6 | 37.3 | 47.8 | 2,188 |
| 24-35 months | 23.1 | 32.9 | 40.5 | 2,323 |
| 36-47 months | 22.1 | 29.0 | 36.3 | 2,239 |
| 48-59 months | 19.7 | 27.4 | 32.9 | 2,306 |
| **Child's sex** | | | | |
| Male | 24.4 | 32.9 | 40.7 | 5,977 |
| Female | 22.4 | 31.4 | 38.6 | 5,623 |
| **Birth order** | | | | |
| 1 | 21.5 | 33.4 | 36.1 | 1,782 |
| 2-3 | 22.5 | 35.7 | 37.8 | 2,951 |
| 4-5 | 24.0 | 35.0 | 40.3 | 2,278 |
| 6+ | 24.4 | 28.4 | 42.0 | 4,590 |
| **Residence** | | | | |
| Urban | 23.0 | 43.4 | 36.7 | 2,669 |
| Rural | 23.6 | 29.0 | 40.6 | 8,931 |
| **Region** | | | | |
| Coastal | 21.8 | 35.7 | 40.3 | 2,494 |
| Mountainous | 24.9 | 27.8 | 44.7 | 3,503 |
| Plateau and Desert | 23.2 | 33.8 | 36.3 | 5,604 |
| **Mother's education** | | | | |
| Illiterate | 23.7 | 29.8 | 40.6 | 9,860 |
| Literate | 23.1 | 39.7 | 35.7 | 641 |
| Primary complete | 22.4 | 47.5 | 35.6 | 709 |
| Preparatory complete | 22.1 | 63.7 | 26.2 | 174 |
| Secondary complete+ | 16.6 | 58.7 | 34.8 | 217 |
| **Qat and tobacco use** | | | | |
| Qat and tobacco | 30.3 | 28.0 | 47.6 | 2,384 |
| Qat only | 27.1 | 29.7 | 45.3 | 2,375 |
| Cigarette or shisha only | 25.3 | 41.9 | 38.3 | 212 |
| Neither qat nor tobacco | 19.6 | 35.4 | 34.9 | 6,630 |
| Total | 23.4 | 32.2 | 39.7 | 11,601 |

The proportion of cases in which children with ARI were taken to a medical facility was greater in the Coastal and the Plateau and Desert regions than the Mountainous region. Although there is no clear relationship between a child's age and whether or not the mother seeks treatment for ARI symptoms from a health professional, in general, children age 6-23 months are the most likely to receive treatment at a health facility.

### Fever

Many childhood diseases such as diarrhea, respiratory infection, measles, and malaria are accompanied by fever. The YDMCHS 1997 results indicate that 40 percent of children under five years were reported to have had fever in the two weeks prior to the survey. Children 12-23 months were the most likely to have had a fever, followed by children 6-11 months. Differentials by sex of the child are negligible, and children of birth order six or higher are more likely to have had fever than other children, although differences are small. Fever occurs less often among children whose mothers use neither qat nor tobacco, and more often among children in Mountainous region or children whose mothers are illiterate.

## 8.7 Diarrhea

Dehydration caused by severe diarrhea is a major cause of illness and death among young children. A simple and effective response to dehydration is a prompt increase in the child's fluid intake through some form of oral rehydration therapy (ORT). ORT may include the use of a solution prepared from packets of oral rehydration salts (ORS) or a homemade mixture prepared from sugar, salt, and water, which is recommended to combat dehydration due to diarrhea—recommended home fluid (RHF). Increasing the amount of other liquids normally given to a child during a diarrheal episode may also be considered a form of ORT. ORS packets are available at health institutions and pharmacies in Yemen.

In the YDMCHS 1997, mothers of children under five years of age were asked questions about the prevalence of diarrhea among their children, knowledge of ORS packets, and the treatment of diarrhea. For children who experienced a bout of diarrhea in the last two weeks, mothers were asked whether there was blood in the stools, and whether fluid and food intake were increased or decreased.

### Prevalence of Diarrhea

Table 8.14 shows that 28 percent of children under five years of age had diarrhea in the two weeks preceding the survey. Seven percent of children had bloody stools. The differentials by age indicate that children 6-23 months are more likely to have had diarrhea than younger or older children. A similar pattern is observed regarding bloody diarrhea, except that the prevalence levels are highest for children age 12-35 months.

Diarrheal prevalence varies little by sex of the child or birth order, but shows a positive relationship with other background

Table 8.14 Prevalence of diarrhea

Percentage of children under five years of age with diarrhea and diarrhea with blood during the two weeks preceding the survey, by selected background characteristics, Yemen 1997

| Background characteristic | Diarrhea in the preceding 2 weeks | | Number of children |
|---|---|---|---|
| | All diarrhea | Diarrhea with blood | |
| **Child's age** | | | |
| < 6 months | 26.6 | 4.0 | 1,250 |
| 6-11 months | 38.9 | 6.3 | 1,295 |
| 12-23 months | 37.7 | 9.1 | 2,188 |
| 24-35 months | 29.3 | 8.4 | 2,323 |
| 36-47 months | 21.3 | 7.4 | 2,239 |
| 48-59 months | 15.8 | 4.7 | 2,306 |
| **Child's sex** | | | |
| Male | 28.6 | 7.5 | 5,977 |
| Female | 26.2 | 6.3 | 5,623 |
| **Birth order** | | | |
| 1 | 26.5 | 5.6 | 1,782 |
| 2-3 | 28.6 | 6.2 | 2,951 |
| 4-5 | 27.2 | 7.4 | 2,278 |
| 6+ | 27.2 | 7.6 | 4,590 |
| **Residence** | | | |
| Urban | 24.0 | 3.7 | 2,669 |
| Rural | 28.5 | 7.9 | 8,931 |
| **Region** | | | |
| Coastal | 30.1 | 7.4 | 2,494 |
| Mountainous | 31.8 | 8.9 | 3,503 |
| Plateau and Desert | 23.6 | 5.5 | 5,604 |
| **Mother's education** | | | |
| Illiterate | 28.3 | 7.5 | 9,860 |
| Literate | 23.7 | 5.4 | 641 |
| Primary complete | 22.5 | 2.3 | 709 |
| Preparatory complete | 23.4 | 1.2 | 174 |
| Secondary complete+ | 19.1 | 2.2 | 217 |
| Total | 27.5 | 6.9 | 11,601 |

characteristics. Twenty-eight percent of rural children had diarrhea, compared with 24 percent of urban children. Rural children are twice as likely to have bloody diarrhea as their urban counterparts. By region, prevalence is highest in the Mountainous region for both diarrhea and bloody diarrhea. Children whose mothers have some education are less likely to be ill with diarrhea or bloody diarrhea than children whose mothers are illiterate.

## Knowledge of Diarrhea Care

Table 8.15 presents information on the level of knowledge of the appropriate treatment for diarrhea. Among women who gave birth during the five-year period before the survey, 75 percent had heard of ORS packets. When asked about specific eating and drinking regimes for children ill with diarrhea, 45 percent of mothers reported that the child should be given more than usual to drink, 23 percent said that a child with diarrhea should be given less than normal to drink, and 27 percent said a child with diarrhea should be given the same amount of fluids to drink. Beliefs about food intake are quite different from those about fluid intake. Fifty percent of mothers believe that a child with diarrhea should be given less than normal to eat; and only 10 percent believed that a child with diarrhea should be given more than usual to eat. Mothers who are more educated, and those living in urban areas are more likely to be aware of the appropriate feeding and drinking practices during diarrheal episodes than other mothers.

Table 8.15 Knowledge of diarrhea care

Percentage of women with births in the five years preceding the survey who know about use of ORS packets for treatment of diarrhea and the percent distribution of women by their opinions about appropriate feeding practices during diarrhea, according to selected background characteristics, Yemen 1997

| | | Women's opinions about appropriate feeding practices during diarrhea (compared with usual feeding practices) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Liquids | | | | Solid foods | | | | |
| Background characteristic | Know about use of ORS packets for treatment of diarrhea | Less | Same | More | Don't know/ Missing | Less | Same | More | Don't know/ Missing | Number of women |
| **Age** | | | | | | | | | | |
| 15-19 | 76.2 | 25.8 | 24.2 | 39.4 | 10.7 | 48.3 | 26.9 | 12.0 | 12.8 | 495 |
| 20-24 | 76.4 | 23.6 | 26.1 | 44.6 | 5.7 | 49.0 | 33.6 | 11.4 | 6.0 | 1,633 |
| 25-29 | 76.8 | 23.9 | 25.5 | 46.7 | 3.9 | 51.9 | 33.1 | 11.6 | 3.4 | 1,727 |
| 30-34 | 77.7 | 21.0 | 27.2 | 47.8 | 4.0 | 50.3 | 35.3 | 10.6 | 3.8 | 1,393 |
| 35+ | 71.1 | 23.3 | 29.7 | 43.0 | 4.0 | 50.7 | 37.1 | 8.5 | 3.7 | 2,095 |
| **Residence** | | | | | | | | | | |
| Urban | 94.6 | 14.6 | 22.3 | 60.5 | 2.7 | 48.9 | 34.9 | 13.6 | 2.7 | 1,757 |
| Rural | 69.1 | 26.0 | 28.5 | 40.0 | 5.5 | 50.9 | 34.2 | 9.6 | 5.4 | 5,585 |
| **Region** | | | | | | | | | | |
| Coastal | 81.1 | 29.7 | 18.9 | 46.2 | 5.2 | 57.4 | 25.3 | 11.8 | 5.5 | 1,619 |
| Mountainous | 63.0 | 26.3 | 31.5 | 36.9 | 5.3 | 46.7 | 37.1 | 11.0 | 5.2 | 2,212 |
| Plateau and Desert | 80.2 | 18.4 | 28.0 | 49.3 | 4.3 | 49.4 | 36.8 | 9.6 | 4.1 | 3,511 |
| **Mother's education** | | | | | | | | | | |
| Illiterate | 72.1 | 25.6 | 28.9 | 40.4 | 5.1 | 50.9 | 34.6 | 9.4 | 5.1 | 6,186 |
| Literate | 88.1 | 13.1 | 21.9 | 60.0 | 4.9 | 43.9 | 36.8 | 15.6 | 3.7 | 412 |
| Primary complete | 92.2 | 13.8 | 17.7 | 65.8 | 2.6 | 49.7 | 32.5 | 14.9 | 2.9 | 455 |
| Preparatory complete | 97.2 | 4.2 | 11.7 | 81.8 | 2.2 | 49.5 | 26.9 | 21.3 | 2.2 | 127 |
| Secondary complete+ | 97.6 | 1.6 | 7.3 | 89.8 | 1.2 | 51.5 | 28.6 | 18.3 | 1.5 | 162 |
| Total | 75.2 | 23.3 | 27.0 | 44.9 | 4.8 | 50.4 | 34.3 | 10.5 | 4.7 | 7,343 |

ORS = Oral rehydration salts

## Diarrhea Treatment

Table 8.16 provides information on treatments used during recent diarrhea episodes among children under five years of age. Although the majority of mothers took some action to treat their child's diarrhea, one in four children was not treated at all.

Table 8.16 Treatment of diarrhea

Among children under five who had diarrhea in the two weeks preceding the survey, the percentage taken for treatment to a health facility or provider, the percentage who received oral rehydration therapy (ORT), the percentage who received neither oral rehydration salts (ORS) nor recommended home fluids (RHF) nor increased fluids, and the percentage who received other treatments, according to selected background characteristics, Yemen 1997

| Background characteristic | Percentage taken to a health facility or provider | Oral rehydration therapy | | | Percentage receiving increased fluids | Percentage receiving neither ORS nor RHF nor increased fluids | Other treatments | | | Missing | Number of children |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ORS packet | RHF[1] | Either ORS or RHF | | | Injection | Home remedy/ Other | No treatment | | |
| **Child's age** | | | | | | | | | | | |
| < 6 months | 25.4 | 24.8 | 5.2 | 27.3 | 34.2 | 49.3 | 3.6 | 39.5 | 37.7 | 0.0 | 333 |
| 6-11 months | 31.7 | 39.8 | 10.2 | 43.5 | 43.6 | 32.7 | 9.1 | 51.3 | 20.1 | 0.0 | 504 |
| 12-23 months | 31.0 | 37.0 | 8.0 | 39.9 | 47.5 | 34.0 | 10.0 | 49.3 | 22.7 | 0.2 | 825 |
| 24-35 months | 26.1 | 28.8 | 7.3 | 32.1 | 54.6 | 31.2 | 5.7 | 44.3 | 21.9 | 0.0 | 682 |
| 36-47 months | 28.2 | 29.4 | 6.8 | 32.4 | 48.6 | 36.7 | 8.3 | 47.1 | 24.7 | 0.0 | 477 |
| 48-59 months | 21.8 | 29.3 | 5.8 | 30.9 | 50.3 | 35.3 | 5.4 | 40.0 | 27.5 | 0.2 | 364 |
| **Child's sex** | | | | | | | | | | | |
| Male | 28.5 | 34.0 | 6.6 | 36.1 | 46.4 | 35.5 | 7.7 | 46.9 | 24.2 | 0.1 | 1,710 |
| Female | 27.4 | 30.5 | 8.5 | 34.5 | 48.9 | 35.2 | 7.2 | 45.3 | 24.9 | 0.1 | 1,475 |
| **Birth order** | | | | | | | | | | | |
| 1 | 30.8 | 33.6 | 6.4 | 35.8 | 45.4 | 36.3 | 9.3 | 52.1 | 22.1 | 0.0 | 472 |
| 2-3 | 30.2 | 32.0 | 5.8 | 34.2 | 48.8 | 35.5 | 6.2 | 48.0 | 24.2 | 0.0 | 844 |
| 4-5 | 28.2 | 32.6 | 9.1 | 37.6 | 51.3 | 32.3 | 7.5 | 46.8 | 21.5 | 0.3 | 620 |
| 6+ | 25.4 | 32.1 | 8.2 | 34.8 | 45.6 | 36.4 | 7.6 | 42.3 | 27.1 | 0.1 | 1,249 |
| **Residence** | | | | | | | | | | | |
| Urban | 39.1 | 39.2 | 7.4 | 41.8 | 53.1 | 29.7 | 9.7 | 54.3 | 18.7 | 0.0 | 640 |
| Rural | 25.2 | 30.7 | 7.5 | 33.7 | 46.1 | 36.8 | 6.9 | 44.1 | 26.0 | 0.1 | 2,546 |
| **Region** | | | | | | | | | | | |
| Coastal | 30.3 | 33.6 | 8.5 | 36.2 | 47.0 | 33.4 | 7.6 | 44.5 | 24.7 | 0.0 | 750 |
| Mountainous | 24.6 | 29.0 | 6.4 | 32.2 | 42.7 | 39.5 | 4.2 | 42.5 | 28.8 | 0.0 | 1,114 |
| Plateau and Desert | 29.6 | 34.6 | 7.8 | 37.5 | 51.9 | 33.0 | 10.2 | 50.1 | 20.8 | 0.2 | 1,322 |
| **Mother's education** | | | | | | | | | | | |
| Illiterate | 26.1 | 31.8 | 7.4 | 34.7 | 45.6 | 36.8 | 7.2 | 44.4 | 26.0 | 0.1 | 2,792 |
| Literate | 40.8 | 36.7 | 8.4 | 39.8 | 60.5 | 23.2 | 9.0 | 54.4 | 12.4 | 0.0 | 152 |
| Primary complete | 40.5 | 33.2 | 10.3 | 36.2 | 55.8 | 32.7 | 11.4 | 60.3 | 17.7 | 0.0 | 159 |
| Preparatory complete | 33.5 | 32.7 | 6.3 | 35.2 | 65.4 | 24.4 | 11.2 | 62.5 | 14.2 | 0.0 | 41 |
| Secondary complete+ | 55.2 | 54.5 | 4.2 | 57.3 | 82.1 | 6.0 | 4.1 | 63.2 | 6.0 | 0.0 | 42 |
| Total | 28.0 | 32.4 | 7.5 | 35.3 | 47.5 | 35.4 | 7.5 | 46.1 | 24.5 | 0.1 | 3,185 |

[1] Homemade sugar-salt-water solution

Among children with diarrhea in the last two weeks, 28 percent were taken to a health facility for treatment, 32 percent were given a solution made from ORS packets, 8 percent were given RHF, and 35 percent were given either ORS or RHF. A substantial proportion of mothers also reported that they gave children with diarrhea more fluids than usual to drink (48 percent). Overall, 35 percent of children were given neither ORS or RHF nor increased fluids, placing this group at greater risk of dying. Only a small

proportion of children with diarrhea (8 percent) were given some kind of medicine (pill, syrup, or injection) to treat the disease. Almost half (46 percent) of children with diarrhea received a home-based traditional remedy or herbal medicine.

Children age 6-23 months, first-order births, children in Coastal and the Plateau and Desert regions, and children born to mothers with secondary or higher education were more likely to be taken to a facility than other children. The same pattern was seen in use of ORS packets and RHF. The proportion receiving increased fluids rises from 34 percent among children under 6 months to 55 percent among children 24-35 months.

**Feeding Practices**

In the YDMCHS 1997, mothers who had a child under age five with diarrhea during the two-week period prior to the survey were asked whether they had changed the amount of fluids or food given to the child during the diarrheal episode.

Table 8.17 and Figure 8.4 indicate that 25 percent of children with diarrhea were given the same amount of fluids as usual, 48 percent received more fluids than usual, and 25 percent received less fluids than usual. Comparing these results with data from the 1991-92 survey, the percentage of children who received less fluid than normal is nearly the same, the percentage who received more fluid than usual increased from 36 percent in 1991-92 to 48 percent in 1997 (CSO, 1994).

With regard to feeding solid foods, Table 8.17 and Figure 8.4 show that 59 percent of children with diarrhea were given less food than normal. Twenty-four percent of children were given the same amount of food, and only 6 percent were given more food than usual.

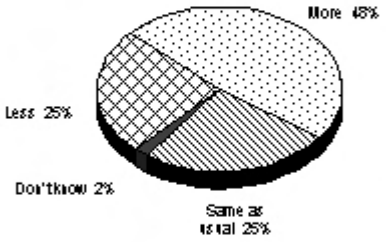
These patterns reflect a lack of practical knowledge among some mothers regarding the appropriate feeding practices for children during episodes of diarrheal illness.

Table 8.17 Feeding practices during diarrhea

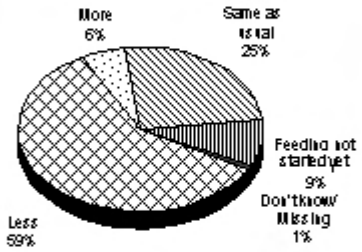
Percent distribution of children under five years who had diarrhea in the past two weeks by amount of fluids and solid foods given compared with the normal practice, Yemen, 1997

| Feeding practice | Total |
|---|---|
| **Amount of fluids given** | |
| Same | 24.8 |
| More | 47.5 |
| Less | 25.3 |
| Don't know/missing | 2.4 |
| **Amount of solids foods given** | |
| Same | 24.6 |
| More | 6.3 |
| Less | 58.7 |
| Feeding food not yet started | 9.4 |
| Don't Know/missing | 1.1 |
| Total | 100.0 |
| Number of children | 3,185 |

**Figure 8.4**
**Feeding Practices among Children under Age 5 with Diarrhea**




Amount of Fluid Given




Amount of Food Given

YDMCHS-97

# CHAPTER 9

# MATERNAL AND CHILD NUTRITION

This chapter covers several important aspects of the nutritional status of Yemeni children under five and their mothers. Topics in the evaluation of nutritional status include breastfeeding patterns, supplementary foods, and bottle-feeding practices. Anthropometric measurements (height and weight) were used to determine the nutritional status of mothers who had one or more children in the five years preceding the survey and their children under five.

## 9.1 Breastfeeding and Supplementary Foods

Initiation of infant feeding has an important influence on the health of mother and child. Breastfeeding practiced right after birth has a positive impact on the nutritional status of children and reduces the risk of illness and death.

Breastfeeding practices also have an indirect effect on the mother's fertility. In particular, frequent, exclusive breastfeeding for long durations is associated with longer periods of postpartum amenorrhea, which in turn, is related to longer birth intervals, and thus lower fertility.

### Prevalence and Initiation of Breastfeeding

Early initiation of breastfeeding has an important influence on the health of mothers and children. Early suckling promotes the release of the hormone oxytocin that helps the mother's uterus to contract, and reduces the risk of postpartum hemorrhage. Breastfeeding immediately after delivery is beneficial and important for the child, because he/she receives colostrum, which is contained in the first milk. Colostrum secreted in the early period of lactation is an adequate nutritional support and positive supplement for the infant's immature immune system.

The World Health Organization (WHO) has suggested several indicators for countries to use in evaluating infant and child feeding practices; these include the ever-breastfed rate, the exclusive breastfeeding rate, the timely complementary feeding rate, the continued breastfeeding rate, and the bottle-feeding rate. The *exclusive breastfeeding rate* is defined as the proportion of infants under four months that 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 semisolid food. The *continued breastfeeding rate through one year of age* is the proportion of children age 12-15 months who are still being breastfed. The *continued breastfeeding rate for two years of age* is the proportion of children age 20-23 months who are still breastfed. The *bottle-feeding rate* is the proportion of infants who are fed using a bottle with a nipple. These indicators are highlighted in the presentation of data on breastfeeding and other feeding practices in this chapter.

Table 9.1 indicates that nearly 97 percent of children born in the five years preceding the survey have been breastfed. The practice of breastfeeding is high in all subgroups, ranging from 92 to 98 percent. Overall, 47 percent of the children started breastfeeding within an hour of birth and 69 percent within the first day of delivery. There is almost no difference in the timing of initiation of breastfeeding by sex of child or place of delivery. Fifty-five percent of infants in urban areas were breastfed in the first hour after birth compared with 45 percent of infants in rural areas. Initiation of breastfeeding within first hour of birth is highest in the Coastal region (58 percent) and lowest in the Plateau and Desert region (44 percent). The percentage of mothers who began to breastfeeding their infants within the first hour of delivery increases with level of

education. For example, 46 percent of illiterate mothers and 59 of mothers with secondary or higher education began breastfeeding within the first hour after birth. Children were less likely to receive early breast milk when a medical trained person did not assist the birth.

Table 9.1 Initial breastfeeding

Percentage of children born in the five years preceding the survey who were ever breastfed and who started breastfeeding within one hour and within one day of birth, and who were given colostrum, according to selected background characteristics, Yemen 1997

| Background characteristic | Percentage ever breastfed | Percentage who started breastfeeding: Within one hour of birth | Within one day of birth[1] | Percentage given colostrum | Number of children |
|---|---|---|---|---|---|
| **Child's sex** | | | | | |
| Male | 96.5 | 47.3 | 69.4 | 90.5 | 6,597 |
| Female | 97.0 | 47.6 | 69.5 | 90.8 | 6,087 |
| **Residence** | | | | | |
| Urban | 96.4 | 55.0 | 76.8 | 91.8 | 2,857 |
| Rural | 96.8 | 45.3 | 67.3 | 90.3 | 9,828 |
| **Region** | | | | | |
| Coastal | 97.4 | 57.8 | 73.8 | 94.0 | 2,729 |
| Mountainous | 96.7 | 46.1 | 66.1 | 88.6 | 3,860 |
| Plateau and Desert | 96.5 | 43.6 | 69.6 | 90.4 | 6,096 |
| **Mother's education** | | | | | |
| Illiterate | 96.8 | 46.2 | 68.0 | 90.3 | 10,827 |
| Literate | 98.1 | 51.0 | 74.1 | 93.7 | 683 |
| Primary complete | 96.4 | 57.6 | 78.6 | 91.9 | 755 |
| Preparatory complete | 92.1 | 51.5 | 80.6 | 91.3 | 191 |
| Secondary complete | 96.4 | 58.6 | 85.6 | 95.5 | 228 |
| **Assistance at delivery** | | | | | |
| Medically trained personnel | 94.8 | 50.8 | 72.7 | 90.2 | 2,748 |
| Traditional midwife | 96.6 | 44.1 | 65.9 | 91.4 | 2,685 |
| Other or none | 97.5 | 47.6 | 69.8 | 90.9 | 7,223 |
| **Place of delivery** | | | | | |
| Health facility | 94.0 | 49.6 | 71.5 | 89.1 | 1,969 |
| At home | 97.2 | 47.2 | 69.3 | 91.2 | 10,683 |
| Total | 96.7 | 47.4 | 69.4 | 90.7 | 12,685 |

Note: Total includes children with missing data on assistance at delivery and children with response "other" or missing data on place of delivery, who are not shown separately.
[1] Includes children who started breastfeeding within one hour of birth

Differentials in the initiation of breastfeeding within the first day after birth are small but similar to those noted for initiation of breastfeeding within the first hour after birth.

Early initiation of breastfeeding and providing newborns with colostrum are recommended for the prevention of diseases. The results for children born in the five years preceding the survey show that sucking of colostrum by children is almost universal in Yemen (91 percent), and there is virtually no difference by sex of child in the giving of colostrum. Around 95 percent of newborns whose mothers live in the Coastal region, are literate, or have completed at least the secondary level of education were given colostrum.

**Reasons for Not Breastfeeding**

Table 9.2 shows the percent distribution of last births and of all births in the five years preceding the survey for which children were not breastfed, by main reason for not breastfeeding. Reasons for not breastfeeding are similar for both groups except that the reasons "mother ill /weak," and "child died" are mentioned more often (4 percentage points more) for last births, and "child ill/weak" is mentioned more often for all births.

Table 9.2 Reasons for not breastfeeding

Percent distribution of last births and all births in the five years preceding the survey that who were not breastfed by reason for not breastfeeding, according to residence, Yemen 1997

| | Urban | | Rural | | Total | |
|---|---|---|---|---|---|---|
| Reason for not breastfeeding | Last births[1] | All births | Last births | All births | Last births | All births |
| Mother ill/weak | 18.4 | 14.3 | 19.8 | 16.3 | 19.5 | 15.8 |
| Child ill/weak | 6.1 | 16.2 | 7.7 | 12.3 | 7.3 | 13.3 |
| Child died | 46.3 | 42.2 | 46.6 | 42.4 | 46.5 | 42.3 |
| Nipple/breast problem | 10.6 | 10.2 | 3.4 | 3.5 | 5.2 | 5.2 |
| Insufficient milk | 10.0 | 7.1 | 9.3 | 12.8 | 9.5 | 11.4 |
| Working | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 1.0 |
| Child refused | 8.5 | 8.9 | 10.9 | 9.6 | 10.3 | 9.4 |
| Other | 0.0 | 0.0 | 0.7 | 0.3 | 0.5 | 0.3 |
| Missing | 0.0 | 1.2 | 1.4 | 1.4 | 1.1 | 1.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number | 51 | 103 | 150 | 310 | 201 | 413 |

[1] Figures are based on fewer than 50 cases

Child's death is the most common reason for not breastfeeding last births (47 percent). Other child-related reasons for not breastfeeding are child ill/weak (7 percent) and child refused to suckle (10 percent). Mothers being ill or weak (20 percent), mothers having insufficient milk (10 percent), and nipple/breast problems (5 percent), together account for 35 percent of the reasons cited for not breastfeeding the last birth.

The major difference by residence is in mothers having nipple/breast problems. In urban areas, three times as many mothers had this problem with the last birth compared with mothers in rural areas.

**Age Pattern of Breastfeeding and Introduction of Supplementary Food**

Breast milk is unquestionably the best food for infants. It provides all the nutrients needed by newborns; therefore, it is unnecessary to give infants anything else before 4-5 months of age. Early introduction of supplements increases exposure of an infant to infections, diarrhea, and malnutrition.

Early supplementation also reduces secretion of breast milk because frequency and intensity of sucking influence the production and release of breast milk.

For the purpose of understanding the practices of supplementation, mothers were asked about the current breastfeeding status of all their children under five years and whether other liquids, mashed or solid food, family food, or the like were given during the 24 hours before the survey.

Table 9.3 and Figure 9.1 show that the majority of Yemeni infants are breastfed during the first year of life. At age 10-11 months, 79 percent of infants are still breastfeeding, and by age 16-17 months 60 percent are still breastfeeding. Weaning takes place rapidly after this age. By 24-25 months, only one in five children is still being breastfed. By the end of the third year, 87 percent of the children have been completely weaned.

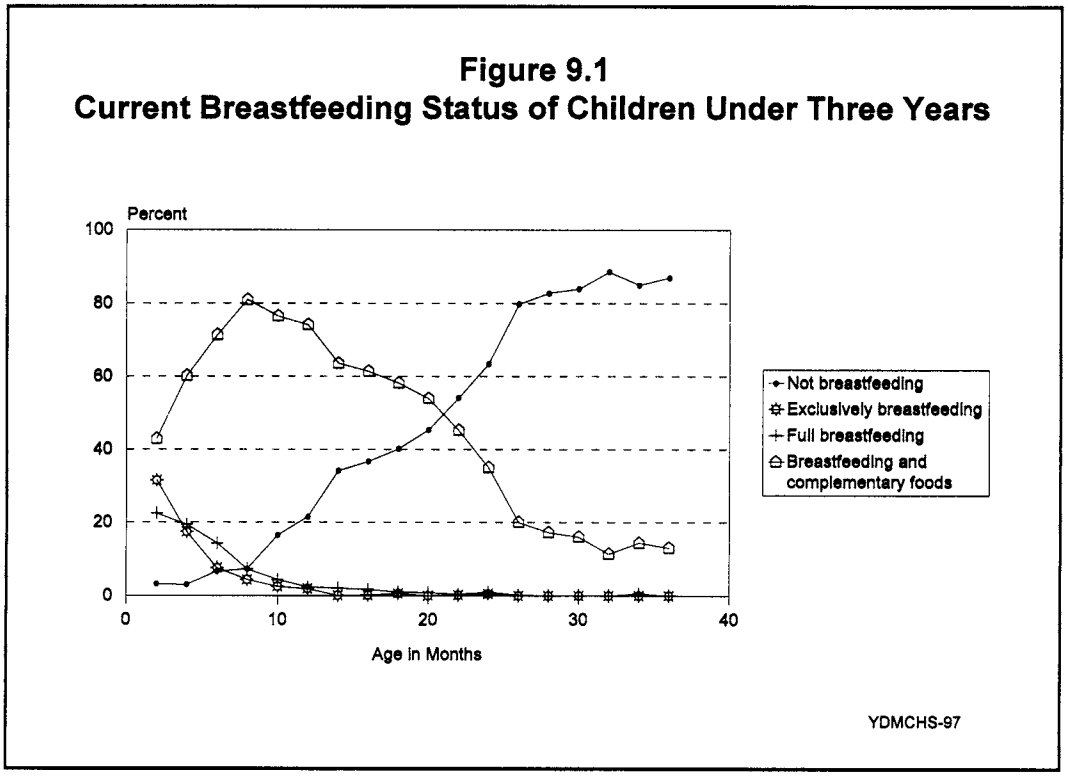
Table 9.3 Breastfeeding status

Percent distribution of living children under three years of age by current breastfeeding status, according to child's current age in months, Yemen 1997

| | Breastfeeding status | | | | | |
|---|---|---|---|---|---|---|
| | | | Breastfeeding and: | | | |
| Age in months | Not breast-feeding | Exclusively breastfed | Plain water only | Comple-mentary foods | Total | Number of living children |
| <2 | 3.2 | 31.5 | 22.4 | 42.9 | 100.0 | 337 |
| 2-3 | 3.0 | 17.4 | 19.4 | 60.2 | 100.0 | 475 |
| 4-5 | 6.7 | 7.6 | 14.3 | 71.4 | 100.0 | 437 |
| 6-7 | 7.3 | 4.4 | 7.3 | 81.0 | 100.0 | 456 |
| 8-9 | 16.5 | 2.5 | 4.4 | 76.5 | 100.0 | 472 |
| 10-11 | 21.5 | 1.9 | 2.4 | 74.2 | 100.0 | 367 |
| 12-13 | 34.2 | 0.1 | 2.1 | 63.6 | 100.0 | 448 |
| 14-15 | 36.7 | 0.2 | 1.7 | 61.4 | 100.0 | 378 |
| 16-17 | 40.2 | 0.6 | 1.0 | 58.2 | 100.0 | 379 |
| 18-19 | 45.3 | 0.0 | 0.9 | 53.9 | 100.0 | 367 |
| 20-21 | 54.1 | 0.2 | 0.4 | 45.2 | 100.0 | 364 |
| 22-23 | 63.5 | 0.5 | 1.0 | 35.0 | 100.0 | 252 |
| 24-25 | 79.8 | 0.0 | 0.2 | 20.0 | 100.0 | 424 |
| 26-27 | 82.8 | 0.0 | 0.0 | 17.2 | 100.0 | 423 |
| 28-29 | 84.0 | 0.0 | 0.0 | 16.0 | 100.0 | 376 |
| 30-31 | 88.6 | 0.0 | 0.0 | 11.4 | 100.0 | 424 |
| 32-33 | 85.0 | 0.0 | 0.6 | 14.4 | 100.0 | 371 |
| 34-35 | 87.0 | 0.0 | 0.0 | 13.0 | 100.0 | 306 |
| <4 months | 3.1 | 23.3 | 20.6 | 53.0 | 100.0 | 813 |
| 4-6 months | 6.2 | 6.9 | 12.5 | 74.4 | 100.0 | 665 |
| 7-9 months | 14.2 | 2.8 | 4.8 | 78.2 | 100.0 | 699 |

Note: Breastfeeding status refers to 24 hours preceding the survey. Children classified as *breastfeeding and plain water only* receive no complementary foods.

As mentioned earlier, the World Health Organization recommends exclusive breastfeeding (only breast milk) for the first 4 to 6 months of life. Exclusive breastfeeding is extremely uncommon in Yemen. Among infants under two months, only 32 percent received nothing except breast milk; 22 percent were given plain water in addition to breast milk, while 43 percent received breast milk and other supplements. The practice of exclusive breastfeeding drops to 17 percent among infants 2-3 months of age and further to 8 percent at age 4-5 months.




**Differentials in the Duration and Frequency of Breastfeeding**

While the proportion of mothers who practice breastfeeding is increasing in developed countries, mothers in developing countries are giving up this natural practice. Once reason for the decline in developing countries is the marketing of ready-made infant formula as a breast milk substitute.

Data on the median duration and frequency of breastfeeding are presented in Table 9.4. The median duration of any type of breastfeeding in Yemen is 18 months; in the 1991-92 YDMCHS it was only 16 months. The longer duration of breastfeeding may be due to an increase in the cost of infant formula. There are only slight differentials in the median duration of any breastfeeding by background characteristic except by mother's education (Figure 9.2). Women who have completed some schooling breastfeed on average from 10 to 14 months compared with 18 months for illiterate mothers.

The median duration of exclusive breastfeeding is only half a month and is approximately 1 month for full breastfeeding (breastfeeding plus plain water only).

The duration of postpartum amenorrhea for women is affected by the duration and frequency of breastfeeding. The daily frequency of breastfeeding in Yemen tends to be high. Eighty-three percent of infants under six months of age were reported to be breastfed six or more times during the 24 hours period before the survey. The proportion of children breastfed six or more times in 24 hours is higher in rural than urban areas (84 percent and 78 percent, respectively). The other differentials are not large except that children whose mothers were assisted at delivery by medical personnel are breastfed less often than children whose mothers were not assisted by medical personnel.

Table 9.4 Median duration and frequency of breastfeeding

Median duration of any breastfeeding, exclusive breastfeeding, and full breastfeeding among children under three years of age, and the percentage of children under six months of age who were breastfed six or more times in the 24 hours preceding the interview, according to background characteristics, Yemen 1997

| Background characteristic | Median duration of breastfeeding[1] | | | Number of children under 3 years of age | Children under six months | |
|---|---|---|---|---|---|---|
| | Any breast-feeding | Exclusive breast-feeding | Full breast-feeding[2] | | Breastfed 6 or more times in preceding 24 hours | Number of children |
| **Child's sex** | | | | | | |
| Male | 17.7 | 0.6 | 1.1 | 3,921 | 83.6 | 633 |
| Female | 18.0 | 0.5 | 0.7 | 3,786 | 81.7 | 616 |
| **Residence** | | | | | | |
| Urban | 16.3 | 0.5 | 0.7 | 1,731 | 78.4 | 289 |
| Rural | 18.2 | 0.5 | 1.0 | 5,975 | 83.9 | 960 |
| **Region** | | | | | | |
| Coastal | 16.8 | 0.4 | 0.7 | 1,686 | 83.7 | 298 |
| Mountainous | 19.3 | 0.5 | 1.1 | 2,337 | 85.0 | 394 |
| Plateau and Desert | 17.4 | 0.6 | 1.2 | 3,684 | 80.4 | 558 |
| **Mother's education** | | | | | | |
| Illiterate | 18.3 | 0.5 | 1.0 | 6,473 | 83.0 | 1,035 |
| Literate | 18.4 | 0.7 | 1.8 | 437 | 78.2 | 77 |
| Primary complete | 13.6 | 0.5 | 0.6 | 506 | 76.8 | 90 |
| Preparatory complete | 10.2 | 0.6 | 0.6 | 140 | (97.1) | 23 |
| Secondary complete+ | 13.9 | 1.2 | 1.5 | 150 | (90.5) | 25 |
| **Assistance at delivery** | | | | | | |
| Medically trained personnel | 15.6 | 0.6 | 0.7 | 1,729 | 76.2 | 281 |
| Traditional midwife | 18.3 | 0.5 | 1.2 | 1,645 | 83.9 | 275 |
| Other or none | 18.9 | 0.5 | 0.9 | 4,318 | 84.8 | 693 |
| Total | 17.8 | 0.5 | 0.9 | 7,706 | 82.7 | 1,250 |
| Mean | 18.0 | 1.9 | 3.3 | - | - | - |
| Prevalence/Incidence mean | 17.9 | 1.2 | 2.7 | - | - | - |

Note: Total includes children for whom data on assistance at delivery are missing. Figures in parentheses are based on 25 to 49 children.
[1] Medians and means are based on current status and durations are in months.
[2] Either exclusive breastfeeding or breastfeeding and plain water only

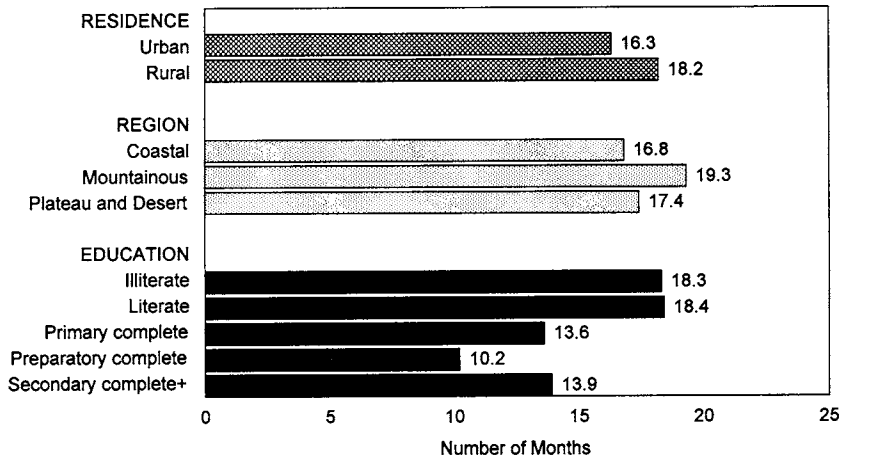
## Types of Supplementary Foods

The type of supplementary food used varies according to the availability of foods and their cultural acceptance for use during breastfeeding and weaning.

Table 9.5 presents information on the types of food received by children under three years in the 24 hours before the interview, according to current breastfeeding status and age. As described above, exclusive breastfeeding is not common in Yemen; only 24 percent of infants under 4 months of age are exclusively breastfed.

Almost all food items are given to infants early in life (age 0-3 months) in Yemen. Infant formula is also used early by Yemeni mothers. Among infants who were still being breastfed, 3 percent under four months, 14 percent age 4-6 months, and 18 percent age 7-9 months received infant formula in the 24 hours before the survey. The corresponding percentages among the nonbreastfeeding children were 14, 31, and 30 percent, respectively, for the three age groups. The use of infant formula peaks at age 10-11 months for children who are breastfed and at age 4-6 months for those who are not breastfed.

**Figure 9.2**
**Median Duration of Breastfeeding by Selected Background Characteristics**




Other milk (e.g. animal milk) is a very common supplement among all children under three years. Nearly half of breastfeeding children and an even higher proportion of nonbreastfeeding children are given other milk. Among children still being breastfed, consumption of other milk increases from 33 percent at under four months of age to 52 percent among children 4-6 months and to 56 percent among children 7-9 months. Higher proportions of nonbreastfeeding children receive other milk at all ages. For example, 79 and 88 percent of non-breastfeeding children under four months and 4-6 months, respectively, received other milk.

The feeding of other liquids (sugar water, fruit juices, tea with or without milk, or rice water) is a common initial supplementary practice in Yemen. Among children who are still breastfed, 41 percent are given other liquids compared with 32 percent in the 1991-92 YDMCHS survey.

In Yemen, infants and young children are given food prepared for the rest of family. Among non-breastfeeding and breastfeeding children, family food is introduced early and half of infants age 8-9 months who are breastfeeding and two-thirds of infants age 8-9 who are not breastfeeding receive family food. The percentage of children who eat family food increases to about 67 percent among children 30-35 months who are breastfed.

Table 9.5 Types of food received by children in the preceding 24 hours

Percentage of children under three years of age who received specific types of food in the 24 hours before the interview, and the percentage using a bottle with a nipple, by breastfeeding status and child's age in months, Yemen 1997

| Age (in months) | Breast milk only | Infant formula | Other milk | Other liquids | Meat/ poultry/ fish/ eggs | Grain/ flour/ cereal | Other | Family food | Use of bottle with a nipple | Number of children |
|---|---|---|---|---|---|---|---|---|---|---|
| BREASTFEEDING CHILDREN | | | | | | | | | | |
| <2 | 32.5 | 1.2 | 21.6 | 23.3 | 1.4 | 1.5 | 2.7 | 10.9 | 27.0 | 327 |
| 2-3 | 18.0 | 4.3 | 41.1 | 26.0 | 1.9 | 3.9 | 4.5 | 16.4 | 43.8 | 461 |
| 4-5 | 8.2 | 12.4 | 50.2 | 31.3 | 9.7 | 8.8 | 18.3 | 30.8 | 46.9 | 408 |
| 6-7 | 4.7 | 18.2 | 55.9 | 32.8 | 12.2 | 21.7 | 33.2 | 43.2 | 52.8 | 422 |
| 8-9 | 3.0 | 17.7 | 55.8 | 39.6 | 22.5 | 33.1 | 49.8 | 47.7 | 47.1 | 394 |
| 10-11 | 2.5 | 18.9 | 58.9 | 45.7 | 31.9 | 45.1 | 67.8 | 53.4 | 45.4 | 288 |
| 12-13 | 0.2 | 14.5 | 59.5 | 50.7 | 39.6 | 56.2 | 71.6 | 53.0 | 41.5 | 295 |
| 14-15 | 0.3 | 11.0 | 52.4 | 50.3 | 45.1 | 57.8 | 84.4 | 61.8 | 41.1 | 239 |
| 16-17 | 1.0 | 13.2 | 54.3 | 55.8 | 46.0 | 58.2 | 79.1 | 64.4 | 34.1 | 227 |
| 18-23 | 0.4 | 10.5 | 50.3 | 55.1 | 40.1 | 57.5 | 82.3 | 58.6 | 30.5 | 460 |
| 24-29 | 0.0 | 3.9 | 49.4 | 52.7 | 41.1 | 56.0 | 87.3 | 62.9 | 27.6 | 218 |
| 30-35 | 0.0 | 8.2 | 48.6 | 61.0 | 46.7 | 48.3 | 86.7 | 67.4 | 29.2 | 144 |
| <4 months | 24.0 | 3.0 | 33.0 | 24.9 | 1.7 | 2.9 | 3.8 | 14.1 | 36.8 | 787 |
| 4-6 months | 7.3 | 14.3 | 52.4 | 32.2 | 9.6 | 12.1 | 21.6 | 35.3 | 49.5 | 624 |
| 7-9 months | 3.2 | 18.0 | 55.5 | 36.8 | 19.9 | 30.5 | 46.1 | 46.1 | 48.4 | 600 |
| Total | 6.9 | 11.4 | 49.5 | 41.3 | 24.6 | 33.6 | 49.5 | 44.2 | 40.2 | 3,883 |
| NONBREASTFEEDING CHILDREN | | | | | | | | | | |
| 8-9 | NA | 30.2 | 85.1 | 58.0 | 32.6 | 48.6 | 63.0 | 67.6 | 87.4 | 78 |
| 10-11 | NA | 17.9 | 85.6 | 66.5 | 37.4 | 54.3 | 68.1 | 67.6 | 86.0 | 79 |
| 12-13 | NA | 14.5 | 80.3 | 58.1 | 43.3 | 47.5 | 85.9 | 65.2 | 80.4 | 153 |
| 14-15 | NA | 12.8 | 76.3 | 61.3 | 46.5 | 61.3 | 86.6 | 70.9 | 75.4 | 139 |
| 16-17 | NA | 16.5 | 75.2 | 71.7 | 47.2 | 63.6 | 84.1 | 61.6 | 70.4 | 152 |
| 18-23 | NA | 9.3 | 68.9 | 66.5 | 47.2 | 66.4 | 87.6 | 62.4 | 53.8 | 523 |
| 24-29 | NA | 6.7 | 53.7 | 64.7 | 50.9 | 66.2 | 89.9 | 64.7 | 35.2 | 1,004 |
| 30-35 | NA | 6.3 | 51.1 | 60.6 | 49.3 | 69.9 | 93.3 | 65.5 | 34.1 | 957 |
| <4 months | NA | (14.1) | (79.2) | (42.5) | (4.7) | (4.7) | (4.7) | (25.9) | (76.3) | 25 |
| 4-6 months | NA | (30.9) | (88.1) | (49.9) | (6.1) | (14.0) | (21.7) | (38.2) | (90.9) | 41 |
| 7-9 months | NA | 30.1 | 85.1 | 56.7 | 30.2 | 44.9 | 60.3 | 63.2 | 89.8 | 100 |
| Total | NA | 9.5 | 61.2 | 63.1 | 47.1 | 64.0 | 86.9 | 64.1 | 47.6 | 3,173 |

Note: Total for nonbreastfeeding children includes children age 0-7 months. Figures in parentheses are based on 25 to 49 children.
NA = Not applicable

## Bottle-feeding

The use of a bottle with a nipple to feed children is of interest to both demographers and health personnel. Bottle-feeding has a direct effect on the mother's exposure to pregnancy because the period of amenorrhea may be shortened in nonbreastfeeding mothers when breastfeeding is reduced or replaced by bottle-feeding. Because it is often difficult to sterilize the nipple properly, the use of a feeding bottle with a nipple exposes children to an increased risk of diarrhea and other diseases.

Table 9.5 indicates that bottle-feeding is quite common in Yemen among breastfeeding and nonbreastfeeding children (40 percent and 48 percent, respectively) because of availability of cheap plastic bottles in small shops everywhere, even in remote villages. There has been an apparent decline in bottle-feeding since the 1991-92 YDMCHS survey when 52 percent of children were bottle-fed.

In addition to breast milk, 27 percent of children under two months and 44 percent of children age 2-3 months were given supplements from a bottle with a nipple. Bottle-feeding among breastfeeding children peaks at 53 percent at age 6-7 months and then declines slowly to 29 percent among children 30-35. Bottle-feeding is much more common among nonbreastfeeding children, increasing from 76 percent in infants under 4 months to 91 percent among those 4-6 months and then slowly declining to 54 percent among children 18-23 months. More than one-third of nonbreastfeeding children age 24-35 months are bottle-fed.

**Age at First Supplementary Feeding**

Rapid physical and mental growth and development characterize the first two years of life. The changes in children's food intake during this period make them particularly vulnerable with respect to health and nutritional status.

The addition of supplemental feeding to breastfeeding is recommended at age 4-6 months because the composition of human milk is no longer sufficient to meet a child's growing needs. The introduction of supplementary foods to children under four months of age, however, may place a burden on the child's kidneys.

The results in Table 9.6 indicate that supplemental feeding among Yemeni children begins at an early age. Among children 0-3 months almost the same proportion of children start supplementation as those who do not (excluding don't know category). More than half of children 4-6 month and 38 to 44 percent of older children start receiving supplemental food before they are four months old. On the other hand, more than 1 in 8 children age 7-9 months and higher proportions of older children are fed only breast milk or breast milk and water. Although supplementation is equally likely to occur among urban and rural children, late supplementation (after 6 months of age) is more likely among rural than urban children.

The median age at first supplemental feeding as practiced among children 7 months and older increases with age from 4.3 to 4.8 months. This indicates a trend toward earlier introduction of supplementation. The median age at first supplementation for all children under two years is 4.5 months, with only slight differences in the medians for urban and rural children (4.3 and 4.6 months, respectively).

**Recommended Feeding**

Beliefs, traditions, and social habits on the one hand, and consumption behavior adapted to technological development in food manufacturing (accompanied by attractive advertising) on the other hand, influence decisions regarding food choices and the timing of initiation of supplementation to breastfeeding. Early introduction of supplementation is also influenced by mother's education and participation in the labor force. In urban areas, because mothers have greater exposure to health education (nutritional education) through Maternal and Child Health Centers and the mass media, it is expected that child nutrition problems will be less prevalent than in rural areas.

Table 9.7 presents figures that will help identify problems with breastfeeding practices in Yemen. These results will assist in designing effective programs of health and nutrition education for all families. The dissemination of this information about proper feeding practices will help improve children's health and nutritional situation. Better feeding practices will result in lower levels of malnutrition, morbidity, and mortality in children.

Table 9.6 Starting age for supplementary food

Percent distribution of children under two year who were given liquids, powdered milk, animal milk, solid or mushy food, by age of the child when supplementation was started, according to current age, Yemen 1997

| | Age of child when supplementation was started (in months) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Age in months | 0-3 | 4-6 | 7-9 | 10-12 | 13+ | Not started | Only breast milk | Don't know/ Missing/ Incon-sistent | Total | Number of children | Median age when supple-mentation began |
| | | | | | URBAN | | | | | | |
| 0-3 | 51.8 | NA | NA | NA | NA | 20.7 | 14.9 | 12.7 | 100.0 | 194 | 3.3 |
| 4-6 | 50.9 | 32.7 | NA | NA | NA | 2.9 | 7.1 | 6.3 | 100.0 | 150 | 3.9 |
| 7-9 | 44.9 | 47.0 | 3.5 | NA | NA | 1.6 | 2.3 | 0.7 | 100.0 | 138 | 4.2 |
| 10-12 | 40.4 | 43.9 | 10.1 | 2.0 | NA | 2.1 | 1.6 | 0.0 | 100.0 | 152 | 4.4 |
| 13-17 | 42.4 | 45.7 | 9.1 | 1.0 | 0.5 | 0.3 | 0.7 | 0.2 | 100.0 | 230 | 4.3 |
| 18-23 | 35.4 | 46.6 | 11.7 | 2.8 | 0.3 | 0.0 | 1.5 | 1.6 | 100.0 | 224 | 4.6 |
| Total | 43.8 | 35.9 | 6.2 | 1.1 | 0.2 | 4.6 | 4.6 | 3.6 | 100.0 | 1,089 | 4.3 |
| | | | | | RURAL | | | | | | |
| 0-3 | 41.0 | NA | NA | NA | NA | 24.2 | 18.0 | 16.7 | 100.0 | 618 | a |
| 4-6 | 50.6 | 21.7 | NA | NA | NA | 8.4 | 9.6 | 9.7 | 100.0 | 515 | 3.9 |
| 7-9 | 44.2 | 35.6 | 7.4 | NA | NA | 3.2 | 4.5 | 5.0 | 100.0 | 561 | 4.3 |
| 10-12 | 42.3 | 39.5 | 12.8 | 1.9 | NA | 1.1 | 1.2 | 1.0 | 100.0 | 461 | 4.6 |
| 13-17 | 38.7 | 39.8 | 14.0 | 2.9 | 0.0 | 1.3 | 1.5 | 1.8 | 100.0 | 730 | 4.7 |
| 18-23 | 39.2 | 37.8 | 13.5 | 5.8 | 0.2 | 0.5 | 1.2 | 1.9 | 100.0 | 759 | 4.9 |
| Total | 42.2 | 29.4 | 8.4 | 2.0 | 0.0 | 6.3 | 5.8 | 5.9 | 100.0 | 3,644 | 4.6 |
| | | | | | TOTAL | | | | | | |
| 0-3 | 43.6 | NA | NA | NA | NA | 23.4 | 17.3 | 15.8 | 100.0 | 813 | a |
| 4-6 | 50.7 | 24.2 | NA | NA | NA | 7.2 | 9.1 | 8.9 | 100.0 | 665 | 3.9 |
| 7-9 | 44.3 | 37.9 | 6.6 | NA | NA | 2.9 | 4.1 | 4.1 | 100.0 | 699 | 4.3 |
| 10-12 | 41.9 | 40.6 | 12.1 | 1.9 | NA | 1.4 | 1.3 | 0.8 | 100.0 | 612 | 4.5 |
| 13-17 | 39.6 | 41.2 | 12.8 | 2.4 | 0.1 | 1.1 | 1.3 | 1.4 | 100.0 | 960 | 4.5 |
| 18-23 | 38.3 | 39.8 | 13.1 | 5.1 | 0.2 | 0.4 | 1.3 | 1.8 | 100.0 | 983 | 4.8 |
| Total | 42.6 | 30.9 | 7.9 | 1.8 | 0.1 | 5.9 | 5.6 | 5.3 | 100.0 | 4,733 | 4.5 |

NA = Not applicable
[a] Median cannot be calculated because less than 50 percent of the children in the age group have started receiving supplementation

The exclusive breastfeeding rate among children age 0-3 months in Yemen is only 23 percent. The two indicators of breastfeeding continuation are also not encouraging. Only 65 percent of children age 12-15 months, and 42 percent of children age 20-23 months were still being breastfed at the time of the survey. These breastfeeding indicators are lower for urban than rural children and lower among children who have educated mothers than among those whose mothers are illiterate. The rate of exclusive breastfeeding is three times as high in the Plateau and Desert region as in the Coastal region, although the one-year continued breastfeeding rate is almost the same in both regions. The two-year continued breastfeeding rate is lowest in the Plateau and Desert region.

Table 9.7 Recommended feeding indicators

Recommended feeding indicators for children age 0-23 according to selected background characteristics, Yemen 1997

| Background characteristic | Recommended feeding indicators | | | | |
|---|---|---|---|---|---|
| | Percent of children 0-3 months exclusively breastfed | Percent of children 6-9 months receiving breast milk and solid/ mushy food | Percent of children 12-15 months breastfed | Percent of children 20-23 months breastfed | Percent of last-born children <12 months bottle-fed |
| **Child's sex** | | | | | |
| Male | 28.6 | 59.5 | 67.6 | 41.9 | 48.7 |
| Female | 17.9 | 55.5 | 61.6 | 42.2 | 49.0 |
| **Residence** | | | | | |
| Urban | 20.7 | 70.0 | 58.0 | 29.7 | 53.2 |
| Rural | 24.1 | 54.3 | 66.9 | 46.0 | 47.6 |
| **Region** | | | | | |
| Coastal | 10.1 | 50.2 | 62.0 | 44.8 | 57.9 |
| Mountainous | 23.8 | 55.8 | 65.9 | 51.3 | 47.6 |
| Plateau and Desert | 30.2 | 61.4 | 65.2 | 35.5 | 45.4 |
| **Mother's education** | | | | | |
| Illiterate | 24.3 | 57.1 | 66.8 | (44.9) | 47.0 |
| Literate | (29.4) | 58.0 | 71.6 | * | 52.2 |
| Primary complete | * | 60.1 | 49.8 | * | 59.9 |
| Preparatory complete | * | 52.1 | 37.6 | * | 64.9 |
| Secondary complete+ | * | 68.3 | 52.2 | 37.9 | 58.0 |
| **Assistance at delivery** | | | | | |
| Medically trained | 24.6 | 60.1 | 59.8 | 34.6 | 53.0 |
| personnel | 19.1 | 58.7 | 69.7 | 44.8 | 43.7 |
| Traditional midwife | 24.6 | 56.2 | 65.3 | 43.9 | 49.1 |
| Other or none | | | | | |
| Total | 23.3 | 57.6 | 64.7 | 42.1 | 48.8 |

Note: Figures in parentheses are based on 25 to 49 children; an asterisk indicates that a figure is based on fewer than 25 children and has been suppressed.

The timely complementary feeding rate (children 6-9 months receiving breast milk and supplementation) is 58 percent. The introduction of milk, other liquids, and solid or mushy foods as supplementary foods at age 6-9 months is more common in urban areas (70 percent) than in rural areas (54 percent) and in the Plateau and Desert region (61 percent) than the other regions (50 to 56 percent). Male children age 6-9 months are also slightly more likely to receive food and liquid supplements than female children of the same age.

The bottle-feeding rate among children under 12 months is very high (49 percent). Mothers in urban areas and in the Coastal region are more likely to feed their children with a bottle than others mothers. Also, the practice of bottle-feeding increases with mother's level of education. Inadequate feeding practices in urban areas may be related to the easy availability of cheap bottles with nipples and the use of ready-made baby foods.

## 9.2 Nutritional Status of Children Under Age Five

Nutritional status is a primary determinant of children's health and well being. Inadequate or unbalanced diets and chronic illness are associated with poor nutrition among children. The 1997 YDMCHS included the collection of anthropometric data that permit an assessment of the nutritional status of young children in Yemen.

### Measurement of Nutritional Status in Children

In order to assess the nutritional status of children, measurements of height and weight were obtained for children who were born in the five years preceding the survey. Three standard indices of physical growth that describe the nutritional status of children are presented:

- Height-for-age (stunting)
- Weight-for-height (wasting)
- Weight-for-age (underweight)

Each of these indices gives different information about growth and body composition that can be used to assess nutritional status.

As recommended by the World Health Organization (WHO), evaluation of children's nutritional status is based on comparison of the population of children in the survey with a reference population of well-nourished children. Use of a standard reference population is based on the finding that well-nourished children in all populations follow similar growth patterns and, thus, exhibit similar distributions with respect to height and weight at given ages.

One of the most commonly used reference populations, and the one used in this report, is the standard of the U.S. National Center for Health Statistics (NCHS), which is recommended for use by WHO and the U.S. Centers for Disease Control and Prevention.

The height-for-age index is a measure of linear growth. Children who are below minus two standard deviations (-2 SD) from the median of the reference population are considered short for their age, or *stunted.* If the children are below minus three standard deviations (-3 SD) from the reference median, then they are considered to be severely stunted. Stunting may be the result of a failure to receive adequate nutrition over a long period of time or of the effect of recurrent or chronic illness. Height-for-age, therefore, represent a measure of the outcome of malnutrition in a population over a long period, and does not vary appreciably with the season that data are collected.

The weight-for-height index examines body mass in relation to body length. Children whose weight-for-height measures are below minus two standard deviations (-2 SD) from the reference median for weight-for-height are considered too thin for their height, or *wasted,* while those below minus three standard deviations (- 3 SD) from the reference population median are considered severely wasted. Wasting represents failure to receive adequate nutrition in the period immediately before the survey and may be the result of recent episodes of illness or of seasonal variations in the food supply.

Weight-for-age is a composite index of weight-for-height and height-for-age. Children whose weight-for-age measures are below minus two standard deviations (-2 SD) from the reference population median are considered underweight for their age, while those whose measures are below minus three standard deviations (-3 SD) from the median of the reference population are considered severely underweight. A child can be underweight for his age because he is stunted, wasted, or both stunted and wasted.

The following analysis focuses on the 7,501 children age 0-59 months for whom complete and plausible anthropometric data were collected.

**Levels of Child Malnutrition**

Table 9.8 shows the percentage of children who are classified as malnourished according to height-for-age, weight-for-height, and weight-for-age by selected demographic characteristics. There is considerable chronic malnutrition among Yemeni children. Over half (52 percent) of children under age five are stunted or too short for their age, and 27 percent can be considered severely stunted.

Table 9.8 indicates that stunting increases with age, from 16 percent among children under six months to 61 percent among those 12-23 months, and reaches 65 percent among children 48-59 months. Prevalence of stunting varies little by sex of child, but rises slightly with increasing birth order. Children born less than 24 months after a prior birth are more likely to be stunted (58 percent) than those born after an interval of 48 or more months (43 percent).

Children living in rural areas are more likely to be stunted than urban children (56 percent versus 40 percent) (Figure 9.3). Stunting varies by region, ranging from 42 percent in the Coastal region to 59 percent in Mountainous region. Mother's level of education is inversely related to the level of stunting; children of illiterate mothers are almost three times as likely to be stunted as children whose mothers have completed secondary or higher education. Mother's height and body mass index have almost no relation to children's stunting (see next section for nutritional measures for mothers).

The weight-for-height index (a measure of wasting) gives information about a child's nutritional status regarding recent food shortages or recent illness which can contribute to malnutrition. Table 9.8 shows that 13 percent of Yemeni children under five are wasted or underweight for their height and 3 percent are severely wasted.

Wasting is most common among children age 6-23 months, indicating that supplementary foods may be insufficient in the weaning period (Table 9.8). Male children and children of birth order four or higher are more likely to be wasted than female children. Children born after an interval of 24 months, and children born to mothers whose height is less than 145 cm or whose body mass index is below 18.5 are more likely to be wasted. Wasting levels are also slightly higher among rural children and children of illiterate mothers than among urban children and children whose mothers completed some level of school. By region, wasting is highest among children in the Coastal region (20 percent) and lowest in the Plateau and Desert region (9 percent).

Around half (46 percent) of Yemeni children under age five are considered underweight, a factor that may reflect high levels of stunting, wasting, or both, and 15 percent are classified as severely underweight. Children under six months are less likely to be underweight because of the positive effects of breastfeeding.

Low weight-for-age is more common among children in the second and third year of life than in the first year (Table 9.8). Also, the prevalence of underweight increases starting with birth order four and decreases with increasing length of the previous birth interval. The proportion of children who are underweight is highest in the Mountainous region (52 percent) and lowest in the Plateau and Desert region (43 percent). Underweight is inversely related to the education of mothers. Almost half of children of illiterate mothers compared with only 19 percent of children of highly educated mothers are underweight. Wasting in children is related to maternal nutritional status. Children of mothers whose height is less than 145 cm or whose body mass index is below 18.5 are more likely to be underweight compared with children whose mothers are not malnourished.

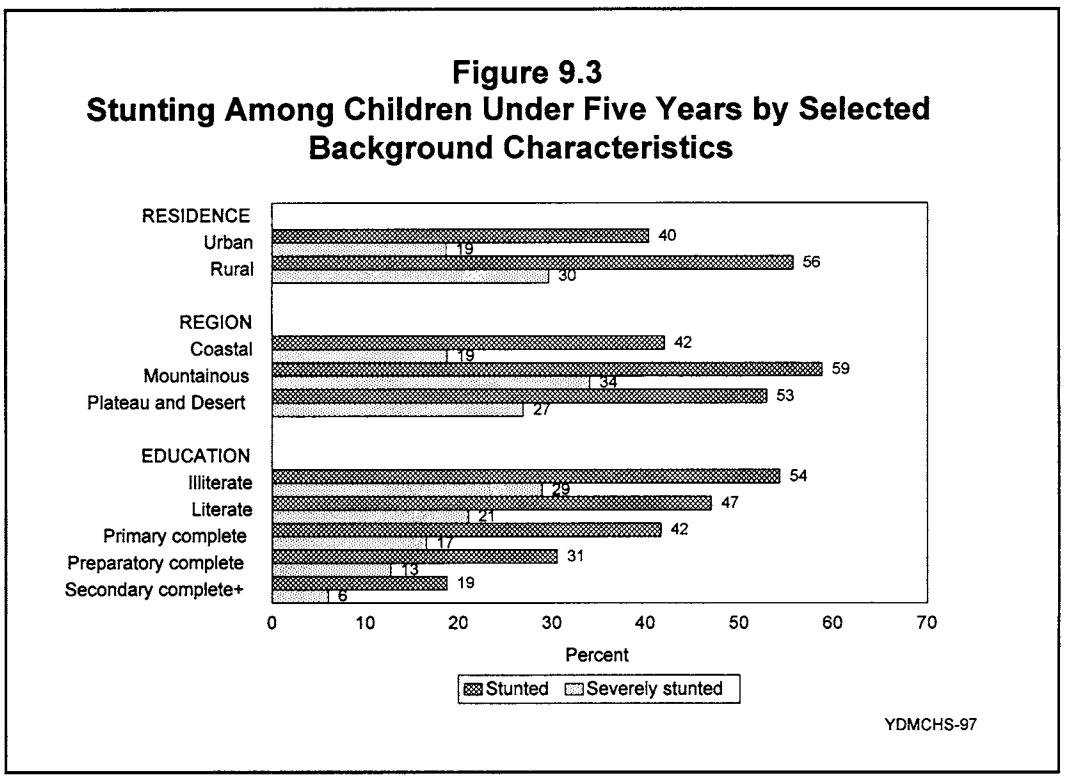
Table 9.8 Nutritional status of children by background characteristics

Percentage of children under five years of age who are classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by selected background characteristics, Yemen 1997

| | Height-for-age | | Weight-for-height | | Weight-for-age | | |
|---|---|---|---|---|---|---|---|
| Background characteristic | 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] | Number of children |
| **Child's age** | | | | | | | |
| <6 months | 3.6 | 16.4 | 2.4 | 10.9 | 3.2 | 12.9 | 944 |
| 6-11 months | 12.0 | 33.0 | 4.5 | 18.9 | 15.5 | 41.8 | 1,043 |
| 12-23 months | 33.3 | 60.8 | 4.2 | 19.2 | 19.9 | 54.8 | 1,554 |
| 24-35 months | 33.4 | 57.9 | 1.8 | 10.4 | 18.9 | 53.3 | 1,426 |
| 36-47 months | 35.2 | 62.2 | 1.7 | 9.0 | 13.1 | 51.0 | 1,289 |
| 48-59 months | 31.7 | 64.6 | 1.0 | 8.3 | 11.9 | 50.8 | 1,246 |
| **Child's sex** | | | | | | | |
| Male | 27.0 | 52.3 | 3.1 | 13.7 | 14.1 | 47.0 | 3,852 |
| Female | 26.3 | 51.0 | 2.1 | 12.0 | 14.9 | 45.1 | 3,649 |
| **Birth order** | | | | | | | |
| 1 | 23.1 | 48.5 | 2.8 | 12.1 | 12.9 | 42.0 | 1,262 |
| 2-3 | 25.3 | 49.1 | 3.2 | 12.7 | 12.7 | 43.9 | 1,957 |
| 4-5 | 29.4 | 54.2 | 2.6 | 13.7 | 17.3 | 48.3 | 1,470 |
| 6+ | 27.8 | 53.7 | 2.1 | 12.9 | 15.0 | 48.3 | 2,812 |
| **Previous birth interval** | | | | | | | |
| First birth | 23.0 | 48.5 | 2.8 | 12.1 | 12.9 | 42.1 | 1,264 |
| < 24 months | 33.0 | 57.9 | 2.4 | 12.1 | 17.1 | 50.1 | 2,114 |
| 24-47 months | 25.6 | 51.6 | 2.5 | 13.4 | 14.1 | 47.0 | 3,134 |
| 48+ months | 21.1 | 42.9 | 3.1 | 13.8 | 12.0 | 40.0 | 989 |
| **Residence** | | | | | | | |
| Urban | 18.6 | 40.3 | 2.0 | 10.4 | 9.1 | 35.5 | 1,970 |
| Rural | 29.6 | 55.7 | 2.8 | 13.7 | 16.4 | 49.9 | 5,531 |
| **Region** | | | | | | | |
| Coastal | 18.7 | 42.0 | 4.1 | 20.1 | 16.1 | 46.0 | 1,827 |
| Mountainous | 34.0 | 58.8 | 2.4 | 12.8 | 17.6 | 52.1 | 1,857 |
| Plateau and Desert | 26.9 | 52.9 | 2.0 | 9.4 | 12.2 | 43.2 | 3,816 |
| **Mother's education** | | | | | | | |
| Illiterate | 28.9 | 54.3 | 2.7 | 13.4 | 15.5 | 48.5 | 6,195 |
| Literate | 21.0 | 47.0 | 2.9 | 12.7 | 15.0 | 39.5 | 468 |
| Primary complete | 16.5 | 41.6 | 2.2 | 9.3 | 7.6 | 36.1 | 519 |
| Preparatory complete | 12.7 | 30.5 | 2.2 | 10.6 | 6.3 | 34.2 | 140 |
| Secondary complete+ | 6.0 | 18.7 | 0.8 | 7.6 | 3.1 | 19.2 | 178 |
| **Mother's height** | | | | | | | |
| < 145 cm | 29.0 | 52.2 | 2.4 | 17.1 | 15.5 | 49.6 | 635 |
| >= 145 cm | 26.5 | 51.7 | 2.7 | 12.4 | 14.4 | 45.9 | 6,665 |
| Missing | 26.6 | 50.0 | 0.6 | 14.8 | 14.5 | 42.5 | 200 |
| **Mother's Body Mass Index** | | | | | | | |
| < 18.5 | 25.6 | 51.6 | 4.1 | 15.3 | 17.0 | 49.1 | 1,285 |
| >= 18.5 | 26.6 | 51.1 | -2.0 | 12.1 | 13.4 | 44.8 | 4,288 |
| Missing | 27.3 | 51.4 | -2.0 | 16.6 | 16.5 | 44.5 | 188 |
| Total | 26.7 | 51.7 | 2.6 | 12.9 | 14.5 | 46.1 | 7,501 |

Note: Figures are for children born in the period 0-59 months preceding the survey. Each index is expressed in terms of the number of standard deviation (SD) units from the median of the NCHS/CDC/WHO international reference population. Children are classified as malnourished if their z-scores are below minus two or minus three standard deviations (-2 SD or -3 SD) from the median of the reference population.

[1] Includes children who are below -3 SD




## Level of Maternal Malnutrition

All women who had one or more births in the five years preceding the survey were weighed and their height measured to determine their nutritional status. In this report, two nutritional indices are presented for mothers: height and body mass index (BMI)—an indicator combining height and weight data. Women who were pregnant and those who were less than two months postpartum at the time of the survey were excluded from these calculations.

Maternal height is an outcome of nutrition during childhood and adolescence. A woman's height is useful to predict the risk of difficult delivery since small stature is often associated with small pelvis size. The risk of having a low birth weight baby is also higher for short mothers.

The cutoff point for height, below which a women can be identified as nutritionally at risk, is in the range of 140-150 centimeters. The mean height of mothers measured in the 1997 YDMCHS is 153 centimeters (Table 9.9). Nine percent of mothers are under 145 centimeters. Mothers under 25 years of age are more likely to be over 145 centimeters, and illiterate and literate mother are slightly more likely to be under 145 centimeters. There is some variation in height of mothers by region; a higher percentage of mothers under 145 centimeters is found in the Mountainous region than in other regions.

Body mass index is used to assess thinness and obesity. The body mass index (BMI) is defined as weight in kilograms divided by height in meters squared ($kg/m^2$). The cutoff point of 18.5 has been recommended for indicating chronic energy deficiency among nonpregnant women.

As Table 9.9 indicates, the mean BMI among Yemeni mothers is 21.2, with 25 percent having a BMI below 18.5, reflecting a very high nutritional deficit. Rural mothers are more likely to be underweight, compared with urban mothers. Also, almost one-third of mothers in the Coastal and Mountainous regions

have a BMI below 18.5. One in four illiterate mothers compared with one in five to one in six to seven other mothers are malnourished.

Table 9.9 Nutritional status of mothers by background characteristics

Among women who had a birth in the five years preceding the survey, mean height percentage under 145 centimeters, mean body mass index (BMI) of women, and percentage whose BMI is less than 18.5 (kg/m$^2$), by selected background characteristics, Yemen 1997

| | Height | | | BMI | | |
|---|---|---|---|---|---|---|
| Background characteristic | Mean | Percentage <145 cm | Number of women | Mean | Percentage <18.5 | Number of women |
| **Age** | | | | | | |
| 15-19 | 152.3 | 7.8 | 476 | 20.1 | 29.3 | 356 |
| 20-24 | 152.7 | 8.0 | 1,569 | 20.6 | 27.9 | 1,103 |
| 25-29 | 152.6 | 8.7 | 1,671 | 20.9 | 28.0 | 1,290 |
| 30-34 | 152.9 | 8.7 | 1,349 | 21.6 | 23.4 | 1,025 |
| 35-49 | 152.6 | 9.6 | 2,021 | 21.9 | 21.7 | 1,705 |
| **Residence** | | | | | | |
| Urban | 152.8 | 8.4 | 1,692 | 23.1 | 16.4 | 1,359 |
| Rural | 152.6 | 8.8 | 5,394 | 20.6 | 28.2 | 4,120 |
| **Region** | | | | | | |
| Coastal | 152.4 | 8.2 | 1,564 | 21.2 | 31.1 | 1,237 |
| Mountainous | 152.1 | 11.4 | 2,126 | 20.2 | 31.0 | 1,630 |
| Plateau and Desert | 153.1 | 7.3 | 3,396 | 21.9 | 18.9 | 2,612 |
| **Mother's education** | | | | | | |
| Illiterate | 152.5 | 9.0 | 5,967 | 21.0 | 26.9 | 4,591 |
| Literate | 152.5 | 9.2 | 398 | 22.7 | 14.5 | 326 |
| Primary complete | 153.6 | 6.9 | 441 | 21.9 | 18.6 | 319 |
| Preparatory complete | 153.5 | 5.4 | 124 | 22.4 | 17.2 | 103 |
| Secondary complete+ | 154.5 | 3.7 | 156 | 23.4 | 15.7 | 141 |
| Total | 152.7 | 8.7 | 7,086 | 21.2 | 25.2 | 5,479 |

Note: Table includes only women who had a birth in the five years preceding the survey. The BMI index excludes pregnant women and those who are less than two months postpartum.

# CHAPTER 10

# MATERNAL MORTALITY AND ADULT MORTALITY

Data were collected in the YDMCHS that allow estimation of maternal mortality and adult mortality using direct procedures. The data concern the survivorship of all live births of the respondent's natural mother (i.e., respondent's siblings). The direct approach to estimating maternal and adult mortality maximizes use of the available data, using information on the age of surviving siblings, the age at death of siblings who died, and the number of years since the sibling died. Thus data can be aggregated to determine the number of person-years of exposure to mortality risk and the number of sibling deaths occurring in defined calendar periods. Rates of maternal mortality or adult mortality are obtained by dividing maternal deaths (or adult deaths) by person-years of exposure (Rutenberg and Sullivan, 1991).

The indirect technique of estimation consists of what has been termed the "sisterhood method" (Graham et al., 1989). In this method, the data obtained from respondents about sisters are used to estimate the lifetime risk of dying from maternal causes. Such an estimate would naturally run into the problem of reference period, since it combines the mortality experiences of the previous 50 years. However, as Graham et al. have pointed out, combining data from respondents age 15-49 into a single estimate narrows the reference period to about 12 years prior to the survey. The biggest drawback to this method is uncertainty as to how accurately it estimates current maternal mortality, unless one assumes that mortality has been relatively constant over the years.

## 10.1 The Data

Each respondent was first asked to give the total number of her/his mother's live births. Then the respondent was asked to provide a list of all of the children born to her/his mother, starting with the firstborn, and whether or not each of these siblings was still alive at the survey date. For living siblings, current age was collected; for deceased siblings, age at death and year of death or years since death were collected. Interviewers were instructed that when a respondent could not provide precise information on siblings' age at death or number of years since death, approximate quantitative answers were acceptable. For sisters who died at age 10 or older and were married or ever married at the time of death, in order to determine if the death was maternity-related the respondent was asked: "Was [NAME OF SISTER] pregnant when she died?" and if not, "Did she die during childbirth?" If death was neither during pregnancy or childbirth, one additional questions was asked: "Did she die within two months after the end of a pregnancy or childbirth?"

The estimation of adult and maternal mortality by direct means requires reasonably accurate reporting of the number of sisters and brothers the respondent ever had, the number that have died, and the number of sisters who died of maternity-related causes. There is no definitive procedure for establishing the completeness or accuracy of retrospective data on sibling survivorship. Table 10.1 shows the number of siblings reported by respondents and the completeness of the reported data on current age, age at death, and years since death. Almost all respondents reported the survival status of siblings. The sex ratio[1] of enumerated siblings (number of brothers per 100 sisters) was 109, which is higher than expected from international data (i.e., sex ratio at birth of 103-105) and may indicate an underreporting of sisters or overreporting of brothers by respondents. For surviving siblings, there was complete reporting of age but for deceased siblings, age at death and years since death were reported for only 88 percent of them.

[1] Sex ratio is defined as number of males per 100 females.

Table 10.1 Data on siblings

Number of siblings reported by survey respondents and completeness of reported data on sibling age, age at death (AD) and years since death (YSD), Yemen 1997

| | Sisters | | Brothers | | All siblings | |
|---|---|---|---|---|---|---|
| Sibling | Number | Percentage | Number | Percentage | Number | Percentage |
| **All siblings** | 45,361 | 100.0 | 49,254 | 100.0 | 94,615 | 100.0 |
| Living | 36,380 | 80.2 | 38,472 | 78.1 | 74,852 | 79.1 |
| Dead | 8,938 | 19.7 | 10,720 | 21.8 | 19,658 | 20.8 |
| Missing survival information | 43 | 0.1 | 62 | 0.1 | 105 | 0.1 |
| **Living siblings** | 36,380 | 100.0 | 38,472 | 100.0 | 74,852 | 100.0 |
| Age reported | 36,248 | 99.6 | 38,250 | 99.4 | 74,498 | 99.5 |
| Age missing | 132 | 0.4 | 222 | 0.6 | 354 | 0.5 |
| **Dead siblings** | 8,938 | 100.0 | 10,720 | 100.0 | 19,658 | 100.0 |
| AD and YSD reported | 7,866 | 88.0 | 9,506 | 88.7 | 17,371 | 88.4 |
| AD missing | 106 | 1.2 | 105 | 1.0 | 212 | 1.1 |
| YSD missing | 837 | 9.4 | 885 | 8.3 | 1,723 | 8.8 |
| Both AD and YSD missing | 128 | 1.4 | 224 | 2.1 | 352 | 1.8 |

Rather than exclude the siblings with missing data from further analysis, information on the birth order of siblings in conjunction with other information was used to impute the missing data.[2] The sibling survivorship data, including cases with imputed values, were used in the direct estimation of adult and maternal mortality.

## 10.2 Direct Estimates of Adult Mortality

The quality of the data used to estimate maternal mortality can be assessed by evaluating the plausibility and stability of overall adult mortality. It is reasoned that if estimated rates of adult mortality are implausible, rates based on a subset of deaths—i.e., maternal deaths—are also likely to have serious problems. Provided that maternal deaths are as likely to go unreported as nonmaternal deaths, the proportion of adult female deaths due to maternal causes can still be a useful indicator of the burden of maternal death in the population.

Table 10.2 presents age-specific mortality rates for women and men age 15-49 for the ten-year period preceding the survey, calculated through direct estimation procedures. Since the number of deaths on which the rates are based is not large (403 women and 465 men), the estimated ten-year, age-specific rates are subject to considerable sampling variation. The rate for women increases with age as expected but male mortality shows no relation to age, and rates are unstable. The adjusted (age standardized) mortality rates for both men and women are the same, 2.1 per 1,000 persons.

[2] The imputation procedure is based on the assumption that the reported birth order of siblings in the birth history is correct. The first step is to calculate birth dates. The birth date was calculated for each living sibling with a reported age and for each dead sibling with complete information on both age at death and years since death. For a sibling missing these data, a birth date was imputed within the range defined by the birth dates of the bracketing siblings. In the case of living siblings, age was calculated from the imputed birth date. In the case of dead siblings, if either age at death or years since death was reported, that information was combined with the birth date to produce the missing information. If both pieces of information were missing, the distribution of age at death of siblings for whom the years since death was unreported, but age at death was reported, was used as a basis for imputing the age at death.

Table 10.2 Adult mortality rates

Estimated adult mortality rates for women and men in the period 0-9 years before the survey, Yemen 1997

| Age | Deaths | Exposure | Mortality rates |
|---|---|---|---|
| WOMEN | | | |
| 15-19 | 84.4 | 56,546 | 1.49 |
| 20-24 | 66.4 | 48,316 | 1.37 |
| 25-29 | 79.1 | 38,436 | 2.06 |
| 30-34 | 68.2 | 29,150 | 2.34 |
| 35-39 | 53.3 | 19,028 | 2.80 |
| 40-44 | 35.4 | 10,234 | 3.46 |
| 45-49 | 16.8 | 4,915 | 3.42 |
| 15-49 | 403.7 | 206,625 | 2.08[a] |
| MEN | | | |
| 15-19 | 91.6 | 58,272 | 1.57 |
| 20-24 | 104.4 | 51,645 | 2.02 |
| 25-29 | 78.5 | 42,449 | 1.85 |
| 30-34 | 81.5 | 32,322 | 2.52 |
| 35-39 | 33.8 | 21,957 | 1.54 |
| 40-44 | 52.2 | 12,424 | 4.20 |
| 45-49 | 23.7 | 6,126 | 3.86 |
| 15-49 | 465.6 | 225,195 | 2.07[a] |

[a] Age-adjusted rates

## 10.3 Direct Estimates of Maternal Mortality

Direct estimates of maternal mortality based on the reported survivorship of sisters are presented in Table 10.3 for the period 0-9 years before the survey (1988-97). The number of maternal deaths reported is 169. The preferred approach is to determine a single estimate for all childbearing ages (15-49 years). For the ten-year period before the survey (1988-97), the rate of mortality due to causes related to pregnancy and childbearing is 0.8 maternal deaths per 1,000 woman-years of exposure. Maternal deaths represent approximately 42 percent of all deaths to women age 15-49. Although the rate of maternal mortality seems low at less than 1 per 1,000, the proportion of maternal deaths shows that maternal mortality is clearly the leading cause of death among women of reproductive age.

The maternal mortality rate can be converted to a maternal mortality ratio and expressed per 100,000 live births by dividing the mortality rate by the general fertility rate operating during the same time period. In this way, the obstetrical risk of pregnancy and childbearing is underlined. By direct estimation procedures, the maternal mortality ratio is estimated as 351 maternal deaths per 100,000 live births during the period 1988-97.

Table 10.3 Direct estimates of maternal mortality

Direct estimates of maternal mortality for the period 0-9 years before the survey, Yemen 1997

| Age | Deaths | Exposure | Mortality rates[1] | Proportion of maternal to female deaths by |
|---|---|---|---|---|
| 15-19 | 19.5 | 56,546 | 0.344 | 0.231 |
| 20-24 | 40.7 | 48,316 | 0.842 | 0.613 |
| 25-29 | 50.6 | 38,436 | 1.316 | 0.639 |
| 30-34 | 27.3 | 29,150 | 0.936 | 0.400 |
| 35-39 | 19.3 | 19,028 | 1.013 | 0.362 |
| 40-44 | 8.1 | 10,234 | 0.789 | 0.229 |
| 45-49 | 4.1 | 4,915 | 0.826 | 0.244 |
| 15-49 | 169.4 | 206,625 | 0.798 | 0.420 |
| General Fertility Rate (GFR) | | | 0.227 | |
| Maternal Mortality Ratio (MMR)[2] | | | 351 | |

[1] Expressed per 1,000 woman-years of exposure
[2] Per 100,000 live births; calculated as the maternal mortality rate divided by the general fertility rate.

## 10.4 Conclusion

The maternal mortality ratio was estimated to be 351 per 100,000 live births by direct means, applicable to a 1988-97 time period. It should be emphasized that the standard errors of the estimates presented are rather large and the results should be interpreted with caution. For example, analysis of previous DHS sisterhood estimates have shown 95 percent confidence intervals around maternal mortality rates of plus or minus 31 percent, on average (Stanton et al., 1996).

# CHAPTER 11

# FEMALE CIRCUMCISION

Female circumcision, widely known as female genital mutilation (FGM), is a term used for a variety of surgical operations carried out on female genitalia. These operations are practiced on healthy female children for traditional reasons backed by great social pressure. The operations may lead to immediate health risks and, sometimes, to long term health damage.

The practice of female circumcision is prevalent in parts of Africa and the Near East. In Yemen, it is believed to be limited to certain areas. In the 1991-92 YDMCHS, respondents were asked whether they approved or disapproved of female circumcision. The data indicated that 21 percent of respondents approved of female circumcision. Governorates in which at least 20 percent of women approved of the practice were Aden (28 percent), Taiz (24 percent), Al-Hodiedah (80 percent), Hadramout (90 percent), and Al-Maharah (98 percent) (unpublished data). No information was collected on the prevalence of female circumcision or reasons for respondents' attitudes toward female circumcision.

The Individual Questionnaire in the 1997 YDMCHS included a series of questions on female circumcision. All respondents were asked if they had heard of female circumcision. Those who had heard of the practice were then asked if they had been circumcised and if any of their daughters had been circumcised. If a daughter had been circumcised, the respondent was asked the daughter's age at the time of circumcision, the person who performed the procedure, the place where the procedure was performed, and the instrument used in the procedure. Information was also collected about any complications due to circumcision that the daughter suffered.

Attitudinal questions on female circumcision were included for respondents who had heard of the practice. Questions were asked about attitudes towards female circumcision in general and about reasons for supporting continuation or discontinuation of the practice. Currently married women were also asked about the perceived attitude of their husbands toward female circumcision.

## 11.1 Knowledge and Practice of Female Circumcision

### Knowledge of Female Circumcision

Table 11.1 shows that slightly more than half of respondents (51 percent) have heard of female circumcision. Knowledge is lowest among women 15-19 (43 percent) and ranges from 50 to 53 percent among other age groups. Knowledge of female circumcision is much lower in rural areas (45 percent) than in urban areas (70 percent). By region, over 90 percent of women in the Coastal region and around 40 percent in the other regions know about female circumcision. The proportion knowing of female circumcision increases with level of education, reaching 86 percent among those who have completed secondary education or above compared with 47 percent among illiterate women.

### Prevalence of Female Circumcision Among Respondents

Table 11.1 also shows the percentage of women who had been circumcised. Nearly one-fourth of Yemeni women (23 percent) have been circumcised. Younger women (age 15-19 years) and rural women are slightly less likely to report being circumcised than women age 20-49 years, and women residing in urban

areas. The prevalence of the practice by region varies substantially; 69 percent of women living in the Coastal region were circumcised, compared with 15 percent in the Mountainous region and 5 percent in the Plateau and Desert region.

Table 11.1 Knowledge and prevalence of female circumcision

Percentage of ever-married women who have heard of female circumcision, percentage who have been circumcised; and among ever-married women who have at least one daughter, the percentage who have any daughter circumcised, by selected background characteristics, Yemen 1997

| | Respondent | | | Daughter | |
|---|---|---|---|---|---|
| Background characteristic | Percentage heard of female circumcision | Percentage circumcised | Number of women | Percentage circumcised | Number of women |
| **Age** | | | | | |
| 15-19 | 42.8 | 19.3 | 1,110 | 19.9 | 255 |
| 20-24 | 52.7 | 22.2 | 1,992 | 16.7 | 1,102 |
| 25-29 | 51.9 | 21.3 | 1,943 | 17.8 | 1,549 |
| 30-34 | 52.2 | 22.9 | 1,680 | 20.1 | 1,504 |
| 35-39 | 51.2 | 23.6 | 1,766 | 20.9 | 1,635 |
| 40-44 | 50.0 | 25.1 | 1,091 | 21.2 | 1,015 |
| 45-49 | 52.1 | 25.0 | 833 | 22.4 | 793 |
| **Residence** | | | | | |
| Urban | 69.7 | 25.8 | 2,620 | 19.6 | 1,984 |
| Rural | 44.5 | 21.5 | 7,794 | 19.7 | 5,870 |
| **Region** | | | | | |
| Coastal | 90.9 | 68.9 | 2,381 | 63.2 | 1,769 |
| Mountainous | 37.7 | 15.3 | 3,125 | 14.5 | 2,382 |
| Plateau and Desert | 39.7 | 4.8 | 4,908 | 2.2 | 3,704 |
| **Education** | | | | | |
| Illiterate | 47.1 | 21.8 | 8,765 | 19.6 | 6,846 |
| Literate | 62.1 | 21.3 | 571 | 19.5 | 381 |
| Primary complete | 69.1 | 29.8 | 638 | 23.9 | 392 |
| Preparatory complete | 81.1 | 21.8 | 198 | 16.8 | 100 |
| Secondary complete+ | 86.2 | 35.4 | 241 | 13.4 | 135 |
| Total | 50.8 | 22.6 | 10,414 | 19.7 | 7,854 |

The prevalence of female circumcision is almost the same among illiterate and literate women. However, the higher the level of education, the higher the level of prevalence among respondents. Only 21 percent of illiterate women are circumcised, compared with 35 percent of women who have completed secondary or higher level of education.

### Prevalence of Female Circumcision Among Respondents' Daughters

Respondents who had one or more daughters at the time of the survey were asked whether any of their daughters had been circumcised. Table 11.1 indicates that nearly 1 in 5 respondents reported that at least one daughter had been circumcised.

Overall, the prevalence of female circumcision among daughters (20 percent) is slightly lower than the prevalence among mothers (23 percent). This proportion is almost the same among ever-married women 15-19. The proportion of daughters circumcised shows no difference by urban-rural residence (20 percent each), but differentials by region are substantial: Coastal region (63 percent), Mountainous region (15 percent), and Plateau and Desert region (2 percent). By level of education, the highest proportion of daughters circumcised is among those whose mothers have completed primary education (24 percent) while the lowest proportion is among daughters whose mothers have completed secondary or higher education (13 percent). The decline among daughters of the most educated group, is noteworthy, dropping from a prevalence of 35 percent among mothers who have completed at least secondary school to 13 percent among their daughter.

### Age at Circumcision for Daughters

Table 11.2 presents the distribution of circumcised daughters by age at circumcision, residence, and region. Almost all daughters who had been circumcised (97 percent) were reported by their mothers to have been circumcised during the first month of life. One in five was circumcised before the age of 7 days; half were circumcised when they were 7 to 10 days old; and almost three-fourths were circumcised by the tenth day after birth.

Table 11.2 Daughter's age at circumcision

Percent distribution of daughters who have been circumcised by age at the time of circumcision, according to residence and region, Yemen 1997

| | Residence | | Region | | | |
|---|---|---|---|---|---|---|
| Age at circumcision | Urban | Rural | Coastal | Mountainous | Plateau and Desert | Total |
| <3 days | 3.7 | 1.8 | 2.6 | 0.8 | 2.9 | 2.3 |
| 3-6 days | 12.4 | 20.1 | 16.6 | 26.0 | 5.9 | 18.2 |
| 7-10 days | 47.5 | 54.0 | 49.5 | 61.5 | 52.5 | 52.3 |
| 11-14 days | 3.5 | 3.4 | 3.6 | 2.7 | 5.1 | 3.5 |
| 15-17 days | 8.8 | 6.8 | 8.9 | 3.2 | 2.6 | 7.3 |
| 18-20 days | 6.3 | 3.9 | 6.2 | 0.0 | 1.2 | 4.5 |
| 21-24 days | 0.3 | 0.6 | 0.7 | 0.0 | 0.0 | 0.5 |
| 25-30 days | 1.6 | 1.3 | 1.7 | 0.0 | 2.0 | 1.4 |
| 1 month | 8.8 | 6.3 | 7.3 | 3.1 | 16.8 | 6.9 |
| More than one month | 6.3 | 1.9 | 2.7 | 2.5 | 8.7 | 3.0 |
| Don't know/Missing | 0.8 | 0.0 | 0.1 | 0.0 | 2.4 | 0.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of daughters | 389 | 1,157 | 1,118 | 346 | 82 | 1,546 |
| Median age (days) | 7.8 | 7.6 | 7.8 | 7.4 | 7.8 | 7.6 |

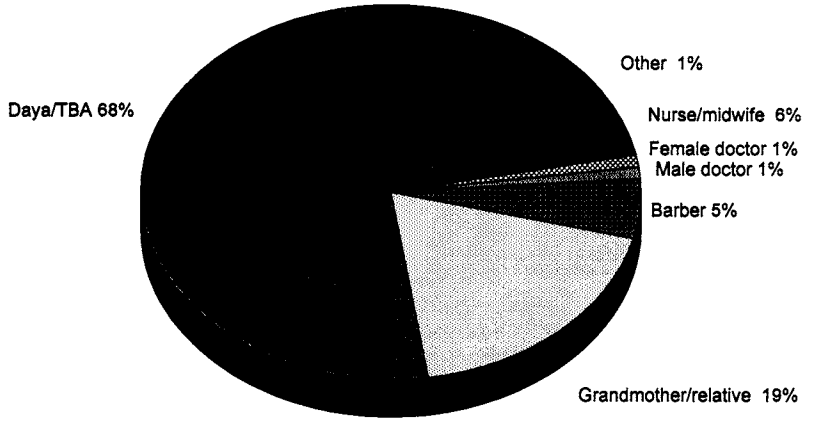
More than half of daughters were circumcised at age 7 to 10 days in rural areas and slightly less than half in urban areas. However, in urban areas, 16 percent of daughters were circumcised during the first six days of life, and 6 percent after the age of one month, compared with 22 and 2 percent, respectively, in rural areas. Eighty-eight percent of respondents living in the Mountainous region reported that their daughters were circumcised within the first 10 days of life, compared with 69 percent in the Coastal region and 61 in the Plateau and Desert region. The median age at which daughters are circumcised is 7.6 days.

## 11.2 Aspects of Daughter's Circumcision

### Person Performing the Circumcision

In Africa and the Near East, female circumcision is usually performed by a traditional birth attendant or an experienced elderly woman. Figure 11.1 shows that two-thirds of circumcised daughters had the procedure done by a traditional birth attendants (*daya*) and one-fifth were performed by grandmothers or relatives. Only 9 percent of procedures were carried out by medical personnel (6 percent by nurses/midwives). Barbers performed a small proportion of circumcisions (5 percent).

**Figure 11.1**
**Percent Distribution of Daughters Who Have Been Circumcised by Person Who Performed Circumcision**




### Place Circumcision Was Performed

Figure 11.2 shows that only 3 percent of circumcised daughters had the procedure done in a health facility while 97 percent had it done at home.

### Tools Used for Circumcision

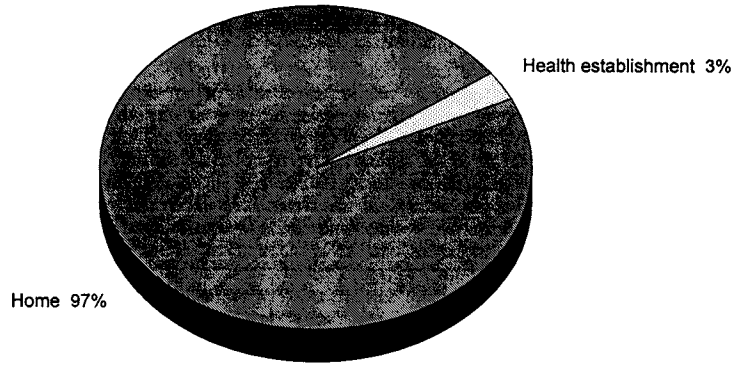
Table 11.3 indicates that razorblades were used in three out of four circumcisions of daughters; scissors were used in one in five operations.

### Complications Associated with Circumcision

"Many medical complications, immediate and long term, arise from female circumcision. Bleeding is unavoidable since damage to the blood vessels is inevitable. Shock from the loss of blood and pain since

the operation is performed without anaesthetic invariably occur to some degree and in some cases leads to death. Infection is a common complication due to unhygienic conditions in which the operation is performed. Tetanus and septicemia also occur and can prove fatal." (Rushwan,1990).

**Figure 11.2**
**Place Where Daughter's Circumcision Was Performed**




YDMCHS-97

Table 11.3 presents the complications associated with the daughter's circumcision. Respondents could mention multiple complications. The most frequent complications were bleeding (8 percent), pain (4 percent), and infection or fever (2 percent). Mothers reported no complications for 89 percent of daughters who were circumcised.

## 11.3 Attitudes Toward Female Circumcision

### Attitudes of Respondents Toward Circumcision

Ever-married women who had heard of female circumcision were asked whether the practice should be continued or discontinued and the reasons for their belief. Respondents were also asked about the attitude of their husband toward circumcision.

The results presented in Table 11.4 indicate that almost half (48 percent) of respondents believe that female circumcision should be discontinued, 41 percent believe it should be continued, and 11 percent have no opinion (unsure/don't know). Support for the practice is not affected by age, but there is a strong association between a woman's attitude toward female circumcision and residence, region, and level of education.

Table 11.3 Characteristics of daughter's circumcision

Percent distribution of daughters who have been circumcised by the person who performed the circumcision, the place where the procedure was performed, the instrument used for the procedure, and the complications at the time of circumcision or afterwards, Yemen 1997

| Characteristic | Percent | Number of daughters |
|---|---|---|
| **Person who performed circumcision** | | |
| Male doctor | 1.2 | 18 |
| Female doctor | 1.3 | 19 |
| Train. Nurse/midwife | 6.1 | 94 |
| Daya/TBA | 67.5 | 1,043 |
| Barber | 4.8 | 74 |
| Grandmother/relative | 18.5 | 286 |
| Other | 0.6 | 10 |
| Missing | 0.1 | 2 |
| **Place where procedure was performed** | | |
| At home | 97.1 | 1,501 |
| Health establishment | 2.7 | 42 |
| Missing | 0.1 | 2 |
| **Instrument used** | | |
| Razorblade | 75.1 | 1,160 |
| Scalpel | 0.7 | 11 |
| Scissors | 21.2 | 327 |
| Other | 0.3 | 4 |
| Don't know | 2.6 | 41 |
| Missing | 0.2 | 3 |
| **Complications experienced**[1] | | |
| Bleeding | 7.9 | 122 |
| Pain | 3.6 | 56 |
| Infection/fever. | 1.5 | 23 |
| Difficulty in passing urine | 1.1 | 17 |
| Swelling | 0.7 | 11 |
| Pus | 0.1 | 2 |
| Other | 0.1 | 2 |
| No complications[2] | 88.8 | 1,376 |
| Don't know if had complications | 0.3 | 2 |
| Total | 100.0 | 1,546 |

[1] Respondents were allowed to mention multiple reasons
[2] Includes less than 0.15 percent with missing information on the question whether they had any complications

Rural women are equally divided on support for continuation or discontinuation of female circumcision. However, support for continuation is lower in urban areas (32 percent) than in rural areas (46 percent). Women who live in the Coastal region (66 percent) are more likely to favor continuing the practice compared with women who live in the Plateau and Desert region (13 percent), or in the Mountainous region (42 percent).

By level of education, the highest proportion supporting the practice is among women who have completed the primary level (44 percent), and women who are illiterate (42 percent). In contrast, more than 60 percent of women with preparatory or secondary or higher education believe the practice should be stopped.

Not surprisingly, support for continuing female circumcision is associated with the circumcision status of the mother and daughter. Nearly 8 in 10 circumcised women and 9 in 10 of those whose daughters had been circumcised believe that the practice should be continued, compared with only around 10 percent of uncircumcised women or their uncircumcised daughters. More important, 17 percent of women who had been circumcised and 9 percent of the women whose daughters were circumcised favor discontinuation of female circumcision.

### Husbands' Attitude Toward Circumcision

Table 11.5 presents the percent distribution of currently married women who know about female circumcision by their husband's attitude toward circumcision, according to husband's age and educational level, and respondent's attitude.

Table 11.5 indicates that 32 percent of women believe that their husband supports continuation of circumcision, while 21 percent think their husband would like to see the practice discontinued. Forty-five percent of women did not know their husband's attitude toward female circumcision. Regarding husband age and attitude toward female circumcision, there is no discernable pattern. However, the higher the husband's level of education, the lower his support is for continuation of female circumcision.

Seventy-one percent of women who want the practice of female circumcision continued believe that their husband shares their attitude. On the other hand, among women who favor discontinuation of female circumcision, only 39 percent said their husband has the same attitude as they, while 56 percent do not know their husband's attitude.

Table 11.4 Attitude toward female circumcision

Percent distribution of ever-married women who have heard of female circumcision by attitude toward circumcision, according to selected background characteristics, Yemen 1997

| Background characteristic | Female circumcision should be: Dis-continued | Continued | Don't know | Missing | Total | Number of women |
|---|---|---|---|---|---|---|
| **Age** | | | | | | |
| 15-19 | 51.9 | 40.8 | 7.3 | 0.0 | 100.0 | 476 |
| 20-24 | 45.7 | 42.3 | 12.0 | 0.0 | 100.0 | 1,049 |
| 25-29 | 51.0 | 37.0 | 12.0 | 0.0 | 100.0 | 1,008 |
| 30-34 | 50.2 | 38.6 | 11.0 | 0.2 | 100.0 | 877 |
| 35-39 | 44.9 | 43.9 | 11.2 | 0.0 | 100.0 | 904 |
| 40-44 | 45.2 | 41.7 | 13.1 | 0.0 | 100.0 | 545 |
| 45-49 | 46.5 | 44.9 | 8.6 | 0.0 | 100.0 | 434 |
| **Residence** | | | | | | |
| Urban | 53.8 | 32.0 | 14.2 | 0.0 | 100.0 | 1,825 |
| Rural | 44.8 | 45.7 | 9.5 | 0.0 | 100.0 | 3,467 |
| **Region** | | | | | | |
| Coastal | 26.0 | 65.9 | 8.1 | 0.1 | 100.0 | 2,164 |
| Mountainous | 47.9 | 42.1 | 9.9 | 0.0 | 100.0 | 1,179 |
| Plateau and Desert | 72.2 | 12.6 | 15.2 | 0.0 | 100.0 | 1,949 |
| **Education** | | | | | | |
| Illiterate | 46.5 | 42.2 | 11.3 | 0.0 | 100.0 | 4,128 |
| Literate | 51.5 | 36.7 | 11.8 | 0.0 | 100.0 | 355 |
| Primary complete | 46.1 | 43.9 | 10.0 | 0.0 | 100.0 | 441 |
| Preparatory complete | 62.0 | 26.8 | 11.2 | 0.0 | 100.0 | 161 |
| Secondary complete+ | 63.0 | 27.9 | 9.1 | 0.0 | 100.0 | 208 |
| **Circumcision status of respondent** | | | | | | |
| Circumcised | 16.6 | 78.1 | 5.2 | 0.1 | 100.0 | 2,354 |
| Not circumcised | 73.1 | 11.0 | 15.9 | 0.0 | 100.0 | 2,916 |
| **Circumcision status of daughter** | | | | | | |
| No daughters | 45.6 | 43.7 | 10.7 | 0.0 | 100.0 | 1,260 |
| Circumcised | 8.6 | 87.2 | 4.0 | 0.1 | 100.0 | 1,546 |
| Not circumcised | 73.5 | 10.8 | 15.7 | 0.0 | 100.0 | 2,466 |
| Total | 47.9 | 41.0 | 11.1 | 0.0 | 100.0 | 5,292 |

Note: Total includes women for whom information on "ever been circumcised" or "had daughter circumcised" was missing.

## 11.4 Reasons for Attitude Toward Female Circumcision

### Reasons for Supporting Circumcision

Respondents who had heard of female circumcision and stated that they preferred continuation of the practice were asked about the reasons for their support. They were allowed to give as many reasons as they desired.

Table 11.5 Perceived attitude of husbands toward female circumcision

Percent distribution of currently married women who know of female circumcision by perceived attitude of their husbands toward female circumcision, according to selected background characteristics, Yemen 1997

| Background characteristic | Husband's opinion about female circumcision, as perceived by wife: Dis-continue | Continue | Opinion unclear | Don't know husband's opinion | Missing | Total | Number of women |
|---|---|---|---|---|---|---|---|
| **Husband's age** | | | | | | | |
| 15-19 | 8.8 | 32.7 | 4.8 | 53.7 | 0.0 | 100.0 | 56 |
| 20-24 | 17.9 | 26.6 | 1.8 | 53.3 | 0.4 | 100.0 | 480 |
| 25-29 | 19.8 | 29.4 | 2.0 | 48.6 | 0.1 | 100.0 | 799 |
| 30-34 | 21.8 | 29.7 | 2.4 | 45.7 | 0.4 | 100.0 | 793 |
| 35-39 | 23.7 | 29.3 | 2.1 | 44.5 | 0.4 | 100.0 | 852 |
| 40-44 | 22.7 | 36.5 | 1.3 | 39.0 | 0.4 | 100.0 | 635 |
| 45-49 | 22.7 | 35.2 | 2.5 | 39.1 | 0.5 | 100.0 | 520 |
| 50-54 | 20.9 | 31.0 | 3.3 | 44.0 | 0.7 | 100.0 | 347 |
| 54-59 | 16.3 | 37.8 | 2.7 | 42.0 | 1.1 | 100.0 | 208 |
| 60+ | 17.6 | 36.9 | 4.1 | 41.1 | 0.3 | 100.0 | 224 |
| Don't know/Missing | 23.1 | 35.4 | 0.0 | 40.2 | 1.2 | 100.0 | 47 |
| **Husband's education** | | | | | | | |
| Illiterate | 16.6 | 40.4 | 2.9 | 39.7 | 0.5 | 100.0 | 1,676 |
| Literate | 22.4 | 30.9 | 2.3 | 43.8 | 0.6 | 100.0 | 1,044 |
| Primary complete | 20.6 | 27.9 | 2.2 | 49.2 | 0.1 | 100.0 | 770 |
| Preparatory complete | 21.8 | 26.8 | 1.5 | 49.4 | 0.5 | 100.0 | 433 |
| Secondary complete+ | 28.0 | 22.2 | 1.3 | 48.2 | 0.3 | 100.0 | 972 |
| Don't know | 6.3 | 32.9 | 6.8 | 51.0 | 3.0 | 100.0 | 62 |
| **Respondent's attitude about female circumcision** | | | | | | | |
| Discontinue | 38.8 | 3.4 | 1.9 | 55.5 | 0.4 | 100.0 | 2,381 |
| Continue | 3.8 | 70.8 | 2.1 | 22.9 | 0.5 | 100.0 | 2,043 |
| Unsure | 7.8 | 7.3 | 4.6 | 80.2 | 0.2 | 100.0 | 536 |
| Total | 21.0 | 31.6 | 2.3 | 44.7 | 0.4 | 100.0 | 4,961 |

Note: Total includes cases with missing information on husband's education

Looking at the responses presented in Table 11.6, the most frequently cited reason for continuation of female circumcision was cleanliness (46 percent). More than one-third of women reported "tradition" as the reason for continuing the practice, and 33 percent said that female circumcision was required by religion. The other reasons in order of frequency are that it was a "good tradition" (12 percent), it preserved virginity (6 percent), and it provided prospects of a better marriage for daughters (3 percent).

By residence, the most frequently cited reason for the continuation of circumcision is again "cleanliness"—40 percent for urban areas and 48 percent for rural areas. The second most frequently mentioned reason among urban women is "required by religion" (37 percent); among rural women it is "tradition" (38 percent). The third reason for continuing circumcision among urban women is "tradition" (30 percent) while rural women mention, "required by religion" (31 percent). The frequencies for other reasons are almost the same for urban and rural women.

Table 11.6 Reasons for favoring continuation of female circumcision

Percentage of women who favor continuation of female circumcision by specific reasons for their attitude according to residence and highest level of education attained, Yemen 1997

| | Residence | | Education | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reason | Urban | Rural | Illiterate | Literate | Primary complete | Preparatory complete | Secondary complete+ | Total |
| Good tradition | 10.4 | 12.1 | 12.0 | 11.6 | 7.8 | 21.0 | 7.8 | 11.7 |
| Tradition | 30.0 | 38.0 | 38.4 | 25.2 | 24.8 | 23.6 | 30.4 | 35.9 |
| Required by religion | 37.4 | 30.7 | 31.2 | 30.5 | 44.0 | 29.9 | 40.6 | 32.5 |
| Cleanliness | 40.2 | 47.6 | 47.0 | 39.3 | 37.6 | 32.7 | 51.7 | 45.6 |
| Better marriage | 3.4 | 2.9 | 3.0 | 1.3 | 3.1 | 7.9 | 2.6 | 3.0 |
| Preservation of virginity | 8.1 | 5.8 | 5.3 | 14.4 | 8.6 | 8.5 | 14.3 | 6.4 |
| Don't know | 2.9 | 2.4 | 2.4 | 3.0 | 3.3 | 1.6 | 4.0 | 2.5 |
| Total | 583 | 1,585 | 1,743 | 130 | 194 | 43 | 58 | 2,168 |

Note: Respondents were allowed to mention multiple reasons.

## Reasons for Opposing Female Circumcision

Respondents who had heard of female circumcision and indicated that they would like to see the practice stopped were asked why they opposed it. Respondents were allowed to mention multiple reasons.

Table 11.7 indicates that 68 percent of women are against female circumcision because they consider it a bad tradition, 32 percent believe it is against religion, and 12 percent oppose it because of the possible medical complictions a woman might have because of circumcision. One in 10 women who oppose the practice thinks female circumcison is against the dignity of women. Only a small proportion (3 percent) mentioned that circumcision is a painful experience.

The order of reasons for opposing the continuation of circumcision is the same for both urban and rural women and nearly two-thirds of women, irrespective of level of education, think that circumcision is a bad tradition. The higher a woman's level of education, the more likely she is to say that female circumcision is against the dignity of women and the less likely she is to say the practice is against religion. Women with secondary or higher education, more often than illiterate women, report that circumcision causes medical complications (22 percent versus 11 percent).

Table 11.7 Reasons for favoring discontinuation of female circumcision

Percentage of women who favor discontinuation of female circumcision by specific reasons for their attitude according to residence and highest level of education attainted, Yemen 1997

| | Residence | | Education | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reason | Urban | Rural | Illiterate | Literate | Primary complete | Preparatory complete | Secondary complete+ | Total |
| Bad tradition | 70.5 | 66.2 | 67.9 | 71.4 | 69.4 | 66.2 | 62.7 | 67.9 |
| Against religion | 31.0 | 31.8 | 32.5 | 32.7 | 27.0 | 31.6 | 21.7 | 31.5 |
| Causes many medical complications | 12.2 | 11.9 | 10.6 | 10.8 | 16.4 | 18.9 | 21.8 | 12.0 |
| Painful experience | 3.1 | 2.8 | 2.5 | 1.5 | 4.7 | 3.8 | 7.9 | 2.9 |
| Against dignity of woman | 10.5 | 9.4 | 8.1 | 10.2 | 12.8 | 16.1 | 24.8 | 9.8 |
| Other | 0.4 | 0.5 | 0.5 | 0.4 | 0.0 | 0.0 | 0.5 | 0.5 |
| Don't know | 3.0 | 4.7 | 4.7 | 3.0 | 1.5 | 2.8 | 1.3 | 4.1 |
| Total | 982 | 1,553 | 1,918 | 183 | 204 | 100 | 131 | 2,535 |

Note: Respondents were allowed to mention multiple reasons.

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# APPENDIX A

# SURVEY STAFF

# APPENDIX A

# PERSONNEL INVOLVED IN THE YEMEN DEMOGRAPHIC, MATERNAL AND CHILD HEALTH SURVEY-II, 1997

## The Supreme Committee

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A total of 149 persons attended the training for the main fieldwork, of whom the above mentioned 117 persons were selected to perform and execute the fieldwork after passing a theoretical, practical test and assessment.

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# APPENDIX B

# SAMPLE DESIGN

# APPENDIX B

## SAMPLE DESIGN FOR THE 1997 YEMEN DEMOGRAPHIC AND MATERNAL AND CHILD HEALTH SURVEY

The YDMCHS-97 is based on a national sample design in order to provide independent estimates with acceptable precision for important population and health characteristics for the following major domains: urban and rural areas (each as separate domain), coastal and highlands (including a small part of desertic area), and the total country of the Republic of Yemen; and any governorate with more than 800 completed cases.

The YDMCHS-97 was carried out in the whole country. The only population excluded from the survey was the nomadic population located in the southern and western governorates. The nomadic population accounts for less than 5 percent in that region and a much smaller proportion of the total population of Yemen.

The population covered by the YDMCHS-97 was the universe of all ever-married women age 15-49, and all children under five living in households. The initial target sample was 10,000 eligible women with a completed interview, and the final sample was 10,414 completed interviews. In order to get this number of completed individual interviews, and using the response rate found in the YDMCHS-92 survey, a total of 10,701 of the 11,435 potential households selected for the household interview were completed. A total of 10,414 of the 11,158 eligible ever-married women 15-49 were successfully interviewed.

In selecting the YDMCHS-97 sample, the Central Statistical Organization (CSO) conducted the last census for a united Yemen in December 1994. Yemen is divided into 18 governorates and for the census purposes each governorate is divided into sectors, sections, and enumeration areas (EAs). There are 300 sectors and 2,074 sections. Each section is supposed to have 1,200 households in average and it is possible that the section contain a mixture of rural and rural EAs. A few EAs have a mixture of urban and rural composition.

Based in past household surveys experience and having the 1994 census frame available, the CSO designed a master sample to provide an updated frame for the future surveys in the current intercensal period. Basically, the master sample is a large clustered and stratified sample of EAs selected with probability proportional to size (PPS) with the objective to have a minimum of 30 selected EAs per governorate. The total coverage of the master sample is about 99 percent of the entire population.

In order to maintain an integrated household survey approach of future household surveys, it was decided that the YDMCHS-97 sample use the master sample as the sample frame. Basically the YDMCHS-97 is a subsample of the master sample.

The list of census enumeration areas for the master sample (based in 1994 census frame) were stratified by each of the eighteen governorates and within each governorate by urban and rural areas. Since the YDMCHS-97 sample is a subsample from that master sample then this stratification is also reflected in the YDMCHS-97 sample.

Since the master sample is also clustered, EAs selected with probability proportional to size within each governorate, the total number of EAs in each governorate was not allocated proportionally to their total population of it; and the target was to reach about a minimum of 500 completed interviews in particular for

six governorates (Sana'a, Aden, Hadramaut, Hodeidah, Hajjah, and Lahej) to provide estimates of contraceptive rate.

In total, 475 EAs were selected for the YDMCHS-1997, 137 in the urban area and 338 in the rural. Given the objectives of the YDMCHS-97 survey to provide estimates for general indicators at different domain levels, the sample was allocated among different governorates having in consideration the restriction on the number of EAs selected in the master sample, and it showed in the following table:

**Number of EAs and sample size allocated to each governorate by urban and rural residence**

| Governorate | Target number of completed interviews | Total EAs | Urban EAs | Rural EAs |
|---|---|---|---|---|
| Sana'a City | 850 | 40 | 40 | 0 |
| Sana'a | 800 | 38 | 4 | 34 |
| Aden | 550 | 26 | 23 | 3 |
| Taiz | 1300 | 62 | 14 | 48 |
| Al Hudaydah | 800 | 38 | 12 | 26 |
| Lahj | 500 | 24 | 3 | 21 |
| Ibb | 1200 | 57 | 9 | 48 |
| Abyan | 282 | 13 | 2 | 11 |
| Dhamar | 829 | 39 | 3 | 36 |
| Shabwah | 243 | 12 | 3 | 9 |
| Hajjah | 500 | 24 | 3 | 21 |
| Al Bayda | 309 | 15 | 3 | 12 |
| Hadramawt | 500 | 24 | 8 | 16 |
| Sadah | 363 | 17 | 2 | 15 |
| Al Mahwit | 310 | 15 | 1 | 14 |
| Al Mahra | 200 | 10 | 4 | 6 |
| Mareb | 225 | 11 | 1 | 10 |
| Al Jawf | 200 | 10 | 2 | 8 |
| Total | 9961 | 475 | 137 | 338 |

The YDMCHS-97 sample is a combination a PPS selection of EAs according the master sample with a simple systematic subselection of them for the YDMCHS-97 survey. Before final household selection, an organized household updating and revised cartographic material with very clear boundaries was made for each selected EA for the YDMCHS-97 survey. The sample selection was done independently in each governorate and each stage has the following selection probablity:

$$P_{1i} = \{(a * M_i) / (\sum M_i)\} * \{c/a\}$$

$$P_{2i} = b/L_i$$

where

$a$ is the number of EAs to be selected in the urban (rural) governorate sample in the master sample,

$c$ is the number of EAs to be selected in the urban (rural) governorate sample in the YDMCHS-97 sample,

$M_i$ is the number of households of the $i^{th}$ EA in the urban (rural) governorate according last 1994 population census,

$\Sigma M_i$ is the total number of households in the urban (rural) governorate according 1994 population census,
$b$ is the fixed household sample take selected in each EA, and
$L_i$ is the total number of households listed in the selected $i^{th}$ EA during 1997.

In each selected EA a complete household listing operation will be completed and then a household selection will be implemented to maintain a fixed sample take $b$ in each EA within each governorate. Therefore, the total YDMCHS-97 sample is a weighted one, and it required a final weighing adjustment procedure to provide national estimates. Only one selected EA was not completed.

Table B.1 Sample implementation

Percent distribution of households and eligible women in the YDMCHS sample by results of the interview and household, eligible women, and overall response rates, according to region and urban-rural residence, Yemen 1997

| | Region | | | Residence | | |
|---|---|---|---|---|---|---|
| Result | Coastal | Mountainous | Plateau and Desert | Urban | Rural | Total |
| **Selected households** | | | | | | |
| Completed (C) | 94.3 | 94.4 | 92.7 | 92.4 | 94.0 | 93.6 |
| Household present but no competent respondent at home (HP) | 0.2 | 0.4 | 0.4 | 0.3 | 0.4 | 0.3 |
| Postponed (P) | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 |
| Refused (R) | 0.3 | 0.6 | 0.8 | 0.5 | 0.7 | 0.6 |
| Dwelling not found (DNF) | 0.3 | 0.6 | 0.9 | 0.5 | 0.7 | 0.7 |
| Household absent (HA) | 1.2 | 0.5 | 1.1 | 1.8 | 0.6 | 0.9 |
| Dwelling vacant (DV) | 3.3 | 3.3 | 3.5 | 3.7 | 3.3 | 3.4 |
| Dwelling destroyed (DD) | 0.2 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| Other (O) | 0.3 | 0.2 | 0.4 | 0.6 | 0.1 | 0.3 |
| Total percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number | 2,829 | 3,233 | 5,373 | 3,255 | 8,180 | 11,435 |
| **Household response rate (HRR)**[1] | 99.1 | 98.2 | 97.7 | 98.7 | 98.0 | 98.2 |
| **Eligible women** | 93.4 | 94.3 | 92.7 | 93.0 | 93.5 | 93.3 |
| Completed (EWC) | 5.0 | 4.4 | 6.0 | 5.1 | 5.3 | 5.3 |
| Not at home (EWNH) | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Refused (EWR) | 0.7 | 0.4 | 0.5 | 0.6 | 0.5 | 0.5 |
| Partly completed (EWPC) | 0.3 | 0.2 | 0.3 | 0.5 | 0.2 | 0.3 |
| Incapacitated (EWI) | 0.4 | 0.5 | 0.3 | 0.4 | 0.4 | 0.4 |
| Other (EWO) | 0.1 | 0.3 | 0.2 | 0.1 | 0.2 | 0.2 |
| Total percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number | 2,665 | 3,072 | 5,421 | 3,166 | 7,992 | 11,158 |
| **Eligible woman response rate (EWRR)**[2] | 93.4 | 94.3 | 92.7 | 93.0 | 93.5 | 93.3 |
| **Overall response rate (ORR)**[3] | 92.6 | 92.6 | 90.6 | 91.8 | 91.6 | 91.7 |

Note: The household response rate is calculated for completed households as a proportion of completed, no competent respondent, refused, and dwelling not found. The eligible woman response rate is calculated for completed interviews as a proportion of completed, not at home, postponed, refused, partially completed, incapacitated and "other." The overall response rate is the product of the household and woman response rates.

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

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

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

$$\frac{EWC}{EWC + EWNH + EWR + EWPC + EWI + EWO} \times 100$$

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

$$ORR = (HRR \times EWRR) \div 100$$

# APPENDIX C

# ESTIMATES OF SAMPLING ERRORS

# APPENDIX C

# ESTIMATES OF SAMPLING ERRORS

The estimates from a sample survey are affected by two types of errors: (1) nonsampling errors, and (2) sampling errors. Nonsampling errors are the results of mistakes made in implementing data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. Although numerous efforts were made during the implementation of the YDMCHS-97 to minimize this type of error, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of respondents selected in the YDMCHS-97 is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

A sampling error is usually measured in terms of the *standard error* for a particular statistic (mean, percentage, etc.), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design.

If the sample of respondents had been selected as a simple random sample, it would have been possible to use straightforward formulas for calculating sampling errors. However, the YDMCHS-97 sample is the result of a two-stage stratified design, and, consequently, it was necessary to use more complex formulae. The computer software used to calculate sampling errors for the YDMCHS-97 is the ISSA Sampling Error Module (SAMPERR). This module used the Taylor linearization method of variance estimation for survey estimates that are means or proportions. The Jackknife repeated replication method is used for variance estimation of more complex statistics such as fertility and mortality rates.

The Taylor linearization method treats any percentage or average as a ratio estimate, $r = y/x$, where $y$ represents the total sample value for variable $y$, and $x$ represents the total number of cases in the group or subgroup under consideration. The variance of $r$ is computed using the formula given below, with the standard error being the square root of the variance:

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

in which

$$z_{hi} = y_{hi} - r.x_{hi} \ , \ and \ \ z_h = y_h - r.x_h$$

where $h$ represents the stratum which varies from 1 to $H$,

$m_h$ is the total number of enumeration areas selected in the $h^{th}$ stratum,

$y_{hi}$ is the sum of the values of variable $y$ in $i^{th}$ EA in the $h^{th}$ stratum,
$x_{hi}$ is the sum of the number of cases in $i^{th}$ EA in the $h^{th}$ stratum, and
$f$ is the overall sampling fraction, which is so small that it is ignored.

The Jackknife repeated replication method derives estimates of complex rates from each of several replications of the parent sample, and calculates standard errors for these estimates using simple formulae. Each replication considers *all but one* clusters in the calculation of the estimates. Pseudo-independent replications are thus created. In the YDMCHS-97, there were 474 non-empty clusters. Hence, 474 replications were created. The variance of a rate $r$ is calculated as follows:

$$ET^2(R) = var(r) = \frac{1}{k(k-1)} \sum_{i=1}^{k} (r_i - r)^2$$

in which

$$r_i = kr - (k-1)r_{(i)}$$

where $r$ is the estimate computed from the full sample of 474 clusters,
$r_{(i)}$ is the estimate computed from the reduced sample of 473 clusters ($i^{th}$ cluster excluded), and
$k$ is the total number of clusters.

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

Sampling errors for the YDMCHS-97 are calculated for selected variables considered to be of primary interest. Result for eligible women are presented in this appendix for the country as a whole, for urban and rural areas, for each of the six governorates: Sana'a City, Sana'a, Taiz, Al Hudaydah, Ibb and Dhamar. For each variable, the type of statistic (mean, proportion, or rate) and the base population are given in Table B.1. Tables B.9 to B.10 present the value of the statistic (R), its standard error (SE), the number of unweighted (N) and weighted (WN) cases, the design effect (DEFT), the relative standard error (SE/R), and the 95 percent confidence limits (R±2SE), for each variable. The DEFT is considered undefined when the standard error considering simple random sample is zero (when the estimate is close to 0 or 1).

In general, the relative standard error for most estimates for the country as a whole is small, except for estimates of very small proportions. There are some differentials in the relative standard error for the estimate among sub-populations. For example, for *current prevalence of any contraceptive method* the relative standard errors as a percent of the estimated indicator the whole country, for urban areas, and for rural areas are 2.8 percent, 3.3 percent, and 4.3 percent, respectively.

The confidence interval (e.g., as calculated for *current prevalence of any contraceptive method* can be interpreted as follows: the overall national sample proportion is 0.208 and its standard error is .006. Therefore, to obtain the 95 percent confidence limits, one adds and subtracts twice the standard error to the sample estimate, i.e. 0.208±2×0.006. There is a high probability (95 percent) that the *true* value of using contraceptive to currently married women aged 15 to 49 is between 0.197 and 0.220.

Table C.1 List of selected variables for sampling errors, Yemen 1997

| Variable | Statistic | Base population |
|---|---|---|
| Urban resident | Proportion | Ever-married women 15-49 |
| No education | Proportion | Ever-married women 15-49 |
| Secondary or higher | Proportion | Ever-married women 15-49 |
| Currently married | Proportion | Ever-married women 15-49 |
| Married by exact age 20 | Proportion | Ever-married women 15-49 |
| Total fertility rate (three years) | Rate | Women-years of exposure to child-bearing |
| Children ever born | Mean | Currently married women 15-49 |
| Children surviving | Mean | Currently married women 15-49 |
| Know any contraceptive method | Proportion | Currently married women 15-49 |
| Know any modern contraceptive method | Proportion | Currently married women 15-49 |
| Ever used any contraceptive method | Proportion | Currently married women 15-49 |
| Currently using any contraceptive method | Proportion | Currently married women 15-49 |
| Currently using any modern method | Proportion | Currently married women 15-49 |
| Currently using pill | Proportion | Currently married women 15-49 |
| Currently using IUD | Proportion | Currently married women 15-49 |
| Currently using injectables | Proportion | Currently married women 15-49 |
| Currently using condom | Proportion | Currently married women 15-49 |
| Currently using female sterilization | Proportion | Currently married women 15-49 |
| Currently using male sterilization | Proportion | Currently married women 15-49 |
| Currently using periodic abstinence | Proportion | Currently married women 15-49 |
| Currently using withdrawal | Proportion | Currently married women 15-49 |
| Using public sector for contraceptive method | Proportion | User modern method |
| Want no more children | Proportion | Currently married women 15-49 |
| Want to delay child at least two years | Proportion | Currently married women 15-49 |
| Ideal number of children | Mean | Ever-married women 15-49 |
| Mother received at least one tetanus injection | Proportion | Birth in last 5 years |
| Mother received medical care at delivery | Proportion | Birth in last 5 years |
| Had diarrhea in the last two weeks | Proportion | Children under 5 |
| Treated diarrhea with ORS packets | Proportion | Children under 5 with diarrhea in last 2 weeks |
| Consulted medical personnel for diarrhea | Proportion | Children under 5 with diarrhea in last 2 weeks |
| Have seen health card | Proportion | Children 12-23 months |
| Received BCG vaccination | Proportion | Children 12-23 months |
| Received DPT vaccination (three doses) | Proportion | Children 12-23 months |
| Received polio vaccination (three doses) | Proportion | Children 12-23 months |
| Received measles vaccination | Proportion | Children 12-23 months |
| Fully immunized | Proportion | Children 12-23 months |
| Weight-for-height below -2 SD | Proportion | Children 0-35 months |
| Height-for-age below -2 SD | Proportion | Children 0-35 months |
| Weight-for-age below -2 SD | Proportion | Children 0-35 months |
| **Five-year (0-4 years) mortality rates** | | |
| Neonatal mortality rate (0-4 years) | Rate | Number of births |
| Postneonatal mortality rate (0-4 years) | Rate | Number of births |
| Infant mortality rate (0-4 years) | Rate | Number of births |
| Child mortality rate (0-4 years) | Rate | Number of births |
| Under-five mortality rate (0-4 years) | Rate | Number of births |
| **Ten-year (0-9 years) mortality rates** | | |
| Neonatal mortality rate (0-9 years) | Rate | Number of births |
| Postneonatal mortality rate (0-9 years) | Rate | Number of births |
| Infant mortality rate (0-9 years) | Rate | Number of births |
| Child mortality rate (0-9 years) | Rate | Number of births |
| Under-five mortality rate (0-9 years) | Rate | Number of births |

Table C.2 Sampling errors - National sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.252 | 0.007 | 10414 | 10414 | 1.654 | 0.028 | 0.237 | 0.266 |
| No education | 0.815 | 0.006 | 10414 | 10414 | 1.563 | 0.007 | 0.803 | 0.827 |
| Secondary or higher | 0.071 | 0.003 | 10414 | 10414 | 1.322 | 0.047 | 0.064 | 0.077 |
| Currently married | 0.940 | 0.003 | 10414 | 10414 | 1.218 | 0.003 | 0.934 | 0.945 |
| Married by exact age 20 | 0.860 | 0.004 | 9332 | 9304 | 1.218 | 0.005 | 0.851 | 0.869 |
| Total fertility rate (three years) | 6.484 | 0.089 | NA | 39387 | 1.318 | 0.014 | 6.307 | 6.661 |
| Children ever born | 4.955 | 0.049 | 9750 | 9786 | 1.336 | 0.010 | 4.856 | 5.053 |
| Children surviving | 4.131 | 0.042 | 10414 | 10414 | 1.413 | 0.010 | 4.047 | 4.215 |
| Know any contraceptive method | 0.838 | 0.007 | 9750 | 9786 | 2.000 | 0.009 | 0.823 | 0.853 |
| Know any modern contraceptive method | 0.792 | 0.009 | 9750 | 9786 | 2.262 | 0.012 | 0.774 | 0.811 |
| Ever used any contraceptive method | 0.386 | 0.007 | 9750 | 9786 | 1.491 | 0.019 | 0.371 | 0.400 |
| Currently using any contraceptive method | 0.208 | 0.006 | 9750 | 9786 | 1.402 | 0.028 | 0.197 | 0.220 |
| Currently using any modern method | 0.098 | 0.005 | 9750 | 9786 | 1.592 | 0.049 | 0.088 | 0.108 |
| Currently using pill | 0.038 | 0.002 | 9750 | 9786 | 1.195 | 0.061 | 0.034 | 0.043 |
| Currently using IUD | 0.030 | 0.003 | 9750 | 9786 | 1.740 | 0.100 | 0.024 | 0.036 |
| Currently using injectables | 0.012 | 0.002 | 9750 | 9786 | 1.631 | 0.153 | 0.008 | 0.015 |
| Currently using condom | 0.003 | 0.000 | 9750 | 9786 | 0.980 | 0.197 | 0.002 | 0.004 |
| Currently using female sterilization | 0.014 | 0.001 | 9750 | 9786 | 1.153 | 0.098 | 0.011 | 0.017 |
| Currently using male sterilization | 0.001 | 0.000 | 9750 | 9786 | 0.872 | 0.294 | 0.000 | 0.001 |
| Currently using periodic abstinence | 0.011 | 0.001 | 9750 | 9786 | 1.069 | 0.101 | 0.009 | 0.014 |
| Currently using withdrawal | 0.017 | 0.002 | 9750 | 9786 | 1.387 | 0.106 | 0.014 | 0.021 |
| Using public sector for contraceptive method | 0.494 | 0.022 | 1052 | 964 | 1.394 | 0.044 | 0.451 | 0.537 |
| Want no more children | 0.478 | 0.007 | 9750 | 9786 | 1.368 | 0.014 | 0.464 | 0.492 |
| Want to delay child at least two years | 0.218 | 0.005 | 9750 | 9786 | 1.148 | 0.022 | 0.208 | 0.227 |
| Ideal number of children | 4.495 | 0.046 | 7338 | 7313 | 1.352 | 0.010 | 4.403 | 4.587 |
| Mother received at least one tetanus injection | 0.168 | 0.006 | 12451 | 12685 | 1.500 | 0.036 | 0.156 | 0.180 |
| Mother received medical care at delivery | 0.217 | 0.007 | 12451 | 12685 | 1.588 | 0.033 | 0.202 | 0.231 |
| Had diarrhea in the last two weeks | 0.275 | 0.007 | 11422 | 11601 | 1.487 | 0.025 | 0.261 | 0.289 |
| Treated diarrhea with ORS packets | 0.324 | 0.011 | 3001 | 3185 | 1.205 | 0.035 | 0.301 | 0.347 |
| Consulted medical personnel for diarrhea | 0.280 | 0.013 | 3001 | 3185 | 1.366 | 0.045 | 0.255 | 0.305 |
| Have seen health card | 0.308 | 0.013 | 2154 | 2188 | 1.362 | 0.044 | 0.281 | 0.335 |
| Received BCG vaccination | 0.537 | 0.015 | 2154 | 2188 | 1.402 | 0.028 | 0.507 | 0.567 |
| Received DPT vaccination (three doses) | 0.397 | 0.014 | 2154 | 2188 | 1.297 | 0.034 | 0.370 | 0.425 |
| Received polio vaccination (three doses) | 0.458 | 0.013 | 2154 | 2188 | 1.195 | 0.028 | 0.433 | 0.484 |
| Received measles vaccination | 0.428 | 0.014 | 2154 | 2188 | 1.275 | 0.032 | 0.401 | 0.455 |
| Fully immunized | 0.282 | 0.011 | 2154 | 2188 | 1.156 | 0.039 | 0.260 | 0.304 |
| Weight-for-height below -2 SD | 0.129 | 0.005 | 7483 | 7501 | 1.234 | 0.038 | 0.119 | 0.138 |
| Height-for-age below -2 SD | 0.517 | 0.008 | 7483 | 7501 | 1.330 | 0.016 | 0.501 | 0.533 |
| Weight-for-age below -2 SD | 0.461 | 0.008 | 7483 | 7501 | 1.272 | 0.017 | 0.446 | 0.477 |
| **Five-year (0-4 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-4 years) | 33.630 | 1.867 | 12764 | 12983 | 1.095 | 0.056 | 29.895 | 37.364 |
| Postneonatal mortality rate (0-4 years) | 41.683 | 2.254 | 12800 | 13029 | 1.227 | 0.054 | 37.175 | 46.191 |
| Infant mortality rate (0-4 years) | 75.313 | 3.071 | 12804 | 13032 | 1.222 | 0.041 | 69.171 | 81.455 |
| Child mortality rate (0-4 years) | 31.914 | 2.328 | 12888 | 13126 | 1.353 | 0.073 | 27.259 | 36.569 |
| Under-five mortality rate (0-4 years) | 104.823 | 3.990 | 12932 | 13177 | 1.335 | 0.038 | 96.844 | 112.803 |
| **Ten-year (0-9 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-9 years) | 40.817 | 1.989 | 25575 | 26019 | 1.390 | 0.049 | 36.838 | 44.796 |
| Postneonatal mortality rate (0-9 years) | 48.732 | 2.217 | 25638 | 26087 | 1.475 | 0.045 | 44.299 | 53.166 |
| Infant mortality rate (0-9 years) | 89.550 | 3.406 | 25642 | 26089 | 1.632 | 0.038 | 82.737 | 96.363 |
| Child mortality rate (0-9 years) | 34.588 | 1.968 | 25713 | 26177 | 1.474 | 0.057 | 30.651 | 38.524 |
| Under-five mortality rate (0-9 years) | 121.040 | 4.233 | 25784 | 26250 | 1.738 | 0.035 | 112.575 | 129.506 |

NA = Not applicable

Table C.3 Sampling errors - Urban sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 1.000 | 0.000 | 2945 | 2620 | NA | 0.000 | 1.000 | 1.000 |
| No education | 0.613 | 0.015 | 2945 | 2620 | 1.697 | 0.025 | 0.582 | 0.643 |
| Secondary or higher | 0.198 | 0.011 | 2945 | 2620 | 1.564 | 0.058 | 0.175 | 0.221 |
| Currently married | 0.927 | 0.007 | 2945 | 2620 | 1.422 | 0.007 | 0.913 | 0.940 |
| Married by exact age 20 | 0.824 | 0.009 | 2697 | 2392 | 1.246 | 0.011 | 0.805 | 0.842 |
| Total fertility rate (three years) | 5.008 | 0.151 | NA | 10972 | 1.595 | 0.030 | 4.706 | 5.309 |
| Children ever born | 4.734 | 0.108 | 2718 | 2427 | 1.603 | 0.023 | 4.517 | 4.950 |
| Children surviving | 4.052 | 0.086 | 2945 | 2620 | 1.588 | 0.021 | 3.880 | 4.225 |
| Know any contraceptive method | 0.969 | 0.004 | 2718 | 2427 | 1.240 | 0.004 | 0.960 | 0.977 |
| Know any modern contraceptive method | 0.962 | 0.004 | 2718 | 2427 | 1.203 | 0.005 | 0.953 | 0.971 |
| Ever used any contraceptive method | 0.611 | 0.016 | 2718 | 2427 | 1.757 | 0.027 | 0.578 | 0.643 |
| Currently using any contraceptive method | 0.360 | 0.012 | 2718 | 2427 | 1.290 | 0.033 | 0.337 | 0.384 |
| Currently using any modern method | 0.212 | 0.010 | 2718 | 2427 | 1.304 | 0.048 | 0.191 | 0.232 |
| Currently using pill | 0.092 | 0.006 | 2718 | 2427 | 1.090 | 0.066 | 0.080 | 0.104 |
| Currently using IUD | 0.073 | 0.005 | 2718 | 2427 | 0.935 | 0.064 | 0.064 | 0.083 |
| Currently using injectables | 0.010 | 0.003 | 2718 | 2427 | 1.522 | 0.290 | 0.004 | 0.016 |
| Currently using condom | 0.008 | 0.001 | 2718 | 2427 | 0.869 | 0.187 | 0.005 | 0.011 |
| Currently using female sterilization | 0.024 | 0.004 | 2718 | 2427 | 1.198 | 0.147 | 0.017 | 0.031 |
| Currently using male sterilization | 0.003 | 0.001 | 2718 | 2427 | 0.894 | 0.305 | 0.001 | 0.005 |
| Currently using periodic abstinence | 0.031 | 0.004 | 2718 | 2427 | 1.169 | 0.126 | 0.023 | 0.038 |
| Currently using withdrawal | 0.043 | 0.005 | 2718 | 2427 | 1.397 | 0.127 | 0.032 | 0.053 |
| Using public sector for contraceptive method | 0.508 | 0.030 | 629 | 518 | 1.485 | 0.058 | 0.449 | 0.568 |
| Want no more children | 0.526 | 0.010 | 2718 | 2427 | 1.047 | 0.019 | 0.506 | 0.546 |
| Want to delay child at least two years | 0.222 | 0.008 | 2718 | 2427 | 1.038 | 0.037 | 0.205 | 0.238 |
| Ideal number of children | 4.108 | 0.069 | 2247 | 2008 | 1.327 | 0.017 | 3.969 | 4.246 |
| Mother received at least one tetanus injection | 0.329 | 0.018 | 3150 | 2857 | 1.726 | 0.053 | 0.294 | 0.364 |
| Mother received medical care at delivery | 0.470 | 0.021 | 3150 | 2857 | 1.921 | 0.045 | 0.427 | 0.512 |
| Had diarrhea in the last two weeks | 0.240 | 0.015 | 2950 | 2669 | 1.695 | 0.061 | 0.210 | 0.269 |
| Treated diarrhea with ORS packets | 0.392 | 0.019 | 642 | 640 | 0.962 | 0.049 | 0.353 | 0.430 |
| Consulted medical personnel for diarrhea | 0.391 | 0.034 | 642 | 640 | 1.658 | 0.086 | 0.324 | 0.459 |
| Have seen health card | 0.549 | 0.021 | 577 | 513 | 1.028 | 0.039 | 0.506 | 0.591 |
| Received BCG vaccination | 0.818 | 0.024 | 577 | 513 | 1.520 | 0.030 | 0.769 | 0.867 |
| Received DPT vaccination (three doses) | 0.708 | 0.025 | 577 | 513 | 1.299 | 0.035 | 0.658 | 0.757 |
| Received polio vaccination (three doses) | 0.661 | 0.027 | 577 | 513 | 1.347 | 0.040 | 0.608 | 0.714 |
| Received measles vaccination | 0.719 | 0.026 | 577 | 513 | 1.391 | 0.036 | 0.667 | 0.771 |
| Fully immunized | 0.564 | 0.025 | 577 | 513 | 1.191 | 0.044 | 0.515 | 0.614 |
| Weight-for-height below -2 SD | 0.104 | 0.010 | 2231 | 1970 | 1.516 | 0.096 | 0.084 | 0.123 |
| Height-for-age below -2 SD | 0.403 | 0.018 | 2231 | 1970 | 1.552 | 0.044 | 0.368 | 0.438 |
| Weight-for-age below -2 SD | 0.355 | 0.016 | 2231 | 1970 | 1.473 | 0.046 | 0.323 | 0.388 |
| **Five-year (0-4 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-4 years) | 32.574 | 4.183 | 3251 | 2957 | 1.194 | 0.128 | 24.207 | 40.941 |
| Postneonatal mortality rate (0-4 years) | 30.782 | 3.528 | 3257 | 2970 | 1.177 | 0.115 | 23.725 | 37.839 |
| Infant mortality rate (0-4 years) | 63.356 | 6.146 | 3258 | 2970 | 1.278 | 0.097 | 51.063 | 75.649 |
| Child mortality rate (0-4 years) | 17.760 | 2.471 | 3267 | 2975 | 1.035 | 0.139 | 12.819 | 22.702 |
| Under-five mortality rate (0-4 years) | 79.991 | 6.940 | 3275 | 2989 | 1.255 | 0.087 | 66.111 | 93.871 |
| **Ten-year (0-9 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-9 years) | 38.411 | 6.519 | 6353 | 5784 | 2.085 | 0.170 | 25.373 | 51.449 |
| Postneonatal mortality rate (0-9 years) | 37.028 | 4.489 | 6369 | 5799 | 1.717 | 0.121 | 28.050 | 46.005 |
| Infant mortality rate (0-9 years) | 75.438 | 10.067 | 6370 | 5800 | 2.432 | 0.133 | 55.304 | 95.573 |
| Child mortality rate (0-9 years) | 22.022 | 3.011 | 6373 | 5809 | 1.424 | 0.137 | 15.999 | 28.045 |
| Under-five mortality rate (0-9 years) | 95.799 | 11.403 | 6391 | 5825 | 2.493 | 0.119 | 72.993 | 118.605 |

NA = Not applicable

Table C.4 Sampling errors - Rural sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.000 | 0.000 | 7469 | 7794 | NA | NA | 0.000 | 0.000 |
| No education | 0.883 | 0.006 | 7469 | 7794 | 1.673 | 0.007 | 0.871 | 0.896 |
| Secondary or higher | 0.028 | 0.002 | 7469 | 7794 | 1.189 | 0.082 | 0.023 | 0.032 |
| Currently married | 0.944 | 0.003 | 7469 | 7794 | 1.143 | 0.003 | 0.938 | 0.950 |
| Married by exact age 20 | 0.873 | 0.005 | 6635 | 6911 | 1.225 | 0.006 | 0.863 | 0.883 |
| Total fertility rate (three years) | 7.028 | 0.099 | NA | 28403 | 1.191 | 0.014 | 6.831 | 7.225 |
| Children ever born | 5.028 | 0.054 | 7032 | 7359 | 1.241 | 0.011 | 4.919 | 5.136 |
| Children surviving | 4.157 | 0.048 | 7469 | 7794 | 1.351 | 0.011 | 4.062 | 4.253 |
| Know any contraceptive method | 0.795 | 0.010 | 7032 | 7359 | 2.004 | 0.012 | 0.775 | 0.814 |
| Know any modern contraceptive method | 0.736 | 0.012 | 7032 | 7359 | 2.295 | 0.016 | 0.712 | 0.760 |
| Ever used any contraceptive method | 0.311 | 0.008 | 7032 | 7359 | 1.503 | 0.027 | 0.295 | 0.328 |
| Currently using any contraceptive method | 0.158 | 0.007 | 7032 | 7359 | 1.578 | 0.043 | 0.144 | 0.172 |
| Currently using any modern method | 0.061 | 0.006 | 7032 | 7359 | 1.984 | 0.093 | 0.049 | 0.072 |
| Currently using pill | 0.021 | 0.002 | 7032 | 7359 | 1.454 | 0.119 | 0.016 | 0.026 |
| Currently using IUD | 0.016 | 0.004 | 7032 | 7359 | 2.510 | 0.237 | 0.008 | 0.023 |
| Currently using injectables | 0.012 | 0.002 | 7032 | 7359 | 1.645 | 0.178 | 0.008 | 0.016 |
| Currently using condom | 0.001 | 0.000 | 7032 | 7359 | 1.358 | 0.578 | 0.000 | 0.002 |
| Currently using female sterilization | 0.011 | 0.001 | 7032 | 7359 | 1.152 | 0.131 | 0.008 | 0.014 |
| Currently using male sterilization | 0.000 | 0.000 | 7032 | 7359 | 1.054 | 1.000 | 0.000 | 0.000 |
| Currently using periodic abstinence | 0.005 | 0.001 | 7032 | 7359 | 1.072 | 0.177 | 0.003 | 0.007 |
| Currently using withdrawal | 0.009 | 0.002 | 7032 | 7359 | 1.542 | 0.195 | 0.005 | 0.012 |
| Using public sector for contraceptive method | 0.478 | 0.031 | 423 | 446 | 1.269 | 0.065 | 0.416 | 0.540 |
| Want no more children | 0.462 | 0.009 | 7032 | 7359 | 1.442 | 0.019 | 0.445 | 0.479 |
| Want to delay child at least two years | 0.217 | 0.006 | 7032 | 7359 | 1.175 | 0.027 | 0.205 | 0.228 |
| Ideal number of children | 4.641 | 0.058 | 5091 | 5305 | 1.349 | 0.012 | 4.526 | 4.757 |
| Mother received at least one tetanus injection | 0.121 | 0.006 | 9301 | 9828 | 1.524 | 0.051 | 0.109 | 0.133 |
| Mother received medical care at delivery | 0.143 | 0.007 | 9301 | 9828 | 1.700 | 0.052 | 0.128 | 0.158 |
| Had diarrhea in the last two weeks | 0.285 | 0.008 | 8472 | 8931 | 1.452 | 0.028 | 0.269 | 0.301 |
| Treated diarrhea with ORS packets | 0.307 | 0.013 | 2359 | 2546 | 1.241 | 0.044 | 0.280 | 0.334 |
| Consulted medical personnel for diarrhea | 0.252 | 0.013 | 2359 | 2546 | 1.264 | 0.052 | 0.226 | 0.278 |
| Have seen health card | 0.234 | 0.016 | 1577 | 1675 | 1.499 | 0.068 | 0.202 | 0.266 |
| Received BCG vaccination | 0.451 | 0.018 | 1577 | 1675 | 1.439 | 0.040 | 0.415 | 0.487 |
| Received DPT vaccination (three doses) | 0.302 | 0.016 | 1577 | 1675 | 1.396 | 0.053 | 0.270 | 0.335 |
| Received polio vaccination (three doses) | 0.396 | 0.015 | 1577 | 1675 | 1.223 | 0.038 | 0.366 | 0.426 |
| Received measles vaccination | 0.338 | 0.016 | 1577 | 1675 | 1.340 | 0.047 | 0.307 | 0.370 |
| Fully immunized | 0.196 | 0.012 | 1577 | 1675 | 1.232 | 0.062 | 0.171 | 0.220 |
| Weight-for-height below -2 SD | 0.137 | 0.006 | 5252 | 5531 | 1.154 | 0.041 | 0.126 | 0.149 |
| Height-for-age below -2 SD | 0.557 | 0.009 | 5252 | 5531 | 1.203 | 0.016 | 0.540 | 0.575 |
| Weight-for-age below -2 SD | 0.499 | 0.009 | 5252 | 5531 | 1.209 | 0.018 | 0.481 | 0.516 |
| **Five-year (0-4 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-4 years) | 33.940 | 2.089 | 9513 | 10026 | 1.066 | 0.062 | 29.762 | 38.117 |
| Postneonatal mortality rate (0-4 years) | 44.869 | 2.723 | 9543 | 10059 | 1.217 | 0.061 | 39.424 | 50.314 |
| Infant mortality rate (0-4 years) | 78.809 | 3.541 | 9546 | 10062 | 1.198 | 0.045 | 71.728 | 85.890 |
| Child mortality rate (0-4 years) | 2.875 | 9621 | 10150 | 1.346 | 0.080 | 30.248 | 41.750 | |
| Under-five mortality rate (0-4 years) | 111.971 | 4.685 | 9657 | 10188 | 1.321 | 0.042 | 102.601 | 121.341 |
| **Ten-year (0-9 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-9 years) | 41.504 | 1.796 | 19222 | 20235 | 1.114 | 0.043 | 37.912 | 45.095 |
| Postneonatal mortality rate (0-9 years) | 52.060 | 2.546 | 19269 | 20287 | 1.415 | 0.049 | 46.968 | 57.151 |
| Infant mortality rate (0-9 years) | 93.564 | 3.361 | 19272 | 20290 | 1.390 | 0.036 | 86.842 | 100.285 |
| Child mortality rate (0-9 years) | 38.243 | 2.346 | 19340 | 20367 | 1.445 | 0.061 | 33.552 | 42.934 |
| Under-five mortality rate (0-9 years) | 128.228 | 4.377 | 19393 | 20425 | 1.531 | 0.034 | 119.474 | 136.983 |

NA = Not applicable

Table C.5 Sampling errors - Coastal region sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases: Unweighted (N) | Number of cases: Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits: R-2SE | Confidence limits: R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.391 | 0.018 | 2490 | 2381 | 1.874 | 0.047 | 0.354 | 0.427 |
| No education | 0.743 | 0.015 | 2490 | 2381 | 1.725 | 0.020 | 0.713 | 0.774 |
| Secondary or higher | 0.142 | 0.012 | 2490 | 2381 | 1.649 | 0.081 | 0.119 | 0.165 |
| Currently married | 0.935 | 0.005 | 2490 | 2381 | 1.015 | 0.005 | 0.925 | 0.945 |
| Married by exact age 20 | 0.803 | 0.011 | 2297 | 2176 | 1.319 | 0.014 | 0.781 | 0.825 |
| Total fertility rate (three years) | 6.627 | 0.205 | NA | 8133 | 1.392 | 0.031 | 6.217 | 7.037 |
| Children ever born | 4.841 | 0.112 | 2307 | 2226 | 1.491 | 0.023 | 4.617 | 5.065 |
| Children surviving | 3.952 | 0.094 | 2490 | 2381 | 1.573 | 0.024 | 3.764 | 4.139 |
| Know any contraceptive method | 0.851 | 0.015 | 2307 | 2226 | 1.992 | 0.017 | 0.821 | 0.880 |
| Know any modern contraceptive method | 0.820 | 0.017 | 2307 | 2226 | 2.165 | 0.021 | 0.785 | 0.855 |
| Ever used any contraceptive method | 0.331 | 0.015 | 2307 | 2226 | 1.558 | 0.046 | 0.300 | 0.361 |
| Currently using any contraceptive method | 0.172 | 0.011 | 2307 | 2226 | 1.344 | 0.061 | 0.151 | 0.193 |
| Currently using any modern method | 0.096 | 0.008 | 2307 | 2226 | 1.295 | 0.083 | 0.080 | 0.112 |
| Currently using pill | 0.065 | 0.006 | 2307 | 2226 | 1.085 | 0.086 | 0.054 | 0.076 |
| Currently using IUD | 0.017 | 0.003 | 2307 | 2226 | 1.043 | 0.167 | 0.011 | 0.022 |
| Currently using injectables | 0.001 | 0.001 | 2307 | 2226 | 1.028 | 0.709 | 0.000 | 0.002 |
| Currently using condom | 0.001 | 0.001 | 2307 | 2226 | 0.722 | 0.405 | 0.000 | 0.002 |
| Currently using female sterilization | 0.010 | 0.003 | 2307 | 2226 | 1.259 | 0.259 | 0.005 | 0.015 |
| Currently using male sterilization | 0.002 | 0.001 | 2307 | 2226 | 0.815 | 0.432 | 0.000 | 0.003 |
| Currently using periodic abstinence | 0.021 | 0.004 | 2307 | 2226 | 1.224 | 0.175 | 0.014 | 0.028 |
| Currently using withdrawal | 0.012 | 0.003 | 2307 | 2226 | 1.301 | 0.244 | 0.006 | 0.018 |
| Using public sector for contraceptive method | 0.631 | 0.042 | 291 | 215 | 1.487 | 0.067 | 0.546 | 0.715 |
| Want no more children | 0.425 | 0.013 | 2307 | 2226 | 1.277 | 0.031 | 0.398 | 0.451 |
| Want to delay child at least two years | 0.211 | 0.010 | 2307 | 2226 | 1.187 | 0.048 | 0.191 | 0.232 |
| Ideal number of children | 4.692 | 0.109 | 1450 | 1353 | 1.351 | 0.023 | 4.473 | 4.911 |
| Mother received at least one tetanus injection | 0.258 | 0.016 | 2755 | 2729 | 1.587 | 0.061 | 0.227 | 0.289 |
| Mother received medical care at delivery | 0.288 | 0.018 | 2755 | 2729 | 1.679 | 0.061 | 0.252 | 0.323 |
| Had diarrhea in the last two weeks | 0.301 | 0.014 | 2538 | 2494 | 1.391 | 0.046 | 0.273 | 0.328 |
| Treated diarrhea with ORS packets | 0.336 | 0.022 | 673 | 750 | 1.182 | 0.065 | 0.292 | 0.380 |
| Consulted medical personnel for diarrhea | 0.303 | 0.023 | 673 | 750 | 1.217 | 0.074 | 0.258 | 0.348 |
| Have seen health card | 0.421 | 0.037 | 468 | 463 | 1.664 | 0.089 | 0.346 | 0.495 |
| Received BCG vaccination | 0.606 | 0.036 | 468 | 463 | 1.610 | 0.059 | 0.534 | 0.677 |
| Received DPT vaccination (three doses) | 0.471 | 0.034 | 468 | 463 | 1.502 | 0.072 | 0.403 | 0.540 |
| Received polio vaccination (three doses) | 0.495 | 0.034 | 468 | 463 | 1.487 | 0.068 | 0.427 | 0.562 |
| Received measles vaccination | 0.465 | 0.031 | 468 | 463 | 1.379 | 0.067 | 0.403 | 0.528 |
| Fully immunized | 0.347 | 0.031 | 468 | 463 | 1.420 | 0.088 | 0.286 | 0.408 |
| Weight-for-height below -2 SD | 0.201 | 0.011 | 1920 | 1827 | 1.190 | 0.056 | 0.178 | 0.223 |
| Height-for-age below -2 SD | 0.420 | 0.015 | 1920 | 1827 | 1.247 | 0.037 | 0.390 | 0.451 |
| Weight-for-age below -2 SD | 0.460 | 0.015 | 1920 | 1827 | 1.231 | 0.033 | 0.430 | 0.491 |
| **Five-year (0-4 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-4 years) | 36.339 | 3.857 | 2824 | 2778 | 1.019 | 0.106 | 28.626 | 44.053 |
| Postneonatal mortality rate (0-4 years) | 35.495 | 4.681 | 2832 | 2788 | 1.365 | 0.132 | 26.134 | 44.856 |
| Infant mortality rate (0-4 years) | 71.834 | 6.655 | 2833 | 2788 | 1.315 | 0.093 | 58.525 | 85.144 |
| Child mortality rate (0-4 years) | 40.792 | 7.281 | 2851 | 2816 | 1.765 | 0.178 | 26.230 | 55.355 |
| Under-five mortality rate (0-4 years) | 109.696 | 10.227 | 2861 | 2827 | 1.617 | 0.093 | 89.243 | 130.150 |
| **Ten-year (0-9 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-9 years) | 44.029 | 3.727 | 5481 | 5472 | 1.207 | 0.085 | 36.576 | 51.483 |
| Postneonatal mortality rate (0-9 years) | 50.844 | 5.056 | 5496 | 5489 | 1.542 | 0.099 | 40.732 | 60.955 |
| Infant mortality rate (0-9 years) | 94.873 | 7.109 | 5497 | 5489 | 1.616 | 0.075 | 80.655 | 109.091 |
| Child mortality rate (0-9 years) | 46.505 | 5.977 | 5521 | 5525 | 1.792 | 0.129 | 34.552 | 58.458 |
| Under-five mortality rate (0-9 years) | 136.966 | 10.014 | 5538 | 5542 | 1.867 | 0.073 | 116.939 | 156.993 |

NA = Not applicable

Table C.6 Sampling errors - Mountainous region sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.021 | 0.013 | 2897 | 3125 | 4.838 | 0.612 | 0.000 | 0.047 |
| No education | 0.916 | 0.008 | 2897 | 3125 | 1.544 | 0.009 | 0.900 | 0.932 |
| Secondary or higher | 0.020 | 0.003 | 2897 | 3125 | 1.084 | 0.140 | 0.015 | 0.026 |
| Currently married | 0.945 | 0.005 | 2897 | 3125 | 1.136 | 0.005 | 0.935 | 0.954 |
| Married by exact age 20 | 0.890 | 0.007 | 2565 | 2776 | 1.122 | 0.008 | 0.876 | 0.904 |
| Total fertility rate (three years) | 6.907 | 0.148 | NA | 11007 | 1.130 | 0.021 | 6.611 | 7.204 |
| Children ever born | 4.974 | 0.091 | 2735 | 2952 | 1.298 | 0.018 | 4.793 | 5.155 |
| Children surviving | 4.142 | 0.076 | 2897 | 3125 | 1.342 | 0.018 | 3.990 | 4.294 |
| Know any contraceptive method | 0.747 | 0.017 | 2735 | 2952 | 2.047 | 0.023 | 0.713 | 0.781 |
| Know any modern contraceptive method | 0.683 | 0.017 | 2735 | 2952 | 1.957 | 0.026 | 0.648 | 0.718 |
| Ever used any contraceptive method | 0.305 | 0.013 | 2735 | 2952 | 1.474 | 0.043 | 0.279 | 0.331 |
| Currently using any contraceptive method | 0.149 | 0.010 | 2735 | 2952 | 1.416 | 0.065 | 0.130 | 0.168 |
| Currently using any modern method | 0.051 | 0.006 | 2735 | 2952 | 1.540 | 0.127 | 0.038 | 0.064 |
| Currently using pill | 0.019 | 0.004 | 2735 | 2952 | 1.602 | 0.221 | 0.010 | 0.027 |
| Currently using IUD | 0.010 | 0.004 | 2735 | 2952 | 1.875 | 0.363 | 0.003 | 0.017 |
| Currently using injectables | 0.012 | 0.003 | 2735 | 2952 | 1.276 | 0.224 | 0.006 | 0.017 |
| Currently using condom | 0.000 | 0.000 | 2735 | 2952 | 1.046 | 0.995 | 0.000 | 0.001 |
| Currently using female sterilization | 0.010 | 0.002 | 2735 | 2952 | 1.177 | 0.224 | 0.006 | 0.014 |
| Currently using male sterilization | 0.000 | 0.000 | 2735 | 2952 | NA | NA | 0.000 | 0.000 |
| Currently using periodic abstinence | 0.003 | 0.001 | 2735 | 2952 | 1.023 | 0.385 | 0.001 | 0.005 |
| Currently using withdrawal | 0.009 | 0.003 | 2735 | 2952 | 1.377 | 0.272 | 0.004 | 0.014 |
| Using public sector for contraceptive method | 0.500 | 0.039 | 132 | 152 | 0.885 | 0.077 | 0.422 | 0.577 |
| Want no more children | 0.485 | 0.014 | 2735 | 2952 | 1.462 | 0.029 | 0.457 | 0.513 |
| Want to delay child at least two years | 0.202 | 0.009 | 2735 | 2952 | 1.227 | 0.047 | 0.183 | 0.221 |
| Ideal number of children | 4.491 | 0.098 | 2125 | 2242 | 1.458 | 0.022 | 4.295 | 4.688 |
| Mother received at least one tetanus injection | 0.091 | 0.009 | 3551 | 3860 | 1.531 | 0.098 | 0.073 | 0.109 |
| Mother received medical care at delivery | 0.101 | 0.011 | 3551 | 3860 | 1.816 | 0.111 | 0.079 | 0.123 |
| Had diarrhea in the last two weeks | 0.318 | 0.014 | 3215 | 3503 | 1.510 | 0.045 | 0.290 | 0.346 |
| Treated diarrhea with ORS packets | 0.290 | 0.020 | 1028 | 1114 | 1.190 | 0.069 | 0.250 | 0.330 |
| Consulted medical personnel for diarrhea | 0.246 | 0.022 | 1028 | 1114 | 1.356 | 0.089 | 0.203 | 0.290 |
| Have seen health card | 0.192 | 0.022 | 590 | 649 | 1.350 | 0.114 | 0.149 | 0.236 |
| Received BCG vaccination | 0.378 | 0.028 | 590 | 649 | 1.393 | 0.073 | 0.323 | 0.433 |
| Received DPT vaccination (three doses) | 0.241 | 0.024 | 590 | 649 | 1.353 | 0.098 | 0.194 | 0.289 |
| Received polio vaccination (three doses) | 0.366 | 0.023 | 590 | 649 | 1.159 | 0.063 | 0.320 | 0.411 |
| Received measles vaccination | 0.287 | 0.026 | 590 | 649 | 1.391 | 0.089 | 0.236 | 0.339 |
| Fully immunized | 0.153 | 0.018 | 590 | 649 | 1.200 | 0.115 | 0.117 | 0.188 |
| Weight-for-height below -2 SD | 0.128 | 0.009 | 1748 | 1857 | 1.062 | 0.068 | 0.111 | 0.146 |
| Height-for-age below -2 SD | 0.588 | 0.015 | 1748 | 1857 | 1.238 | 0.026 | 0.558 | 0.619 |
| Weight-for-age below -2 SD | 0.521 | 0.015 | 1748 | 1857 | 1.220 | 0.029 | 0.491 | 0.551 |
| **Five-year (0-4 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-4 years) | 28.938 | 3.039 | 3619 | 3935 | 1.043 | 0.105 | 22.861 | 35.015 |
| Postneonatal mortality rate (0-4 years) | 49.780 | 4.534 | 3637 | 3952 | 1.199 | 0.091 | 40.711 | 58.848 |
| Infant mortality rate (0-4 years) | 78.718 | 5.276 | 3637 | 3952 | 1.125 | 0.067 | 68.165 | 89.270 |
| Child mortality rate (0-4 years) | 36.085 | 3.688 | 3666 | 3981 | 1.069 | 0.102 | 28.709 | 43.460 |
| Under-five mortality rate (0-4 years) | 111.962 | 6.722 | 3684 | 3999 | 1.181 | 0.060 | 98.519 | 125.405 |
| **Ten-year (0-9 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-9 years) | 35.705 | 2.512 | 7439 | 8088 | 1.046 | 0.070 | 30.682 | 40.728 |
| Postneonatal mortality rate (0-9 years) | 52.228 | 4.144 | 7459 | 8110 | 1.408 | 0.079 | 43.939 | 60.516 |
| Infant mortality rate (0-9 years) | 87.933 | 5.027 | 7459 | 8110 | 1.320 | 0.057 | 77.879 | 97.986 |
| Child mortality rate (0-9 years) | 37.717 | 3.208 | 7483 | 8137 | 1.218 | 0.085 | 31.302 | 44.133 |
| Under-five mortality rate (0-9 years) | 122.333 | 6.268 | 7503 | 8159 | 1.379 | 0.051 | 109.797 | 134.869 |

NA = Not applicable

Table C.7 Sampling errors - Plateau and Desert region sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.331 | 0.014 | 5027 | 4908 | 2.087 | 0.042 | 0.303 | 0.358 |
| No education | 0.786 | 0.010 | 5027 | 4908 | 1.705 | 0.013 | 0.766 | 0.806 |
| Secondary or higher | 0.068 | 0.004 | 5027 | 4908 | 1.135 | 0.059 | 0.060 | 0.076 |
| Currently married | 0.939 | 0.005 | 5027 | 4908 | 1.343 | 0.005 | 0.930 | 0.948 |
| Married by exact age 20 | 0.870 | 0.006 | 4470 | 4351 | 1.240 | 0.007 | 0.857 | 0.882 |
| Total fertility rate (three years) | 6.874 | 0.138 | NA | 17304 | 1.403 | 0.020 | 6.597 | 7.151 |
| Children ever born | 4.997 | 0.070 | 4708 | 4608 | 1.329 | 0.014 | 4.857 | 5.138 |
| Children surviving | 4.211 | 0.059 | 5027 | 4908 | 1.378 | 0.014 | 4.092 | 4.329 |
| Know any contraceptive method | 0.890 | 0.011 | 4708 | 4608 | 2.401 | 0.012 | 0.868 | 0.912 |
| Know any modern contraceptive method | 0.849 | 0.015 | 4708 | 4608 | 2.902 | 0.018 | 0.819 | 0.879 |
| Ever used any contraceptive method | 0.464 | 0.013 | 4708 | 4608 | 1.771 | 0.028 | 0.438 | 0.490 |
| Currently using any contraceptive method | 0.263 | 0.010 | 4708 | 4608 | 1.523 | 0.037 | 0.244 | 0.283 |
| Currently using any modern method | 0.129 | 0.009 | 4708 | 4608 | 1.787 | 0.068 | 0.112 | 0.147 |
| Currently using pill | 0.038 | 0.003 | 4708 | 4608 | 1.200 | 0.088 | 0.032 | 0.045 |
| Currently using IUD | 0.049 | 0.006 | 4708 | 4608 | 1.837 | 0.118 | 0.038 | 0.061 |
| Currently using injectables | 0.017 | 0.003 | 4708 | 4608 | 1.801 | 0.202 | 0.010 | 0.023 |
| Currently using condom | 0.004 | 0.001 | 4708 | 4608 | 1.023 | 0.223 | 0.002 | 0.006 |
| Currently using female sterilization | 0.019 | 0.002 | 4708 | 4608 | 1.139 | 0.121 | 0.014 | 0.023 |
| Currently using male sterilization | 0.001 | 0.000 | 4708 | 4608 | 0.925 | 0.393 | 0.000 | 0.002 |
| Currently using periodic abstinence | 0.013 | 0.002 | 4708 | 4608 | 1.012 | 0.130 | 0.009 | 0.016 |
| Currently using withdrawal | 0.025 | 0.003 | 4708 | 4608 | 1.440 | 0.132 | 0.018 | 0.031 |
| Using public sector for contraceptive method | 0.444 | 0.029 | 629 | 597 | 1.449 | 0.065 | 0.386 | 0.501 |
| Want no more children | 0.500 | 0.010 | 4708 | 4608 | 1.362 | 0.020 | 0.480 | 0.520 |
| Want to delay child at least two years | 0.231 | 0.007 | 4708 | 4608 | 1.110 | 0.030 | 0.217 | 0.245 |
| Ideal number of children | 4.425 | 0.057 | 3763 | 3718 | 1.285 | 0.013 | 4.311 | 4.539 |
| Mother received at least one tetanus injection | 0.176 | 0.010 | 6145 | 6096 | 1.697 | 0.057 | 0.156 | 0.196 |
| Mother received medical care at delivery | 0.258 | 0.011 | 6145 | 6096 | 1.536 | 0.041 | 0.237 | 0.279 |
| Had diarrhea in the last two weeks | 0.236 | 0.010 | 5669 | 5604 | 1.636 | 0.044 | 0.215 | 0.257 |
| Treated diarrhea with ORS packets | 0.346 | 0.018 | 1300 | 1322 | 1.205 | 0.051 | 0.310 | 0.381 |
| Consulted medical personnel for diarrhea | 0.296 | 0.022 | 1300 | 1322 | 1.522 | 0.073 | 0.252 | 0.339 |
| Have seen health card | 0.329 | 0.018 | 1096 | 1077 | 1.250 | 0.054 | 0.293 | 0.364 |
| Received BCG vaccination | 0.604 | 0.021 | 1096 | 1077 | 1.401 | 0.034 | 0.563 | 0.645 |
| Received DPT vaccination (three doses) | 0.460 | 0.020 | 1096 | 1077 | 1.308 | 0.043 | 0.420 | 0.499 |
| Received polio vaccination (three doses) | 0.498 | 0.018 | 1096 | 1077 | 1.189 | 0.036 | 0.462 | 0.534 |
| Received measles vaccination | 0.496 | 0.020 | 1096 | 1077 | 1.295 | 0.039 | 0.457 | 0.535 |
| Fully immunized | 0.332 | 0.016 | 1096 | 1077 | 1.135 | 0.049 | 0.300 | 0.364 |
| Weight-for-height below -2 SD | 0.094 | 0.006 | 3815 | 3816 | 1.362 | 0.069 | 0.081 | 0.107 |
| Height-for-age below -2 SD | 0.529 | 0.012 | 3815 | 3816 | 1.465 | 0.024 | 0.504 | 0.553 |
| Weight-for-age below -2 SD | 0.432 | 0.011 | 3815 | 3816 | 1.294 | 0.026 | 0.410 | 0.454 |
| **Five-year (0-4 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-4 years) | 35.379 | 2.886 | 6321 | 6271 | 1.152 | 0.082 | 29.607 | 41.151 |
| Postneonatal mortality rate (0-4 years) | 39.274 | 3.086 | 6331 | 6289 | 1.196 | 0.079 | 33.102 | 45.447 |
| Infant mortality rate (0-4 years) | 74.654 | 4.608 | 6334 | 6291 | 1.257 | 0.062 | 65.438 | 83.869 |
| Child mortality rate (0-4 years) | 25.371 | 2.733 | 6371 | 6329 | 1.247 | 0.108 | 19.904 | 30.837 |
| Under-five mortality rate (0-4 years) | 98.130 | 5.581 | 6387 | 6351 | 1.330 | 0.057 | 86.968 | 109.292 |
| **Ten-year (0-9 years) mortality rates** | | | | | | | | |
| Neonatal mortality rate (0-9 years) | 42.732 | 3.439 | 12655 | 12458 | 1.600 | 0.080 | 35.854 | 49.609 |
| Postneonatal mortality rate (0-9 years) | 45.533 | 3.081 | 12683 | 12488 | 1.508 | 0.068 | 39.372 | 51.695 |
| Infant mortality rate (0-9 years) | 88.265 | 5.525 | 12686 | 12490 | 1.824 | 0.063 | 77.214 | 99.316 |
| Child mortality rate (0-9 years) | 27.337 | 2.211 | 12709 | 12515 | 1.334 | 0.081 | 22.916 | 31.759 |
| Under-five mortality rate (0-9 years) | 113.190 | 6.463 | 12743 | 12549 | 1.905 | 0.057 | 100.263 | 126.116 |

NA = Not applicable

Table C.8 Sampling errors - Sana'a City sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 1.000 | 0.000 | 868 | 667 | NA | 0.000 | 1.000 | 1.000 |
| No education | 0.590 | 0.020 | 868 | 667 | 1.178 | 0.033 | 0.551 | 0.629 |
| Secondary or higher | 0.200 | 0.016 | 868 | 667 | 1.194 | 0.081 | 0.168 | 0.233 |
| Currently married | 0.929 | 0.013 | 868 | 667 | 1.451 | 0.014 | 0.904 | 0.954 |
| Married by exact age 20 | 0.818 | 0.016 | 780 | 599 | 1.160 | 0.020 | 0.786 | 0.850 |
| Children ever born | 4.708 | 0.135 | 803 | 619 | 1.124 | 0.029 | 4.437 | 4.978 |
| Children surviving | 4.127 | 0.102 | 868 | 667 | 1.033 | 0.025 | 3.924 | 4.330 |
| Know any contraceptive method | 0.995 | 0.003 | 803 | 619 | 1.066 | 0.003 | 0.989 | 1.000 |
| Know any modern contraceptive method | 0.987 | 0.003 | 803 | 619 | 0.696 | 0.003 | 0.982 | 0.993 |
| Ever used any contraceptive method | 0.726 | 0.017 | 803 | 619 | 1.060 | 0.023 | 0.693 | 0.760 |
| Currently using any contraceptive method | 0.460 | 0.019 | 803 | 619 | 1.085 | 0.041 | 0.422 | 0.499 |
| Currently using any modern method | 0.256 | 0.021 | 803 | 619 | 1.364 | 0.082 | 0.214 | 0.298 |
| Currently using pill | 0.076 | 0.009 | 803 | 619 | 0.948 | 0.116 | 0.059 | 0.094 |
| Currently using IUD | 0.111 | 0.013 | 803 | 619 | 1.152 | 0.115 | 0.086 | 0.137 |
| Currently using injectables | 0.007 | 0.002 | 803 | 619 | 0.802 | 0.337 | 0.002 | 0.012 |
| Currently using condom | 0.021 | 0.005 | 803 | 619 | 0.915 | 0.219 | 0.012 | 0.031 |
| Currently using female sterilization | 0.038 | 0.009 | 803 | 619 | 1.287 | 0.230 | 0.020 | 0.055 |
| Currently using male sterilization | 0.001 | 0.001 | 803 | 619 | 0.919 | 1.001 | 0.000 | 0.003 |
| Currently using periodic abstinence | 0.022 | 0.006 | 803 | 619 | 1.240 | 0.289 | 0.009 | 0.035 |
| Currently using withdrawal | 0.088 | 0.012 | 803 | 619 | 1.230 | 0.140 | 0.063 | 0.112 |
| Using public sector for contraceptive method | 0.395 | 0.044 | 206 | 159 | 1.287 | 0.111 | 0.307 | 0.482 |
| Want no more children | 0.544 | 0.012 | 803 | 619 | 0.694 | 0.022 | 0.519 | 0.568 |
| Want to delay child at least two years | 0.243 | 0.012 | 803 | 619 | 0.793 | 0.049 | 0.219 | 0.267 |
| Ideal number of children | 3.660 | 0.061 | 691 | 531 | 0.849 | 0.017 | 3.537 | 3.783 |
| Mother received at least one tetanus injection | 0.284 | 0.024 | 974 | 761 | 1.355 | 0.084 | 0.237 | 0.332 |
| Mother received medical care at delivery | 0.513 | 0.020 | 974 | 761 | 1.011 | 0.040 | 0.472 | 0.554 |
| Had diarrhea in the last two weeks | 0.168 | 0.014 | 916 | 717 | 1.081 | 0.086 | 0.139 | 0.196 |
| Treated diarrhea with ORS packets | 0.362 | 0.056 | 159 | 120 | 1.320 | 0.156 | 0.249 | 0.475 |
| Consulted medical personnel for diarrhea | 0.319 | 0.080 | 159 | 120 | 1.862 | 0.251 | 0.159 | 0.479 |
| Have seen health card | 0.559 | 0.043 | 188 | 144 | 1.181 | 0.077 | 0.473 | 0.645 |
| Received BCG vaccination | 0.903 | 0.025 | 188 | 144 | 1.135 | 0.027 | 0.853 | 0.952 |
| Received DPT vaccination (three doses) | 0.773 | 0.030 | 188 | 144 | 0.982 | 0.039 | 0.713 | 0.833 |
| Received polio vaccination (three doses) | 0.779 | 0.038 | 188 | 144 | 1.266 | 0.049 | 0.702 | 0.855 |
| Received measles vaccination | 0.789 | 0.036 | 188 | 144 | 1.207 | 0.046 | 0.717 | 0.861 |
| Fully immunized | 0.669 | 0.041 | 188 | 144 | 1.184 | 0.061 | 0.587 | 0.750 |
| Weight-for-height below -2 SD | 0.056 | 0.012 | 668 | 521 | 1.396 | 0.221 | 0.031 | 0.081 |
| Height-for-age below -2 SD | 0.458 | 0.030 | 668 | 521 | 1.448 | 0.065 | 0.399 | 0.518 |
| Weight-for-age below -2 SD | 0.318 | 0.028 | 668 | 521 | 1.443 | 0.087 | 0.263 | 0.374 |

NA = Not applicable

Table C.9 Sampling errors - Sana'a Governorate sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.123 | 0.021 | 887 | 1244 | 1.941 | 0.174 | 0.080 | 0.166 |
| No education | 0.877 | 0.024 | 887 | 1244 | 2.165 | 0.027 | 0.830 | 0.925 |
| Secondary or higher | 0.015 | 0.005 | 887 | 1244 | 1.213 | 0.335 | 0.005 | 0.024 |
| Currently married | 0.949 | 0.012 | 887 | 1244 | 1.698 | 0.013 | 0.924 | 0.974 |
| Married by exact age 20 | 0.890 | 0.010 | 795 | 1116 | 0.941 | 0.012 | 0.869 | 0.911 |
| Children ever born | 5.217 | 0.152 | 847 | 1181 | 1.208 | 0.029 | 4.913 | 5.520 |
| Children surviving | 4.203 | 0.121 | 887 | 1244 | 1.209 | 0.029 | 3.961 | 4.445 |
| Know any contraceptive method | 0.723 | 0.035 | 847 | 1181 | 2.256 | 0.048 | 0.654 | 0.793 |
| Know any modern contraceptive method | 0.712 | 0.037 | 847 | 1181 | 2.361 | 0.052 | 0.639 | 0.786 |
| Ever used any contraceptive method | 0.250 | 0.032 | 847 | 1181 | 2.147 | 0.128 | 0.186 | 0.314 |
| Currently using any contraceptive method | 0.160 | 0.028 | 847 | 1181 | 2.217 | 0.174 | 0.104 | 0.216 |
| Currently using any modern method | 0.093 | 0.026 | 847 | 1181 | 2.566 | 0.275 | 0.042 | 0.144 |
| Currently using pill | 0.010 | 0.004 | 847 | 1181 | 1.145 | 0.382 | 0.002 | 0.019 |
| Currently using IUD | 0.051 | 0.019 | 847 | 1181 | 2.515 | 0.373 | 0.013 | 0.089 |
| Currently using injectables | 0.016 | 0.008 | 847 | 1181 | 1.889 | 0.506 | 0.000 | 0.033 |
| Currently using condom | 0.003 | 0.003 | 847 | 1181 | 1.286 | 0.755 | 0.000 | 0.009 |
| Currently using female sterilization | 0.012 | 0.005 | 847 | 1181 | 1.336 | 0.419 | 0.002 | 0.022 |
| Currently using male sterilization | 0.000 | 0.000 | 847 | 1181 | NA | NA | 0.000 | 0.000 |
| Currently using periodic abstinence | 0.009 | 0.002 | 847 | 1181 | 0.719 | 0.253 | 0.005 | 0.014 |
| Currently using withdrawal | 0.028 | 0.010 | 847 | 1181 | 1.705 | 0.343 | 0.009 | 0.048 |
| Using public sector for contraceptive method | 0.336 | 0.053 | 69 | 110 | 0.926 | 0.158 | 0.230 | 0.443 |
| Want no more children | 0.491 | 0.017 | 847 | 1181 | 1.001 | 0.035 | 0.457 | 0.526 |
| Want to delay child at least two years | 0.220 | 0.015 | 847 | 1181 | 1.071 | 0.069 | 0.189 | 0.250 |
| Ideal number of children | 4.294 | 0.137 | 669 | 956 | 1.378 | 0.032 | 4.019 | 4.569 |
| Mother received at least one tetanus injection | 0.146 | 0.022 | 1201 | 1675 | 1.685 | 0.147 | 0.103 | 0.189 |
| Mother received medical care at delivery | 0.173 | 0.020 | 1201 | 1675 | 1.444 | 0.113 | 0.134 | 0.212 |
| Had diarrhea in the last two weeks | 0.190 | 0.025 | 1079 | 1506 | 1.837 | 0.134 | 0.139 | 0.241 |
| Treated diarrhea with ORS packets | 0.347 | 0.049 | 198 | 286 | 1.289 | 0.140 | 0.250 | 0.444 |
| Consulted medical personnel for diarrhea | 0.255 | 0.053 | 198 | 286 | 1.520 | 0.206 | 0.150 | 0.360 |
| Have seen health card | 0.230 | 0.033 | 190 | 266 | 1.070 | 0.142 | 0.164 | 0.295 |
| Received BCG vaccination | 0.482 | 0.051 | 190 | 266 | 1.402 | 0.106 | 0.380 | 0.584 |
| Received DPT vaccination (three doses) | 0.355 | 0.045 | 190 | 266 | 1.289 | 0.127 | 0.265 | 0.444 |
| Received polio vaccination (three doses) | 0.409 | 0.046 | 190 | 266 | 1.297 | 0.114 | 0.316 | 0.502 |
| Received measles vaccination | 0.340 | 0.045 | 190 | 266 | 1.301 | 0.133 | 0.249 | 0.430 |
| Fully immunized | 0.227 | 0.031 | 190 | 266 | 1.031 | 0.138 | 0.164 | 0.289 |
| Weight-for-height below -2 SD | 0.080 | 0.009 | 851 | 1188 | 0.994 | 0.118 | 0.061 | 0.099 |
| Height-for-age below -2 SD | 0.607 | 0.029 | 851 | 1188 | 1.655 | 0.047 | 0.550 | 0.664 |
| Weight-for-age below -2 SD | 0.504 | 0.026 | 851 | 1188 | 1.439 | 0.051 | 0.452 | 0.556 |

NA = Not applicable

Table C.10 Sampling errors - Aden's Governorate sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.956 | 0.008 | 516 | 266 | 0.926 | 0.009 | 0.939 | 0.972 |
| No education | 0.373 | 0.025 | 516 | 266 | 1.193 | 0.068 | 0.322 | 0.424 |
| Secondary or higher | 0.401 | 0.033 | 516 | 266 | 1.512 | 0.081 | 0.335 | 0.466 |
| Currently married | 0.901 | 0.008 | 516 | 266 | 0.640 | 0.009 | 0.884 | 0.918 |
| Married by exact age 20 | 0.582 | 0.028 | 495 | 256 | 1.272 | 0.048 | 0.526 | 0.639 |
| Children ever born | 4.171 | 0.169 | 463 | 240 | 1.180 | 0.041 | 3.832 | 4.509 |
| Children surviving | 3.658 | 0.128 | 516 | 266 | 1.078 | 0.035 | 3.402 | 3.914 |
| Know any contraceptive method | 0.985 | 0.004 | 463 | 240 | 0.681 | 0.004 | 0.977 | 0.993 |
| Know any modern contraceptive method | 0.985 | 0.004 | 463 | 240 | 0.681 | 0.004 | 0.977 | 0.993 |
| Ever used any contraceptive method | 0.727 | 0.023 | 463 | 240 | 1.114 | 0.032 | 0.680 | 0.773 |
| Currently using any contraceptive method | 0.415 | 0.022 | 463 | 240 | 0.961 | 0.053 | 0.371 | 0.459 |
| Currently using any modern method | 0.304 | 0.024 | 463 | 240 | 1.141 | 0.080 | 0.255 | 0.353 |
| Currently using pill | 0.185 | 0.015 | 463 | 240 | 0.845 | 0.083 | 0.154 | 0.215 |
| Currently using IUD | 0.058 | 0.009 | 463 | 240 | 0.825 | 0.155 | 0.040 | 0.075 |
| Currently using injectables | 0.004 | 0.004 | 463 | 240 | 1.345 | 1.000 | 0.000 | 0.012 |
| Currently using condom | 0.011 | 0.004 | 463 | 240 | 0.932 | 0.420 | 0.002 | 0.019 |
| Currently using female sterilization | 0.032 | 0.012 | 463 | 240 | 1.499 | 0.385 | 0.007 | 0.056 |
| Currently using male sterilization | 0.014 | 0.006 | 463 | 240 | 1.142 | 0.442 | 0.002 | 0.027 |
| Currently using periodic abstinence | 0.038 | 0.010 | 463 | 240 | 1.078 | 0.254 | 0.018 | 0.057 |
| Currently using withdrawal | 0.055 | 0.014 | 463 | 240 | 1.292 | 0.250 | 0.027 | 0.082 |
| Using public sector for contraceptive method | 0.666 | 0.039 | 141 | 74 | 0.980 | 0.059 | 0.588 | 0.744 |
| Want no more children | 0.509 | 0.033 | 463 | 240 | 1.400 | 0.064 | 0.444 | 0.574 |
| Want to delay child at least two years | 0.208 | 0.024 | 463 | 240 | 1.287 | 0.117 | 0.160 | 0.257 |
| Ideal number of children | 3.824 | 0.161 | 369 | 190 | 1.009 | 0.042 | 3.501 | 4.146 |
| Mother received at least one tetanus injection | 0.560 | 0.026 | 491 | 261 | 1.002 | 0.047 | 0.507 | 0.612 |
| Mother received medical care at delivery | 0.635 | 0.048 | 491 | 261 | 1.857 | 0.076 | 0.539 | 0.731 |
| Had diarrhea in the last two weeks | 0.281 | 0.025 | 463 | 247 | 1.155 | 0.090 | 0.230 | 0.331 |
| Treated diarrhea with ORS packets | 0.312 | 0.052 | 126 | 69 | 1.233 | 0.166 | 0.208 | 0.415 |
| Consulted medical personnel for diarrhea | 0.424 | 0.067 | 126 | 69 | 1.452 | 0.158 | 0.290 | 0.557 |
| Have seen health card | 0.642 | 0.045 | 83 | 44 | 0.843 | 0.070 | 0.552 | 0.732 |
| Received BCG vaccination | 0.902 | 0.043 | 83 | 44 | 1.309 | 0.047 | 0.817 | 0.987 |
| Received DPT vaccination (three doses) | 0.831 | 0.044 | 83 | 44 | 1.065 | 0.052 | 0.744 | 0.918 |
| Received polio vaccination (three doses) | 0.698 | 0.021 | 83 | 44 | 0.408 | 0.030 | 0.656 | 0.740 |
| Received measles vaccination | 0.700 | 0.035 | 83 | 44 | 0.705 | 0.051 | 0.629 | 0.771 |
| Fully immunized | 0.569 | 0.041 | 83 | 44 | 0.754 | 0.073 | 0.486 | 0.652 |
| Weight-for-height below -2 SD | 0.117 | 0.021 | 420 | 223 | 1.302 | 0.180 | 0.075 | 0.159 |
| Height-for-age below -2 SD | 0.257 | 0.042 | 420 | 223 | 1.845 | 0.162 | 0.174 | 0.341 |
| Weight-for-age below -2 SD | 0.281 | 0.041 | 420 | 223 | 1.770 | 0.145 | 0.200 | 0.363 |

Table C.11 Sampling errors - Taiz Governorate sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.162 | 0.008 | 1263 | 1463 | 0.771 | 0.049 | 0.146 | 0.178 |
| No education | 0.832 | 0.013 | 1263 | 1463 | 1.214 | 0.015 | 0.807 | 0.858 |
| Secondary or higher | 0.061 | 0.005 | 1263 | 1463 | 0.733 | 0.081 | 0.051 | 0.071 |
| Currently married | 0.945 | 0.007 | 1263 | 1463 | 1.142 | 0.008 | 0.931 | 0.960 |
| Married by exact age 20 | 0.822 | 0.013 | 1172 | 1353 | 1.195 | 0.016 | 0.795 | 0.849 |
| Children ever born | 5.075 | 0.112 | 1195 | 1383 | 1.104 | 0.022 | 4.852 | 5.299 |
| Children surviving | 4.528 | 0.110 | 1263 | 1463 | 1.262 | 0.024 | 4.308 | 4.749 |
| Know any contraceptive method | 0.837 | 0.017 | 1195 | 1383 | 1.570 | 0.020 | 0.803 | 0.870 |
| Know any modern contraceptive method | 0.779 | 0.020 | 1195 | 1383 | 1.681 | 0.026 | 0.739 | 0.819 |
| Ever used any contraceptive method | 0.465 | 0.019 | 1195 | 1383 | 1.328 | 0.041 | 0.427 | 0.504 |
| Currently using any contraceptive method | 0.245 | 0.017 | 1195 | 1383 | 1.343 | 0.068 | 0.212 | 0.279 |
| Currently using any modern method | 0.102 | 0.012 | 1195 | 1383 | 1.337 | 0.115 | 0.079 | 0.126 |
| Currently using pill | 0.048 | 0.009 | 1195 | 1383 | 1.441 | 0.186 | 0.030 | 0.066 |
| Currently using IUD | 0.033 | 0.007 | 1195 | 1383 | 1.406 | 0.219 | 0.019 | 0.048 |
| Currently using injectables | 0.012 | 0.003 | 1195 | 1383 | 1.094 | 0.285 | 0.005 | 0.019 |
| Currently using condom | 0.001 | 0.001 | 1195 | 1383 | 0.882 | 1.001 | 0.000 | 0.002 |
| Currently using female sterilization | 0.005 | 0.002 | 1195 | 1383 | 1.179 | 0.482 | 0.000 | 0.010 |
| Currently using male sterilization | 0.002 | 0.001 | 1195 | 1383 | 0.858 | 0.580 | 0.000 | 0.004 |
| Currently using periodic abstinence | 0.013 | 0.002 | 1195 | 1383 | 0.676 | 0.172 | 0.008 | 0.017 |
| Currently using withdrawal | 0.005 | 0.002 | 1195 | 1383 | 0.914 | 0.388 | 0.001 | 0.008 |
| Using public sector for contraceptive method | 0.514 | 0.032 | 140 | 142 | 0.761 | 0.063 | 0.450 | 0.579 |
| Want no more children | 0.487 | 0.022 | 1195 | 1383 | 1.525 | 0.045 | 0.442 | 0.531 |
| Want to delay child at least two years | 0.250 | 0.015 | 1195 | 1383 | 1.209 | 0.061 | 0.219 | 0.280 |
| Ideal number of children | 5.235 | 0.124 | 978 | 1105 | 1.332 | 0.024 | 4.987 | 5.484 |
| Mother received at least one tetanus injection | 0.127 | 0.016 | 1516 | 1770 | 1.461 | 0.123 | 0.096 | 0.158 |
| Mother received medical care at delivery | 0.206 | 0.024 | 1516 | 1770 | 1.820 | 0.118 | 0.158 | 0.255 |
| Had diarrhea in the last two weeks | 0.252 | 0.018 | 1418 | 1647 | 1.378 | 0.073 | 0.215 | 0.288 |
| Treated diarrhea with ORS packets | 0.286 | 0.038 | 340 | 414 | 1.405 | 0.132 | 0.211 | 0.362 |
| Consulted medical personnel for diarrhea | 0.256 | 0.027 | 340 | 414 | 1.034 | 0.107 | 0.201 | 0.310 |
| Have seen health card | 0.303 | 0.030 | 265 | 305 | 1.059 | 0.100 | 0.243 | 0.364 |
| Received BCG vaccination | 0.544 | 0.040 | 265 | 305 | 1.295 | 0.074 | 0.464 | 0.625 |
| Received DPT vaccination (three doses) | 0.401 | 0.039 | 265 | 305 | 1.262 | 0.096 | 0.323 | 0.478 |
| Received polio vaccination (three doses) | 0.479 | 0.024 | 265 | 305 | 0.758 | 0.049 | 0.432 | 0.526 |
| Received measles vaccination | 0.488 | 0.043 | 265 | 305 | 1.367 | 0.087 | 0.402 | 0.573 |
| Fully immunized | 0.312 | 0.024 | 265 | 305 | 0.847 | 0.078 | 0.263 | 0.361 |
| Weight-for-height below -2 SD | 0.131 | 0.013 | 958 | 1079 | 1.106 | 0.096 | 0.106 | 0.156 |
| Height-for-age below -2 SD | 0.525 | 0.026 | 958 | 1079 | 1.496 | 0.049 | 0.473 | 0.577 |
| Weight-for-age below -2 SD | 0.499 | 0.021 | 958 | 1079 | 1.169 | 0.041 | 0.458 | 0.540 |

Table C.12 Sampling errors - Hodeida Governorate sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.316 | 0.023 | 734 | 1117 | 1.342 | 0.073 | 0.270 | 0.362 |
| No education | 0.889 | 0.016 | 734 | 1117 | 1.367 | 0.018 | 0.857 | 0.920 |
| Secondary or higher | 0.060 | 0.014 | 734 | 1117 | 1.545 | 0.227 | 0.033 | 0.087 |
| Currently married | 0.953 | 0.008 | 734 | 1117 | 1.009 | 0.008 | 0.937 | 0.969 |
| Married by exact age 20 | 0.867 | 0.018 | 649 | 981 | 1.381 | 0.021 | 0.830 | 0.904 |
| Children ever born | 5.226 | 0.205 | 698 | 1064 | 1.402 | 0.039 | 4.816 | 5.635 |
| Children surviving | 4.096 | 0.171 | 734 | 1117 | 1.521 | 0.042 | 3.755 | 4.438 |
| Know any contraceptive method | 0.856 | 0.025 | 698 | 1064 | 1.909 | 0.030 | 0.806 | 0.907 |
| Know any modern contraceptive method | 0.815 | 0.028 | 698 | 1064 | 1.927 | 0.035 | 0.758 | 0.872 |
| Ever used any contraceptive method | 0.168 | 0.024 | 698 | 1064 | 1.661 | 0.140 | 0.121 | 0.215 |
| Currently using any contraceptive method | 0.076 | 0.014 | 698 | 1064 | 1.369 | 0.180 | 0.049 | 0.104 |
| Currently using any modern method | 0.041 | 0.011 | 698 | 1064 | 1.424 | 0.260 | 0.020 | 0.063 |
| Currently using pill | 0.022 | 0.004 | 698 | 1064 | 0.784 | 0.200 | 0.013 | 0.030 |
| Currently using IUD | 0.012 | 0.005 | 698 | 1064 | 1.110 | 0.383 | 0.003 | 0.021 |
| Currently using injectables | 0.000 | 0.000 | 698 | 1064 | NA | NA | 0.000 | 0.000 |
| Currently using condom | 0.000 | 0.000 | 698 | 1064 | NA | NA | 0.000 | 0.000 |
| Currently using female sterilization | 0.007 | 0.004 | 698 | 1064 | 1.166 | 0.541 | 0.000 | 0.014 |
| Currently using male sterilization | 0.000 | 0.000 | 698 | 1064 | NA | NA | 0.000 | 0.000 |
| Currently using periodic abstinence | 0.008 | 0.003 | 698 | 1064 | 0.841 | 0.363 | 0.002 | 0.013 |
| Currently using withdrawal | 0.006 | 0.004 | 698 | 1064 | 1.247 | 0.601 | 0.000 | 0.014 |
| Using public sector for contraceptive method | 0.561 | 0.086 | 33 | 44 | 0.980 | 0.153 | 0.389 | 0.733 |
| Want no more children | 0.477 | 0.020 | 698 | 1064 | 1.072 | 0.043 | 0.436 | 0.517 |
| Want to delay child at least two years | 0.173 | 0.014 | 698 | 1064 | 0.961 | 0.080 | 0.145 | 0.200 |
| Ideal number of children | 4.344 | 0.142 | 404 | 606 | 0.980 | 0.033 | 4.060 | 4.628 |
| Mother received at least one tetanus injection | 0.188 | 0.022 | 858 | 1323 | 1.406 | 0.119 | 0.143 | 0.232 |
| Mother received medical care at delivery | 0.201 | 0.019 | 858 | 1323 | 1.177 | 0.096 | 0.162 | 0.240 |
| Had diarrhea in the last two weeks | 0.378 | 0.024 | 772 | 1191 | 1.256 | 0.065 | 0.329 | 0.426 |
| Treated diarrhea with ORS packets | 0.339 | 0.027 | 290 | 449 | 0.867 | 0.078 | 0.286 | 0.392 |
| Consulted medical personnel for diarrhea | 0.238 | 0.030 | 290 | 449 | 1.086 | 0.126 | 0.178 | 0.298 |
| Have seen health card | 0.334 | 0.060 | 148 | 224 | 1.532 | 0.178 | 0.215 | 0.453 |
| Received BCG vaccination | 0.497 | 0.059 | 148 | 224 | 1.438 | 0.119 | 0.379 | 0.616 |
| Received DPT vaccination (three doses) | 0.395 | 0.053 | 148 | 224 | 1.317 | 0.135 | 0.288 | 0.501 |
| Received polio vaccination (three doses) | 0.471 | 0.058 | 148 | 224 | 1.415 | 0.124 | 0.355 | 0.588 |
| Received measles vaccination | 0.363 | 0.047 | 148 | 224 | 1.177 | 0.128 | 0.270 | 0.457 |
| Fully immunized | 0.265 | 0.043 | 148 | 224 | 1.185 | 0.163 | 0.179 | 0.351 |
| Weight-for-height below -2 SD | 0.241 | 0.018 | 562 | 867 | 0.960 | 0.074 | 0.205 | 0.277 |
| Height-for-age below -2 SD | 0.526 | 0.024 | 562 | 867 | 1.032 | 0.045 | 0.479 | 0.574 |
| Weight-for-age below -2 SD | 0.590 | 0.024 | 562 | 867 | 1.079 | 0.040 | 0.543 | 0.637 |

NA = Not applicable

Table C.13 Sampling errors - Ibb Governorate sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.118 | 0.011 | 1364 | 1360 | 1.309 | 0.097 | 0.095 | 0.141 |
| No education | 0.864 | 0.010 | 1364 | 1360 | 1.060 | 0.011 | 0.844 | 0.883 |
| Secondary or higher | 0.041 | 0.006 | 1364 | 1360 | 1.176 | 0.154 | 0.028 | 0.053 |
| Currently married | 0.937 | 0.007 | 1364 | 1360 | 1.048 | 0.007 | 0.923 | 0.951 |
| Married by exact age 20 | 0.902 | 0.011 | 1167 | 1163 | 1.267 | 0.012 | 0.880 | 0.925 |
| Children ever born | 5.258 | 0.130 | 1277 | 1274 | 1.206 | 0.025 | 4.998 | 5.517 |
| Children surviving | 4.284 | 0.103 | 1364 | 1360 | 1.208 | 0.024 | 4.079 | 4.490 |
| Know any contraceptive method | 0.884 | 0.017 | 1277 | 1274 | 1.862 | 0.019 | 0.850 | 0.917 |
| Know any modern contraceptive method | 0.809 | 0.026 | 1277 | 1274 | 2.334 | 0.032 | 0.757 | 0.860 |
| Ever used any contraceptive method | 0.416 | 0.019 | 1277 | 1274 | 1.353 | 0.045 | 0.378 | 0.453 |
| Currently using any contraceptive method | 0.215 | 0.014 | 1277 | 1274 | 1.233 | 0.066 | 0.186 | 0.243 |
| Currently using any modern method | 0.100 | 0.011 | 1277 | 1274 | 1.254 | 0.106 | 0.079 | 0.121 |
| Currently using pill | 0.024 | 0.004 | 1277 | 1274 | 0.885 | 0.157 | 0.017 | 0.032 |
| Currently using IUD | 0.024 | 0.008 | 1277 | 1274 | 1.753 | 0.312 | 0.009 | 0.039 |
| Currently using injectables | 0.019 | 0.004 | 1277 | 1274 | 1.102 | 0.221 | 0.011 | 0.028 |
| Currently using condom | 0.000 | 0.000 | 1277 | 1274 | 0.579 | 1.001 | 0.000 | 0.001 |
| Currently using female sterilization | 0.030 | 0.005 | 1277 | 1274 | 0.959 | 0.154 | 0.021 | 0.039 |
| Currently using male sterilization | 0.002 | 0.001 | 1277 | 1274 | 0.942 | 0.631 | 0.000 | 0.004 |
| Currently using periodic abstinence | 0.007 | 0.003 | 1277 | 1274 | 1.173 | 0.405 | 0.001 | 0.012 |
| Currently using withdrawal | 0.004 | 0.002 | 1277 | 1274 | 1.187 | 0.508 | 0.000 | 0.009 |
| Using public sector for contraceptive method | 0.629 | 0.049 | 141 | 128 | 1.206 | 0.078 | 0.531 | 0.728 |
| Want no more children | 0.505 | 0.017 | 1277 | 1274 | 1.234 | 0.034 | 0.470 | 0.539 |
| Want to delay child at least two years | 0.260 | 0.016 | 1277 | 1274 | 1.263 | 0.060 | 0.229 | 0.291 |
| Ideal number of children | 4.649 | 0.104 | 1056 | 1044 | 1.207 | 0.022 | 4.441 | 4.857 |
| Mother received at least one tetanus injection | 0.176 | 0.014 | 1623 | 1630 | 1.209 | 0.077 | 0.148 | 0.203 |
| Mother received medical care at delivery | 0.165 | 0.013 | 1623 | 1630 | 1.185 | 0.078 | 0.139 | 0.191 |
| Had diarrhea in the last two weeks | 0.279 | 0.016 | 1464 | 1468 | 1.245 | 0.058 | 0.247 | 0.311 |
| Treated diarrhea with ORS packets | 0.236 | 0.034 | 409 | 409 | 1.441 | 0.143 | 0.168 | 0.304 |
| Consulted medical personnel for diarrhea | 0.182 | 0.029 | 409 | 409 | 1.337 | 0.158 | 0.125 | 0.240 |
| Have seen health card | 0.257 | 0.040 | 295 | 297 | 1.551 | 0.155 | 0.177 | 0.336 |
| Received BCG vaccination | 0.544 | 0.039 | 295 | 297 | 1.349 | 0.072 | 0.465 | 0.622 |
| Received DPT vaccination (three doses) | 0.384 | 0.036 | 295 | 297 | 1.270 | 0.094 | 0.312 | 0.456 |
| Received polio vaccination (three doses) | 0.458 | 0.034 | 295 | 297 | 1.156 | 0.073 | 0.391 | 0.525 |
| Received measles vaccination | 0.425 | 0.030 | 295 | 297 | 1.028 | 0.069 | 0.366 | 0.484 |
| Fully immunized | 0.261 | 0.032 | 295 | 297 | 1.273 | 0.124 | 0.196 | 0.325 |
| Weight-for-height below -2 SD | 0.103 | 0.014 | 824 | 812 | 1.231 | 0.131 | 0.076 | 0.131 |
| Height-for-age below -2 SD | 0.562 | 0.022 | 824 | 812 | 1.223 | 0.039 | 0.519 | 0.606 |
| Weight-for-age below -2 SD | 0.416 | 0.021 | 824 | 812 | 1.147 | 0.050 | 0.375 | 0.458 |

Table C.14 Sampling errors - Dhamar Governorate sample: Yemen 1997

| Variable | Value (R) | Standard error (SE) | Number of cases Unweighted (N) | Number of cases Weighted (WN) | Design effect (DEFT) | Relative error (SE/R) | Confidence limits R-2SE | Confidence limits R+2SE |
|---|---|---|---|---|---|---|---|---|
| Urban resident | 0.096 | 0.014 | 910 | 838 | 1.390 | 0.141 | 0.069 | 0.123 |
| No education | 0.880 | 0.008 | 910 | 838 | 0.751 | 0.009 | 0.864 | 0.896 |
| Secondary or higher | 0.025 | 0.004 | 910 | 838 | 0.696 | 0.144 | 0.018 | 0.032 |
| Currently married | 0.938 | 0.006 | 910 | 838 | 0.740 | 0.006 | 0.926 | 0.950 |
| Married by exact age 20 | 0.895 | 0.012 | 794 | 726 | 1.122 | 0.014 | 0.870 | 0.919 |
| Children ever born | 5.078 | 0.103 | 855 | 786 | 0.793 | 0.020 | 4.872 | 5.285 |
| Children surviving | 4.058 | 0.097 | 910 | 838 | 0.955 | 0.024 | 3.865 | 4.251 |
| Know any contraceptive method | 0.849 | 0.019 | 855 | 786 | 1.513 | 0.022 | 0.812 | 0.886 |
| Know any modern contraceptive method | 0.838 | 0.019 | 855 | 786 | 1.471 | 0.022 | 0.801 | 0.875 |
| Ever used any contraceptive method | 0.390 | 0.021 | 855 | 786 | 1.233 | 0.053 | 0.349 | 0.431 |
| Currently using any contraceptive method | 0.199 | 0.016 | 855 | 786 | 1.140 | 0.078 | 0.168 | 0.230 |
| Currently using any modern method | 0.074 | 0.009 | 855 | 786 | 0.975 | 0.118 | 0.056 | 0.091 |
| Currently using pill | 0.017 | 0.004 | 855 | 786 | 0.961 | 0.249 | 0.009 | 0.026 |
| Currently using IUD | 0.034 | 0.007 | 855 | 786 | 1.123 | 0.206 | 0.020 | 0.048 |
| Currently using injectables | 0.007 | 0.002 | 855 | 786 | 0.589 | 0.238 | 0.004 | 0.010 |
| Currently using condom | 0.004 | 0.002 | 855 | 786 | 0.889 | 0.488 | 0.000 | 0.008 |
| Currently using female sterilization | 0.012 | 0.004 | 855 | 786 | 1.134 | 0.353 | 0.004 | 0.020 |
| Currently using male sterilization | 0.000 | 0.000 | 855 | 786 | NA | NA | 0.000 | 0.000 |
| Currently using periodic abstinence | 0.004 | 0.002 | 855 | 786 | 1.007 | 0.528 | 0.000 | 0.009 |
| Currently using withdrawal | 0.009 | 0.004 | 855 | 786 | 1.240 | 0.444 | 0.001 | 0.017 |
| Using public sector for contraceptive method | 0.629 | 0.085 | 56 | 58 | 1.305 | 0.135 | 0.459 | 0.799 |
| Want no more children | 0.507 | 0.016 | 855 | 786 | 0.960 | 0.032 | 0.474 | 0.540 |
| Want to delay child at least two years | 0.224 | 0.013 | 855 | 786 | 0.924 | 0.059 | 0.198 | 0.251 |
| Ideal number of children | 4.050 | 0.109 | 747 | 688 | 1.065 | 0.027 | 3.831 | 4.269 |
| Mother received at least one tetanus injection | 0.150 | 0.022 | 1067 | 993 | 1.644 | 0.149 | 0.105 | 0.194 |
| Mother received medical care at delivery | 0.158 | 0.014 | 1067 | 993 | 0.975 | 0.086 | 0.131 | 0.185 |
| Had diarrhea in the last two weeks | 0.365 | 0.014 | 959 | 893 | 0.882 | 0.039 | 0.337 | 0.394 |
| Treated diarrhea with ORS packets | 0.322 | 0.027 | 356 | 326 | 0.968 | 0.085 | 0.267 | 0.376 |
| Consulted medical personnel for diarrhea | 0.207 | 0.033 | 356 | 326 | 1.346 | 0.158 | 0.141 | 0.272 |
| Have seen health card | 0.155 | 0.037 | 170 | 157 | 1.334 | 0.239 | 0.081 | 0.229 |
| Received BCG vaccination | 0.398 | 0.044 | 170 | 157 | 1.177 | 0.111 | 0.309 | 0.486 |
| Received DPT vaccination (three doses) | 0.217 | 0.037 | 170 | 157 | 1.170 | 0.170 | 0.143 | 0.291 |
| Received polio vaccination (three doses) | 0.325 | 0.043 | 170 | 157 | 1.188 | 0.131 | 0.240 | 0.410 |
| Received measles vaccination | 0.301 | 0.038 | 170 | 157 | 1.094 | 0.128 | 0.225 | 0.378 |
| Fully immunized | 0.155 | 0.036 | 170 | 157 | 1.299 | 0.232 | 0.083 | 0.227 |
| Weight-for-height below -2 SD | 0.067 | 0.014 | 545 | 535 | 1.384 | 0.211 | 0.039 | 0.096 |
| Height-for-age below -2 SD | 0.658 | 0.026 | 545 | 535 | 1.179 | 0.039 | 0.606 | 0.709 |
| Weight-for-age below -2 SD | 0.514 | 0.020 | 545 | 535 | 0.871 | 0.038 | 0.475 | 0.553 |

NA = Not applicable

# APPENDIX D

# DATA QUALITY TABLES

Table D.1 Household age distribution

Single-year age distribution of the de jure household population by sex (weighted), Yemen 1997

| | Males | | Females | | | Males | | Females | |
|---|---|---|---|---|---|---|---|---|---|
| Age | Number | Percent | Number | Percent | Age | Number | Percent | Number | Percent |
| <1 | 1,366 | 3.6 | 1,283 | 3.5 | 37 | 246 | 0.7 | 345 | 0.9 |
| 1 | 1,161 | 3.1 | 1,115 | 3.0 | 38 | 334 | 0.9 | 351 | 1.0 |
| 2 | 1,213 | 3.2 | 1,215 | 3.3 | 39 | 204 | 0.5 | 256 | 0.7 |
| 3 | 1,300 | 3.4 | 1,094 | 3.0 | 40 | 406 | 1.1 | 270 | 0.7 |
| 4 | 1,285 | 3.4 | 1,179 | 3.2 | 41 | 214 | 0.6 | 249 | 0.7 |
| 5 | 1,092 | 2.9 | 1,055 | 2.9 | 42 | 293 | 0.8 | 299 | 0.8 |
| 6 | 1,263 | 3.3 | 1,165 | 3.2 | 43 | 182 | 0.5 | 196 | 0.5 |
| 7 | 1,517 | 4.0 | 1,426 | 3.9 | 44 | 104 | 0.3 | 145 | 0.4 |
| 8 | 1,348 | 3.6 | 1,309 | 3.6 | 45 | 312 | 0.8 | 219 | 0.6 |
| 9 | 1,136 | 3.0 | 1,095 | 3.0 | 46 | 220 | 0.6 | 198 | 0.5 |
| 10 | 1,466 | 3.9 | 1,421 | 3.9 | 47 | 182 | 0.5 | 161 | 0.4 |
| 11 | 1,009 | 2.7 | 985 | 2.7 | 48 | 154 | 0.4 | 180 | 0.5 |
| 12 | 1,409 | 3.7 | 1,192 | 3.2 | 49 | 131 | 0.3 | 121 | 0.3 |
| 13 | 1,163 | 3.1 | 1,102 | 3.0 | 50 | 244 | 0.6 | 178 | 0.5 |
| 14 | 1,137 | 3.0 | 995 | 2.7 | 51 | 140 | 0.4 | 208 | 0.6 |
| 15 | 1,077 | 2.9 | 1,087 | 3.0 | 52 | 200 | 0.5 | 361 | 1.0 |
| 16 | 997 | 2.6 | 994 | 2.7 | 53 | 133 | 0.4 | 220 | 0.6 |
| 17 | 808 | 2.1 | 806 | 2.2 | 54 | 131 | 0.3 | 173 | 0.5 |
| 18 | 1,008 | 2.7 | 971 | 2.6 | 55 | 245 | 0.6 | 219 | 0.6 |
| 19 | 624 | 1.7 | 676 | 1.8 | 56 | 170 | 0.4 | 202 | 0.5 |
| 20 | 833 | 2.2 | 828 | 2.2 | 57 | 121 | 0.3 | 138 | 0.4 |
| 21 | 453 | 1.2 | 521 | 1.4 | 58 | 105 | 0.3 | 147 | 0.4 |
| 22 | 632 | 1.7 | 613 | 1.7 | 59 | 72 | 0.2 | 86 | 0.2 |
| 23 | 457 | 1.2 | 471 | 1.3 | 60 | 327 | 0.9 | 227 | 0.6 |
| 24 | 442 | 1.2 | 486 | 1.3 | 61 | 91 | 0.2 | 83 | 0.2 |
| 25 | 618 | 1.6 | 574 | 1.6 | 62 | 149 | 0.4 | 147 | 0.4 |
| 26 | 437 | 1.2 | 500 | 1.4 | 63 | 96 | 0.3 | 92 | 0.2 |
| 27 | 406 | 1.1 | 416 | 1.1 | 64 | 104 | 0.3 | 57 | 0.2 |
| 28 | 404 | 1.1 | 459 | 1.2 | 65 | 205 | 0.5 | 118 | 0.3 |
| 29 | 263 | 0.7 | 315 | 0.9 | 66 | 125 | 0.3 | 72 | 0.2 |
| 30 | 514 | 1.4 | 459 | 1.2 | 67 | 97 | 0.3 | 68 | 0.2 |
| 31 | 222 | 0.6 | 332 | 0.9 | 68 | 65 | 0.2 | 56 | 0.2 |
| 32 | 370 | 1.0 | 416 | 1.1 | 69 | 45 | 0.1 | 38 | 0.1 |
| 33 | 257 | 0.7 | 308 | 0.8 | 70+ | 1,103 | 2.9 | 848 | 2.3 |
| 34 | 217 | 0.6 | 305 | 0.8 | Don't know missing | 8 | 0.0 | 8 | 0.0 |
| 35 | 551 | 1.5 | 464 | 1.3 | | | | | |
| 36 | 359 | 0.9 | 453 | 1.2 | | | | | |
| | | | | | Total | 37,768 | 100.0 | 36,820 | 100.0 |

Table D.2 Age distribution of eligible and interviewed women and men

Percent distribution of the de jure household population of women age 10-54, and the percentage of women who were interviewed (weighted) by five-year age groups, Yemen 1997

| Age | Household population | | Ever-married women | | Ever-married women interviewed | | Percent interviewed (weighted) |
|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | |
| 10-14 | 5,695 | 36.9 | NA | NA | NA | NA | NA |
| 15-19 | 4,534 | 29.4 | 1,214 | 11.0 | 1,091 | 10.7 | 89.9 |
| 20-24 | 2,920 | 18.9 | 2,123 | 19.3 | 1,956 | 19.1 | 92.1 |
| 25-29 | 2,264 | 14.7 | 2,050 | 18.7 | 1,911 | 18.7 | 93.2 |
| 30-34 | 1,821 | 11.8 | 1,751 | 15.9 | 1,653 | 16.1 | 94.4 |
| 35-39 | 1,869 | 12.1 | 1,832 | 16.7 | 1,740 | 17.0 | 95.0 |
| 40-44 | 1,160 | 7.5 | 1,143 | 10.4 | 1,077 | 10.5 | 94.3 |
| 45-49 | 878 | 5.7 | 871 | 7.9 | 817 | 8.0 | 93.8 |
| 50-54 | 1,140 | 7.4 | NA | NA | NA | NA | NA |
| 15-49 | 15,446 | NA | 10,984 | NA | 10,246 | NA | 93.3 |

NA = Not applicable

Table D.3 Completeness of reporting

Percentage of observations missing information for selected demographic and health questions (weighted), Yemen 1997

| Subject | Reference group | Percentage missing information | Number of cases |
|---|---|---|---|
| **Birth date** | Births in last 15 years | | |
| Month only | | 60.15 | 37,346 |
| Month and year | | 0.13 | 37,346 |
| Age at death | Deaths to births in last 15 years | 0.55 | 4,672 |
| Age/date at first marriage[1] | Ever-married women | 1.14 | 10,414 |
| Respondent's education | All women | 0.12 | 10,414 |
| Child's size at birth | Births in last 59 months | 57.57 | 1,052 |
| **Anthropometry**[2] | Living children age 0-59 months | | |
| Height missing | | 6.85 | 11,601 |
| Weight missing | | 5.34 | 11,601 |
| Height or weight missing | | 7.01 | 11,601 |
| Diarrhea in last 2 weeks | Living children age 0-35 months | 0.44 | 11,601 |

[1] Both year and age missing
[2] Child not measured

Table D.4 Births by calendar years

Distribution of births by Western calendar years for living (L), dead (D), and all (T) children, according to reporting completeness, sex ratio at birth, and ratio of births by calendar year, Yemen 1997

| | Number of births | | | Percentage with complete birth date[1] | | | Sex ratio at birth[2] | | | Calendar ratio[3] | | | Male | | | Female | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | L | D | T | L | D | T | L | D | T | L | D | T | L | D | T | L | D | T |
| 94 | 2,436 | 151 | 2,586 | 93.8 | 84.5 | 93.2 | 105.9 | 163.9 | 108.6 | NA | NA | NA | 1,253 | 94 | 1,346 | 1,183 | 57 | 1,240 |
| 93 | 2,213 | 239 | 2,453 | 83.2 | 60.2 | 81.0 | 103.4 | 150.3 | 107.1 | 92.8 | 118.2 | 94.8 | 1,125 | 144 | 1,269 | 1,088 | 96 | 1,184 |
| 92 | 2,332 | 254 | 2,586 | 70.6 | 47.5 | 68.3 | 95.0 | 104.7 | 95.9 | 104.7 | 107.3 | 104.9 | 1,136 | 130 | 1,266 | 1,196 | 124 | 1,320 |
| 91 | 2,243 | 235 | 2,477 | 65.9 | 36.4 | 63.1 | 115.0 | 138.8 | 117.1 | 96.4 | 104.6 | 97.1 | 1,200 | 136 | 1,336 | 1,043 | 98 | 1,141 |
| 90 | 2,319 | 194 | 2,514 | 61.8 | 35.8 | 59.8 | 112.7 | 134.1 | 114.2 | 107.8 | 78.9 | 104.9 | 1,229 | 111 | 1,340 | 1,090 | 83 | 1,173 |
| 89 | 2,059 | 258 | 2,317 | 57.3 | 30.9 | 54.4 | 107.2 | 118.3 | 108.4 | 90.0 | 81.8 | 89.0 | 1,066 | 140 | 1,205 | 994 | 118 | 1,112 |
| 88 | 2,255 | 435 | 2,690 | 31.1 | 15.3 | 28.5 | 108.7 | 119.1 | 110.3 | 95.2 | 141.9 | 100.6 | 1,175 | 237 | 1,411 | 1,081 | 199 | 1,279 |
| 87 | 2,678 | 356 | 3,034 | 23.8 | 16.0 | 22.9 | 106.8 | 115.9 | 107.9 | 116.0 | 88.3 | 111.9 | 1,383 | 191 | 1,574 | 1,295 | 165 | 1,460 |
| 86 | 2,364 | 370 | 2,735 | 21.5 | 12.3 | 20.2 | 100.8 | 131.1 | 104.4 | 101.1 | 99.5 | 100.9 | 1,187 | 210 | 1,397 | 1,177 | 160 | 1,338 |
| 85 | 1,999 | 389 | 2,388 | 20.6 | 11.7 | 19.2 | 105.4 | 82.2 | 101.2 | NA | NA | NA | 1,026 | 175 | 1,201 | 973 | 213 | 1,187 |
| 90-94 | 11,543 | 1,073 | 12,616 | 75.2 | 51.0 | 73.2 | 106.1 | 134.2 | 108.2 | NA | NA | NA | 5,943 | 615 | 6,558 | 5,600 | 458 | 6,058 |
| 85-89 | 11,356 | 1,807 | 13,164 | 30.3 | 16.3 | 28.3 | 105.7 | 111.4 | 106.5 | NA | NA | NA | 5,836 | 952 | 6,789 | 5,520 | 855 | 6,375 |
| 80-84 | 9,757 | 1,779 | 11,536 | 17.9 | 8.4 | 16.5 | 109.2 | 120.8 | 110.9 | NA | NA | NA | 5,092 | 973 | 6,066 | 4,665 | 806 | 5,471 |
| 75-79 | 6,322 | 1,625 | 7,946 | 15.3 | 7.3 | 13.7 | 102.7 | 112.4 | 104.6 | NA | NA | NA | 3,203 | 860 | 4,063 | 3,119 | 765 | 3,884 |
| < 75 | 4,040 | 1,679 | 5,720 | 13.3 | 5.3 | 11.0 | 109.1 | 122.1 | 112.8 | NA | NA | NA | 2,108 | 923 | 3,031 | 1,932 | 756 | 2,688 |
| All | 43,019 | 7,964 | 50,982 | 35.7 | 15.0 | 32.5 | 106.5 | 118.8 | 108.3 | NA | NA | NA | 22,182 | 4,324 | 26,506 | 20,836 | 3,640 | 24,476 |

NA = Not applicable

[1] Both year and month of birth given

[2] $(B_m/B_f)*100$, where $B_m$ and $B_f$ are the numbers of male and female births, respectively

[3] $[2B_x/(B_{x-1}+B_{x+1})]*100$, where $B_x$ is the number of births in calendar year $x$

Table D.5 Reporting of age at death in days

Distribution of reported deaths under one month of age by age at death in days and the percentage of neonatal deaths reported to occur at ages 0-6 days, for five-year periods preceding the survey (unweighted), Yemen 1997

| Age at death (in days) | Number of years preceding the survey | | | | Total |
|---|---|---|---|---|---|
| | 0-4 | 5-9 | 10-14 | 15-19 | 0-19 |
| <1 | 87 | 108 | 80 | 77 | 352 |
| 1 | 89 | 160 | 100 | 86 | 436 |
| 2 | 39 | 47 | 31 | 33 | 150 |
| 3 | 46 | 51 | 45 | 45 | 187 |
| 4 | 10 | 14 | 13 | 11 | 48 |
| 5 | 15 | 20 | 17 | 14 | 66 |
| 6 | 10 | 7 | 12 | 8 | 37 |
| 7 | 23 | 53 | 54 | 52 | 182 |
| 8 | 5 | 10 | 15 | 11 | 42 |
| 9 | 4 | 4 | 1 | 5 | 14 |
| 10 | 11 | 21 | 20 | 14 | 66 |
| 11 | 3 | 2 | 3 | 4 | 12 |
| 12 | 4 | 7 | 6 | 6 | 23 |
| 13 | 0 | 0 | 2 | 0 | 2 |
| 14 | 17 | 19 | 15 | 16 | 67 |
| 15 | 30 | 44 | 32 | 26 | 132 |
| 16 | 4 | 2 | 0 | 1 | 7 |
| 17 | 1 | 0 | 0 | 0 | 1 |
| 18 | 1 | 3 | 0 | 2 | 6 |
| 19 | 0 | 3 | 0 | 0 | 3 |
| 20 | 12 | 20 | 31 | 24 | 88 |
| 21 | 3 | 6 | 6 | 7 | 23 |
| 22 | 3 | 5 | 1 | 1 | 10 |
| 23 | 0 | 0 | 1 | 1 | 2 |
| 24 | 0 | 3 | 1 | 0 | 4 |
| 25 | 1 | 4 | 8 | 2 | 14 |
| 26 | 0 | 1 | 0 | 0 | 1 |
| 27 | 0 | 0 | 1 | 0 | 1 |
| 28 | 2 | 0 | 2 | 1 | 5 |
| 29 | 0 | 0 | 1 | 2 | 3 |
| 30 | 2 | 4 | 5 | 2 | 12 |
| 31+ | 0 | 3 | 3 | 1 | 6 |
| Missing | 1 | 1 | 0 | 1 | 4 |
| Percent early neonatal[1] | 69.8 | 65.9 | 59.1 | 60.5 | 63.9 |
| Total 0-30[2] | 425 | 619 | 502 | 451 | 1,997 |

[1] (0-6 days/0-30 days) * 100
[2] Includes cases for which age at death (in exact days) is not known

Table D.6 Reporting of age at death in months

Distribution of reported deaths under two years of age by age at death in months and the percentage of infant deaths reported to occur at ages under one month, for five-year periods preceding the survey (unweighted), Yemen 1997

| Age at death (in months) | Number of years preceding the survey | | | | Total |
|---|---|---|---|---|---|
| | 0-4 | 5-9 | 10-14 | 15-19 | 0-19 |
| <1[a] | 427 | 621 | 502 | 452 | 2,002 |
| 1 | 100 | 116 | 125 | 108 | 449 |
| 2 | 54 | 85 | 84 | 99 | 321 |
| 3 | 44 | 70 | 93 | 78 | 284 |
| 4 | 40 | 86 | 71 | 66 | 262 |
| 5 | 39 | 71 | 78 | 56 | 245 |
| 6 | 52 | 72 | 88 | 56 | 268 |
| 7 | 36 | 76 | 61 | 60 | 232 |
| 8 | 42 | 49 | 70 | 56 | 217 |
| 9 | 37 | 58 | 49 | 41 | 185 |
| 10 | 14 | 12 | 15 | 18 | 58 |
| 11 | 8 | 5 | 7 | 3 | 22 |
| 12 | 68 | 134 | 141 | 151 | 494 |
| 13 | 4 | 4 | 3 | 2 | 12 |
| 14 | 6 | 10 | 1 | 3 | 20 |
| 15 | 9 | 1 | 2 | 6 | 18 |
| 16 | 0 | 7 | 4 | 3 | 13 |
| 17 | 2 | 5 | 10 | 7 | 23 |
| 18 | 15 | 18 | 13 | 13 | 60 |
| 19 | 2 | 3 | 2 | 4 | 10 |
| 20 | 4 | 2 | 0 | 2 | 8 |
| 21 | 2 | 0 | 0 | 0 | 2 |
| 22 | 4 | 1 | 1 | 1 | 7 |
| 23 | 2 | 1 | 0 | 3 | 6 |
| 24+ | 0 | 0 | 0 | 2 | 2 |
| Missing | 0 | 0 | 0 | 2 | 2 |
| 1 year | 12 | 27 | 24 | 27 | 90 |
| Percent neonatal[b] | 47.9 | 47.0 | 40.5 | 41.5 | 44 |
| Total 0-11[c] | 891 | 1,322 | 1,242 | 1,091 | 4,546 |

[a] Includes deaths under 1 month reported in days
[b] (1 month/under 1 year) * 100
[c] Includes cases for which age at death (in exact months) is not known

# APPENDIX E

# QUESTIONNAIRES

REPUBLIC OF YEMEN

MINISTRY OF PLANNING AND DEVELOPMENT

CENTRAL STATISTICAL ORGANIZATON

YEMEN DEMOGRAPHIC AND MATERNAL AND CHILD HEALTH SURVEY

# 1. HOUSEHOLD AND HOUSING QUESTIONNAIRE

Second Round 1997

With the cooperation of
Ministry of Public Health, Central Statistical Organization,
and the Demographic and Health Survey Project (DHS), and USAID

LINE NUMBER OF HH QUES. RESPONDENT ☐☐ TYPE OF HH ☐ MALE ☐☐ FEMALE ☐☐ TOTAL ☐☐

## 1. HOUSEHOLD ROSTER

| LINE NUMBER | NAME | SEX | | RELATIONSHIP | RESIDENCE | | AGE | | ORPHANHOOD AND FOSTERING | | | | | | LINE NUMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 101 Please give me the names of the persons who usually live in your household starting with the head of the household? | 102 Is (NAME) male or female? | | 103 What is the relationship of (NAME) to the head of household? | 104 Does (NAME) usually live here? | | 105 How old is (NAME) now? IF LESS THAN 6 : in years and months. | | 106 Is (NAME's) father still alive? IF NOT GO TO 108 | | 107 IF (NAME) LESS THAN 15, ASK: Does (NAME's) father live in this household? WRITE LINE NUMBER* | 108 Is (NAME's) mother still alive? IF NOT GO TO 110 | | 109 IF (NAME) LESS THAN 15, ASK: Does (NAME's) mother live in this household? WRITE LINE NUMBER* | |
| | | MALE | FEMALE | | YES | NO | MONTHS | YEARS | YES | NO | | YES | NO | | |
| 01 | | 1 | 2 | HEAD OF HH ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 01 |
| 02 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 02 |
| 03 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 03 |
| 04 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 04 |
| 05 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 05 |
| 06 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 06 |
| 07 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 07 |
| 08 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 08 |
| 09 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 09 |
| 10 | | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | ☐☐ | 1 | 2 | ☐☐ | 1 | 2 | ☐☐ | 10 |

JUST TO MAKE SURE I HAVE A COMPLETE LISTING:

1. Are there any other persons, such as small children or infants that we have not listed?
   YES ☐ NO ☐

2. In addition, are there any other people who may not be members of your family, such as domestic servants or friends or lodgers who usually live here?
   YES ☐ NO ☐

IF ANSWER IS 'YES' ENTER EACH IN TABLE

CODES 103:
01 = HEAD
02 = WIFE OR HUSBAND
03 = SON OR DAUGHTER
04 = SON/DAUGTHER-IN-LAW
05 = GRAND SON/DAUGTHER
06 = PARENTS
07 = PARENT-IN-LAW
08 = BROTHER OR SISTER
09 = CO-WIFE
10 = OTHER RELATIVE
11 = ADOPTED CHILD
12 = STEP CHILD
13 = BROTHER/SISTER-IN-LAW
14 = NEPHEW
15 = NOT RELATED
98 = DON'T KNOW

* IF FATHER MOTHER NOT A MEMBER OF HOUSEHOLD WRITE "00"

| | EDUCATION | | | | | MARITAL STATUS | | | ECONOMIC ACTIVITY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PERSONS 6 AND OVER | | | | PERSONS AGE 10 & OVER | PERSONS AGE 10 YEARS OR MORE | | | PERSONS AGE 10 YEARS OR MORE | | | |
| LINE NUMBER | 110 Is (NAME) currently attending school, or has he/she ever attended school? 1. YES CURRENTLY 2. YES, NOT CURRENTLY 3. NOT ATTENDED | | | 111 What is the highest grade (NAME) completed? GRADE/LEVEL | 112 What is the educational status of (NAME)? CODES: 01= ILLITERATE 02= READ+ WRITE 03= PRIMARY 04= UNIFIED 05= PREPARATORY 06= BASIC 07= PRE-SECOND. DIPLOMA 08= SECONDARY 09= POST SECON. 10= COLLEGE+ 98= DON'T KNOW | 113 What is the marital status of (NAME)? CODES: 1. Single 2.Only contract 3.Married 4.Divorced 5.Widowed | 114 Is first spouse of (NAME) alive? | | | 115 What is the work status of (NAME)? SEE CODES BELOW | 116 What is his/her status in employment? CODES: | 117 IF CURRENTLY WORKING Q115=1,3,OR 4 ASK: What is (was) his/her main occupation? OCCUPATION | 118 CIRCL THE LINE NUMBER OF ELIGEBLE WOMEN |
| | YC | YNC | NO | | | | YES | NO | DK | | | | |
| 01 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 01 |
| 02 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 02 |
| 03 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 03 |
| 04 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 04 |
| 05 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 05 |
| 06 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 06 |
| 07 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 07 |
| 08 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 08 |
| 09 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 09 |
| 10 | 1 | 2 | 3 | ☐☐☐ | ☐☐ | ☐ | 1 | 2 | 8 | ☐☐ | ☐ | ☐☐ | 10 |

☐ MARK AN X IN THE BOX IF ADDITIONAL QUESTIONNAIRES USED.

IF 113 = 1 OR 2, SKIP TO 115

CODES FOR QUESTION 115
01 = WORKING
02 = UNEMPLOYED
03 = HOUSEWIFE AND WORKING
04 = STUDENT AND WORKING
05 = SEEKING WORK FOR FIRST TIME
06 = HOME MAKER
07 = STUDENT
08 = INCOME RECIPIENT
09 = PENSIONIST
10 = INCAPCITATED
98 = DON'T KNOW

CODES FOR QUESTION 116
1. SALARIED EMPLOYEE
2. OWN BUSINESS
3. EMPLOYER
4. UNPAID FAMILY WORKER
5. UNPAID NONFAMILY WORKER

-2-

| FERTILITY AND CHILD SURVIVAL (For ever married women 15-49) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 201 Name and line number in Household Roster | | Children Ever Born | | | | | | 205 | |
| | | 202 Total number of living births | | 203 Total number of living children | | 204 Total number of children born alive who later died. | | Births during the year preceding the survey (1st Oct. 1996 to 30 Sept '97) | |
| | | Male | Female | Male | Female | Male | Female | Male | Female |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

* CHECK TOTAL 203 AND 204 = 202

| 3. GENERAL MORTALITY | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 301 During the past 24 months, has any of the usual members of this household died? YES 1 NO 2 IF 'NO' GO TO HOUSING CHARACTERISTIC SECTION, 401 | | | | | | | | | | 307 FOR WOMEN 15-49, ASK; Was death of (NAME) due to delivery or pregnancy or peurparium? | |
| 302 Name | | 303 Relationship to the head of household | | 304 SEX | | 305 Age at death | | 306 Date of death | | | |
| | | | | M | F | Month | Year | Month | Year | Yes | No |
| 1 | | | | 1 | 2 | | | | | 1 | 2 |
| 2 | | | | 1 | 2 | | | | | 1 | 2 |
| 3 | | | | 1 | 2 | | | | | 1 | 2 |
| 4 | | | | 1 | 2 | | | | | 1 | 2 |
| 5 | | | | 1 | 2 | | | | | 1 | 2 |

HOUSING SECTION

## Section 4 : Housing

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 401 | What type of dwelling unit does your household occupy? | Independent house/Villa | 1 | |
| | | Apartment in building | 2 | |
| | | Hut | 3 | |
| | | Sandika | 4 | 406 |
| | | Other(specify) ———— | 8 | |
| 402 | Is your (NAME OF THE DWELLING) owned or is it rented? | Owned | 1 | |
| | | Rented | 2 | |
| | | Other(specify) ———— | 6 | |
| 403 | What kind of material is the floor made from?<br><br>RECORD MAIN TYPE | Earth | 11 | |
| | | Cement | 12 | |
| | | Stone/Mud | 13 | |
| | | Gypsim | 14 | |
| | | Tile | 15 | |
| | | Wood | 16 | |
| | | Marble | 17 | |
| | | Other(specify) ———— | 96 | |
| 404 | How many rooms are there in this dwelling for the exclusive use of this household? | Number of rooms | ☐☐ | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 405 | Of this number how many are bedrooms or used for sleeping? | Number of rooms | ☐☐ | |
| 406 | Do you keep any animals in any part of the dwelling? | Yes, inside dwelling | 1 | |
| | | Yes, outside dwelling | 2 | |
| | | No | 3 | |

## Section 2 : COOKING

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 407 | Is there a special room used for cooking inside or outside your dwelling? | Yes: Inside dwelling | 1 | |
| | | Yes: Outside dwelling | 2 | |
| | | No | 3 | 409 |
| 408 | What fuel is used for cooking?<br><br>RECORD ALL ANSWERS | Gas | A | |
| | | Wood | B | |
| | | Kerosene | C | |
| | | Coal/Charcoal | D | |
| | | Electricity | E | |
| | | Other(specify) _____ | X | |

## Section 3 : WATER

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 409 | What is the major source of drinking water for members of household? | Piped inside the dwelling | 11 | |
| | | Pipe outside the dwelling | 12 | |
| | | Well with pump | 13 | |
| | | Regular well | 14 | |
| | | Stream | 15 | |
| | | Covered pool | 16 | |
| | | Uncovered pool | 17 | |
| | | Bottled water | 18 | |
| | | Tanker truck | 19 | |
| | | Other(specify) ———— | 96 | |
| 410 | How do you treat drinking water to purify it in your house? | Boiling | 1 | |
| | | Distilation | 2 | |
| | | Chlorination | 3 | |
| | | Filteration | 4 | |
| | | Treated at the source | 5 | |
| | | Other(specify) ———— | 6 | |
| | | No treatment | 7 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 411 | Where is this source of drinking water located? | Within dwelling | 1 | 414 |
| | | Outside dwelling | 2 | |
| 412 | How long does it take you to go to the source from household and come back? | Time (Minutes) | ☐☐☐ | |
| 413 | Who usually brings the water?<br><br>IF THE ANSWER IS "SAKKA" MENTION THE WAY SAKKA BRINGS WATER | Children | 11 | |
| | | Adult women | 12 | |
| | | Adult men | 13 | |
| | | 'Sakka' on his back | 14 | |
| | | 'Sakka'(truck with tank) | 15 | |
| | | 'Sakka' using animals | 16 | |
| | | 'Sakka' with other means | 96 | |
| 414 | Do you buy this water? | Yes | 1 | |
| | | No | 2 | |
| 415 | What kind of container do you use to store water in your home? | Concrete/zinc water tank | 1 | |
| | | Plastic container | 2 | |
| | | Earthern pots | 3 | |
| | | Tin | 4 | |
| | | Bottles | 5 | |
| | | Other(specify) ———— | 6 | |
| | | No storage | 7 | |

## Section 4 : LIGHTING

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 416 | What kind of lighting does this unit have? | Government electricity | 11 | |
| | | Cooperative electricity | 12 | |
| | | Private electricity | 13 | |
| | | Own generator | 14 | |
| | | Gas | 15 | |
| | | Kerosene/Oil lamps/Candle | 16 | |
| | | Other(specify) ———— | 96 | |
| | | None | 17 | |

## Section 5 : SANITATION

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 417 | What type of toilet facilities are available for this household? | Flush toilet connected to sewer | 11 | |
| | | Flush toilet not connec--ted to sewer | 12 | |
| | | Bucket | 13 | |
| | | Pit | 14 | |
| | | Toilet connected to an open drainage | 15 | |
| | | Open air | 16 | 419 |
| | | Other(specify) ———— | 96 | |

Section 6 : WASTE DISPOSAL

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 418 | Do you use soap when you wash your hands after going to bathroom? | Yes | 1 | |
| | | No | 2 | |

Section 6 : WASTE DISPOSAL

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 419 | How do you dispose of the garbage? | Garbage collector | 1 | |
| | | Dumping in special place | 2 | |
| | | Burning | 3 | |
| | | Thrown in street | 4 | |
| | | Other(specify):———— | 6 | |

## Section 7 : OWNERSHIP OF OBJECTS AND ASSETS

| | QUESTIONS | CODING CATEGORIES | | |
|---|---|---|---|---|
| | | Yes | Number | No |
| 420 | Do you have any of the following objects at this dwelling: | | | |
| | 1. Radio with cassette recorder | 1 | | 2 |
| | 2. Radio | 1 | | 2 |
| | 3. Black & White TV | 1 | | 2 |
| | 4. Colour TV | 1 | | 2 |
| | 5. Video | 1 | | 2 |
| | 6. Refrigerator | 1 | | 2 |
| | 7. Gas/Electric cooking stove | 1 | | 2 |
| | 8. Water heater | 1 | | 2 |
| | 9. Sewing machine | 1 | | 2 |
| | 10. Electric fan | 1 | | 2 |
| | 11. Washing machine | 1 | | 2 |
| | 12. Telephone | 1 | | 2 |
| | 13. Air conditioner | 1 | | 2 |
| | 14. Vacuum cleaner | 1 | | 2 |
| | 15. Blender | 1 | | 2 |
| | 16. Bicycle | 1 | | 2 |
| | 17. Motorcycle | 1 | | 2 |
| | 18. Private car | 1 | | 2 |
| | 19. Taxi | 1 | | 2 |
| | 20. Satellite dish (private/collective) | 1 | | 2 |

## Section 8 : SALT

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 421 | What type of salt is usually used for cooking in your household?<br>ASK TO SEE THE SALT. | Powder salt | 1 | |
| | | Powder rock salt | 2 | |
| | | Powder sea salt | 3 | |
| | | Don't use salt | 4 | |
| | | Other(specify):———— | 6 | |
| 422 | SALT TEST RESULT | SALT HAS IODINE | 1 | |
| | | SALT WITH NO IODINE | 2 | |
| | | SALT NOT TESTED | 3 | |

## Section 9 : SURROUNDINGS

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 423 | INTERVIEWER: Observe around the dwelling and circle appropriate response. | Clean | 1 | |
| | | Dirty | 2 | |
| | | Stagnant water | 3 | |
| | | Sewage overflow | 4 | |

REPUBLIC OF YEMEN

MINISTRY OF PLANNING AND DEVELOPMENT

CENTRAL STATISTICAL ORGANIZATON

# YEMEN DEMOGRAPHIC AND MATERNAL AND CHILD HEALTH SURVEY

## 2. MATERNAL AND CHILD HEALTH QUESTIONNAIRE

SECOND ROUND--1997

With the cooperation of
Ministry of Public Health, Central Statistical Organization,
and the Demographic and Health Survey Project (DHS), and USAID

# 2-MATERNAL AND CHILD HEALTH QUESTIONNAIRE

(For All Ever-Married Women 15-49)

2

## IDENTIFICATION

Governorate : _____ Governo. ___

District: _____ District ___

Urban = 1 Rural = 2 Urban/rur. ___

Cluster Name: _____ Cluster No. _____ C. No. ___

Household Number : _____ H. No ___

Name and Line Number of women in Household Question. L.of W. ___

_____

| INTERVIEWER VISITS | 1 | 2 | 3 |
|---|---|---|---|
| TEAM NUMBER | ..... | ..... | ..... |
| Date of visit | / /199 ..... | / /199 ..... | / /199 ..... |
| Name of interviewer | ..... | ..... | ..... |
| Result Code* | ☐ | ☐ | ☐ |
| Next visit | | | |
| Date | ../ /199.. | .././199.. | |
| Time | ..... | ..... | |

Team ___ D. ___ M. ___ Year 1 9 9 ___ Inter. ___ Result ☐ # Visits ☐

* Result codes:

1. Completed
2. Not at home
3. Postponed
4. Refused
5. Partly completed
6. Incapacitated
7. Other (specify) _____

| | Supervisor | Field Editing | Office Editing | Coding | Data Entry |
|---|---|---|---|---|---|
| Name | | | | | |
| Signature | | | | | |
| Date | / /199 | / /199 | / /199 | / /199 | / /199 |

## SECTION 1. RESPONDENT'S BACKGROUND

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 101 | RECORD THE TIME. | HOUR..... [ ][ ]<br>MINUTES..... [ ][ ] | |
| 102 | In what month and year were you born? | MONTH...(Don't know = 98).. [ ][ ]<br>YEAR...(Don't know = 98)... [ ][ ] | |
| 103 | How old were you at your last birthday?<br>COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT. IF RESPONDENT IS OVER 50 YEARS, TERMINATE INTERVIEW. IF AGE NOT KNOWN, PROBE WITH AGE AT FIRST MARRIAGE *AND/OR AGE AT FIRST BIRTH* | AGE IN COMPLETED YEARS..... [ ][ ] | |
| 104 | Have you always lived in (NAME OF THE CURRENT PLACE OF RESIDENCE)? | YES.....1<br>NO.....2 | →110 |
| 105 | How long have you been living continuously in (NAME OF CURRENT PLACE OF RESIDENCE)? | YEARS..... [ ][ ] | |
| 106 | Why did you move to (NAME OF THE CURRENT PLACE OF RESIDENCE)? | MARRIAGE.....11<br>WORK.....12<br>STUDY.....13<br>HUSBAND MOVED.....14<br>PARENTS MOVED.....15<br>CHILDREN MOVED.....16<br>OTHER_____ 96<br>(SPECIFY) | →108<br>→108 |
| 107 | Was the move before your marriage (first) or after? | BEFORE.....1<br>AFTER.....2<br>AT THE TIME OF MARRIAGE.....3 | |
| 108 | Just before you moved here, did you live in a city, in a town, or in the countryside? | CITY.....1<br>TOWN.....2<br>COUNTRYSIDE.....3 | |
| 109 | For most of the time until you were 12 years old, did you live in a city, in a town, or in the countryside? | CITY.....1<br>TOWN.....2<br>COUNTRYSIDE.....3 | |
| 110 | Have you ever attended school? | YES, currently in school.....1<br>YES, attended in past.....2<br>NO.....3 | →112<br>→115 |
| 111 | What was the main reason you stopped attending school? | GOT MARRIED.....11<br>GOT PREGNANT.....12<br>TO CARE FOR YOUNGER CHILDREN...13<br>FAMILY NEEDED HELP ON FARM OR IN BUSINESS.....14<br>COULD NOT PAY SCHOOL FEES.....15<br>NEEDED TO EARN MONEY.....16<br>GRADUATED/HAD ENOUGH SCHOOLING.17<br>DID NOT LIKE SCHOOL.....18<br>SCHOOL NOT ACCESSIBLE/TOO FAR..19<br>OTHER_____ 96<br>(SPECIFY)<br>DON'T KNOW.....98 | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 112 | What is the highest level of school you attended? | UNIFIED (1-8 YEARS).....12<br>PRIMARY.....13<br>PREPARATORY (7-9).....14<br>BASIC (1-9).....15<br>PRE-SECONDARY DIPLOMA.....16<br>SECONDARY.....17<br>POST SECONDARY DIPLOMA.....18<br>COLLEGE.....19 | |
| 113 | What is the highest grade or year you completed at that level? | GRADE/YEAR..... [ ][ ] | |
| 114 | CHECK 112 AND 113:<br>EQUIVALENT OR LESS THAN FOUR YEARS [ ]<br>MORE THAN FOUR YEARS OF SCHOOLING [ ] | | →117 |
| 115 | Can you read a letter or newspaper easily, with difficulty or you cannot? | YES, EASILY.....1<br>YES, WITH DIFFICULTY.....2<br>NO.....3 | →118 |
| 116 | Can you write for example a letter? | YES.....1<br>NO.....2 | →118 |
| 117 | Do you usually read a newspaper or magazine at least once a week? | YES.....1<br>NO.....2 | |
| 118 | Do you usually watch local television at least once a week? | YES.....1<br>NO.....2 | →120 |
| 119 | What is the time most suitable for you to watch television?<br><br>MARK ALL RESPONSES MENTIONED | FROM MORNING TO NOON.....A<br>FROM NOON TO EVENING.....B<br>FROM EVENING TO 9 P.M.....C<br>AFTER 9 P.M.....D | |
| 120 | Do you usually listen to local radio at least once a week? | YES.....1<br>NO.....2 | →201 |
| 121 | What is the time most suitable for you to listen to radio?<br><br>MARK ALL RESPONSES MENTIONED | FROM MORNING TO NOON.....A<br>FROM NOON TO EVENING.....B<br>FROM EVENING TO 9 P.M.....C<br>AFTER 9 P.M.....D | |

**Section 2: REPRODUCTION**

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 201 | Are you now married, divorced, widowed or separated? | MARRIED.....1<br>DIVORCED.....2<br>WIDOWED.....3<br>SEPARATED.....4 | |
| 202 | Now I would like to ask about all the births you have had during your life. Have you ever given birth? | YES.....1<br>NO.....2 | →207 |
| 203 | Do you have any sons or daughters to whom you have given birth who are now living with you? | YES.....1<br>NO.....2 | →205 |
| 204 | How many sons live with you?<br>And how many daughters live with you?<br>IF NONE, RECORD '00'. | SONS AT HOME..... [ ][ ]<br>DAUGHTERS AT HOME..... [ ][ ] | |
| 205 | Do you have any sons or daughters to whom you have given birth who are alive but do not live with you? | YES.....1<br>NO.....2 | →207 |
| 206 | How many sons are alive but do not live with you?<br>And how many daughters are alive but do not live with you?<br>IF NONE, RECORD '00' | SONS ELSEWHERE..... [ ][ ]<br>DAUGHTERS ELSEWHERE..... [ ][ ] | |
| 207 | Have you ever given birth to a boy or a girl who was born alive but later died?<br>IF NO,<br>PROBE: Any baby who cried or showed signs of life but survived only a few hours or days? | YES.....1<br>NO.....2 | →209 |
| 208 | How many boys have died?<br>And how many girls have died?<br>IF NONE, RECORD '00' | BOYS DEAD..... [ ][ ]<br>GIRLS DEAD..... [ ][ ] | |
| 209 | SUM ANSWERS TO 204, 206, AND 208, AND ENTER TOTAL.<br>IF NONE, RECORD '00'. | TOTAL..... [ ][ ] | |
| 210 | CHECK 208:<br>Just to make sure that I have this right: you have had in TOTAL ____ births during your life. Is that correct?<br>YES [ ] NO [ ] → PROBE AND CORRECT 202-209 AS NECESSARY. | | |
| 211 | CHECK 209:<br>ONE OR MORE BIRTHS [ ] NO BIRTHS [ ] | | →228 |
| 212 | Now I would like to talk to you about births, whether still alive or not, starting with the *first one you had.*<br>INTERVIEWER: ▸ Record names of all births in 214. If no name was given, put x .<br>▸ Record twins on separate lines and mark with a bracket.<br>▸ Ask 214-222 as appropriate for each birth. After recording all births woman has has had, go to 319. | | |

LIVE BIRTHS TABLE

| 213 BIRTH ORDER | 214 What Name was given to your (first,...) baby? S=Single and M=Multiple | | 215 Is (NAME) a boy or girl? | | 216 Source of date of birth: 1. B. cert 2. V. card 3. Other 4. None | 217 In what month (NAME) born? IF D.K. ASK: In what season? | | 218 And in what year? | 219 Is (NAME) still living? | | 219A How old is (NAME)? INETERVIEWER: IF AGE NOT KNOWN, ASK: How many years ago (NAME) was born? RECORD IN COMPLETED YEARS. | | 220 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 2 YEARS; OR YEARS) | | 221 INTERVIEWER: FROM YEAR OF BIRTH OF (NAME) SUBNTRACT YEAR OF PREVIOUS BIRTH(218) IS THE DIFFERENCE 4 OR MORE YEARS | | 222 Were there any live births between (NAME OF PREVIOUS BIRTH) And (NAME)? IF NOT MENTIONED | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 02 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 03 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 04 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 05 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 06 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |

SEASONS: 13 = WINTER 14 = SPRING 15 = SUMMER 16 = AUTUMN
IF BIRTHDAY IS GIVEN IN ISLAMIC CALENDER CHANGE THE DATE TO CHRISTIAN DATE.

LIVE BIRTHS TABLE

| 213 BIRTH ORDER | 214 What Name was given to your (first,...) baby? S=Single and M=Multiple | | 215 Is (NAME) a boy or girl? | | 216 Source of date of birth: 1. B. cert 2. V. card 3. Other 4. None | 217 In what month (NAME) born? IF D.K. ASK: In what season? | | 218 And in what year? | 219 Is (NAME) still living? | | 219A How old is (NAME)? INETERVIEWER: IF AGE NOT KNOWN, ASK: How many years ago (NAME) was born? RECORD IN COMPLETED YEARS. | | 220 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 2 YEARS; OR YEARS) | | 221 INTERVIEWER: FROM YEAR OF BIRTH OF (NAME) SUBNTRACT YEAR OF PREVIOUS BIRTH(218) IS THE DIFFERENCE 4 OR MORE YEARS | | 222 Were there any live births between (NAME OF PREVIOUS BIRTH) And (NAME)? IF NOT MENTIONED CORRECT. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 08 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 09 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 10 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |
| 11 | | S-1 M-2 | Boy Girl | 1 2 | | Month Season | | | Yes No (to 220) | 1 2 | Year Years ago | | Days Months Years | 1 2 3 | Yes No (NEXT) | 1 2 | Yes No | 1 2 |

THERE WAS ROOM FOR LISTING 14 CHILDREN IN THE QUESTIONNAIRE
IF THE NUMBER OF CHILDREN IS MORE THAN 14, PUT A _/ IN THE SQUARE BELOW THE BIRTH ORDER AND CONTINUE WITH ADDITIONAL QUESTIONNAIR

SEASONS: 13 = WINTER 14 = SPRING 15 = SUMMER 16 = AUTUMN
IF BIRTHDAY IS GIVEN IN ISLAMIC CALENDER CHANGE THE DATE TO CHRISTIAN DATE.

| | | |
|---|---|---|
| 223 | FROM YEAR OF INTERVIEW SUBTRACT YEAR OF LAST BIRTH.<br><br>IS THE DIFFERENCE 4 YEARS OR MORE? | YES.....1<br><br>NO.....2 ——▸GO TO 225 |
| 224 | Have you had any live births since the birth of (NAME OF LAST BIRTH)?<br>IF THE ANSWER IS YES, CORRECT BIRTH HISTORY TABLE. | YES.....1<br>NO.....2 |
| 225 | COMPARE 209 WITH NUMBER OF BIRTHS IN TABLE ABOVE AND MARK:<br><br>NUMBERS ARE SAME ☐ ▾ NUMBERS ARE DIFFERENT ☐ ▸ (PROBE AND RECONCILE)<br><br>CHECK AND MARK: FOR EACH BIRTH: YEAR OF BIRTH IS RECORDED. ☐<br>FOR EACH LIVING CHILD: CURRENT AGE IS RECORDED. ☐<br>FOR EACH DEAD CHILD: AGE AT DEATH IS RECORDED. ☐<br>FOR AGE AT DEATH 12 MONTHS OR 1 YR.: PROBE TO DETERMINE EXACT NUMBER OF MONTHS. | |
| 226 | CHECK 217, 218, AND 219A AND ENTER THE NUMBER OF BIRTHS SINCE JANUARY 1992.<br>IF NONE, RECORD '0'. ☐ | |

| | | |
|---|---|---|
| 227 | In addition to the pregnancies which ended in live births, have you had any other pregnancies which ended in a miscarriage, still birth or an abortion?<br><br>PROBE: Any other pregnancy which lasted only a few weeks or months | YES.....1 → 229<br>NO.....2 → 231 |
| 228 | Have you had any pregnancy which ended in miscarriage, still birth or abortion?<br><br>*PROBE: Any other pregnancy which lasted only a few weeks or months* | YES.....1<br>NO.....2 → 231 |
| 229 | How many pregnancies ended in still births?<br><br>IF NONE, ENTER '00' | STILL BIRTHS..... [ ][ ] |
| 230 | How many pregnancies ended in miscarriages and abortions?<br><br>IF NONE, ENTER '00' | MISCARRIAGE OR ABORTIONS... [ ][ ] |
| 231 | Are you pregnant now? | YES.....1<br>NO.....2<br>UNSURE.....8 → 234 |
| 232 | For how many months have you been pregnant? | MONTHS..... [ ][ ] |
| 233 | At the time you became pregnant, did you want to become pregnant <u>then</u>, did you want to wait until <u>later</u>, or did you <u>not want</u> to have any more pregnancies? | THEN.....1<br>LATER.....2<br>NOT MORE PREGNANCIES.....3 |
| 234 | When did your last menstrual period start? | DAYS AGO.....1 [ ][ ]<br>WEEKS AGO.....2 [ ][ ]<br>MONTHS AGO.....3 [ ][ ]<br>YEARS AGO.....4 [ ][ ]<br>IN MENOPAUSE.....995<br>BEFORE LAST BIRTH.....996<br>NEVER MENSTRUATED.....997 → 236 |
| 235 | At what age did you have your first menstrual period? | AGE..... [ ][ ]<br>DON'T KNOW..... 98 |
| 237 | Between the first day of a woman's period and the first day of her <u>next</u> period, are there certain times when she has a greater chance of becoming pregnant than other times? | YES.....1<br>NO.....2<br>DON'T KNOW.....8 → 301 |
| 238 | During which times of the monthly cycle does a woman have the greatest chance of becoming pregnant? | RIGHT AFTER HER PERIOD HAS ENDED..... .1<br>IN THE MIDDLE OF THE CYCLE.....2<br>JUST BEFORE HER PERIOD BEGINS...3<br>DURING HER PERIOD.....4<br>OTHER_____ .6<br>(SPECIFY)<br>DON'T KNOW.....8 |

## Section 3 : FAMILY PLANNING

Now I would like to talk about a different topic. There are various methods that a couple can use to delay or avoid a pregnancy, known as family planning methods. I would like to know which of these methods or ways have you heard about?

INTERVIEWER: Circle code 1 in 301A for each method mentioned spontaneously. Then ask 301A for each method or way not mentioned spontaneously. Circle code 2 if the method is recognized, and code 3 if not recognized. Then for each method with code 1 or 2 circled in 301A, ask 302 and 303 as appropriat. IF THE ANSWER IS NO TO 301A, GO TO THE NEXT METHOD.

| 301 METHOD | 301A Have you ever heard of (METHOD)? | | 302 Do you know a source of (METHOD)? | | 303 Have you ever used (METHOD)? | |
|---|---|---|---|---|---|---|
| 01 CONTRACEPTIVE PILL<br>Women take a pill every day. | Yes: Spontaneously | 1 | Yes | 1 | Yes | 1 |
| | Yes: Probed | 2 | | | | |
| | No | 3 | No | 2 | No | 2 |
| 02 IUD<br>Women can have a loop or coil placed inside them by a doctor or nurse | Yes: Spontaneously | 1 | Yes | 1 | Yes | 1 |
| | Yes: Probed | 2 | | | | |
| | No | 3 | No | 2 | No | 2 |
| 03 INJECTABLES<br>Women can have an injection by a doctor or nurse which stops them from becoming pregnant for several months. | Yes: Spontaneously | 1 | Yes | 1 | Yes | 1 |
| | Yes: Probed | 2 | | | | |
| | No | 3 | No | 2 | No | 2 |
| 04 IMPLANTS Women can have several small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for several years. | Yes: Spontaneously | 1 | Yes | 1 | Yes | 1 |
| | Yes: Probed | 2 | | | | |
| | No | 3 | No | 2 | No | 2 |
| 05 DIAPHRAGM, FOAM, JELLY Women can place a sponge, suppository diaphragm, jelly, or cream inside themselves before intercourse. | Yes: Spontaneously | 1 | Yes | 1 | Yes | 1 |
| | Yes: Probed | 2 | | | | |
| | No | 3 | No | 2 | No | 2 |
| 06 CONDOM Men can put a rubber sheath on their penis during sexual intercourse. | Yes: Spontaneously | 1 | Yes | 1 | Yes | 1 |
| | Yes: Probed | 2 | | | | |
| | No | 3 | No | 2 | No | 2 |
| 07 FEMALE STERILIZATION Women can have an operation to avoid having any more children. | Yes: Spontaneously | 1 | Do you know where such an operation can be performed? | | Have you ever had an operation to avoid having any more children? | |
| | Yes: Probed | 2 | | | | |
| | No | 3 | Yes | 1 | Yes | 1 |
| | | | No | 2 | No | 2 |
| 08 MALE STERILIZATION Men can have an operation to avoid having any more children. | Yes: Spontaneously | 1 | Do you know where such an operation can be performed? | | Have you ever had a partner who had an operation to avoid having children? | |
| | Yes: Probed | 2 | | | | |
| | No | 3 | Yes | 1 | Yes | 1 |
| | | | No | 2 | No | 2 |

| METHOD | 302 Have you ever heard of (METHOD)? | | 303 Have you ever used (METHOD)? | |
|---|---|---|---|---|
| 09 RHYTHM, PERIODIC ABSTINENCE *Every month that a woman is* sexually active she can avoid having sexual intercourse on the days of the month she is most likely to get pregnant. | Yes: Spontaneously | 1 | Yes | 1 |
| | Yes: Probed | 2 | | |
| | No | 3 | No | 2 |
| 10 WITHDRAWAL Men can be careful and pull out before climax. | Yes: Spontaneously | 1 | Yes | 1 |
| | Yes: Probed | 2 | | |
| | No | 3 | No | 2 |
| 11 BREASTFEEDING *Women can prolong breastfeeding* to postpone thenext pregnancy. | Yes: Spontaneously | 1 | Yes | 1 |
| | Yes: Probed | 2 | | |
| | No | 3 | No | 2 |
| 12 Have you heard of any other ways or methods that women or men can use to avoid pregnancy? SPECIFY: | Yes | 1 | | |
| | No | 3 | | |
| 1. _____ | | | Yes | 1 |
| | | | No | 2 |
| 2. _____ | | | Yes | 1 |
| | | | No | 2 |
| 3. _____ | | | Yes | 1 |
| | | | No | 2 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 304 | INTERVIEWER: Check 303 | Ever used a method | 1 | 305 |
| | | Never used a method | 2 | |
| 304 A | Have you ever used any method or operation to delay or avoid getting pregnant? | Yes | 1 | |
| | | No | 2 | 330 |
| 304 B | What have you used or done? CORRECT 303 AND 304 IF NECESSARY | | | |
| 305 | When you first used a family planning method, how many sons and how many daughters did you have? | Number of sons | ☐☐ | |
| | | Number of daughters | ☐☐ | |
| 306 | When you first began to use family planning, did you want to have another child but at a later time or did you want to stop childbearing? | Wanted child later | 1 | |
| | | Wanted to stop childbearing | 2 | |
| | | Other(specify):_____ | 6 | |
| 307 | INTERVIEWER: Check 303 Method 07 WOMAN STERILIZED? | Woman sterilized | 1 | 311A |
| | | Woman not sterilized | 2 | |
| 308 | INTERVIEWER: Check 201 | Currently married | 1 | |
| | | Not currently married | 2 | 328 |
| 309 | INTERVIEWER: Check 231 | Currently pregnant | 1 | 328 |
| | | Not pregnant/not sure | 2 | |
| 310 | Are you currently using any method of family planning? | Yes | 1 | |
| | | No | 2 | 328 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 311 | Which method are you using?<br><br>IF THE RESPONDENT IS USING FEMALE STERILIZATION, CIRCLE CODE 07. | Pill | 01 | |
| | | IUD | 02 | 315 |
| | | Injectables | 03 | 319C |
| | | Implants | 04 | 319E |
| | | Diaphragm/Foam/Jelly | 05 | 319C |
| | | Condom | 06 | |
| | | Female sterilization | 07 | 318 |
| | | Male sterilization | 08 | |
| | | Safe period | 09 | 322 |
| | | Withdrawal | 10 | |
| | | Breastfeeding | 11 | |
| | | Other(specify):———— | 12 | |
| 312 | Did you consult some one before starting to use the method for the first time? IF YES, Who did you consult? | Doctor | 11 | |
| | | Nurse/midwife | 12 | |
| | | Pharmacy | 13 | |
| | | Daya/Jidda | 14 | |
| | | Neighbor/friend | 15 | |
| | | No one | 16 | |
| | | Other(specify):———— | 98 | |
| 313 | How much does one strip (cycle) of pills cost you? | Cost (in Rials) | ☐☐☐ | |
| | | Free | 996 | |
| | | Don't know | 998 | |
| 314 | Who obtained the strip (cycle) of the pill the last time? | Respondent | 1 | 319A |
| | | Husband | 2 | |
| | | Home delivered | 3 | |
| | | Other(specify):———— | 6 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 315 | How much did it cost to have the IUD inserted? | Cost (in Rials) | ☐☐☐☐ | |
| | | Free | 9996 | |
| | | Don't know | 9998 | |
| 316 | Did you get the IUD at the place where you had it inserted or did you get it somewhere else? | Yes : Same place | 1 | 319B |
| | | No : Somewhere else | 2 | |
| 317 | How much did it cost to get the IUD at place where IUD was bought? | Cost (in Rials) | ☐☐☐☐ | |
| | | Free | 996 | 319B |
| | | Don't know | 998 | |
| 318 | In what month and year did you (your husband) have the operation? | Month | ☐☐ | |
| | | | | 319D |
| | | Year | ☐☐ | |
| 319 | A) Where did you(your husband) obtain the pill the last time?<br>B) Where was the IUD which you are using now inserted?<br>C) Where did you obtain the (METHOD)?<br>D)Where did the sterilization take place?<br>E)Where did you get implant? | General hospital | 11 | |
| | | Health center | 12 | |
| | | Primary Health care cnt | 13 | |
| | | MCH center | 14 | |
| | | Primary Health unit | 15 | |
| | | Cooperative Health Inst | 16 | |
| | | Private clinic | 17 | |
| | | Private hospital | 18 | |
| | | | 19 | |
| | | Private doctor/clinic | 20 | |
| | | Mobile clinic/ | 21 | |
| | | Pharmacy | 22 | |
| | | Other(specify):———— | 96 | |
| | | Don't know | 98 | 321 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 320 | How much time does it take to go to this place? | Minutes | ☐☐☐ | |
| 321 | Was there anything you particularly disliked about the services you (your husband) received from that source?<br><br>IF 'YES' : What?<br><br>INTERVIEWER: Record main reason | Staff discourteous | 1 | |
| | | Costs too much | 2 | |
| | | Desired method unavailable | 3 | |
| | | No complaints | 5 | |
| | | Other(specify):———— | 6 | |
| 322 | INTERVIEWER: Check 311 Methods 07, 08 | Neither sterilized | 1 | 325 |
| | | He/She sterilized | 2 | |
| 323 | Do you regret that you/your husband had the opration not to have any more children? | Yes | 1 | |
| | | No | 2 | 326 |
| 324 | Why do you regret the operation? | Respondent wants anothe child | 1 | 326 |
| | | Husband wants another child | 2 | |
| | | Side effects | 3 | |
| | | A child died | 4 | |
| | | Other(specify):———— | 6 | |
| 325 | For how long have you been using (CURRENT METHOD) continuously? | Duration:<br>Months | ☐☐ | |
| | | Years | ☐☐ | |
| 326 | Have you experienced any problem from using (CURRENT METHOD)? | Yes | 1 | |
| | | No | 2 | 332 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 327 | What is the main problem you experienced? | Health concerns | 11 | |
| | | Method failed | 12 | G O |
| | | Husband disapproved | 13 | |
| | | Difficult to obtain | 14 | |
| | | Costs too much | 15 | T O |
| | | Inconvenient to use | 16 | |
| | | Other(specify):———— | 96 | 332 |
| | | Don't know | 98 | |
| 328 | Which was the last method of family planning you used? | Pill | 01 | |
| | | IUD | 02 | |
| | | Injectables | 03 | |
| | | Implants | 04 | |
| | | Diaphragm/Foam/Jelly | 05 | |
| | | Condom | 06 | |
| | | Female sterilization | 07 | |
| | | Male sterilization | 08 | |
| | | Safe period | 09 | |
| | | Withdrawal | 10 | |
| | | Breastfeeding | 11 | |
| | | Other(specify):———— | 12 | |
| | | Don't remember | 98 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 329 | Did you consult some one before starting to use the method for the first time? IF YES, Who did you consult? | Physician | 11 | |
| | | Nurse/midwife | 12 | |
| | | Pharmacy | 13 | |
| | | Daya/Jidda | 14 | |
| | | Neighbor/friend | 15 | |
| | | No one | 16 | |
| | | Other(specify):———— | 96 | |
| 330 | INTERVIEWER: CHECK 201 | Currently married | 1 | |
| | | Not currently married | 2 | 332 |
| | INTERVIEWER: CHECK 231 | Currently pregnant | 1 | |
| | | Not pregnant/unsure | 2 | 332 |
| 331 | What is the main reason that you do not want to use a method of family planning? | Religious prohibitions | 11 | |
| | | Opposed to FP | 12 | |
| | | Husband disapproves | 13 | |
| | | Other relatives disapprove | 14 | |
| | | Side effects | 15 | |
| | | Lack of Knowledge | 16 | |
| | | Difficult to obtain | 17 | |
| | | Costs too much | 18 | |
| | | Inconvenient to use | 19 | |
| | | Fatalistic | 20 | |
| | | Menopausal/Subfecond | 21 | |
| | | Other(specify):———— | 96 | |
| | | Unsure/Don't know | 98 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 332 | Have you visited a health facility or a physcian for any reasn in last 12 months? | Yes | 1 | |
| | | No | 2 | 334 |
| | | Other(specify):_____ | 96 | |
| 333 | Did any staff member at the health facility speak to you about family planning methods? | Yes | 1 | |
| | | No | 2 | |
| 334 | Do you think that breastfeeding can affect a woman chance of becoming pregnant? | Yes | 1 | |
| | | No | 2 | 401 |
| | | Don't know | 8 | |
| 335 | Do you think a woman's chance of becoming pregnant is increased or decreased by breastfeeding? | Increased | 1 | |
| | | Decreased | 2 | |
| | | Depends | 3 | |
| | | Don't know | 8 | |

## Section 4 :PREGNANCY AND BREASTFEEDING

| | Questions | Coding Categories | Codes | Skip to |
|---|---|---|---|---|
| 401 | INTERVIEWER: CHECK 217 AND 218 FOR BIRTH SINCE JANUARY 1992 TILL INTERVIEW DAY | One or more births | 1 | |
| | | No births | 2 | 539 |

| | | Name (Youngest) | Name (Next to Youngest) | Name (Second to Youngest) | Name (Third to Youngest) |
|---|---|---|---|---|---|
| 402 | INTERVIEWER: CHECK BIRTH HISTORY TABLE AND ENTER NAMES OF ALL CHILDREN BORN FROM JANUARY 1992 TILL THE DATE OF THE SURVEY. BEGIN WITH THE LAST BIRTH AND THEN THE ONE BEFORE THE LAST AND SO ON.. | _____ | _____ | _____ | _____ |
| 403 | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE' FROM Q213 | ☐☐ | ☐☐ | ☐☐ | ☐☐ |
| 404 | INTERVIEWER CHECK 219 (IN BIRTH HISTORY TABLE) | Alive 1<br>Dead 2 | Alive 1<br>Dead 2 | Alive 1<br>Dead 2 | Alive 1<br>Dead 2 |

| | Questions | Coding Categories | Codes | Skip to | Codes | Skip to | Codes | Skip to | Codes | Skip to |
|---|---|---|---|---|---|---|---|---|---|---|
| 405 | 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 | 407 | 1 | 407 | 1 | 407 | 1 | 407 |
| | | Later | 2 | | 2 | | 2 | | 2 | |
| | | No more | 3 | 407 | 3 | 407 | 3 | 407 | 3 | 407 |
| 406 | How much longer would you like to have waited? | Months | 1☐☐ | | 1☐☐ | | 1☐☐ | | 1☐☐ | |
| | | Years | 2☐☐ | | 2☐☐ | | 2☐☐ | | 2☐☐ | |
| | | Don't know | 998 | | 998 | | 998 | | 998 | |
| 407 | When you were pregnat with (NAME) did you see anyone for antenatal care for this pregnancy?<br>IF YES: Whom did you see? Anyone, else?<br>RECORD ALL PERSONS SEEN. | Doctor | A | GO | A | GO | A | GO | A | GO |
| | | Trained nurse/Midwife | B | TO | B | TO | B | TO | B | TO |
| | | Daya/Jidda | C | 409 | C | 409 | C | 409 | C | 409 |
| | | Other(specify):_____ | X | | X | | X | | X | |
| | | No one | Y | | Y | | Y | | Y | |
| 408 | What was the main reason for not having a check-up on the pregnancy? | Had no complaints | 1 | | 1 | | 1 | | 1 | |
| | | Had previous experience | 2 | GO | 2 | GO | 2 | GO | 2 | GO |
| | | Costs too much | 3 | | 3 | | 3 | | 3 | |
| | | Sevice not available | 4 | TO | 4 | TO | 4 | TO | 4 | TO |
| | | Sevices too far | 5 | 412 | 5 | 412 | 5 | 412 | 5 | 412 |
| | | Other(specify):_____ | 6 | | 6 | | 6 | | 6 | |

| | | | Name _____ | | Name _____ | | Name _____ | | Name _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE' FROM Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | Questions | Coding Categories | Codes | Skip to | Codes | Skip to | Codes | Skip to | Codes | Skip to |
| 409 | Where did you usually have the check-up(s)? | General hospital | 11 | | 11 | | 11 | | 11 | |
| | | Health center | 12 | | 12 | | 12 | | 12 | |
| | | Primary Health Care Unit | 13 | | 13 | | 13 | | 13 | |
| | | MCH Center | 14 | | 14 | | 14 | | 14 | |
| | | Yemeni Family Care Assoc. | 15 | | 15 | | 15 | | 15 | |
| | | Cooperative Health Center | 16 | | 16 | | 16 | | 16 | |
| | | Private Health Center | 17 | | 17 | | 17 | | 17 | |
| | | Private Hospital | 18 | | 18 | | 18 | | 18 | |
| | | Private doctor | 19 | | 19 | | 19 | | 19 | |
| | | At home | 20 | | 20 | | 20 | | 20 | |
| | | Other(specify):_____ | 96 | | 96 | | 96 | | 96 | |
| 410 | How long were you pregnant with (NAME) when you had the first check-up? | Months | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | | Don't know | 9 8 | | 9 8 | | 9 8 | | 9 8 | |
| 411 | How many check-ups did you have during the pregnancy of (NAME)? | Number | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | | Cannot remember | 9 8 | | 9 8 | | 9 8 | | 9 8 | |
| 412 | When you were pregnant with (NAME), were you given any injection to prevent the baby from getting convulsions after birth, i.e. an anti-tetanus shot? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 414 | 2 | 414 | 2 | 414 | 2 | 414 |
| | | Don't know | 8 | 414 | 8 | 414 | 8 | 414 | 8 | 414 |
| 413 | How many shots? | Number | ☐ | | ☐ | | ☐ | | ☐ | |
| | | Don't remember | 8 | | 8 | | 8 | | 8 | |

| | | | Name _____ | | Name _____ | | Name _____ | | Name _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE' FROM Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | Questions | Coding Categories | Codes | Skip to | Codes | Skip to | Codes | Skip to | Codes | Skip to |
| 414 | When you were pregnant with (NAME) did you take any of vitamins or minerals? Iron Pills? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | Folic Acid Pills? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | Multiple vitamins? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| 415 | Where was (NAME) delivered? | At home | 11 | | 11 | | 11 | | 11 | |
| | | At another home | 12 | | 12 | | 12 | | 12 | |
| | | General hospital | 13 | 419 | 13 | 419 | 13 | 419 | 13 | 419 |
| | | Health center | 14 | | 14 | | 14 | | 14 | |
| | | Primary Health Care Unit | 15 | | 15 | | 15 | | 15 | |
| | | Cooperative health center | 16 | | 16 | | 16 | | 16 | |
| | | Private clinic | 17 | | 17 | | 17 | | 17 | |
| | | Private Hospital | 18 | | 18 | | 18 | | 18 | |
| | | Private doctor | 19 | | 19 | | 19 | | 19 | |
| | | Other(specify):_____ | 96 | | 96 | | 96 | | 96 | |
| 416 | Why did you not have the delivery of (NAME) at a hospital or a clinic? INTERVIEWER: Circle main reason | Service not available | 1 | | 1 | | 1 | | 1 | |
| | | Services too far | 2 | | 2 | | 2 | | 2 | |
| | | Costs too much | 3 | | 3 | | 3 | | 3 | |
| | | Premature/Sudden delivery | 4 | | 4 | | 4 | | 4 | |
| | | Home is better | 5 | | 5 | | 5 | | 5 | |
| | | Other(specify):_____ | 6 | | 6 | | 6 | | 6 | |

| | | | Name | | Name | | Name | | Name | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE' FROM Q213 | | | | | | | | | |
| | Questions | Coding Categories | Codes | Skip to | Codes | Skip to | Codes | Skip to | Codes | Skip to |
| 417 | How was the umbilical cord cut? | Medical instruments | 1 | | 1 | | 1 | | 1 | |
| | | Ordinary scissors | 2 | | 2 | | 2 | | 2 | |
| | | New Razor | 3 | | 3 | | 3 | | 3 | |
| | | Used razor | 4 | | 4 | | 4 | | 4 | |
| | | Knife | 5 | | 5 | | 5 | | 5 | |
| | | Other(specify):——— | 6 | | 6 | | 6 | | 6 | |
| | | Don't know | 8 | | 8 | | 8 | | 8 | |
| 418 | How the cord stump was treated? | Sterilized dressing | 11 | | 11 | | 11 | | 11 | |
| | | Covered with ground coffee | 12 | | 12 | | 12 | | 12 | |
| | | Covered with flour | 13 | | 13 | | 13 | | 13 | |
| | | Covered with earth | 14 | | 14 | | 14 | | 14 | |
| | | Covered with cauterizing | 15 | | 15 | | 15 | | 15 | |
| | | Covered with boiled oil | 16 | | 16 | | 16 | | 16 | |
| | | Covered with egg | 17 | | 17 | | 17 | | 17 | |
| | | Covered with kohl | 18 | | 18 | | 18 | | 18 | |
| | | Thread | 19 | | 19 | | 19 | | 19 | |
| | | Other(specify):——— | 96 | | 96 | | 96 | | 96 | |
| | | Don't know | 98 | | 98 | | 98 | | 98 | |
| 419 | Who assisted with the delivery of (NAME)?<br>INTERVIEWER: RECORD ALL MENTIONED | Doctor | A | | A | | A | | A | |
| | | Trained nurse/Midwife | B | | B | | B | | B | |
| | | Daya/Jidda | C | | C | | C | | C | |
| | | Relative/Friend | D | | D | | D | | D | |
| | | Other(specify):——— | X | | X | | X | | X | |
| | | No one | Y | | Y | | Y | | Y | |

| | | | Name | | Name | | Name | | Name | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE' FROM Q213 | | | | | | | | | |
| | Questions | Coding Categories | Codes | Skip to | Codes | Skip to | Codes | Skip to | Codes | Skip to |
| 420 | Around the time of the birth of (NAME), did you have any of the following problems: | | | | | | | | | |
| | A. Long labor, that is, did your regular contractions last more than 12 hours? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | B. Excessive bleeding that was so much that you feared it was life threatening? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | C. A high fever with bad smelling vaginal discharge? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | D. Convulsions not cause by fever? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| 421 | Was (NAME) delivered by caesarean section? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| 422 | When (NAME) was born, was he/she: very large, larger than average average smaller than average or very small? | Very large | 1 | | 1 | | 1 | | 1 | |
| | | Larger than Average | 2 | | 2 | | 2 | | 2 | |
| | | Average | 3 | | 3 | | 3 | | 3 | |
| | | Smaller than average | 4 | | 4 | | 4 | | 4 | |
| | | Very small | 5 | | 5 | | 5 | | 5 | |
| | | Don't know | 8 | | 8 | | 8 | | 8 | |
| 423 | Was (NAME) weighed at birth? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 425 | 2 | 425 | 2 | 425 | 2 | 425 |
| 424 | How much did (NAME) weigh? RECORD WEIGHT FROM HEALTH CARD, IF AVAILABLE. | GRAMS FROM CARD.....1 | 1 | | 1 | | 1 | | 1 | |
| | | GRAMS FROM RECALL.....2 | 2 | | 2 | | 2 | | 2 | |
| | | DON'T KNOW.....99998 | 99998 | | 99998 | | 99998 | | 99998 | |
| 425 | Did you chew "QAT" when you were pregnant with (NAME)? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 427 | 2 | 427 | 2 | 427 | 2 | 427 |

| | | | Name _____ | | Name _____ | | Name _____ | | Name _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE' FROM Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | Questions | Coding Categories | Codes | Skip to | Codes | Skip to | Codes | Skip to | Codes | Skip to |
| 426 | Usually how many days per week did you chew "QAT"? | Number of days | ☐ | | ☐ | | ☐ | | ☐ | |
| | | Don't know | 8 | | 8 | | 8 | | 8 | |
| 427 | When you pregnant with (NAME) did you smoke hubble bubble? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| 428 | When you were pregnant with (NAME) did you smoke cigarettes? | Yes | 1 | | 1 | 430 | 1 | 430 | 1 | 430 |
| | | No | 2 | | 2 | | 2 | | 2 | |
| 429 | Has your period returned after the birth of (NAME OF LAST CHILD)? | Yes | 1 | 431 | | | | | | |
| | | No | 2 | 433 | | | | | | |
| 430 | Has your period returned after the birth of (NAME) and next pregnancy? | Yes | | | 1 | | 1 | | 1 | |
| | | No | | | 2 | 434 | 2 | 434 | 2 | 434 |
| 431 | How many months after the birth of (NAME), did your period return? | Months | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| 432 | INTERVIEWER: BE SURE TO CIRCLE 98 IF MOTHER CANNOT GIVE THE NUMBER OF MONTHS. | Don't know | 98 | | 98 | | 98 | | 98 | |
| 433 | For how after the birth of (NAME) did you not have sexual relations? | Days | 1 ☐☐ | | | | | | | |
| | | Month | 2 ☐☐ | | | | | | | |
| | | Haven't started as yet | 997 | | | | | | | |
| | | Don't know | 998 | | | | | | | |

| | | | Name (Youngest) _____ | | Name (Next to Youngest) _____ | | Name (Second to Youngest) _____ | | Name (Third to Youngest) _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE', Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | Questions | Coding Categories | Codes | Skip to | Codes | Skip to | Codes | Skip to | Codes | Skip to |
| 434 | Did you ever feed (NAME) at the breast? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 441 | 2 | 441 | 2 | 441 | 2 | 441 |
| 435 | How soon after the birth of (NAME) did you start breastfeeding? | Less than 1 hour/ immediately | 000 | | 000 | | 000 | | 000 | |
| | | Number of hours | 1☐☐ | | 1☐☐ | | 1☐☐ | | 1☐☐ | |
| | | Number of days | 2☐☐ | | 2☐☐ | | 2☐☐ | | 2☐☐ | |
| 436 | Did you give colostrom to (NAME)? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| 437 | SURVIVAL STATUS: CHECK 404 | Child Alive | 1 | | 1 | 439 | 1 | 439 | 1 | 439 |
| | | Child Dead | 2 | 439 | 2 | 439 | 2 | 439 | 2 | 439 |
| 438 | Are you still breastfeeding (NAME)? | Yes | 1 | 443 | | | | | | |
| | | No | 2 | | | | | | | |
| 439 | How many months did you breastfeed (NAME)? | Number of months | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | | Don't remember | 98 | | 98 | | 98 | | 98 | |
| 440 | Why did you stop breastfeeding (NAME)? | Mother ill/weak | 11 | | 11 | | 11 | | 11 | |
| | | Child ill/weak | 12 | | 12 | | 12 | | 12 | |
| | | Child died | 13 | | 13 | | 13 | | 13 | |
| | | Nipple/breast problem | 14 | GO | 14 | GO | 14 | GO | 14 | GO |
| | | Not enough milk | 15 | TO | 15 | TO | 15 | TO | 15 | TO |
| | | Mother working | 16 | 442 | 16 | 442 | 16 | 442 | 16 | 442 |
| | | Child refused | 17 | | 17 | | 17 | | 17 | |
| | | Weaning age/age to stop | 18 | | 18 | | 18 | | 18 | |
| | | Became pregnant | 19 | | 19 | | 19 | | 19 | |
| | | Started using contraception | 20 | | 20 | | 20 | | 20 | |
| | | Other(specify):_____ | 96 | | 96 | | 96 | | 96 | |

| | | | Name _____ | | Name _____ | | Name _____ | | Name _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE' FROM Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| 441 | INTERVIEWER: CHECK 434, IF RESPONDENT DID NOT BREASTFEED (NAME), ASK: Why did you never brestfeed (NAME)? | Mother ill/weak | 11 | | 11 | | 11 | | 11 | |
| | | Child ill/weak | 12 | | 12 | | 12 | | 12 | |
| | | Child died | 13 | | 13 | | 13 | | 13 | |
| | | Nipple/breast problem | 14 | | 14 | | 14 | | 14 | |
| | | Not enough milk | 15 | | 15 | | 15 | | 15 | |
| | | Mother working | 16 | | 16 | | 16 | | 16 | |
| | | Child refused | 17 | | 17 | | 17 | | 17 | |
| | | Other(specify):_____ | 96 | | 96 | | 96 | | 96 | |
| 442 | SURVIVAL STATUS: CHECK 404 THE "NAME" IS ALIVE OR DEAD? | Child Alive | 1 | 445 | 1 | 445 | 1 | 445 | 1 | 445 |
| | | Child Dead | 2 | NEXT CHILD | 2 | NEXT CHILD | 2 | NEXT CHILD | 2 | NEXT CHILD |
| 443 | How many times did you breastfeed (NAME) last night between sunset and sunrise? | Number of times | ☐☐ | | | | | | | |
| 444 | How many times did you breastfeed (NAME) yesterday during the daylight hours? | Number of times | ☐☐ | | | | | | | |
| 445 | Did you (NAME) drink anything from a bottle with a nipple yesterday or last night? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | | Don't know | 8 | | 8 | | 8 | | 8 | |

| | | | Name | | | Name | | | Name | | | Name | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LINE NUMBER OF CHILD IN 'BIRTH HISTORY TABLE' FROM Q213 | | | | | | | | | | | | | |
| 446 | Was (NAME) being given any of the following types of liquid and food yesterday or last night? | | Yes | No | DK | Yes | No | DK | Yes | No | DK | Yes | No | DK |
| | | Plain water | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Sugar water | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Juice | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Tea with milk | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Special food for children (Shapiza, Lahooba) | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Tinned/Powdered milk | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Fresh Milk | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Other Liquids | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | General household food | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Canned food for children | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Asida, bread, maccaroni | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Eggs/fish/poultry | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Meat | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Food other than general household food | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| | | Other(specify):_____ | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 | 1 | 2 | 8 |
| 447 | INTERVIEWER: CHECK 446 ANY FOOD GIVEN? | Yes | 1 | | | 1 | | | 1 | | | 1 | | |
| | | No | 2 | 450 | | 2 | NEXT CHILD /501 | | 2 | NEXT CHILD /501 | | 2 | NEXT CHILD /501 | |
| 448 | (Aside from breastfeeding,) how many times did (NAME) eat yesterday, including meals and snack? | Number of meals | ☐ | | | ☐ | | | ☐ | | | ☐ | | |
| | | Don't know | 8 | | | 8 | | | 8 | | | 8 | | |
| 449 | How old was (NAME) when you started giving milk/other food in addition to mother's milk? | Days | 1 ☐☐ | | | 1 ☐☐ | | | 1 ☐☐ | | | 1 ☐☐ | | |
| | | Month | 2 ☐☐ | | | 2 ☐☐ | | | 2 ☐☐ | | | 2 ☐☐ | | |
| | | Haven't started as yet | 995 | | | 995 | | | 995 | | | 995 | | |
| | | Don't know | 998 | | | 998 | | | 998 | | | 998 | | |
| 450 | When (Name) has diarrhea, what do you do with breastfeeding? do you continue without change, increase, decrease, or stop breastfeeding? | No change | 1 | NEXT CHILD OR 501 | | NEXT CHILD OR 501 | | | NEXT CHILD OR 501 | | | NEXT CHILD OR 501 | | |
| | | Increase | 2 | | | | | | | | | | | |
| | | Decrease | 3 | | | | | | | | | | | |
| | | Stop | 4 | | | | | | | | | | | |
| | | No diarrhea | 5 | | | | | | | | | | | |
| | | Don't know | 8 | | | | | | | | | | | |

## Section 5 : IMMUNIZATION AND HEALTH

| | | Name (Youngest child) | Name (Next to youngest) | Name (Second to youngest) | Name (Third to youngest) |
|---|---|---|---|---|---|
| 501 | INTERVIEWER: Go back to Q217 and Q218 and write down names of births since January 1992, beginning with last birth. | _____ | _____ | _____ | _____ |
| 502 | Line number of child in 'Birth History,' Q213 | ___ | ___ | ___ | ___ |

| | Questions | Coding Categories | Codes | Skip | Codes | Skip | Codes | Skip | Codes | Skip |
|---|---|---|---|---|---|---|---|---|---|---|
| 503 | CHECK 219: | Alive----------1 | ------ 1 ---- | | ------ 1 ---- | | ------ 1 ---- | | ------ 1 ---- | |
| | | Not alive-------2 | ------ 2 ---- | 537 | ------ 2 ---- | 537 | ------ 2 ---- | 537 | ------ 2 ---- | 537 |
| 504 | Is there an immunization card, for (NAME)? IF 'YES' : Can I see it? | Yes : Seen------1 | ------ 1 ---- | 506 | ------ 1 ---- | 506 | ------ 1 ---- | 506 | ------ 1 ---- | 506 |
| | | Yes : Not seen--2 | ------ 2 ---- | 508 | ------ 2 ---- | 508 | ------ 2 ---- | 508 | ------ 2 ---- | 508 |
| | | No----------3 | ------ 3 ---- | | ------ 3 ---- | | ------ 3 ---- | | ------ 3 ---- | |
| 505 | Was there an immunization card for (NAME)? | Yes----------1 | ------ 1 ---- | | ------ 1 ---- | | ------ 1 ---- | | ------ 1 ---- | |
| | | No----------2 | ------ 2 ---- | 508 | ------ 2 ---- | 508 | ------ 2 ---- | 508 | ------ 2 ---- | 508 |
| | | Don't Know------8 | ------ 8 ---- | | ------ 8 ---- | | ------ 8 ---- | | ------ 8 ---- | |

| 506 INTERVIEWER: COPY VACCINATION DATES FOR EACH VACCINE FROM THE CARD. WRITE '44' IN 'DAY' COLUMN IF CARD SHOWS THAT A VACCINATION WAS GIVEN, BUT NO DATE IS RECORDED. | DAY | MONTH | YEAR | DAY | MONTH | YEAR | DAY | MONTH | YEAR | DAY | MONTH | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCG | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |
| POLIO 0 (At birth) | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |
| POLIO 1 | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |
| POLIO 2 | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |
| POLIO 3 | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |
| DPT 1 | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |
| DPT 2 | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |
| DPT 3 | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |
| MEASLES | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ | ___ | ___ | 1 9 9 ___ |

| | | | Name (Youngest) _____ | | Name (Next to youngest) _____ | | Name (Second to youngest) _____ | | Name (Third to youngest) _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Line number of child in 'Birth History,' Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | QUESTIONS | CODING CATEGORIES | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO |
| 507 | Has (NAME) received any vaccinations that are not recorded on this card?<br><br>RECORD 'YES' ONLY IF RESPONDENT MENTIONS BCG, POLIO 0-3, DPT 1-3, AND/OR MEASLES VACCINE (S). | Yes (PROBE FOR VACCINATION AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 510 | 2 | 510 | 2 | 510 | 2 | 510 |
| | | Don't Know | 8 | | 8 | | 8 | | 8 | |
| 508 | Did (NAME) ever receive any vaccinations to prevent him from getting diseases? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 510 | 2 | 510 | 2 | 510 | 2 | 510 |
| | | Don't Know | 3 | 510 | 3 | 510 | 3 | 510 | 3 | 510 |
| 509 | Please tell me if (NAME) received any of the following vaccinations:<br><br>A) A BCG vaccination against tuberclusosis, that is, an injection in the left arm or or should that caused a scar? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | | Don't Know | 8 | | 8 | | 8 | | 8 | |
| | B) Polio vacine that is drops in the mouth? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | E | 2 | E | 2 | E | 2 | E |
| | | Don't Know | 8 | E | 8 | E | 8 | E | 8 | E |
| | C) How many times? | Number | ☐ | | ☐ | | ☐ | | ☐ | |
| | D) When was the first polio vaccine given, just after birth or later? | Just after birth | 1 | | 1 | | 1 | | 1 | |
| | | Later | 2 | | 2 | | 2 | | 2 | |
| | E) DPT vaccination, that is, an injection usually given at the same time as polio drops? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | G | 2 | G | 2 | G | 2 | G |
| | | Don't Know | 8 | G | 8 | G | 8 | G | 8 | G |
| | F) How many times? | Number | ☐ | | ☐ | | ☐ | | ☐ | |
| | G) An injection to prevent measles given at the age of 9 months? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | | Don't Know | 8 | | 8 | | 8 | | 8 | |

| | | | Name (Youngest) _____ | | Name (Next to youngest) _____ | | Name (Second to youngest) _____ | | Name (Third to youngest) _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Line number of child in 'Birth History' Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | QUESTIONS | CODING CATEGORIES | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO |
| 510 | Has (NAME) been ill with fever at any time in the last 2 weeks? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | | Don't Know | 8 | | 8 | | 8 | | 8 | |
| 511 | Has (NAME) been ill with a cough at any time in the last 2 weeks? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 515 | 2 | 515 | 2 | 515 | 2 | 515 |
| | | Don't Know | 8 | | 8 | | 8 | | 8 | |
| 512 | When (NAME) was ill with a cough did he/she breathe more rapidly than usual with short, rapid breaths? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | | Don't Know | 8 | | 8 | | 8 | | 8 | |
| 513 | Did you seek advice or treatment for the cough? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 515 | 2 | 515 | 2 | 515 | 2 | 515 |
| 514 | Where did you seek advice or treatment? | General Hospital | A | | A | | A | | A | |
| | | Health Center | B | | B | | B | | B | |
| | | Primary Health Care Cntr. | C | | C | | C | | C | |
| | | Cooperative Health Inst. | D | | D | | D | | D | |
| | | Private Clinic | E | | E | | E | | E | |
| | | Private Hospital | F | | F | | F | | F | |
| | | Private Doctor | G | | G | | G | | G | |
| | | Pharmacy | H | | H | | H | | H | |
| | | TBA/Jiddah | I | | I | | I | | I | |
| | | Herbalist | J | | J | | J | | J | |
| | | Traditional Healer | K | | K | | K | | K | |
| | | Relative/Friend | L | | L | | L | | L | |
| | | Other(specify):_____ | X | | X | | X | | X | |
| 515 | Has (NAME) had diarrhea in the last two weeks? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 525 | 2 | 525 | 2 | 525 | 2 | 525 |
| | | Don't know | 8 | 525 | 8 | 525 | 8 | 525 | 8 | 525 |

| | | | Name (Youngest) _____ | | Name (Next to youngest) _____ | | Name (Second to youngest) _____ | | Name (Third to youngest) _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Line number of child in 'Birth History' Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | QUESTIONS | CODING CATEGORIES | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO |
| 516 | Was there blood and/or mucus in the stools? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | | Don't know | 8 | | 8 | | 8 | | 8 | |
| 517 | On the worst day of the diarrhea, how many bowel movements did (NAME) HAVE? | Number of times | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | | Don't know | 98 | | 98 | | 98 | | 98 | |
| 518 | Was he/she given the same amount of of fluids to drink, as before the diarrhea or more or less? | Same | 1 | | 1 | | 1 | | 1 | |
| | | More | 2 | | 2 | | 2 | | 2 | |
| | | Less | 3 | | 3 | | 3 | | 3 | |
| | | Don't know | 8 | | 8 | | 8 | | 8 | |
| 519 | Was he/she given the same amount of food to eat as before the diarrhea, or more, or less? | Same | 1 | | 1 | | 1 | | 1 | |
| | | More | 2 | | 2 | | 2 | | 2 | |
| | | Less | 3 | | 3 | | 3 | | 3 | |
| | | Haven't started food | 4 | | 4 | | 4 | | 4 | |
| | | Don't know | 8 | | 8 | | 8 | | 8 | |
| 520 | When (NAME) had diarrhea was he/she given any of the following to drink: | | Y N DK | | Y N DK | | Y N DK | | Y N DK | |
| | | Fluid from ORS packet | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| | | Home made sugar and salt solution | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| | RECORD ALL MENTIONED | Milk for children | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| | | Yogurt | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| | | Rice water | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| | | Water | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| | | Meat water (Maraq) | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| | | Soup | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| | | Other liquids | 1 2 8 | | 1 2 8 | | 1 2 8 | | 1 2 8 | |
| 521 | Was anything (else) given to treat the diarrhea? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 523 | 2 | 523 | 2 | 523 | 2 | 523 |
| | | Don't Know | 8 | 523 | 8 | 523 | 8 | 523 | 8 | 523 |

| | | | Name (Youngest) _____ | | Name (Next to youngest) _____ | | Name (Second to youngest) _____ | | Name (Third to youngest) _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Line number of child in 'Birth History' Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | QUESTIONS | CODING CATEGORIES | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO |
| 522 | What was given to treat the diarrhea? | Pill or syrup | A | | A | | A | | A | |
| | | Injection | B | | B | | B | | B | |
| | | Intervenous (IV) | C | | C | | C | | C | |
| | | Home remedies | D | | D | | D | | D | |
| | | Herbal remedis | E | | E | | E | | E | |
| | | Other (specify)_____ | X | | X | | X | | X | |
| 523 | Did you seek advice or treatment for the diarrhea? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 525 | 2 | 525 | 2 | 525 | 2 | 525 |
| 524 | Where did you seek advice or treatment? | General Hospital | A | | A | | A | | A | |
| | | Health Center | B | | B | | B | | B | |
| | | Primary Health Care Cntr. | C | | C | | C | | C | |
| | | Cooperative Health Inst. | D | | D | | D | | D | |
| | | Private Clinic | E | | E | | E | | E | |
| | | Private Hospital | F | | F | | F | | F | |
| | | Private Doctor | G | | G | | G | | G | |
| | | Pharmacy | H | | H | | H | | H | |
| | | TBA/Jiddah | I | | I | | I | | I | |
| | | Herbalist | J | | J | | J | | J | |
| | | Traditional Healer | K | | K | | K | | K | |
| | | Relative/Friend | L | | L | | L | | L | |
| | | Other(specify):_____ | X | | X | | X | | X | |
| 525 | Did he/she have pus coming from his/her ears during the last two weeks? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | | Don't Know | 3 | | 3 | | 3 | | 3 | |
| 526 | Did he/she have pus coming from his/her eyes during the last two weeks? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | | 2 | | 2 | | 2 | |
| | | Don't Know | 3 | | 3 | | 3 | | 3 | |

| | | | Name (Youngest) _____ | | Name (Next to youngest) _____ | | Name (Second to youngest) _____ | | Name (Third to youngest) _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Line number of child in 'Birth History' Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | QUESTIONS | CODING CATEGORIES | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO |
| 527 | Did (NAME) have any (other) illness during the last two weeks? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 529 | 2 | 529 | 2 | 529 | 2 | 529 |
| | | Don't Know | 3 | 529 | 3 | 529 | 3 | 529 | 3 | 529 |
| 528 | What was this illness? | Illness/symptoms<br>Youngest child_____<br>Next to youngest_____<br>Second to youngest_____<br>Third to youngest_____ | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| 529 | Did (NAME) ever have the measles? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | 531 | 2 | 531 | 2 | 531 | 2 | 531 |
| | | Don't Know | 3 | 531 | 3 | 531 | 3 | 531 | 3 | 531 |
| 530 | How old was (NAME) when he/she had the measles? | Age (in years)<br>(Don't Know = 98) | ☐☐<br>98 | | ☐☐<br>98 | | ☐☐<br>98 | | ☐☐<br>98 | |
| 531 | Has (NAME) ever been involved in a serious accident? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | NEXT CHILD OR 539 | 2 | NEXT CHILD OR 539 | 2 | NEXT CHILD OR 539 | 2 | NEXT CHILD OR 539 |
| 532 | What was this accident? | Wound | 1 | | 1 | | 1 | | 1 | |
| | | Burn | 2 | | 2 | | 2 | | 2 | |
| | | Fracture/Sprain | 3 | | 3 | | 3 | | 3 | |
| | | Poisoning | 4 | | 4 | | 4 | | 4 | |
| | | Other(specify):_____ | 6 | | 5 | | 5 | | 5 | |
| 533 | What was the external cause of this accident? | Youngest child_____<br>Next to youngest_____<br>Second to youngest_____<br>Third to youngest_____ | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| 534 | Where did this accident happen to (NAME)? | Inside the house | 1 | | 1 | | 1 | | 1 | |
| | | Just outside the house | 2 | | 2 | | 2 | | 2 | |
| | | Other(specify):_____ | 6 | | 3 | | 3 | | 3 | |
| 535 | Was there any long-term implication resulting from the accident? | Yes | 1 | | 1 | | 1 | | 1 | |
| | | No | 2 | NEXT CHILD OR 539 | 2 | NEXT CHILD OR 539 | 2 | NEXT CHILD OR 539 | 2 | NEXT CHILD OR 539 |
| 536 | What was it? | Youngest child_____<br>Next to youngest_____<br>Second to youngest_____<br>Third to youngest_____ | ☐☐ | NEXT CHILD OR 539 | ☐☐ | NEXT CHILD OR 539 | ☐☐ | NEXT CHILD OR 539 | ☐☐ | NEXT CHILD OR 539 |

| | | | Name (Youngest) _____ | | Name (Next to youngest) _____ | | Name (Second to youngest) _____ | | Name (Third to youngest) _____ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Line number of child in 'Birth History' Q213 | | ☐☐ | | ☐☐ | | ☐☐ | | ☐☐ | |
| | QUESTIONS | CODING CATEGORIES | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO | CODES | SKIP TO |
| 537 | During the two weeks before (NAME) died.. did he/she have any of the following symptoms? A) Diarrhea | Yes:less than 2 days ago | 1 | | 1 | | 1 | | 1 | |
| | | Yes:2 days or more ago | 2 | | 2 | | 2 | | 2 | |
| | | No | 3 | | 3 | | 3 | | 3 | |
| | B) Vomiting | Yes:less than 2 days ago | 1 | | 1 | | 1 | | 1 | |
| | | Yes:2 days or more ago | 2 | | 2 | | 2 | | 2 | |
| | | No | 3 | | 3 | | 3 | | 3 | |
| | C) Cough or Difficulty Breathing | Yes:less than 2 days ago | 1 | | 1 | | 1 | | 1 | |
| | | Yes:2 days or more ago | 2 | | 2 | | 2 | | 2 | |
| | | No | 3 | | 3 | | 3 | | 3 | |
| | D) Fever | Yes:less than 2 days ago | 1 | | 1 | | 1 | | 1 | |
| | | Yes:2 days or more ago | 2 | | 2 | | 2 | | 2 | |
| | | No | 3 | | 3 | | 3 | | 3 | |
| | E) Rash | Yes:less than 2 days ago | 1 | | 1 | | 1 | | 1 | |
| | | Yes:2 days or more ago | 2 | | 2 | | 2 | | 2 | |
| | | No | 3 | | 3 | | 3 | | 3 | |
| | F) Convulsions | Yes:less than 2 days ago | 1 | | 1 | | 1 | | 1 | |
| | | Yes:2 days or more ago | 2 | | 2 | | 2 | | 2 | |
| | | No | 3 | | 3 | | 3 | | 3 | |
| | G) Other illness | Yes(specify):_____ | 1 | | 1 | | 1 | | 1 | |
| | | No | 3 | | 2 | | 2 | | 2 | |
| 538 | What was the main cause of his/her death? | Reason | REASON: ☐☐ | NEXT CHILD OR 539 | REASON: ☐☐ | NEXT CHILD OR 539 | REASON: ☐☐ | NEXT CHILD OR 539 | REASON: ☐☐ | NEXT CHILD OR 539 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 539 | When a child is sick with cough, what signs of illness would tell you that he or she should be taken to a health facility or health worker? | Rapid breathing | A | |
| | | Difficult breathing | B | |
| | | Noisy breathing | C | |
| | | recurrent hard cough | D | |
| | | Fever | E | |
| | | Unable to drink | F | |
| | | Not eating/not drinking well | G | |
| | | Getting sicker/very sick | H | |
| | | Not sleeping | I | |
| | | Not getting better | J | |
| | | Other(specify):———— | X | |
| | | Don't know | Z | |
| 540 | When a child has diarrhea, 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 | |
| | | Don't know | 8 | |
| 541 | When a child has diarrhea, should he/she be given less to eat than usual, about the same amount, or more than usual? | Less to eat | 1 | |
| | | About same amount to eat | 2 | |
| | | More to eat | 3 | |
| | | Don't know | 8 | |
| 542 | When a child is sick with diarrhea, what signs of illness would tell you that he or she should be taken to a health facility or health worker?<br><br>RECORD ALL MENTIONED. | Any watery stool | A | |
| | | Repeated watery stool | B | |
| | | Any vomiting | C | |
| | | Repeated vomiting | D | |
| | | Blood in stools | E | |
| | | Fever | F | |
| | | Dehydration/yellow skin | G | |
| | | Marked thirst | H | |
| | | Not eating/not drinking well | I | |
| | | Getting sicker/very sick | J | |
| | | Not getting better | K | |
| | | Not sleeping | L | |
| | | Other(specify):———— | X | |
| | | Don't know | Z | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 543 | INTERVIEWER: CHECK 520<br>ALL COLUMNS | No child received ORS or question was not asked | 1 | |
| | | One or more children received ORS | 2 | 601 |
| 544 | Have you heard of a special product whose name is ORS or Rehydration salt for the treatment of diarrhea? | Yes | 1 | |
| | | No | 2 | |

## Section 6 : FERTILITY PREFRENCES

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 601 | INTERVIEWER: CHECK 201 | Currently married | 1 | |
| | | Currently not married | 2 | 614 |
| 602 | INTERVIEWER: CHECK 307 | Husband/wife sterilized | 1 | 614 |
| | | Couple not sterilized | 2 | |
| 603 | INTERVIEWER: CHECK 231 | Pregnant | 1 | |
| | | Not pregnant/Unsure | 2 | 605 |
| 604 | After the child you are expecting, would you like to have another child or would you prefer not to have any more children? | Have another | 1 | 606 |
| | | No more | 2 | 609 |
| | | Undecided/D.K. | 3 | 608 |
| 605 | Would you like to have a (another) child or would you prefer not to have any (more) children? | Have another | 1 | |
| | | No more | 2 | 609 |
| | | Cannot get pregnant | 3 | |
| | | Undecided/D.K. | 4 | 608 |
| 606 | [PREGNANT] After the child you expecting now, how long would you like to wait before the birth of another child?<br><br>[NOT PREGNANT OR UNSURE] How long would you like to wait from now before the birth of (another) child? | Months | 1 ☐☐ | |
| | | Years | 2 ☐☐ | |
| | | Soon/now | 993 | |
| | | Can't get pregnant | 994 | 609 |
| | | Other Specify_____ | 996 | |
| | | Don't know | 998 | |
| 607 | Would you prefer your next child to be a boy or a girl? | Boy | 1 | |
| | | Girl | 2 | 609 |
| | | Either | 3 | |
| | | Other(specify):_____ | 6 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 608 | INTERVIEWER: CHECK 603. IF PREGNANT, SKIP TO 609. OTHERWISE ASK: If you became pregnant in the next few weeks would you be happy, unhappy, or would it not matter? | Happy | 1 | |
| | | Unhappy | 2 | |
| | | Would not matter | 3 | |
| 609 | INTERVIEWER: CHECK 310 CURRENTLY USING CONTRACEPTIVE? | Not asked | 1 | |
| | | Not using | 2 | |
| | | Using | 3 | 614 |
| 610 | Do you intend to use a method of family planning at any time in the future? | Yes | 1 | |
| | | No | 2 | 613 |
| | | Don't know | 8 | 613 |
| 611 | Which method would you prefer to use? | Pill | 01 | |
| | | IUD | 02 | |
| | | Injectables | 03 | |
| | | Implants | 04 | |
| | | Diaphragm/Foam/Jelly | 05 | |
| | | Condom | 06 | |
| | | Female sterilization | 07 | |
| | | Male sterilization | 08 | |
| | | Safe period | 09 | |
| | | Withdrawal | 10 | |
| | | Breastfeeding | 11 | |
| | | Other(specify):———— | 12 | |
| | | Don't know | 98 | |
| 612 | When do you plan to begin using (METHOD)? | Within 12 months | 1 | 614 |
| | | From 1 to 2 years | 2 | |
| | | Three years or more | 3 | |
| | | Undecided | 4 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 613 | What is the main reason that you think you will never use a method? | Infrequent sex | 22 | |
| | | Menopausal/hysterectomy | 23 | |
| | | Subfecund/infecund | 24 | |
| | | Want more children | 26 | |
| | | Respondent opposed | 31 | |
| | | Husband opposed | 32 | |
| | | Other relative opposed | 33 | |
| | | Religious prohibition | 34 | |
| | | Knows no method | 41 | |
| | | Knows no source | 42 | |
| | | Health concerns | 51 | |
| | | Fear of side effects | 52 | |
| | | Lack of access/too far | 53 | |
| | | Cost too much | 54 | |
| | | Inconvenient to use | 55 | |
| | | Interferes with body's normal processes | 56 | |
| | | Other(specify):———— | 96 | |
| | | Don't know | 98 | |
| 614 | INTERVIEWER: CHECK 219 | Has living children | 1 | 616 |
| | | Has no living children | 2 | |
| 615 | If you could choose exactly the number of children to have in your whole life, how many would that be? IF '00,' SKIP TO 618. | Number | ☐☐ | 617 |
| | | Other(specify):———— | 9 6 | 618 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 616 | 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 '00,' SKIP TO 618 | Number | ☐☐ | |
| | | Other(specify):_____ | 9 6 | 618 |
| 617 | How many of these children would you like to be boys, how many would you like to be girls and for how many would it not matter? | BOYS Number | ☐☐ | |
| | | Other | 96 | |
| | | GIRLS Number | ☐☐ | |
| | | Other | 96 | |
| | | EITHER Number | ☐☐ | |
| | | Other | 96 | |
| 618 | Would you say that you approve or disapprove of couples using a method to avoid getting pregnant? | Approve | 1 | |
| | | Disapprove | 2 | |
| | | No opinion | 8 | |

| | | Acceptable | Not Acceptable | Don't Know |
|---|---|---|---|---|
| 619 | Is it acceptable or not acceptable to you for information on family planning to be provided: | | | |
| | On the radio?..... | 1 | 2 | 8 |
| | On the television?.... | 1 | 2 | 8 |

| | | | YES | NO |
|---|---|---|---|---|
| 620 | In the last few months have you heard about family planning: | On the radio | 1 | 2 |
| | | Television | 1 | 2 |
| | | Newspaper or Magazine | 1 | 2 |
| | | Poster | 1 | 2 |
| | | Leaflets or brochures | 1 | 2 |

| | | | | |
|---|---|---|---|---|
| 621 | In the last few months have you discussed the practice of family planning with your friends, neighbors, or relatives? | Yes | 1 | |
| | | No | 2 | 623 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 622 | With whom did you discuss family planning?<br><br>RECORD ALL MENTIONED | Husband | A | |
| | | Mother | B | |
| | | Father | C | |
| | | Sister(s) | D | |
| | | Brother(s) | E | |
| | | Daughter(s) | F | |
| | | Mother-in-law | G | |
| | | Friends/neighbors | H | |
| | | Other(specify):———— | X | |
| 623 | INTERVIEWER: CHECK 201 | Currently married | 1 | |
| | | Currently not married | 2 | 628 |
| 624 | Do you think that your husband approves or disapproves of couples using a method to avoid pregnancy? | Approves | 1 | |
| | | Disapproves | 2 | |
| | | Don't know | 8 | |
| 625 | How often have you talked to your husband about family planning in the past year? | Never | 1 | |
| | | Once or twice | 2 | |
| | | More often | 3 | |
| 626 | Have you talked with your husband about the number of children you would like to have? | Yes | 1 | |
| | | No | 2 | |
| 627 | Do you think that your husband wants the same number of children that you want, or does he want more or fewer than you want? | Same number | 1 | |
| | | More children | 2 | |
| | | Fewer children | 3 | |
| | | Don't know | 8 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 628 | In your opinion, what level of education would you like (your daughter/a girl) to obtain? | None | 1 | |
| | | Read and write | 2 | |
| | | Basic (1-9) | 3 | |
| | | Secondary | 4 | |
| | | University+ | 5 | |
| 629 | In your opinion, What level of education would you like (your son/a boy) to obtain? | None | 1 | |
| | | Read and write | 2 | |
| | | Primary | 3 | |
| | | Secondary | 4 | |
| | | University | 5 | |
| 630 | In your opinion, what is the most suitable age for (your daughter/a girl) to marry? | Age | ☐☐ | |
| | | Other(specify):———— | 9 6 | |
| 631 | In your opinion, how many children should (your daughter /a girl) have? | Number | ☐☐ | |
| | | Other(specify):———— | 9 6 | |
| 632 | Would you approve or disapprove your daughter(s) (girls) working if a good opportunity for earning cash was available? | Approves | 1 | |
| | | Conditionally approves | 2 | |
| | | Disapproves | | |

## Section 7 : MARRIAGE & HUSBAND'S BACKGROUND & WOMAN'S WORK

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 701 | INTERVIEWER: PRESENCE OF OTHERS AT THIS POINT. | | YES | NO |
| | | Children under 10 | 1 | 2 |
| | | Husband | 1 | 2 |
| | | Other males | 1 | 2 |
| | | Other females | 1 | 2 |
| 702 | INTERVIEWER: CHECK 201 | Currently married | 1 | |
| | | Currently not married | 2 | 704 |
| 703 | How old is your husband now? | Age | ☐☐ | |
| 704 | Did your husband ever attend school? | Yes | 1 | |
| | | No | 2 | 708 |
| | | Don't know | 8 | |
| 705 | What was the highest level of education he attended? | Primary | 11 | |
| | | Unified(1-8) | 12 | |
| | | Preparatory (7-9) | 13 | |
| | | Basic (1-9) | 14 | |
| | | Diploma before Second. | 15 | |
| | | Secondary | 16 | |
| | | Diploma after Second. | 17 | |
| | | University and above | 18 | |
| | | Don't know | 98 | 708 |
| 706 | What was the highest class he completed at that level? | Class | ☐☐ | |
| | | Don't know | 9 8 | 708 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 707 | INTERVIEWER: CHECK 705 & 706 | Less than 4 years of primary/unified/basic | 1 | |
| | | Four years or more of primary/unified/basic | 2 | 710 |
| 708 | Can (could) he read a letter or newspaper, for example? | Yes | 1 | |
| | | No | 2 | 710 |
| | | Don't know | 8 | |
| 709 | Can(could) he write a letter, for example? | Yes | 1 | |
| | | No | 2 | |
| | | Don't know | 8 | |
| 710 | What is (was) his occupation; that is, what kind of work does (did) he mainly do? | _____ | ☐☐☐ | |
| | | Not working | 992 | 715 |
| | | Don't know | 998 | |
| 711 | INTERVIEWER: CHECK 710 | Husband in agriculture | 1 | |
| | | Not in agriculture | 2 | 714 |
| 712 | Does (did) your husband work mainly on his or family land, rented land, or on someone else's land? | His/Family land | 1 | |
| | | Rented land | 2 | |
| | | Someone's land | 3 | |
| 713 | Does (did) he work mainly for money or does (did) he work for a share of the crops? | Money | 1 | |
| | | A share of crops | 2 | |
| | | Both | 3 | |
| | | Other(specify):_____ | 6 | |
| 714 | Does your husband have any additional or secondary job?<br>IF YES:<br>What does he do? | Secondary job:<br>_____ | ☐☐☐ | |
| | | No | 992 | |
| | | Don't know | 998 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 715 | INTERVIEWER: CHECK 201 | Currently married | 1 | |
| | | Not currently married | 2 | 722 |
| 716 | Has your husband been living with you here continuously during the last three months or has he been away? | Living at home | 1 | 720 |
| | | Away | 2 | |
| 717 | What is the reason for his absence? | Working elsewhere inside the country | 1 | 719 |
| | | Working abraod | 2 | |
| | | Other(specify):_____ | 6 | 719 |
| 718 | In which country does he work now? | Country: _____ | ☐☐ | |
| 719 | For how long has he been away? | Months | 1 ☐☐ | |
| | | Years | 2 ☐☐ | |
| 720 | Does your husband have another wife? IF 'YES' : How many? | Number of co-wives | ☐ | |
| | | No | 4 | 722 |
| | | Don't know | 8 | 722 |
| 721 | Are you the first, second... wife? | Rank _____ | ☐ | |
| 722 | Have you been married only once or more than once? | Once | 1 | 724 |
| | | More than once | 2 | |
| 723 | Is (was) there a blood relation between you and your last husband? | First cousin from Father's side | 1 | |
| | | First cousin from Mother's side | 2 | |
| | | No relation | 3 | |
| | | Other (specify):_____ | 6 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 724 | Is (was) there a blood relation between you and your (first) husband?<br><br>.IF 'YES' : What is (was) the type of this relation? | First cousin from Father's side | 1 | |
| | | First cousin from Mother's side | 2 | |
| | | No relation | 3 | |
| | | Other (specify):_____ | 6 | |
| 725 | In what month and year did you and your (first) husband begin to live together "Zifaf"? | Month | ☐☐ | |
| | | Don't know month | 9 8 | |
| | | Year | ☐☐ | |
| | | Don't know year | 9 8 | |
| 726 | At what age did you and your (first) husband begin to live together "zifaf"? | Age | ☐☐ | |
| 727 | As you may 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.<br>Before your first marriage... did you work for cash, without money, or you did not work? | Yes: for money | 1 | |
| | | Yes: without money | 2 | 730 |
| | | Did not work | 3 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 728 | How did you spend the money you earned? | Give it to the family | 1 | 730 |
| | | Kept it | 2 | |
| | | Partly family/partly respondent | 3 | |
| | | Other (specify):_____ | 6 | 730 |
| 729 | Was the money used mainly to prepare for marriage? | Yes | 1 | |
| | | No | 2 | |
| | | Don't know | 8 | |
| 730 | Are you now doing any work for cash, not-for-cash, or you are not working? | Yes:for cash | 1 | 733 |
| | | Yes:not-for-cash | 2 | 734 |
| | | Not working | 3 | |
| 731 | Have you done any work in the 12 months for cash, not for cash, or you have not worked? | Yes:for cash | 1 | 733 |
| | | Yes:not-for-cash | 2 | 734 |
| | | Not working | 3 | |
| 732 | Have you worked after your first marriage for cash, not-for-cash, or you have not worked? | Yes: for cash | 1 | 801 |
| | | Yes: not for cash | 2 | 801 |
| | | Not worked | 3 | 746 |
| 733 | Who mainly decides(d) how the money you earned will be used? | Respondent | 1 | |
| | | Husband | 2 | |
| | | Respondent and Husband | 3 | |
| | | Jointly with others | 4 | |
| | | Someone else | 5 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 734 | What kind of work do you do?<br><br>INTERVIEWER: Write response in detail. | _____<br>_____<br>_____ | ☐☐☐ | |
| 735 | INTERVIEWER: Check 734 | Works in Agricultural<br>Doesn't work in Agri. | 1<br>2 | <br>737 |
| 736 | Do you work mainly on own/ family land, do you work on rented land, or do you work on some one's land? | Own/Family land<br>Rented land<br>Someone's land | 1<br>2<br>3 | |
| 737 | Do you do this work for yourself, for family members, or someone else? | For self<br>for family member<br>Someone else | 1<br>2<br>3 | |
| 738 | How many hours do you work on a normal day? | Number of hours | ☐☐ | |
| 739 | Do you usually work throughout the year, or do you work seasonally, or only once in while? | Throughout the year<br>Seasonally<br>Once in while | 1<br>2<br>3 | 741<br><br>742 |
| 740 | During the last 12 months, how many months did you work? | Number of months | ☐☐ | |
| 741 | During these months, how many days a week did you usually work? | Number of days | ☐ | 743 |
| 742 | During the last 12 months, how many days did you work? | Number of days | ☐☐☐ | |
| 743 | INTERVIEWER: CHECK BIRTH HISTORY TABLE ..Q219 and 219A ANY LIVING CHILDREN <6 YEARS? | Yes (one or more)<br>No (no children) | 1<br>2 | <br>801 |
| 744 | Do you usually work at home or away from home? | Work at home<br>Work outside home | 1<br>2 | 801 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 745 | Who usually take care of the children while you are working?<br>RECORD THE MAIN CARETAKER | Respondent | 10 | |
| | | Husband | 11 | |
| | | Older female child | 12 | |
| | | Older male child | 13 | |
| | | Other relatives | 14 | |
| | | Neighbors | 15 | |
| | | friends | 16 | 801 |
| | | Servants/hired help | 17 | |
| | | Child is in school | 18 | |
| | | Institutional childcare | 19 | |
| | | Has not worked since last birth | 95 | |
| | | Other(specify):———— | 96 | |
| 746 | INTERVIEWER: CHECK 727 & 732 WORKED BEFOFE MARRIAGE AND DID NOT WORK AFTER MARRIAGE? | Yes | 1 | |
| | | No | 2 | 801 |
| 747 | Who decided that you do not work after marriage?<br>RECORD ALL MENTIONED | Respondent | A | |
| | | Husband | B | |
| | | Mother-in-law | C | |
| | | Father-in-law | D | |
| | | Other relatives | E | |
| | | Other(specify):———— | X | |
| 748 | What are the reasons for stop working?<br>RECORD ALL MENTIONED | Looking after the house | A | |
| | | Looking after children | B | |
| | | Social reasons | C | |
| | | Other(specify):———— | X | |

## Section 8 : MATERNAL MORTALITY

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 801 | Now I would like to ask you some questions about your brothers and sisters, that is, all of the children born to your natural mother, including those who are living with you, those living elsewhere and those who have died.<br><br>How many children did your mother give birth to, including you? | NUMBER OF BIRTHS TO NATURAL MOTHER..... [ ][ ] | |
| 802 | CHECK 801: TWO OR MORE BIRTHS [ ] | ONLY ONE BIRTH (RESPONDENT ONLY) [ ] | →901 |
| 803 | How many of these births did your mother have before you were born? | NUMBER OF PRECEDING BIRTHS..... [ ][ ] | |

| | [1] | [2] | [3] | [4] | [5] | [6] |
|---|---|---|---|---|---|---|
| 804 What was the name given to your oldest (next oldest) brother or sister? | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- |
| 805 Is (NAME) male or female? | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 |
| 806 Is (NAME) still alive? | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [2] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [3] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [4] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [5] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [6] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [7] |
| 807 How old is (NAME)? | [ ][ ]<br>GO TO NEXT GO TO [2] | [ ][ ]<br>GO TO NEXT GO TO [3] | [ ][ ]<br>GO TO NEXT GO TO [4] | [ ][ ]<br>GO TO NEXT GO TO [5] | [ ][ ]<br>GO TO NEXT GO TO [6] | [ ][ ]<br>GO TO NEXT GO TO [7] |
| 808 In what year did (NAME) die? | 19[ ][ ]<br>GO TO 810<br>DK.....98 | 19[ ][ ]<br>GO TO 810<br>DK.....98 | 19[ ][ ]<br>GO TO 810<br>DK.....98 | 19[ ][ ]<br>GO TO 810<br>DK.....98 | 19[ ][ ]<br>GO TO 810<br>DK.....98 | 19[ ][ ]<br>GO TO 810<br>DK.....98 |
| 809 How many years ago did (NAME) die? | [ ][ ] | [ ][ ] | [ ][ ] | [ ][ ] | [ ][ ] | [ ][ ] |
| 810 How old was (NAME) when she/he died? | [ ][ ] | [ ][ ] | [ ][ ] | [ ][ ] | [ ][ ] | [ ][ ] |

811 INTERVIEWER: CHECK 805, IF MALE GO TO NEXT SIBLING. IF FEMALE AND AGE AT DEATH 10 OR MORE, CONTINUE

| | | | | | | |
|---|---|---|---|---|---|---|
| 812 Was your sister married or ever-married at the time of her death? | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT |
| 813 Was (NAME) pregnant when she died? | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 |
| 814 Did (NAME) die during childbirth? | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 |
| 815 Did (NAME) die within 40 days after the end of a pregnancy or childbirth? | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 |
| 816 Was her death due to complications of pregnancy or childbirth? | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 |
| 817 How many children did (NAME) give birth to during her lifetime? | [ ][ ]<br>GO TO NEXT | [ ][ ]<br>GO TO NEXT | [ ][ ]<br>GO TO NEXT | [ ][ ]<br>GO TO NEXT | [ ][ ]<br>GO TO NEXT | [ ][ ]<br>GO TO NEXT |

IF NO MORE BROTHERS OR SISTERS,

| | | | | | | |
|---|---|---|---|---|---|---|
| 804 What was the name given to (next oldest) brother or sister? | [7] ---------- | [8] ---------- | [9] ---------- | [10] ---------- | [11] ---------- | [12] ---------- |
| 805 Is (NAME) male or female? | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 | MALE.....1<br>FEMALE.....2 |
| 806 Is (NAME) still alive? | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [8] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [9] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [10] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [11] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [12] | YES.....1<br>NO.....2 GO TO 808<br>DK.....8 GO TO NEXT GO TO [13] |
| 807 How old is (NAME)? | ☐☐<br>GO TO [8] | ☐☐<br>GO TO [9] | ☐☐<br>GO TO [10] | ☐☐<br>GO TO [11] | ☐☐<br>GO TO [12] | ☐☐<br>GO TO [13] |
| 808 In what year did (NAME) die? | 19☐☐ GO TO 810<br>DK.....98 | 19☐☐ GO TO 810<br>DK.....98 | 19☐☐ GO TO 810<br>DK.....98 | 19☐☐ GO TO 810<br>DK.....98 | 19☐☐ GO TO 810<br>DK.....98 | 19☐☐ GO TO 810<br>DK.....98 |
| 809 How many years ago did (NAME) die? | ☐☐ | ☐☐ | ☐☐ | ☐☐ | ☐☐ | ☐☐ |
| 810 How old was (NAME) when she/he died? | ☐☐ | ☐☐ | ☐☐ | ☐☐ | ☐☐ | ☐☐ |
| 811 INTERVIEWER: CHECK 805, IF MALE, OR IF FEMALE AND AGE AT DEATH 10 OR LESS IN 810 GO TO NEXT SIBLING | | | | | | |
| 812 Was your sister married or ever-married at the time of her death? | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT | YES.....1<br>NO.....2 GO TO NEXT |
| 813 Was (NAME) pregnant when she died? | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 |
| 814 Did (NAME) die during childbirth? | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 | YES.....1 GO TO 816<br>NO.....2 |
| 815 Did (NAME) die within 40 days after the end of a pregnancy or childbirth? | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 | YES.....1<br>NO.....2 GO TO 817 |
| 816 Was her death due to complications of pregnancy or childbirth? | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 | YES.....1<br>NO.....2 |
| 817 How many children did (NAME) give birth to during her lifetime? | ☐☐<br>GO TO NEXT | ☐☐<br>GO TO NEXT | ☐☐<br>GO TO NEXT | ☐☐<br>GO TO NEXT | ☐☐<br>GO TO NEXT | ☐☐<br>GO TO NEXT |
| 818 | IF THERE ARE NO OTHER SIBLINGS, GO TO 901 | | | | | |

___ MARK HERE IF MORE THAN 12 SIBLING AND YOU USE ANOTHER QUESTIONNAIRE TO CONTINUE

## Section 9 : FEMALE CIRCUMCISION

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 901 | Have you heard about the topic of female circumcision? | Yes | 1 | |
| | | No | 2 | 1001 |
| 902 | Have you been circumcised? | Yes | 1 | |
| | | No | 2 | |
| 903 | INTERVIEWER: CHECK BIRTH HISTORY SCHEDULE 215 AND 219 | At least one living daughter | 1 | |
| | | No living daughter | 2 | 912 |
| 904 | Has any of your daughters been circumcised? | Yes | 1 | |
| | | No | 2 | 912 |
| 905 | How old was she when she was circumcised? | Days | 1 ☐☐ | |
| | | Months | 2 ☐☐ | |
| | | Years | 3 ☐☐ | |
| 906 | Do you know what tool was used in the circumcision? | Sharp blade/razor | 1 | |
| | | Scalpel | 2 | |
| | | Scissors | 3 | |
| | | Other(specify):———— | 6 | |
| | | Don't know | 8 | |
| 907 | Who performed the circumcision? | Male doctor | 11 | |
| | | Female doctor | 12 | |
| | | Trained nurse/midwife | 13 | |
| | | Daya/Jidda | 14 | |
| | | Barber | 15 | |
| | | Grandmother/relative | 16 | |
| | | Other(specify):———— | 96 | |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 908 | Where was the circumcision performed? | At home/other place | 1 | |
| | | At health facility | 2 | |
| 909 | Did your daughter have any complications at the time of the circumcision or afterwards? | Yes | 1 | |
| | | No | 2 | 912 |
| | | Don't know | 8 | |
| 910 | What were the complications?<br><br>INTERVIEWER: PROBE FOR OTHER COMPLICATIONS<br><br>MARK ALL MENTIONED | Severe pain at wound | A | |
| | | Bleeding | B | |
| | | Infection/fever | C | |
| | | Difficulty in passing urine/urine retention | D | |
| | | Swelling | E | |
| | | Pus | F | |
| | | Other(specify):———— | X | |
| 911 | LOOK AT THE PREVIOUS QUESTION AND ASK:<br>Did you get any medical attention for the (COMPLICATION)? | Yes | 1 | |
| | | No | 2 | |
| | | Don't know | 8 | |
| 912 | Do you think female circumcision should be continued, or should it be discontinued? | Continued | 1 | |
| | | Discontinued | 2 | 914 |
| | | Don't know | 8 | 915 |

| | QUESTIONS | CODING CATEGORIES | | SKIP TO |
|---|---|---|---|---|
| 913 | Why do you think female circumcision should be continued?<br><br>MARK ALL MENTIONED<br><br>INTERVIEWER: PROBE FOR OTHER REASONS | Good tradition | A | 915 |
| | | Tradition | B | |
| | | Required by religion | C | |
| | | Cleanliness | D | |
| | | Expect better marriage husband | E | |
| | | Preservation of virginity | F | |
| | | Other(specify):———— | X | |
| | | Don't know | Z | |
| 914 | Why do you think female circomcision should not be continued?<br><br>PROBE: ASK AnyÜother? | Bad tradition | A | |
| | | Against religion | B | |
| | | Causes many medical complications | C | |
| | | Painful personal experience | D | |
| | | Against women's diginity | E | |
| | | Other(specify):———— | X | |
| | | Don't know | Z | |
| 915 | INTERVIEWER: CHECK 201 | Currently married | 1 | |
| | | Currently not married | 2 | 1001 |
| 916 | Have you talked about circumcision with your husband? | Yes | 1 | |
| | | No | 2 | |
| 917 | What is your husband's opion about circumcision? | Continue circumcision | 1 | |
| | | Discontinue circum. | 2 | |
| | | Not clear about his opinion | 3 | |
| | | Don't know | 8 | |

## SECTION 10. HEIGHT AND WEIGHT

1001 CHECK BIRTH HISTORY:
ONE OR MORE BIRTHS SINCE JAN. 1992 ☐ NO BIRTHS SINCE JAN. 1992 ☐ → END

| Question | 1 RESPONDENT | 2 YOUNGEST LIVING CHILD | 3 NEXT-TO-YOUNGEST LIVING CHILD | 4 SECOND-TO-YOUNGEST LIVING CHILD |
|---|---|---|---|---|
| 1002 LINE NO. FROM Q.213 | | ☐☐ | ☐☐ | ☐☐ |
| 1003 NAME FROM Q.214 FOR CHILDREN | | (NAME) _____ | (NAME) _____ | (NAME) _____ |
| 1004 DATE OF BIRTH FROM Q.217AND 218, AND ASK FOR DAY OF BIRTH | | DAY..... ☐☐<br>MONTH.... ☐☐<br>YEAR..... ☐☐ | DAY..... ☐☐<br>MONTH.... ☐☐<br>YEAR..... ☐☐ | DAY..... ☐☐<br>MONTH.... ☐☐<br>YEAR..... ☐☐ |
| 1005 BCG SCAR ON TOP OF LEFT SHOULDER | | SCAR SEEN.....1<br>NO SCAR.....2 | SCAR SEEN.....1<br>NO SCAR.....2 | SCAR SEEN.....1<br>NO SCAR.....2 |
| 1006 HEIGHT (in centimeters) | ☐☐☐.☐ | ☐☐☐.☐ | ☐☐☐.☐ | ☐☐☐.☐ |
| 1007 WAS LENGTH/HEIGHT OF CHILD MEASURED LYING DOWN OR STANDING UP? | | LYING.....1<br>STANDING.....2 | LYING.....1<br>STANDING.....2 | LYING.....1<br>STANDING.....2 |
| 1008 WEIGHT (in kilograms) | ☐☐☐.☐ | 0☐☐.☐ | 0☐☐.☐ | 0☐☐.☐ |
| 1009 RESULT | MEASURED.....1<br>NOT PRESENT....3<br>REFUSED.....4<br>OTHER.....6<br>_____ (SPECIFY) | CHILD MEASURED.1<br>CHILD SICK.....2<br>CHILD NOT PRESENT.....3<br>CHILD REFUSED..4<br>MOTHER REFUSED.5<br>OTHER.....6<br>_____ (SPECIFY) | CHILD MEASURED.1<br>CHILD SICK.....2<br>CHILD NOT PRESENT.....3<br>CHILD REFUSED..4<br>MOTHER REFUSED.5<br>OTHER.....6<br>_____ (SPECIFY) | CHILD MEASURED.1<br>CHILD SICK.....2<br>CHILD NOT PRESENT.....3<br>CHILD REFUSED..4<br>MOTHER REFUSED.5<br>OTHER.....6<br>_____ (SPECIFY) |

1010 NAME OF MEASURER: _____ ☐☐ NAME OF ASSISTANT: _____ ☐☐

1011 TIME ENDED INTERVIEW HOURS ☐☐ MINUTES ☐☐

## INTERVIEWER'S OBSERVATIONS

To be filled in after completing interview

Comments about Respondent: _____

_____

_____

Comments on Specific Questions: _____

_____

_____

Any Other Comments: _____

_____

_____

## SUPERVISOR'S OBSERVATIONS

_____

_____

_____

Name of Supervisor: _____ Date: _____

## EDITOR'S OBSERVATIONS

_____

_____

_____

Name of Editor: _____ Date: _____