Turkey

Demographic and Health Survey 1993

Ministry of Health
General Directorate of Mother and Child Health
and Family Planning

Hacettepe University
Institute of Population Studies

DHS

Demographic and Health Surveys
Macro International Inc.

Turkish Demographic and Health Survey 1993

Ministry of Health, General Directorate of Mother and Child Health and Family Planning
Ankara, Turkey

Hacettepe University, Institute of Population Studies
Ankara, Turkey

Demographic and Health Surveys, Macro International Inc.
Calverton, Maryland, USA

October 1994

This report summarises the findings of the 1993 Turkish Demographic and Health Survey (TDHS) conducted by the Institute of Population Studies, Hacettepe University (HIPS), under a subcontract through an agreement between the General Directorate of Mother and Child Health and Family Planning, Ministry of Health and Macro International Inc. of Calverton, Maryland, USA. Macro International Inc. provided technical assistance. Funding was provided by the U.S. Agency for International Development (USAID).

The TDHS is part of the worldwide Demographic and Health Surveys (DHS) program, which is designed to collect, analyse and disseminate demographic data on fertility, family planning, and maternal and child health. The survey is also the most recent in a series of demographic surveys carried out in Turkey by HIPS to provide information on fertility and child mortality levels; family planning awareness, approval and use; and basic indicators of maternal and child health.

Additional information on the TDHS can be obtained from the General Directorate of Mother and Child Health and Family Planning, Ministry of Health, Sıhhiye, Ankara, Turkey (Telephone: 312-4314871; Fax: 312-4314872), or from Hacettepe University, Institute of Population Studies, 06100 Ankara, Turkey (Telephone: 312-3107906; Fax: 312-3118141). Information on the worldwide DHS program may be obtained by writing: DHS, Macro International Inc., 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA (Telephone: 301-572-0200; Fax: 301-572-0999).

Recommended citation:

Ministry of Health [Turkey], Hacettepe University Institute of Population Studies, and Macro International Inc. 1994. *Turkish Demographic and Health Survey 1993*. Ankara, Turkey.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

PREFACE

The Turkish Demographic and Health Survey (TDHS) is a nationwide sample survey of women of reproductive age designed to provide, among other things, information on fertility, family planning, child survival, and health of children.

The survey was conducted by the Institute of Population Studies, Hacettepe University, Ankara, Turkey, under an agreement through a subcontract signed between the General Directorate of Mother and Child Health and Family Planning, Ministry of Health and Macro International Inc. of Calverton, Maryland, USA, as part of the worldwide Demographic and Health Surveys program, which is being administered by the latter organisation.

The major objectives of the TDHS were to provide concerned circles in Turkey with data useful for making informed policy choices and for enhancing the design and implementation of programs aimed at promoting family planning and improving the health status of the population. As noted above, the survey collected data on major health phenomena, family planning, fertility, and infant and child mortality. In addition to providing information on recent demographic and health trends, the TDHS was further intended to serve as a source of demographic data for comparison with earlier surveys conducted by the Institute of Population Studies, particularly the 1988 Turkish Population and Health Survey, the 1983 Turkish Fertility and Health Survey, and the 1978 Turkish Fertility Survey.

We owe a special debt of gratitude to everyone in the TDHS team, whose untiring efforts and devotion made possible the successful implementation of the survey. We wish to record our sincere gratitude to Dr. Attila Hancıoğlu, Project Technical Director, Dr. Turgay Ünalan, Field Director, and Dr. Banu Akadlı Ergöçmen, Head of Data Processing, who, in addition to performing the tasks implied by their functions, participated in all phases of the project from its inception to its completion. We also wish to thank Dr. Mahir Ulusoy, who took care of the sampling and listing activities, Dr. Turgay Coşkun, who made valuable contributions during the training of the TDHS fieldwork teams on anthropometric measurements, and Dr. Gül Ergör, who was involved with and contributed to the study in various stages. We also thank the Steering Committee members for their valuable contributions and advice, and the staff of the State Institute of Statistics for their assistance in the sampling activities.

We owe an immense debt to the Regional Coordinators, Research Assistants, Supervisors, Interviewers, Field Editors, and Measurers for their meticulous assistance and hard work; theirs was the most delicate and risky job. We are also grateful to all the respondents for their patience and generosity with their time. We would also like to thank all the Governors of the provinces our teams visited, as well as the government officials in these provinces for their support in providing our teams with accommodation and vehicles.

Very special acknowledgment is due the U.S. Agency for International Development (USAID) for providing funding and technical assistance for the survey. We thank Dr. Pınar Senlet, USAID Population Advisor in Ankara, for her unfailing support to the project.

We would also like to acknowledge the contribution of UNICEF Ankara to the survey, especially to the UNICEF Representative, Mr.Claudio Sepulveda.

We are most grateful to Macro International Inc. for providing technical assistance. We wish to record our deepest gratitude to Dr. Edilberto Loaiza, country monitor, for his valuable contributions; Dr. Alfredo Aliaga, sampling expert, for his fruitful collaboration with the TDHS team in activities related to sampling and listing, and Jeanne Cushing, for her expertise in data processing. Dr. Ann Way, also from Macro International Inc., had a large part at the inception of the project; we thank her for her contributions. Finally, special thanks are extended to those at Macro International Inc. who reviewed and produced the TDHS report.

Prof. Dr. Ergül Tunçbilek
Survey Director
Hacettepe University
Institute of Population Studies

Prof. Dr. Ayşe Akın Dervişoğlu
Project Director
Ministry of Health
General Directorate of MCH/FP

SUMMARY OF FINDINGS

The 1993 Turkish Demographic and Health Survey (TDHS) is a nationally representative survey of ever-married women less than 50 years old. The survey was designed to provide information on fertility levels and trends, infant and child mortality, family planning, and maternal and child health. The TDHS was conducted by the Hacettepe University Institute of Population Studies under a subcontract through an agreement between the General Directorate of Mother and Child Health and Family Planning, Ministry of Health and Macro International Inc. of Calverton, Maryland. Fieldwork was conducted from August to October 1993. Interviews were carried out in 8,619 households and with 6,519 women.

Fertility in Turkey is continuing to decline. If Turkish women maintain current fertility rates during their reproductive years, they can expect to have an average of 2.7 children by the end of their reproductive years. The highest fertility rate is observed for the age group 20-24. There are marked regional differences in fertility rates, ranging from 4.4 children per woman in the East to 2.0 children per woman in the West. Fertility also varies widely by urban-rural residence and by education level. A woman living in rural areas will have almost one child more than a woman living in an urban area. Women who have no education have almost one child more than women who have a primary-level education and 2.5 children more than women with secondary-level education.

The first requirement of success in family planning is the knowledge of family planning methods. Knowledge of any method is almost universal among Turkish women and almost all those who know a method also know the source of the method. Eighty percent of currently married women have used a method sometime in their life. One third of currently married women report ever using the IUD. Overall, 63 percent of currently married women are currently using a method. The majority of these women are modern method users (35 percent), but a very substantial proportion use traditional methods (28 percent). The IUD is the most commonly used modern method (19 percent), followed by the condom (7 percent) and the pill (5 percent). Regional differences are substantial. The level of current use is 42 percent in the East, 72 percent in the West and more than 60 percent in the other three regions. The common complaints about the methods are side effects and health concerns; these are especially prevalent for the pill and IUD.

A basic knowledge of reproductive physiology is necessary, especially in the use of coitus-related methods. However, only 22 percent of ever-married women know the correct time of ovulation. Information on the sources of methods is important for planning the services. The majority of users (55 percent) obtain the methods from government services. Primary health care units are the major public sector suppliers (35 percent) and pharmacies are the major private sector suppliers (26 percent). The discontinuation rate of the IUD is the lowest among all methods. Information on the intentions of current non-users was also collected for the estimation of future demand. Of this group, 46 percent do not intend to use any method in the future whereas 45 percent have the intention to use. Of the latter women, the majority report that their method of choice will be the IUD.

Abortion rates have decreased slightly since 1990. The decrease is observed for induced abortions rather than spontaneous abortions. For the year preceding the survey, the abortion rate is 29 per 100 pregnancies, the induced abortion rate is 18 per 100 pregnancies and the spontaneous abortion rate is 12 per 100 pregnancies. The abortion incidence is twice as high in the Central, Southern and Northern regions and almost three times as high in the Western region compared to the Eastern region. There have been 1.5 stillbirths per 100 pregnancies in the last five years preceding the survey. Overall, 72 percent of women had had no abortions, 15 percent had one abortion, 8 percent had two abortions and 5 percent had three or more abortions. There is a very important opportunity for family planning counselling after an abortion. However, the results show that this opportunity is not utilised well. In the month after an induced abortion, 39 percent of women did not use any method and 27 percent used withdrawal. The main reason for obtaining an abortion was the desire not to have any more children (58 percent). Overall, 44 percent of abortions took place in the first month of pregnancy, 31 percent in the second month, 13 percent in the third month and 12 percent in the fourth or later months of pregnancy. Some 67 percent of abortions were performed by private physicians and 27 percent were performed in the government hospitals; there are no significant differences between regions in terms of the place where induced abortions are performed.

The age at first marriage is one of the important determinants of fertility. TDHS results suggest that there has been an increase over the past 20 years in the age at first marriage in Turkey. The median age at first marriage among women age 25-29 is 20 years compared to 18.3 years among women age 45-49. There are differences in the age at marriage across places of residence and regions. Even more pronounced differences are observed by educational level of women. Among women age 25-49, there is a difference of almost 5 years in the timing of entry into marriage between those with little or no education and those who completed at least the secondary level.

More than two-thirds of currently married women in Turkey say that they do not want any more children. An additional 14 percent want to wait at least two years before having another child. When asked how many children they would like to have if they were to start their reproductive lives all over again and be able to choose exactly, women reported an average ideal family size of 2.4 children. Results from the survey suggest that if all unwanted births were eliminated, the total fertility rate at the national level would be 1.8 children per woman, nearly one child lower than the actual level of 2.7. Twenty percent of the births in the five years preceding the survey were unwanted births and 12 percent of them were mistimed. The unmet need for family planning in Turkey indicates that there is potential for further increases in contraceptive use. Twelve percent of currently married women are considered to be in need of family planning. These are women who want no more children (8 percent) or who want to delay the next birth (4 percent) but are not using family planning.

Data on infant and child mortality from the TDHS appear to be of reasonable quality according to a preliminary assessment of the quality of birth history data. For the five years preceding the TDHS, the infant mortality rate is estimated at 53 per thousand, the child mortality rate at 9 per thousand, and the under-five mortality rate at 61 per thousand. For the same period, the results show that in Turkey, the neonatal mortality rate is higher than the postneonatal mortality rate, and that all the indicators of infant and child mortality have declined rapidly in recent years. The general agreement of the TDHS results with those from previous surveys confirms the plausibility of the TDHS findings.

The TDHS findings point to significant differences in infant and child mortality between regions and urban and rural areas, and show that the educational level of the mother and the presence of medical maternity care are important correlates of infant and child mortality. In addition to the differentials observed between socioeconomic groups, infant and child mortality rates also appear to correlate strongly with demographic variables. Age of mother at birth and order of birth show the expected U-shaped relationship with infant and child mortality. Elevated risks of mortality are also apparent in the case of short birth intervals.

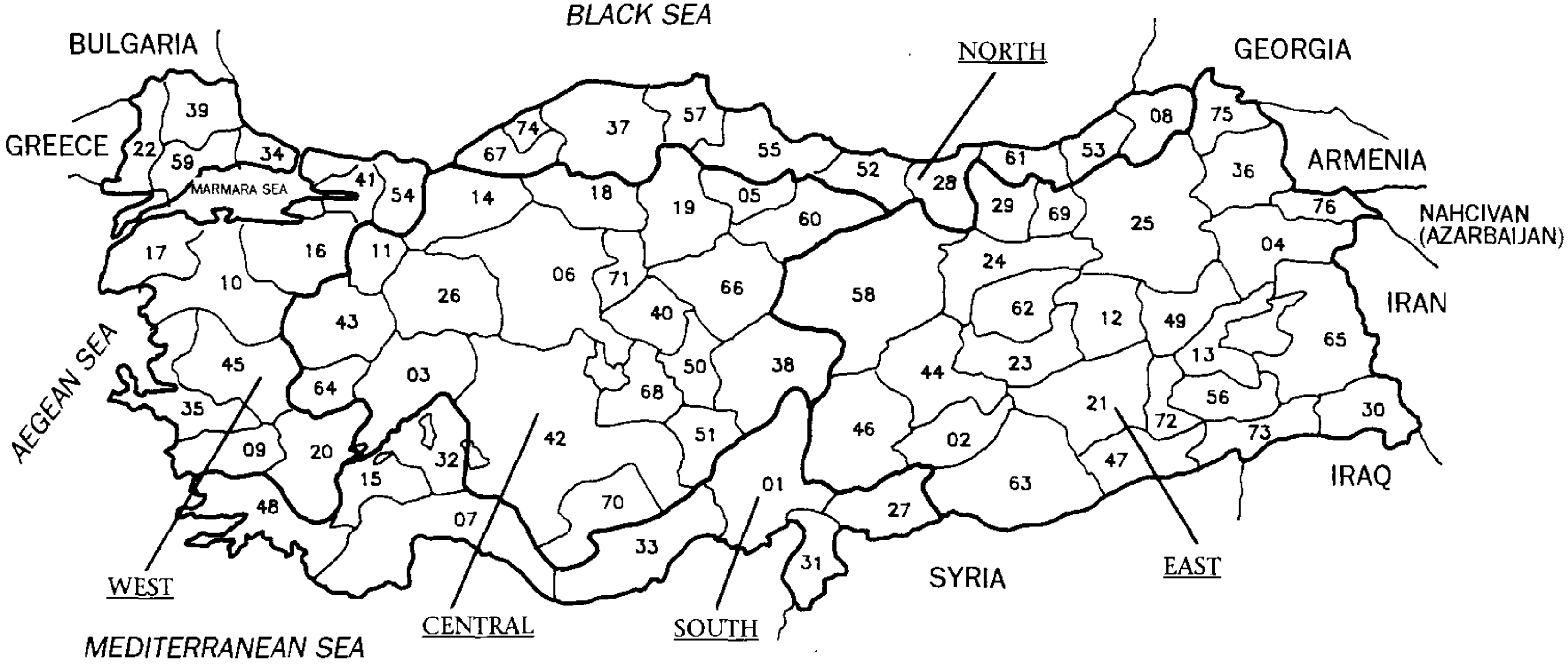
Among the maternal health indicators, antenatal care was received from trained health personnel by 62 percent of pregnant women. For more than half of the births, antenatal care started before the fifth month of pregnancy. Tetanus toxoid coverage for women is low, with 16 percent having one dose and 26 percent having two doses or more. The TDHS shows that 60 percent of all deliveries took place at a health facility. Deliveries at home are more likely to occur without the assistance of trained health personnel.

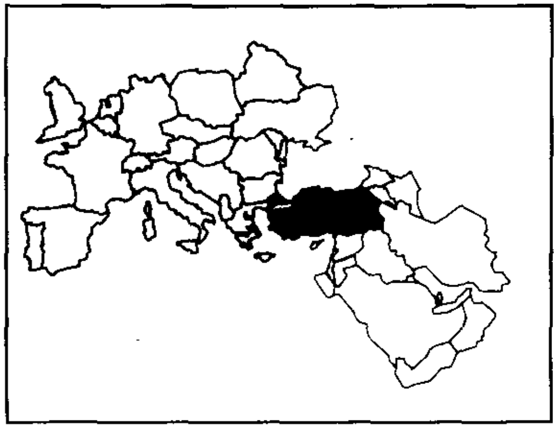
One of the major child health indicators is immunisation coverage. Among children age 12-23 months, the coverage rates for BCG and the first two doses of DPT and polio were about 90 percent, with most of the children receiving those vaccines before age one. The results indicate that 65 percent of the children had received all vaccinations at some time before the survey. On a regional basis, coverage is significantly lower in the Eastern region (41 percent), followed by the Northern and Central regions (61 percent and 65 percent, respectively). Acute respiratory infections (ARI) and diarrhoea are the two most prevalent diseases of children under age five in Turkey. In the two weeks preceding the survey, the prevalence of ARI was 12 percent and the prevalence of diarrhoea was 25 percent for children under age five. Among children with diarrhoea 56 percent were given more fluids than usual.

Breastfeeding in Turkey is widespread. Almost all Turkish children (95 percent) are breastfed for some period of time. The median duration of breastfeeding is 12 months, but supplementary foods and liquids are introduced at an early age. One-third of children are being given supplementary food as early as one month of age and by the age of 2-3 months, half of the children are already being given supplementary foods or liquids.

By age five, almost one-fifth of children are stunted (short for their age), compared to an international reference population. Stunting is more prevalent in rural areas, in the East, among children of mothers with little or no education, among children who are of higher birth order, and among those born less than 24 months after a prior birth. Overall, wasting is not a problem. Two percent of children are wasted (thin for their height), and 11 percent of children under five are underweight for their age. The survey results show that obesity is a problem among mothers. According to Body Mass Index (BMI) calculations, 51 percent of mothers are overweight, of which 19 percent are obese.

TURKEY





REGIONS AND PROVINCES

WEST
09 Aydın
10 Balıkesir
16 Bursa
17 Çanakkale
20 Denizli
22 Edirne
34 İstanbul
35 İzmir
39 Kırklareli
41 Kocaeli
45 Manisa
54 Sakarya
59 Tekirdağ

SOUTH
01 Adana
07 Antalya
15 Burdur
27 Gaziantep
31 Hatay
32 Isparta
33 İçel
48 Muğla

CENTRAL
03 Afyon
05 Amasya
06 Ankara
11 Bilecik
14 Bolu
18 Çankırı
19 Çorum
26 Eskişehir
38 Kayseri
40 Kırşehir
42 Konya
43 Kütahya
50 Nevşehir
51 Niğde
60 Tokat
64 Uşak
66 Yozgat
68 Aksaray
70 Karaman
71 Kırıkkale

NORTH
08 Artvin
28 Giresun
37 Kastamonu
52 Ordu
53 Rize
55 Samsun
57 Sinop
61 Trabzon
67 Zonguldak
74 Bartın

EAST
02 Adıyaman
04 Ağrı
12 Bingöl
13 Bitlis
21 Diyarbakır
23 Elazığ
24 Erzincan
25 Erzurum
29 Gümüşhane
30 Hakkari
36 Kars
44 Malatya
46 K. Maraş
47 Mardin
49 Muş
56 Siirt
58 Sivas
62 Tunceli
63 Ş. Urfa
65 Van
69 Bayburt
72 Batman
73 Şırnak
75 Ardahan
76 Iğdır

CHAPTER 1

INTRODUCTION

Attila Hancıoğlu

1.1 Geograp

Turkey has a surface area of 774,815 square kilometres and has land area in both Europe and Asia. About 3 percent of her total area lies in southeastern Europe (Thrace) and the remainder, in southwestern Asia (Anatolia, or Asia Minor). Turkey shares borders with Greece, Bulgaria, Syria, Iraq, Iran, Georgia, Armenia and Nahcivan (Azerbaijan). The shape of the country resembles a rectangle, stretching in the east-west direction for roughly 1,565 kilometres and in the north-south direction for roughly 650 kilometres. Turkey is surrounded by seas in the north (the Black Sea), in the northwest (Marmara), in the west (the Aegean) and in the south (the Mediterranean), giving it a total coastline of approximately 8,333 kilometres.

Anatolia consists of a semi-arid central plateau surrounded by mountains. The Northern Anatolia mountains in the north and the Taurus mountains in the south stretch parallel to the coastline, meeting in the eastern part of the country. The eastern region of the country is characterized by rugged mountainous areas. The average altitude of the country is approximately 1130 metres above sea level. However, there are vast differences in altitude among regions, ranging from an average of 500 metres in the west to 2,000 metres in the east.

The climate is characterized by variations of temperature and rainfall, depending on topography. The average rainfall is 500 millimetres. In Rize, a province on the Black Sea coast, however, the average increases to 2,000 millimetres, while it is less than 300 millimetres in parts of Central Anatolia. Dry, hot summers and cold, rainy winters are the typical climatic conditions of Turkey. In summer, temperatures do not display large variations among different regions of the country, whereas in winter, temperatures range from an average of -10°C in the eastern areas to +10°C in the south.

1.2 History

Anatolia was dominated by the Seljuqs for almost two centuries (1055-1243) and later became the core of the Ottoman Empire, one of the most powerful forces in the Middle East and Europe. Following the demise of the Empire, the Republic of Turkey was founded on its remnants, after the War of Independence led by Mustafa Kemal Atatürk was won. The foundation of the modern Republic not only marked the end of the Ottoman era and drew the present borders of modern Turkey (with the exception of Hatay province, which was not annexed until 1939), but also signified a radical departure from the previous social formation. A modern constitution was introduced, the Sultanate and Caliphate were abolished, religious schools and courts were closed, Western headgear and dress were adopted, Islamic Law was abandoned and replaced with modified versions of the Swiss and Italian Civil and Penal Codes, and the Arabic alphabet was replaced with an alphabet based on Latin characters. In short, the direction of change, led by Atatürk, was one from a religious, oriental Empire to a modern, Westernized, secular Republic.

After both the death of Atatürk in 1938 and the Second World War, during which Turkey was initially neutral but eventually sided with the Allies, the country became less stable politically, but more democratic. The one-party system came to an end in 1950, when the first multiparty election was held; significantly, the Republican People's Party lost to the opposition, the Democrat Party. Turkey then entered a period of liberalization and democratization. Turkey has succeeded in preserving a parliamentary, multi-party system until today, with the exception of three military interventions in 1960, 1971, and 1980.

Turkey is a member of the United Nations and the Council of Europe and is an associate member of the European Community. Close relations have been established with the Western world, manifested in its membership in NATO. Turkey maintains good relations with the countries of the Middle East, stemming from deep-rooted cultural and historical links.

1.3 Administrative Divisions and Political Organisation

The Turkish administrative structure, since the founding of the Republic, has been shaped by three fundamental codes, namely, the Constitutions of 1924, 1961, and 1982. These constitutions specify that Turkey is a Republic with a parliamentary system and that the will of the people is vested in the Turkish Grand National Assembly (TGNA).

All three constitutions adopt basic individual, social and political rights, and accept the principle of separation of powers. The legislative body of the Republic is the TGNA. The TGNA is composed of 450 deputies, who are elected in democratic elections for five-year periods. The President of the Republic is elected by the TGNA for a seven-year term. The Council of Ministers, the executive branch of the Republic, is composed of the Prime Minister and the Cabinet Ministers. The judiciary consists of the Constitutional Court, the Court of Appeals, the Military Court of Appeals, the Court of Jurisdictional Disputes, and the civil and military Courts.

Turkey is administratively divided into 76 provinces. These are further subdivided into districts (*ilçe*), subdivisions (*bucak*), and villages. The head of the province is the governor, who is appointed by and responsible to the central government. The governor, as the chief administrative officer in the province, carries out the policies of the central government, supervises the overall administration of the province, coordinates the work of the various ministry representatives appointed by the central authority in the capital Ankara, and maintains law and order within his/her jurisdiction.

At the municipality level, local governments, each administered by a mayor and a municipal council, are elected by the municipal electoral body for a term of four years. Every locality with a population of more than 2,000 is entitled to form a municipal administration. Municipalities are expected to provide basic services such as electricity, water, gas, the building and maintenance of roads, and sewage and garbage disposal facilities. Educational and health services are mainly provided by the central government, but municipalities also provide some health services.

1.4 Social and Cultural Features

Turkey has a highly heterogeneous social and cultural structure. The "modern" and "traditional" exist simultaneously; there are sharp contrasts between population groups. Attitudes to life are reminiscent of those in the Western world especially for the inhabitants of metropolitan areas. People are more conservative and religious in the rural areas of the country. Traditional opposition to modernization persists in the less developed areas in the north and east. Family ties are strong and influence the formation of values, attitudes, aspirations, and goals. Although laws can be considered to be quite liberal on gender equality, patriarchal ideology still characterizes social life.

Citizens of Turkey are predominantly Muslim. About 98 percent of the population belong to the Sunni and Alevi sects of the Muslim religion, the Sunnis forming the overwhelming majority. Ethnically, Turks predominate; Kurdish, Arabic, Greek, Circassian, Georgian, Armenian, and Jewish communities of varying sizes complete the ethnic mosaic of the rich and complex culture of the Turkish society.

One of the most striking achievements since the founding of the Republic has been the increase in both literacy and education. In 1935, only 10 percent of females and 29 percent of males were literate in Turkey. According to the latest census figures, in 1990, these were 72 and 89 percent, respectively, for the population age 6 and over. Educational attainment has also increased dramatically. The rate for primary school attendance today is around 90 percent. Moderate achievements have also been made in increasing the proportions of males and females with higher than primary-level education. A five-year primary school education is compulsory in Turkey; however, this causes drop-outs after primary school. Considerable regional and urban-rural differences in literacy and educational attainment exist in the country in addition to differences between males and females (State Institute of Statistics, 1992; 1994).

1.5 Economy

Turkish governments have adopted various economic strategies for the development of the country since the founding of the Republic. Liberal policies were implemented during the early years, when the economy was based almost exclusively on agriculture. These policies continued until 1929, and moderate improvements were gained in the mechanization of agriculture. This period was followed by a period of "Etatism," characterized by the strong hand of the state in economic affairs and trade protectionism. The first serious improvements in industry were achieved during this period.

Turkey remained neutral during the Second World War, but the war still imposed heavy restraints on the economy, slowing down the industrialization process. After the war, a "mixed economy" regime followed, whereby private enterprise gained recognition side by side with the state economic enterprises. Also, more emphasis was placed on agricultural development.

The military intervention in 1960 and the consequent military government brought about the preparation of a series of Five-Year Development Plans, the first of which became operative in 1963. Preparations for the Seventh Plan are currently under way. The Turkish economy can now be called a "free enterprise" economy; the intervention of the state in economic matters has gradually decreased since the early 1980s. The policies of the 1980s and 1990s have aimed to articulate the backward sections of the economy to the capitalist market, to provide incentives to the improvement of export-oriented industries, to ease the restrictions on imports and exports, and to facilitate the inflow of foreign capital.

In general, Turkey is self-sufficient in terms of its agricultural production and does not import foodstuffs. Wheat, barley, sugar beets, potatoes, and rice are grown in the interior, and cotton, tobacco and citrus are grown for export around the coastal areas. Turkey is not rich in mineral resources. The country's main problem is the inadequacy of primary energy resources, and thus the cost of fuel oil is extremely high. Copper, chromium, borax, coal, and bauxite are among the mineral resources in the country. The main industries are steel, cement, textiles, and fertilizers. Machinery, chemicals and metals are imported mainly from the OECD countries. In recent years, there has been a significant increase in the amount of industrial goods exported to Europe and Arab countries.

Turkey can be classified as a middle-income country in the 1990s. The rate of economic growth has been comparatively high in recent years and the economy has undergone a radical transformation, from an agricultural base to an industrial one.

1.6 Regional Breakdown

Due to the diverse geographical, climatic, cultural, social, and economic characteristics of different parts of the country, Turkey is perhaps best described by using a conventional regional breakdown of the country. Five regions (Western, Southern, Central, Northern, and Eastern) are distinguished, reflecting, to some extent, differences in socioeconomic development levels and demographic conditions among sections of the country. This regional breakdown is frequently used for sampling and analysis purposes in social surveys.

The Western region is the most densely settled, the most industrialized and socioeconomically, the most advanced region of the country. It includes İstanbul (previously the capital of the Ottoman Empire), which is Turkey's largest city and the country's manufacturing and commercial centre. The region also includes İzmir, the country's third largest city. Coastal provinces form a relatively urbanized, fast-growing area. The Aegean coast is also a major agricultural area, where cotton is grown in the river valleys and fruit is cultivated on the hillsides. With dry summers and mild, rainy winters, agricultural yields from the fertile soils are good. The region contributes most of the gross domestic product of the country. Most of the industrial establishments are situated in the Western region.

The Southern region includes highly fertile plains and some rapidly growing industrial centres. Adana, one of the new metropolises of Turkey, is located in this region. The semitropical coastal plains are cut off by steep mountains from the Anatolian highlands to the north. Hot, dry summers and mild, wet winters describe the climatic conditions of the region. Cultivation of cotton and citrus provide high incomes and export earnings; recent decades have witnessed an industrial boom and an inflow of migrants, especially from the Eastern region.

The Central region is an arid grazing area and includes Ankara, the capital and second largest city. Industrial production in the region is low, except for some minor industries located around Ankara. The region specializes in the production of cereals. Given the dry, temperate climate, fruit tree cultivation and sheep and cattle raising are also common.

The Northern region has a fertile coastal strip, but in most places it is only a few kilometres wide; the region is relatively isolated from the rest of the country by mountainous terrain. The region specializes in small-scale, labour-intensive crops like hazelnut and tea. The region receives large quantities of rainfall. Zonguldak, a western province, has extensive coal reserves and is a centre for mining and the steel industry.

The Eastern region includes the least developed provinces of the country. The sparse vegetation, rugged mountainous terrain, short summers, and severe climate are suited to animal husbandry rather than settled farming. In addition to having limited potential for agriculture, the region is also poor in terms of industrial production. However, much of the arid and semi-arid earth in the south of the region will be transformed into fertile land upon the completion of a large irrigation and energy project, the Southeast Anatolia Project. The project is by far the most serious and optimistic development program planned for the region. In addition to economic benefits, the project is also expected to reverse the migration flow from the region to the rest of the country.

1.7 Population

Turkey's population was 13.6 million in 1927 according to the census, which was performed four years after the establishment of the Republic. Beginning with the 1935 census, subsequent population censuses were undertaken at 5-year intervals. The last one, in 1990, put Turkey's population at 56.5 million, which showed that the country's population had quadrupled since the founding of the Republic.

Turkey is among the 20 most populous countries of the world and is the most populous country of the Middle East (State Institute of Statistics, 1993; United Nations, 1985).

Intercensal estimates of population growth have been around 20-25 per thousand since the 1970s. The latest estimate of the population growth rate was 21.7 per thousand for the 1985-1990 period. Population growth rates have fluctuated since the first census. The fluctuations have been particularly striking in the last two decades, owing their origins to varying rates of decline in the fertility and mortality rates, as well as to changes/reversals in migration trends; Turkish workers' emigration to Western Europe in the 1960s has been largely replaced by population movements to other countries, and a new trend of an inflow of population from neighbouring countries has been observed in the last decade. An increase in the number of expatriate workers returning from work in Europe is also a phenomenon of the same period (State Planning Organisation, 1993).

Turkey has a young population as a result of the high fertility and growth rates in the recent past. A third of the population is under 15 years of age, while the proportion of elderly is quite low. However, the absolute number of elderly is expected to increase considerably in the near future.

Marriage, predominantly civil, is widely practiced in Turkey. Religious marriages also account for a significant proportion of the marriages; however, the main custom is to undergo a civil as well as a religious ceremony to get married. The average age at marriage is relatively low, about 18 years for females. The universality of marriage in Turkey is observed in the proportions never married; at the end of the reproductive ages, in age group 45-49, only 1.6 percent of females were never married, whereas the corresponding figure for males in the same age group was 2.6 percent, according to the 1990 Population Census. Marriages in Turkey are also known to be very stable; divorce rates are very low (Hancıoğlu and Akadlı Ergöçmen, 1992).

Recent decades have witnessed dramatic declines in fertility rates. In the early 1970s, the total fertility rate was around 5 children per woman, whereas the latest estimates in the late 1980s had put the total fertility rate at about 3 children per woman. The crude birth rate is estimated to have been around 25 per thousand in the late 1980s.

There is a considerable shortage of information on mortality in Turkey, particularly adult mortality. However, due to the relatively easy estimation of the indicator through fertility surveys, infant mortality rates can be traced back for a relatively long period of time. The infant mortality rate in the late 1950s was around 200 per thousand. It declined to about 130 per thousand during the mid 1970s and to an estimated 67 per thousand during the 1985-1990 period. Crude death rates have also declined from around 30 per thousand in the 1940s to 8 per thousand in the late 1980s. The latest estimates put life expectancy in Turkey at 62.7 years for males and 67.3 for females (Shorter, 1994).

The population of Turkey has undergone an intensive process of urbanization, especially from the 1950s onwards. According to the 1970 census, only 32.3 percent of the population was living in localities with more than 20,000 population. The corresponding figure in the 1990 census was 51.4 percent. The rate of urbanization has been approximately 50 per thousand during the 1970-1990 period. This process has inevitably caused problems in the provision of urban services and the emergence of large areas of squatter housing in unplanned cities.

According to the projections prepared by the State Planning Organisation for the Seventh Five-Year Development Plan, the population of Turkey is expected to reach 69.5 million in the year 2000 and 82 million in 2010 (Shorter, 1994).

1.8 Population and Family Planning Policies and Programs

The government of the Turkish Republic implemented a somewhat pronatalist population policy until the mid-1960s, after which an antinatalist policy was adopted. This shift in policy is manifested in the Population Planning Law of 1965 (State Planning Organisation, 1993).

Due to the heavy human losses during the First World War and the War of Independence, the defense needs of the country and the shortage of manpower, as well as the high infant and child mortality rates, a need to increase fertility and population growth was perceived during the early years of the Republic. A number of laws having direct or indirect implications on fertility and population growth were passed. These laws included monetary awards to women with more than 5 children, prohibitions on the import and sale of contraceptives, and prohibitions on abortions on social grounds.

The traditional attitudes of Turkish governments to population growth began to change in the 1950s, mainly due to medical problems, especially with the realization of the existence of high maternal mortality caused by illegal abortions. High urban population growth and employment problems were also factors contributing to the new antinatalist environment in government circles. The State Planning Organisation and the Ministry of Health pioneered the policy change; previous policies were liberalized by allowing limited importation of contraceptives. As mentioned, The Population Planning Law was enacted in 1965. The law mandated the Ministry of Health with the responsibility for implementing the new family planning policy. The State Planning Organisation, on the other hand, incorporated the notion of population planning in the First Five-Year Development Plan.

In 1983, the Population Planning Law was revised and a more liberal and comprehensive law was passed; the name remained the same. The new law legalized abortions up to the tenth week of pregnancy and voluntary surgical contraception. It also specified the training of auxiliary health personnel in inserting IUDs and included other measures to improve family planning services and mother and child health.

1.9 Health Priorities and Programs

Mother and child health and family planning services have been given a priority status in the antinatalist policies of the government in recent decades due to the large proportion of women of reproductive ages and children in the Turkish population, the high infant, child and maternal mortality rates, the high demand for family planning services, and the limited prenatal and postnatal care. A number of programs are being implemented, with special emphasis on provinces which have been designated as priority development areas, as well as programs focusing on squatter housing districts in metropolitan cities, rural areas and special risk groups.

Specific programs in immunisation, childhood diarrhoeal diseases, acute respiratory infections, promotion of breastfeeding and growth monitoring, nutrition, antenatal and delivery care, safe motherhood, Information, Education, and Communication programs for mother and child health and family planning activities are currently being implemented.

1.10 Health Care System in Turkey

The Ministry of Health is officially responsible for designing and implementing nation-wide health policies and delivering health-care services. Besides the Ministry of Health, other sectors and non-Governmental Organisations contribute to carrying out some health services.

At the central level, the Ministry of Health is responsible for the implementation of curative and preventive health-care services throughout the country within the principles of primary health care. The responsibility for delivering the services and implementing specific Primary Health Care programs is shared by various General Directorates (Primary Health Care, Mother and Child Health and Family Planning, Health Training) and by various Departments (Departments of Tuberculosis Control, Malaria Control, Cancer Control).

At the provincial level, the health care system is under the responsibility of Health Directorates, under the supervision of the Governor. The provincial Health Director is responsible for delivering all primary health-care services as well as curative services.

The present network of Health Centres and Health Houses was formed on the basis of "Legislation for the Socialization of Health Services" so that services and facilities are extended down to the village level. A substantial proportion of villages have health centres or health houses. These are located so as to provide easy access to the other villages.

The most basic element of the health service is the Health House, which serves a population of 2500-3000 and is staffed by a midwife. The Health Centre serves a population of 5,000-10,000 and is staffed by a team consisting of a physician, a nurse, a health officer, midwives, an environmental health technician and a driver. Health Centres mainly offer integrated, polyvalent, primary health-care services. Mother and Child Health and Family Planning Centres and Tuberculosis Dispensaries also offer preventive health services.

This network of health systems works as a health team and is mainly responsible for delivering primary health services, maternal and child health, family planning, and public education services. These health facilities are also the main sources of the health information system.

1.11 Objectives and Organisation of the Survey

Objectives

The Turkish Demographic and Health Survey (TDHS) is a national sample survey of ever-married women of reproductive ages, designed to collect data on fertility, marriage patterns, family planning, early age mortality, socioeconomic characteristics, breastfeeding, immunisation of children, treatment of children during episodes of illness, and nutritional status of women and children. The TDHS, as part of the international DHS project, is also the latest survey in a series of national-level population and health surveys in Turkey, which have been conducted by the Institute of Population Studies, Hacettepe University (HIPS).

More specifically, the objectives of the TDHS are to:

- Collect data at the national level that will allow the calculation of demographic rates, particularly fertility and childhood mortality rates;
- Analyse the direct and indirect factors that determine levels and trends in fertility and childhood mortality;
- Measure the level of contraceptive knowledge and practice by method, region, and urban-rural residence;
- Collect data on mother and child health, including immunisations, prevalence and treatment of diarrhoea, acute respiratory infections among children under five, antenatal care, assistance at delivery, and breastfeeding;
- Measure the nutritional status of children under five and of their mothers using anthropometric measurements.

The TDHS information is intended to assist policy makers and administrators in evaluating existing programs and in designing new strategies for improving family planning and health services in Turkey.

Organisation

The TDHS was carried out by HIPS, through a subcontract under an agreement signed by the General Directorate of Mother and Child Health and Family Planning, Ministry of Health, and Macro International Inc., of Calverton, Maryland, USA. Technical and financial support for the survey was provided by Macro International Inc. through its Demographic and Health Surveys (DHS) program, a project sponsored by the United States Agency for International Development (USAID) to carry out population and health surveys in developing countries.

The Hacettepe Institute of Population Studies began preparations to carry out a Turkish demographic survey in 1993 as far back as December 1991. With the aim of continuing the series of quinquennial demographic surveys carried out since 1968, a preliminary questionnaire was designed, based on the model questionnaires used in the World Fertility Surveys, the Contraceptive Prevalence Surveys and the Family and Fertility Surveys, and on questionnaires used in previous demographic surveys in Turkey. Several international organisations, including the United Nations, were contacted in an effort to secure funding for the survey.

In December 1992, Macro International Inc. expressed an interest in providing funding for the implementation of a DHS survey in Turkey, and contacted the General Directorate of Mother and Child Health and Family Planning, Ministry of Health, and the Hacettepe Institute of Population Studies for this purpose. An agreement was signed between the General Directorate and Macro International Inc., and the General Directorate subcontracted the implementation of the survey activities to HIPS.

A steering committee consisting of representatives from the General Directorate, HIPS, the Hacettepe University Department of Public Health, the State Planning Organisation, and the State Institute of Statistics was set up to provide advice on the implementation of the survey.

The persons involved in the TDHS are listed in Appendix A.

Questionnaires

Two questionnaires were used in the main fieldwork for the TDHS: the Household Questionnaire and the Individual Questionnaire for ever-married women of reproductive age. The questionnaires were based on the model survey instruments developed in the DHS program and on the questionnaires that had been employed in previous Turkish population and health surveys. The questionnaires were adapted to obtain data needed for program planning in Turkey during consultations with population and health agencies. Both questionnaires were developed in English and translated into Turkish; the English versions are reproduced in Appendix F.

The Household Questionnaire was used to enumerate all usual members of and visitors to the selected households and to collect information relating to the socioeconomic position of the households. In the first part of the Household Questionnaire, basic information was collected on the age, sex, educational attainment, marital status and relationship to the head of household for each person listed as a household member or visitor. The objective of the first part of the Household Questionnaire was to obtain the information needed to identify women who were eligible for the individual interview as well as to provide basic demographic data for Turkish households. In the second part of the Household Questionnaire, questions were included on the dwelling unit, such as the number of rooms, the flooring material, the source of water, and the type of toilet facilities, and on the household's ownership of a variety of consumer goods.

The Individual Questionnaire for women covered the following major topics:

- Background characteristics
- Reproduction
- Marriage
- Knowledge and use of family planning
- Other issues relating to contraception
- Maternal care and breastfeeding
- Immunisation and health
- Fertility preferences
- Husband's background, women's work and residence
- Values, attitudes and beliefs
- Maternal and child anthropometry.

The woman's questionnaire included a monthly calendar, which was used to record fertility, contraception, postpartum amenorrhoea and abstinence, breastfeeding, marriage, and migration histories for periods of more than five years, beginning in January 1988, up to the survey month. In addition, the fieldwork teams measured the heights and weights of children under age five and of their mothers, as well as mothers' arm circumference.

Sample

The sample for the TDHS was designed to provide estimates of population and health indicators, including fertility and mortality rates for the nation as a whole, for urban and rural areas, and for the five major regions of the country. A weighted, multistage, stratified cluster sampling approach was used in the selection of the TDHS sample.

Sample selection was undertaken in three stages. The sampling units at the first stage were settlements that differed in population size. The frame for the selection of the primary sampling units (PSUs) was prepared using the results of the 1990 Population Census. The urban frame included provinces and district centres and settlements with populations of more than 10,000; the rural frame included subdistricts and villages with populations of less than 10,000. Adjustments were made to consider the growth in some areas right up to survey time. In addition to the rural-urban and regional stratifications, settlements were classified in seven groups according to population size.

The second stage of selection involved the list of quarters (administrative divisions of varying size) for each urban settlement, provided by the State Institute of Statistics (SIS). Every selected quarter was subdivided according to the number of divisions (approximately 100 households) assigned to it. In rural areas, a selected village was taken as a single quarter, and wherever necessary, it was divided into subdivisions of approximately 100 households. In cases where the number of households in a selected village was less than 100 households, the nearest village was selected to complete the 100 households during the listing activity, which is described below.

After the selection of the secondary sampling units (SSUs), a household listing was obtained for each by the TDHS listing teams. The listing activity was carried out in May and June. From the household lists, a systematic random sample of households was chosen for the TDHS. All ever-married women age 12-49 who were present in the household on the night before the interview were eligible for the survey.

A more technical and detailed description of the TDHS sample design, selection and implementation is presented in Appendix B.

Fieldwork and Data Processing

Data collection for the TDHS was carried out by 17 teams; each team consisted of four to five interviewers, a field editor, a measurer and the team supervisor. Six of the teams used notebook-type computers for data entry and editing in the field. In these teams, the field editor used a data entry program written in ISSA (Integrated System for Survey Analysis). In the other teams, editing was done manually. The field staff, including the editors working with notebooks, were trained during a four-week period in July 1993. The main fieldwork began in August 1993 and was completed in late October. All callbacks and re-interviews were completed by the end of October.

Questionnaires were returned to the Hacettepe Institute of Population Studies in Ankara for data processing. The office editing teams checked that the questionnaires for all selected households and eligible respondents were returned from the field. The comparatively few questions that had not been precoded (e.g., occupation) were coded at this time. The data were then entered and edited using microcomputers and the ISSA package. The office editing and data processing activities were initiated almost immediately after the beginning of fieldwork and were completed in November 1993.

Table 1.1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, Turkey 1993

	Urban	Rural	Total
Households selected	7065	3566	10631
Households found	5752	3148	8900
Households interviewed	5491	3128	8619
Household response rate	95.5	99.4	96.8
Eligible women	4344	2518	6862
Eligible women interviewed	4125	2394	6519
Eligible women response rate	95.0	95.1	95.0
Overall response rate	90.6	94.5	92.0

The results of the household and individual questionnaires are summarized in Table 1.1. Information is provided on the overall coverage of the sample, including household and individual response rates. In all, 10,631 households were selected for the TDHS. At the time of the survey, 8,900 households were considered as occupied and, thus, available for interview. The main reasons field teams were unable to interview some households were that some dwelling units that were listed were found to be vacant at the time of the interview or the household was away for an extended period. Of the 8,900 occupied households, 97 percent (8,619 households) were successfully interviewed.

In the interviewed households, 6,862 women were identified as eligible for the individual interview, i.e., they were ever-married women younger than 50 years of age who were present in the household on the night before the interview. Interviews were successfully completed with 6,519 of these women (95 percent). Among the small number of eligible women not interviewed in the survey, the principal reason for nonresponse was the failure to find the woman at home after repeated visits to the household. The overall response rate for the women's sample was 92 percent.

A more complete description of the fieldwork, coverage of the sample, and data processing is presented in Appendix B.

CHAPTER 2

CHARACTERISTICS OF HOUSEHOLDS AND RESPONDENTS

Turgay Ünalan
Attila Hancıoğlu

Information on the background characteristics of the households included in the survey and the individual respondents is essential for the interpretation of survey findings and provides a rough measure of the representativeness of the sample of women and households. The information in this chapter is presented in three sections: characteristics of the household population (age-sex structure and education), housing characteristics (including water supply, sanitation, flooring material and ownership of consumer goods), and background characteristics of survey respondents (age, marital status, residence, and education levels).

2.1 Characteristics of the Household Population

The Turkish Demographic and Health Survey (TDHS) household questionnaire included two questions that would distinguish between the *de jure* population (persons who are usual residents in the selected household) and the *de facto* population (persons who spent the night before the interview in the selected household). Unless otherwise indicated, all tabulations in this report are based on the *de facto* survey population in the selected households. A household was defined as a person or a group of persons living together and sharing a common source of food.

Age

The age distribution of the household population in the TDHS is shown in Table 2.1 and Figure 2.1 by five-year age groups,[1] according to sex. The population pyramid (Figure 2.1) reflects the effects of past demographic trends on the population and gives an indication of future trends. The narrowing of the base of the pyramid is indicative of a recent decline in fertility, whereas the narrow top points to high mortality in the past; the greater concentration of the population in the 10-19 age group implies that large cohorts will be entering reproductive ages in the next decade.

Table 2.2 presents the population age structure found in the TDHS and in other data sources in the country. The age groups used allow the computation of the age dependency ratio at different points in time. The age dependency ratio is the ratio of non-productive persons (persons age 0 to 14 and those age 65 and over) to persons age 15 to 64. It is an indicator of the dependency responsibility of adults in their productive years. The percentage of the population under 15 years of age appears to have declined between 1989 and 1993. As a result, the percentages in the 15-64 and 65 and over categories show an increase. This pattern is typical of populations that are experiencing a fertility decline. The dependency ratio also decreased, from 66 in 1989 to 63 in 1993. The decline in the dependency ratio indicates a lessening of the economic burden on persons in the productive age groups, i.e., those who support people in the non-productive age groups.

---

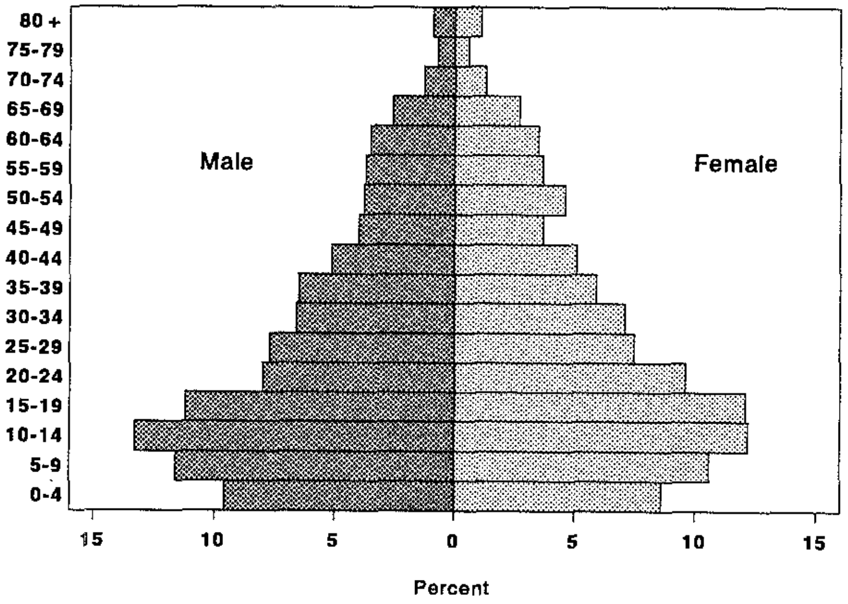
[1] Single-year age distributions are presented in Appendix D, which includes tables on the quality of the TDHS data.

Table 2.1 Household population by age, residence and sex

Percent distribution of the de facto household population by five-year age groups, according to urban-rural residence and sex, Turkey 1993

	Urban			Rural			Total		
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	9.1	8.7	8.9	10.3	8.6	9.4	9.6	8.6	9.1
5-9	11.3	10.0	10.6	12.0	11.5	11.9	11.6	10.6	11.1
10-14	12.5	11.8	12.1	14.5	13.0	13.7	13.2	12.2	12.7
15-19	11.3	11.8	11.5	11.1	12.5	11.9	11.2	12.1	11.6
20-24	8.5	10.0	9.3	7.2	9.0	8.1	8.0	9.6	8.8
25-29	8.8	8.4	8.6	6.0	6.3	6.2	7.7	7.5	7.6
30-34	7.3	8.0	7.7	5.4	5.9	5.7	6.6	7.1	6.9
35-39	7.2	6.4	6.8	5.3	5.2	5.3	6.5	5.9	6.2
40-44	5.8	5.6	5.7	3.9	4.3	4.1	5.1	5.1	5.1
45-49	4.0	3.7	3.8	4.0	3.7	3.8	4.0	3.7	3.8
50-54	3.7	4.5	4.1	3.9	4.7	4.3	3.8	4.6	4.2
55-59	3.2	3.2	3.2	4.4	4.4	4.4	3.7	3.7	3.7
60-64	3.0	2.9	3.0	4.3	4.2	4.2	3.5	3.5	3.5
65-69	2.1	2.2	2.1	3.6	3.5	3.5	2.6	2.7	2.7
70-74	1.1	1.2	1.2	1.8	1.3	1.5	1.3	1.3	1.3
75-79	0.5	0.6	0.5	1.0	0.7	0.8	0.7	0.7	0.7
80 +	0.6	1.0	0.9	1.3	1.2	1.2	0.9	1.1	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	11473	11655	23128	7237	7919	15156	18710	19574	38284

Figure 2.1
Population Pyramid of Turkey



TDHS 1993

Table 2.2 Population by age from selected sources

Percent distribution of the population by age group, selected sources, Turkey 1989-1993

Age group	TDS 1989	CP 1990	TDHS 1993
Less than 15	35.4	35.0	33.0
15-64	60.4	60.7	61.4
65+	4.2	4.3	5.6
Total	100.0	100.0	100.0
Median age	22.0	22.2	23.1
Age dependency ratio	65.7	64.7	62.7

Sources: 1989 Turkish Demographic Survey. SIS, 1991.
1990 Census of Population. SIS, 1993.

Household Composition

Table 2.3 presents the percent distribution of households by sex of head of the household, household size, and relationship of household members to the head of the household, according to urban-rural residence, as calculated from the TDHS. The household composition usually affects the allocation of resources (financial, emotional, etc.) available to household members. In cases where women are heads of household, it is usually found that financial resources are limited. Similarly, the size of the household affects the well-being of its members. Where the size of the household is large, crowding can lead to health problems.

Of all households covered in the TDHS, 10 percent are headed by women. The proportion is slightly higher in urban than in rural areas. There are, on average, 4.5 persons in a household. Rural households are 0.8 persons larger than urban households. Considering adult household members age 15 and over only, the majority of households consist of two related adults of the opposite sex or three or more related adults. Five percent of households consist of only one adult.

Table 2.3 Household composition

Percent distribution of households by sex of head of household, household size, and relationship structure, according to urban-rural residence, Turkey 1993

Characteristic	Residence		
	Urban	Rural	Total
Household headship			
Male	89.3	91.4	90.0
Female	10.7	8.6	10.0
Number of usual members			
0	1.4	2.4	1.8
1	4.3	4.6	4.4
2	13.6	14.7	14.0
3	18.0	10.9	15.5
4	24.5	15.5	21.3
5	17.3	14.5	16.3
6	9.6	11.1	10.1
7	5.5	8.6	6.6
8	2.6	6.7	4.0
9+	3.2	11.0	6.0
Mean size	4.2	5.0	4.5
Relationship structure			
One adult	5.0	5.2	5.0
Two related adults:			
Of opposite sex	44.4	32.6	40.2
Of same sex	1.7	1.0	1.5
Three or more related adults	46.6	58.6	50.9
Other	2.3	2.6	2.4
Total	100.0	100.0	100.0
Number of households	5563	3056	8619

Note: Table is based on de jure members, i.e., usual residents.

Education

The education level of household members is perhaps their most important characteristic. Many phenomena, such as reproductive behavior, use of contraception, health of children, and proper hygienic habits, are issues that are affected by the education of household members. Table 2.4 shows the education

Table 2.4 Educational level of the household population

Percent distribution of the de facto household population age six and over by highest level of education attended, according to selected background characteristics, Turkey 1993

Background characteristic	Level of education								
	No education	Primary incomplete	Primary graduate	Secondary incomplete	Secondary graduate+	Missing/ Don't know	Total	Number	Median number of years
				MALE POPULATION					
Age									
6-9	29.2	69.0	0.6	0.1	0.0	1.1	100.0	1801	0.0
10-14	2.1	34.9	26.3	30.1	6.5	0.1	100.0	2480	5.4
15-19	1.7	2.2	34.8	11.9	49.2	0.2	100.0	2100	7.9
20-24	2.5	1.5	39.7	9.5	46.7	0.1	100.0	1498	7.0
25-29	3.1	1.2	46.5	7.8	41.2	0.2	100.0	1444	6.0
30-34	3.6	1.7	48.9	5.7	39.8	0.3	100.0	1231	5.9
35-39	6.7	2.5	53.6	5.1	31.8	0.3	100.0	1212	5.7
40-44	7.5	3.2	56.6	5.2	27.3	0.2	100.0	953	5.7
45-49	13.7	5.7	53.1	3.4	23.9	0.2	100.0	743	5.6
50-54	22.6	7.5	47.5	2.7	19.3	0.4	100.0	703	5.4
55-59	30.0	9.8	46.1	0.5	13.4	0.2	100.0	687	5.2
60-64	38.8	10.5	37.9	1.5	10.7	0.6	100.0	659	4.9
65+	51.0	10.1	28.4	1.0	8.4	1.1	100.0	1039	0.0
Missing/Don't know	*	*	*	*	*	*	100.0	7	*
Residence									
Urban	9.7	14.1	32.9	10.3	32.7	0.3	100.0	10201	5.8
Rural	18.2	18.4	42.4	7.1	13.4	0.5	100.0	6356	5.3
Region									
West	8.6	13.7	38.9	9.4	29.1	0.3	100.0	5620	5.7
South	10.7	15.8	40.8	9.6	22.6	0.5	100.0	2591	5.5
Central	11.9	15.5	35.9	9.3	27.1	0.3	100.0	3628	5.6
North	13.3	16.6	36.1	9.4	24.0	0.6	100.0	1360	5.5
East	23.0	19.2	30.0	7.9	19.5	0.4	100.0	3358	5.3
Total	13.0	15.8	36.5	9.1	25.3	0.3	100.0	16557	5.6
				FEMALE POPULATION					
Age									
6-9	32.6	65.4	0.6	0.1	0.3	1.0	100.0	1719	0.0
10-14	5.8	31.1	35.5	21.4	6.1	0.1	100.0	2398	5.3
15-19	7.4	2.2	53.7	4.3	32.4	0.0	100.0	2364	5.7
20-24	14.2	3.4	51.7	3.3	27.4	0.0	100.0	1872	5.6
25-29	18.1	4.7	51.3	2.4	23.4	0.1	100.0	1474	5.5
30-34	22.5	5.6	51.2	2.3	18.4	0.0	100.0	1396	5.4
35-39	31.9	7.2	45.0	1.8	14.1	0.0	100.0	1158	5.2
40-44	40.3	9.4	37.1	1.9	11.2	0.1	100.0	992	5.0
45-49	43.9	11.8	31.5	1.4	11.4	0.0	100.0	728	0.0
50-54	54.4	10.7	25.6	1.3	7.4	0.6	100.0	897	0.0
55-59	63.7	10.8	21.2	0.3	3.3	0.7	100.0	730	0.0
60-64	70.8	11.1	13.6	0.4	3.5	0.6	100.0	676	0.0
65+	76.8	7.7	10.6	0.3	4.1	0.5	100.0	1119	0.0
Missing/Don't know	*	*	*	*	*	*	100.0	5	*
Residence									
Urban	23.7	14.5	34.1	6.1	21.4	0.2	100.0	10449	5.3
Rural	37.1	17.2	38.5	2.5	4.4	0.3	100.0	7079	0.0
Region									
West	20.1	13.9	39.8	6.0	19.9	0.3	100.0	5776	5.4
South	26.8	15.9	37.5	5.0	14.6	0.2	100.0	2697	5.2
Central	25.9	17.5	37.1	4.4	14.8	0.3	100.0	4048	5.2
North	33.3	14.8	36.7	3.9	11.1	0.2	100.0	1614	5.1
East	48.1	16.3	25.9	2.8	6.6	0.3	100.0	3393	0.0
Total	29.1	15.6	35.9	4.7	14.5	0.2	100.0	17528	5.1

* Less than 25 cases

level of household members by age group, residence, and region for each sex. Primary education is compulsory in Turkey; it usually starts at age 7 and lasts five years. Secondary education is for 3 years. Recent national policy, however, encourages parents to send their children to primary school at age 6. At present, therefore, a child can start school at either of two different ages. Approximately 71 percent of men and 55 percent of women have completed at least primary school, and 25 percent of men and 15 percent of women have completed secondary school or higher. Table 2.4 also shows the median number of years of schooling attained by males and females in each five-year age group. Overall, males have a median duration of schooling of 5.6 years, 0.5 years longer than females. The gap in the median number of years of schooling between males and females is more than 1 year for the population above age 15, but is negligible among those age 10-14 years.

Presented also in Table 2.4 is the level of education by urban-rural residence and region. The proportion of persons with no education is much higher in rural areas than in urban areas, and this difference is observed for both males and females. Three-fourths of males and two-thirds of females in the urban areas are graduates of at least primary school. The proportion of secondary school graduates differs markedly between urban and rural areas, for males and, in a more pronounced way, for females. The proportion of secondary school graduates is five times higher for females in urban areas than in rural areas. Overall, regional differences in education are considerable. The overall level of education is highest in the Western region and lowest in the Eastern region.

School Enrollment

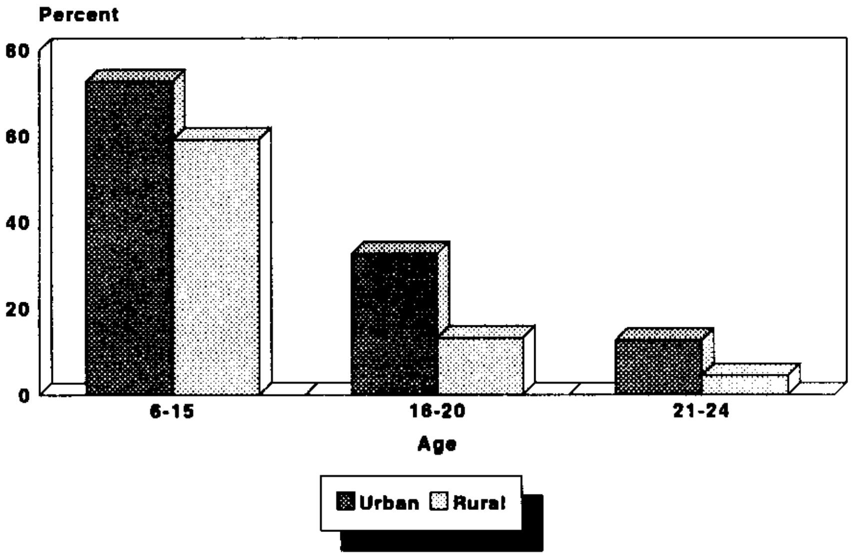
Table 2.5 presents information on school enrollment by age, sex, and residence. These rates are simple ratios of the number of enrolled persons in a specific age group to the total number in that age group. Figure 2.2 depicts the levels of school enrollment by age and place of residence. According to the TDHS, 73 percent of children age 6-10 were enrolled in school at the survey date. The percentage enrollment drops to 62 percent in the age group 11-15 years. For people age 15 and under, the percentage enrolled in school is higher for males than females. Enrollment after age 15 drops significantly; whereas 2 in 3 children age 6-15 are in school, by age 16-20 the ratio drops to only 1 in 4 children, and by age 21-24, only 1 in 10 children are attending school. There are differences in school enrollment between urban and rural residents at all ages for both sexes; the rural and/or female population has consistently lower school enrollment than the urban and/or male population. As age increases, the gap between males and females widens.

Table 2.5 School enrollment

Percentage of the de facto household population age 6-24 years enrolled in school, by age group, sex, and urban-rural residence, Turkey 1993

	Male			Female			Total		
Age group	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
6-10	75.5	72.1	74.1	72.5	68.7	70.8	74.1	70.4	72.5
11-15	78.1	62.6	71.7	64.7	35.1	51.9	71.6	48.7	61.9
6-15	76.8	67.2	72.9	68.5	51.4	61.1	72.8	59.2	67.1
16-20	38.9	24.6	33.6	26.9	4.8	17.6	32.6	13.2	24.8
21-24	16.8	6.5	13.2	9.1	2.6	6.8	12.6	4.4	9.7

Figure 2.2
School Enrollment by Age and Place of Residence



TDHS 1993

2.2 Housing Characteristics

In order to assess the socioeconomic conditions in which respondents live, household heads or respondents of the household questionnaire were asked to give specific information about their household environment. The type of water, sanitation facilities, quality of the floor, and crowding are important determinants of the health status of household members, particularly of children.

Table 2.6 presents the major housing characteristics by place of residence. Overall, 63 percent of the households get their drinking water from pipes. Sources used by households to obtain drinking water differ considerably by area of residence. Water that is piped into the residence is used by 75 percent of the households in urban areas versus 42 percent in rural areas. In rural areas, water from springs is the second main source of drinking water (27 percent) and another 16 percent obtain water from a public tap. The second source of drinking water in urban areas is bottled water.

Modern sanitation facilities are not widely available in rural areas. Pit toilets are used instead (85 percent) and only 3 percent of households have no toilet facility. In urban areas, most of the population use flush toilets (86 percent).

The flooring material of dwelling units is usually cement (34 percent), wood planks (25 percent), or marley (14 percent). Cement is the most common flooring material in both rural areas (38 percent) and urban areas (32 percent). The flooring material of 1 in 5 households in rural areas is earth.

Information on the number of rooms households use for sleeping was collected as a measure of crowding. The mean number of persons per sleeping room is 2.5 for the country as a whole; this number varies from 2.3 in urban areas to 2.8 in rural areas. The sleeping room is shared by one or two persons in about 75 percent of urban households but this figure drops to 62 percent of rural households.

Table 2.6 Housing characteristics

Percent distribution of households by housing characteristics, according to urban-rural residence, Turkey 1993

Housing characteristic	Residence		
	Urban	Rural	Total
Source of drinking water			
Piped into residence	74.5	42.0	62.9
Public tap	3.8	16.3	8.2
Well in residence	0.6	3.8	1.7
Public well	0.1	4.0	1.5
Spring	5.7	27.4	13.4
River, stream	0.0	1.0	0.4
Pond, lake	0.0	0.2	0.0
Dam	0.0	0.2	0.1
Rainwater	0.0	0.3	0.2
Tanker truck	1.5	0.2	1.1
Bottled water	12.7	0.6	8.4
Other	0.3	0.2	0.2
Stationary tank/pool	0.7	3.7	1.8
Missing/Don't know	0.1	0.1	0.1
Total	100.0	100.0	100.0
Sanitation facility			
Flush toilet	85.7	11.6	59.4
Closed pit	12.3	60.5	29.4
Open pit	1.5	24.5	9.7
No facility	0.4	3.3	1.4
Missing	0.1	0.1	0.1
Total	100.0	100.0	100.0
Flooring			
Earth	2.2	20.1	8.6
Wood planks	18.9	37.2	25.4
Parquet, polished wood	7.7	0.4	5.1
Cement	31.7	37.6	33.9
Carpet	2.2	0.6	1.6
Marley	20.3	2.1	13.8
Mosaic	13.5	1.2	9.1
Square flagstone	2.1	0.5	1.6
Other	1.3	0.2	0.8
Missing/Don't know	0.1	0.1	0.1
Total	100.0	100.0	100.0
Persons per sleeping room			
1-2	74.9	61.8	70.2
3-4	21.0	27.5	23.3
5-6	3.1	6.7	4.4
7 +	0.9	3.9	2.0
Missing/Don't know	0.1	0.1	0.1
Total	100.0	100.0	100.0
Mean persons per room	2.3	2.8	2.5
Number of households	5563	3056	8619

Household Durable Goods

The availability of durable consumer goods is a good indicator of household socioeconomic level. Moreover, particular goods have specific benefits. Having access to a radio or a television exposes household members to innovative ideas, a refrigerator prolongs the wholesomeness of foods, and a means of transport allows greater access to many services away from the local area. Table 2.7 presents the availability of selected consumer goods by residence.

Most of the population in Turkey enjoy the convenience of electrical appliances. Around 9 in 10 Turkish households own a television set and a refrigerator, while almost 8 in 10 own a radio cassette player and more than half own a telephone, an oven, a vacuum cleaner, and a washing machine. Urban households are more likely to have the convenience of all of these items than rural households.

Table 2.7 Household durable goods

Percentage of households possessing specific durable consumer goods, by urban-rural residence, Turkey 1993

Durable goods	Residence		Total
	Urban	Rural	
Refrigerator	94.7	74.1	87.4
Oven	75.4	37.8	62.1
Washing machine	70.5	21.6	53.2
Dishwasher	10.4	0.5	6.9
Vacuum cleaner	66.7	18.5	49.6
Television	92.8	75.5	86.7
Video recorder	15.6	3.6	11.4
Radio cassette player	79.2	72.2	76.7
Music set	22.0	5.3	16.0
Telephone	68.4	37.9	57.6
Car	23.8	12.7	19.9
Computer	3.2	0.2	2.1
More than 30 books	31.1	6.3	22.3
Total number of households	5563	3056	8619

2.3 Background Characteristics of Survey Respondents

General Characteristics

A description of the basic characteristics of the ever-married women interviewed in the TDHS is essential as background for interpreting findings presented later in the report. Table 2.8 provides the percent distribution of women by age, marital status, level of education, urban-rural residence, and region.

Women were asked two questions in the individual interview to assess their age: "In what month and year were you born?" and "How old are you?" Interviewers were trained to use probing techniques for situations in which respondents knew neither their age nor date of birth; as a last resort, interviewers were instructed to record their best estimate of the respondent's age. Five percent of women are under 20 years of age, 35 percent are age 20 to 29, 36 percent are age 30 to 39, and the rest (24 percent) are 40 or over.

Of the ever-married women in the sample, 96 percent are currently married, while the rest are either widowed, divorced, or separated, indicating the rarity of marital dissolution in Turkey.

One in three women interviewed in the survey has either never attended school or has some primary education but did not finish primary school, 51 percent have either completed primary school or have some secondary education, and 15 percent are at least secondary school graduates. This distribution of the respondents according to educational groups reveals a specific character of educational attainment in Turkey: once individuals attend school, they are likely to complete it, rather than drop out before completion. The proportions of women in the "Primary incomplete" and "Secondary incomplete" categories are low, making their use as separate categories for demographic analysis impossible. Therefore, contrary to the conventions used in most other surveys conducted in the Demographic and Health Surveys program, the education categories in the following sections have been arranged based on graduation from, rather than attendance in the various education levels. The first two categories are combined to form the category "women who have less education than primary school graduation"; the third and fourth groups are combined to form "women who have either completed primary school or attended secondary school without completing it," and the fifth group is kept the same, i.e., "women who have at least completed secondary school."

About two-thirds of women live in urban areas and the rest live in rural areas. According to the data, 36 percent of respondents live in the Western region, 23 percent live in the Central region, 16 percent live in the Eastern region, 15 percent live in the Southern region, and the remaining 9 percent live in the Northern region.

Differentials in Education

Table 2.9 shows the distribution of the surveyed women by education, according to selected characteristics, as a first effort to clarify the relationship between the explanatory or background variables used in later tabulations. Of particular importance are possible differences in the educational composition of women from different age groups, regions, and urban-rural backgrounds. Education is inversely related to age, that is, older women are generally less educated than younger women. For example, 45 percent of women age 45-49 have had no formal education, whereas only 16 percent of women age 15-19 have never been to school. Women in urban areas are more likely to have higher education than their rural counterparts. The urban-rural difference is most pronounced at the secondary or higher level; only 3 percent of women in rural areas have secondary or more education, whereas the percentage in urban areas is 22. Provided also in Table 2.9 is information on women's level of education by region. The Eastern region has the highest proportion of uneducated women (56 percent). The proportion of women who have attended at least primary school is higher in the West than in other regions.

Table 2.8 Background characteristics of respondents

Percent distribution of ever-married women by selected background characteristics, Turkey 1993

Background characteristic	Weighted percent	Number of women Weighted	Number of women Un-weighted
Age			
15-19	5.0	332	330
20-24	16.0	1040	1031
25-29	18.6	1211	1230
30-34	19.7	1283	1280
35-39	16.5	1073	1085
40-44	13.8	901	888
45-49	10.4	679	675
Marital status			
Married	96.1	6271	6273
Widowed	2.3	148	149
Divorced	1.2	76	73
Separated	0.4	24	24
Education			
No education	27.1	1765	1769
Primary incomplete	6.6	431	433
Primary graduate	48.8	3182	3192
Secondary incomplete	2.4	157	155
Secondary graduate +	15.1	984	970
Residence			
Urban	64.1	4181	4125
Rural	35.9	2338	2394
Region			
West	35.7	2325	1875
South	15.3	998	1295
Central	23.3	1520	1471
North	9.4	612	1004
East	16.3	1064	874
All women	100.0	6519	6519

Table 2.9 Level of education

Percent distribution of women by the highest level of education attended, according to selected background characteristics, Turkey 1993

Background characteristic	Level of education: No education	Primary incomplete	Primary graduate	Secondary incomplete	Secondary graduate+	Total	Number of women
Age							
15-19	16.1	3.1	67.6	4.5	8.7	100.0	332
20-24	17.1	3.9	57.3	3.3	18.4	100.0	1040
25-29	19.1	4.4	54.6	2.5	19.4	100.0	1211
30-34	21.9	6.0	52.4	2.3	17.4	100.0	1283
35-39	33.2	6.8	45.0	2.1	12.9	100.0	1073
40-44	40.2	10.3	37.1	1.6	10.8	100.0	901
45-49	44.6	12.2	31.2	1.8	10.2	100.0	679
Residence							
Urban	21.2	5.5	48.4	3.3	21.6	100.0	4181
Rural	37.6	8.6	49.5	0.9	3.4	100.0	2338
Region							
West	15.8	5.4	55.2	3.4	20.2	100.0	2325
South	27.6	6.8	48.6	2.3	14.7	100.0	998
Central	22.4	8.4	53.0	2.2	14.0	100.0	1520
North	30.7	6.0	48.8	2.3	12.2	100.0	612
East	55.8	6.9	29.2	0.7	7.4	100.0	1064
Total	27.1	6.6	48.8	2.4	15.1	100.0	6519

Access to Media

Women were asked if they usually read a newspaper, listen to a radio or watch television at least once a week. This information is important to program planners seeking to reach women with family planning and health messages through the media. Less than half of women read a newspaper at least once a week. Overall, 89 percent of women watch television weekly and 75 percent listen to the radio weekly (see Table 2.10). Although exposure to mass media varies little across age groups, women under age 40 are slightly more exposed to mass media than older women. Media access is stronger among the urban and educated population. A much higher proportion of educated and urban women read newspapers. Similarly, the proportion of educated women who watch television and listen to the radio is higher than less educated women.

Table 2.10 Access to mass media

Percentage of women who usually read a newspaper at least once a week, watch television at least once a week, or listen to the radio at least once a week, by selected background characteristics, Turkey 1993

Background characteristic	Read newspaper weekly	Watch television weekly	Listen to radio weekly	Number of women
Age				
15-19	46.1	84.0	79.1	332
20-24	49.3	90.1	81.1	1040
25-29	48.3	90.7	75.5	1211
30-34	50.4	90.0	73.7	1283
35-39	43.4	89.1	75.5	1073
40-44	38.6	86.8	71.8	901
45-49	32.7	87.6	68.6	679
Residence				
Urban	56.7	93.1	78.8	4181
Rural	24.1	81.6	68.2	2338
Region				
West	57.8	93.5	77.2	2325
South	45.8	89.0	77.6	998
Central	42.8	89.7	76.1	1520
North	44.3	89.8	75.7	612
East	20.0	77.6	65.8	1064
Education				
No education	4.9	76.5	57.3	1765
Primary incomplete	23.2	88.0	70.4	431
Primary graduate	54.3	92.7	79.9	3182
Secondary incomplete	79.5	97.7	88.9	157
Secondary graduate +	90.8	98.6	90.8	984
Total	45.0	89.0	75.0	6519

CHAPTER 3

FERTILITY

Aykut Toros

The fertility measures presented in this chapter are based on the retrospective reproductive histories of women age 15-49 interviewed in the TDHS. Each woman was asked the number of sons and daughters living with her, the number living elsewhere, and the number who had died. She was then asked for a history of all her births, including the month and year of each, the name and sex and, if deceased, the age at death. If alive, the current age and whether he/she was living with the mother were also asked. Based on this information, measures of completed fertility (number of children ever born) and current fertility (age-specific rates) are examined. These measures are also analyzed in connection with various background characteristics.

Cumulative fertility and children ever born are also looked at in this chapter. The tables display the data on children ever born by the woman's current age and by her age at marriage. The chapter concludes with an analysis of information on the age of the woman at the time of her first birth. The data are important because they indicate the beginning of the woman's reproductive life.

3.1 Data Quality

Estimation of fertility is based on the number of births within a given period of time, usually a calendar year or one full year preceding the survey. Data from many countries are vulnerable to various sources of errors (i.e., memory errors, omissions by survival status of children, etc.). Among these sources, incorrect reporting of the dates of recent births and omissions of births are most important in estimating current fertility levels. Unfortunately, Turkish data are no exception to this.

Various demographic data sources in Turkey have produced distributions that directly or indirectly point out errors in the data sets. For instance, the 1985 Population Census counted 986,730 children at age one but 1,014,611 children at age zero. Similarly, the 1990 Population Census counted 1,007,799 children at age one and 1,116,493 children at age zero. A similar relationship was observed in the 1978 Turkish Fertility Survey (681 and 728 children, respectively). These results all imply, at face value, increasing trends in fertility, but in view of the well-documented decline in fertility in Turkey in the last half century, this can not be real. Persistence "of a meaningful magnitude" of such inconsistencies in many data sources indicates a regularity or a character, rather than an unexpected finding.

The Preliminary Report of the 1993 TDHS that was published earlier this year used three-year averages that were subject to the above-mentioned "pseudo dippings" of fertility trends during the last five years. Due to the existence of such findings from most surveys, a number of preliminary checks were performed to assess whether the fertility data from the TDHS relating to the one full year preceding the survey were plausible. These included checks of the sex ratios of births declared, to see if there was sex-selective omission of births, and tabulations of the background characteristics of children born in the last 8 years to see whether births had been selectively omitted by such characteristics as survival status, place of residence, education of mother, etc. In both cases, there appeared to be no significant selectivity in the births declared. Additionally, two types of analyses were undertaken for the same purpose. First, the well-known Bongaarts model was used to project adjusted fertility estimates of previous surveys to the year 1993 (for adjusted fertility estimates of previous surveys, see HIPS, 1989, pp. 158-173). Second, current pregnancies reported in the TDHS were used to calculate a "would-be" total fertility rate for calendar year 1993. The total fertility rates estimated for 1993 from both types of analyses ranged from 2.6 to 2.8, which are very close to the total fertility rate estimate of 2.7 presented in this chapter.

Further analysis should be carried out to gain insight into the nature of such patterns in fertility data from the TDHS, as well as in other fertility surveys in Turkey, and to assess the possible impact of these patterns on indicators other than fertility.

3.2 Current Fertility

The current level of fertility is the most important topic in this chapter because of its direct relevance to population policies and programmes. Age-specific fertility rates (ASFR) for the year before the survey are presented in Table 3.1 and Figure 3.1 for the country as a whole and for urban and rural areas. The total fertility rate (TFR) for women 15-44 years of age <u>in addition</u> to that for 15-49 is shown for comparative purposes.

<u>Table 3.1 Current fertility</u>

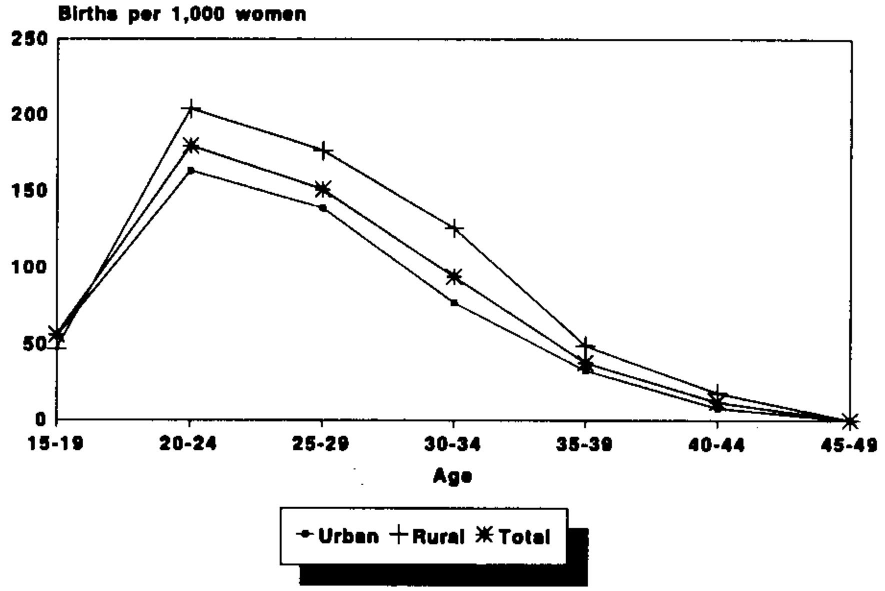
Age-specific and cumulative fertility rates and the crude birth rate for the year preceding the survey, by urban-rural residence, Turkey 1993

	Residence		
Age group	Urban	Rural	Total
15-19	55	47	56
20-24	163	204	179
25-29	139	176	151
30-34	77	126	94
35-39	33	49	38
40-44	8	18	12
45-49	0	0	0
TFR 15-49	2.4	3.1	2.7
TFR 15-44	2.4	3.1	2.7
GFR	87	102	95
CBR	21.7	24.0	22.9

Note: Rates are for the period 1-12 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

Numerators for the age-specific fertility rates in Table 3.1 are calculated by isolating live births that occurred in the 1-12 months preceding the survey (determined from the date of birth of the child) and classifying them by age of

Figure 3.1
Age-Specific Fertility Rates by Urban-Rural Residence



TDHS 1993

the mother (in five-year age groups) of the mother at the time of birth (determined from the date of birth of the mother). The denominators of the rates are the number of woman-years lived in each of the specified five-year age groups during the 1-12 months preceding the survey.

The crude birth rate (also shown in Table 3.1) is calculated by summing the product of the age-specific rates multiplied by the proportion of women in the specific age group out of the total *de facto* population, male and female.

Age-specific fertility rates are estimated for the twelve months preceding the survey. There is a typical skewed distribution towards the younger ages. The highest fertility rate is observed for the age group 20-24. After age 24, the curve declines in an upward concave form, implying modern levels of fertility control in the upper ages.

Total fertility rate (number of children a woman would bear if she lived through these rates throughout her reproductive life span) is slightly over three children (3.1) for women living in rural areas, and decreases to around two children (2.4) in urban areas. The national average is 2.7 children per woman. When compared with evidence from previous surveys (see HIPS, 1980, 1987, 1989) the urban/rural gap appears to be closing.

The crude birth rate has fallen to the lower twenties. As expected, birth rates are higher in rural areas (24.0 per thousand) than in urban areas (21.7 per thousand). The national average (22.9 per thousand) implies a rather low population growth rate even if the crude death rate is very low.

The current total fertility for major groups in the population is summarised in Table 3.2. The table also provides a basis for inferring trends in fertility by comparing current synthetic measures with the average number of children ever born to women currently 40-49 years of age. Although comparison of completed fertility among women age 40 or more with the total fertility rate can provide an indication of fertility change, such an approach is vulnerable to an understatement of parity for older women. The findings on contraceptive use (Chapter 4) and nuptiality (Chapter 6) are also of crucial importance in reaching a balanced judgment about fertility trends.

Table 3.2 Fertility by background characteristics

Total fertility rate for the year preceding the survey and mean number of children ever born to women age 40-49, by selected background characteristics, Turkey 1993

Background characteristic	Total fertility rate[1]	Mean number of children ever born to women age 40-49
Residence		
Urban	2.4	4.0
Rural	3.1	5.6
Region		
West	2.0	3.5
South	2.4	4.8
Central	2.4	4.7
North	3.2	4.7
East	4.4	7.3
Education		
No educ./Pri. incomp.	4.2	5.9
Pri. comp./Sec. incomp.	2.4	3.7
Sec. comp./+	1.7	2.2
Total	2.7	4.6

[1] Rate for women age 15-49 years

The levels of fertility show variations across background characteristics of the population. This is clearly seen among the region and education categories. Variations are true for past fertility experience (mean number of children for women age 40-49) as well as current fertility levels (total fertility rates). Regional variations of fertility involve three regional groupings. The Eastern region is notable as a high fertility region, with a total fertility rate exceeding four children (4.4). Northern, Central and Southern regions constitute another group, with rates between two and three children (3.2, 2.4 and 2.4, respectively). The lowest rate (2.0) is found in the Western region and is comparable to that of many Western European countries.

Grouping regions according to current levels of fertility is also cogent for differences in the past fertility experiences. Although the mean number of children born to women age 40-49 is much higher (about twice) than the corresponding TFRs in each of the regions, notable variations are observed as with current fertility. The table suggests an overall decline in fertility, keeping regional differences almost the same, during the last three decades.

Past experience as well as current levels of fertility show strong variations by literacy and by levels of education. Both the total fertility rate and the number of children ever born declined more than fifty percent among women with at least a secondary level of education compared to women with no education.

Fertility trends can be analyzed in two ways. One is to compare TDHS data with previous surveys. Fertility trends can also be examined based on TDHS data alone. Having the complete birth history makes more direct evidence on trends available, thereby permitting more accurate conclusions. However, use of birth histories for analysis of trends places a great burden on the quality of data, which should always be interpreted with caution. Table 3.3 shows the age-specific fertility rates for five-year periods preceding the survey. The age-specific schedule of rates in Table 3.3 is progressively truncated as time before the survey increases. The bottom diagonal of estimates (enclosed in brackets) is also truncated. Total fertility rates can be calculated from the age-specific rates in Table 3.3, but only by summing across ages unaffected by truncation.

Table 3.3 Age-specific fertility rates

Age-specific fertility rates for five-year periods preceding the survey, by mother's age, Turkey 1993

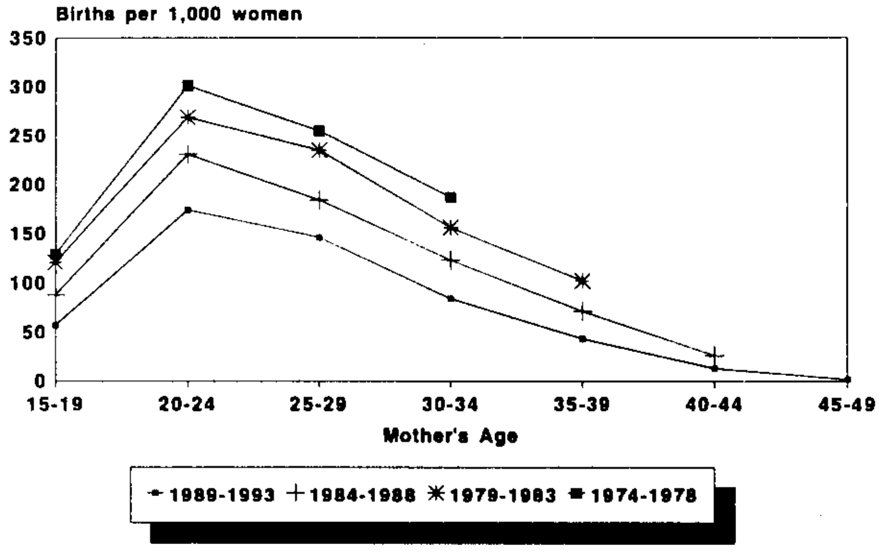
	Number of years preceding the survey			
Mother's age	0-4	5-9	10-14	15-19
15-19	57	88	121	129
20-24	174	231	269	301
25-29	146	184	235	255
30-34	84	123	156	[187]
35-39	43	71	[102]	-
40-44	13	[26]	-	-
45-49	[2]	-	-	-

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

The decline of fertility over time, which is implied by the earlier tables, is seen much more clearly in Figure 3.2. Considering that fertility over age 40 is almost negligible, cumulation of ASFRs up to age 40 and comparisons using this figure show that fertility declined by almost fifty percent during the last decade (4.4 in 1980 vs 2.5 in 1990).

It is interesting to note that this survey produced higher fertility levels for the early 1980s than the 1983 survey (a TFR for age 40 of 4.4 vs 3.9). In fact, all of the quinquennial national surveys conducted in Turkey yielded higher rates for the preceding 5-10 years than the previous surveys' estimates of 0-4 years (i.e., same reference periods from consecutive surveys).

Figure 3.2
Age-Specific Fertility Rates during the Last 20 Years



Dates are approximate and refer to Sept. 93, the mid-point of field work.

TDHS 1993

Table 3.4 presents fertility rates for ever-married women by duration since first marriage for five-year periods preceding the survey. These rates are similar to those presented in Table 3.3 and the same admonitions apply in their interpretation. Fertility early in marriage often remains resistant to change, even when fertility is declining, because fertility decline usually begins at the older ages (when women start to limit the number of births) and not by young couples postponing births. Therefore, a complete examination of duration-specific trends requires interpretation in the light of other evidence.

Fertility rates are declining in general, but as shown earlier, the decline is greater among women who are in their later years of childbearing. Table 3.4 indicates that a decline of fertility by one-fifth, from 372 to 306, among women in the early years of childbearing is not negligible. However, substantial declines by almost one half, from 302 to 167, are observed for the peak fertility ages and very dramatic changes (more than sixty percent) occur in the age groups that have followed during the last two decades. Although this pattern is quite common among populations with increasing fertility control, the speed of change is worth noting.

The table also indicates that the decline of fertility was more rapid during the late 1980s than during the early 1980s.

Table 3.4 Fertility by marital duration

Fertility rates for ever-married women by duration since first marriage in years, for five-year periods preceding the survey, Turkey 1993

Marriage duration at birth	Number of years preceding the survey			
	0-4	5-9	10-14	15-19
0-4	306	350	359	372
5-9	167	221	268	302
10-14	91	140	197	226
15-19	55	94	139	[199]
20-24	28	55	[116]	
25-29	9	[27]		

Note: Fertility rates are per 1,000 women. Estimates enclosed in brackets are truncated.

3.3 Children Ever Born and Living

The distribution of women by number of children ever born is presented in Table 3.5 for all women and for currently married women. In the TDHS questionnaire, the total number of children ever born was ascertained by a sequence of questions designed to maximize recall. Life-time fertility reflects the accumulation of births over the past 30 years and therefore its relevance to the current situation is limited.

The results in Table 3.5 for younger women who are currently married differ from those for the sample as a whole because of the large number of unmarried women with minimal fertility. Differences at older ages, though minimal, generally reflect the impact of marital dissolution. The parity distribution for older currently married women provides an additional measure of primary infertility.

Mean number of children ever born compared with mean number of children surviving can lead to a quick evaluation of the survival status of the children. Almost one in five of children born by women age 45-49 had not survived at the time of the survey (4.9 vs 4.0). The proportion of children surviving among younger women is much higher. This may not only be because of shorter exposure to risk by the children of the younger cohorts, but also because of the improved mortality conditions in general. Of all children born (mean of 2.0), 87 percent (mean of 1.8) had survived at the time of the survey.

Just as marriage is universal in Turkey (see Chapter 6), the proportion of women preferring to remain childless is very low. The proportion of women with no children declines in tandem with the proportion remaining single, and almost all women who are married by the age of 45-49 have children. Just over two percent of the currently married women who are about to complete their reproductive period remain childless, probably due to sterility rather than preference.

Table 3.5 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, Turkey 1993

Age group	Number of children ever born (CEB)											Total	Number of women	Mean no. of CEB	Mean no. of living children
	0	1	2	3	4	5	6	7	8	9	10+				
							ALL WOMEN								
Age															
15-19	93.8	5.2	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	2460	0.1	0.1
20-24	52.5	26.6	14.5	4.3	1.2	0.4	0.5	0.0	0.0	0.0	0.0	100.0	1777	0.8	0.7
15-29	22.1	16.6	32.4	16.5	7.3	3.0	1.2	0.4	0.3	0.1	0.1	100.0	1436	1.9	1.7
30-34	7.7	7.8	30.4	24.1	12.9	8.1	4.1	2.5	1.2	0.7	0.5	100.0	1340	3.0	2.7
35-39	5.0	4.5	21.3	23.5	14.6	10.4	8.2	4.8	2.8	2.7	2.2	100.0	1093	3.8	3.4
40-44	4.8	4.4	18.4	15.9	15.7	10.6	9.6	6.7	4.8	3.4	5.7	100.0	921	4.4	3.8
45-49	2.9	4.1	12.3	16.4	15.8	14.2	10.3	7.6	4.3	3.6	8.5	100.0	685	4.9	4.0
Total	38.9	10.9	16.9	11.9	7.3	4.8	3.4	2.1	1.3	1.0	1.5	100.0	9712	2.0	1.8
							CURRENTLY MARRIED WOMEN								
Age															
15-19	54.4	38.6	6.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	329	0.5	0.5
20-24	18.7	45.4	24.9	7.5	2.1	0.6	0.8	0.0	0.0	0.0	0.0	100.0	1026	1.3	1.3
25-29	7.4	19.5	38.7	19.7	8.7	3.7	1.5	0.4	0.3	0.1	0.0	100.0	1190	2.3	2.1
30-34	3.2	7.8	31.4	25.8	13.8	8.7	4.3	2.7	1.1	0.7	0.5	100.0	1254	3.1	2.8
35-39	2.9	4.1	21.4	24.5	15.1	10.3	8.7	4.9	2.9	2.9	2.3	100.0	1026	3.9	3.5
40-44	2.6	4.0	19.2	16.2	16.2	10.1	10.0	7.1	5.1	3.5	6.0	100.0	833	4.6	3.9
45-49	2.1	3.6	11.4	16.5	15.7	15.3	11.2	7.9	4.2	3.4	8.7	100.0	613	5.0	4.1
Total	9.0	16.3	25.2	17.9	10.9	7.1	5.2	3.1	1.8	1.4	2.1	100.0	6271	3.0	2.7

3.4 Birth Intervals

There has been a fair amount of research to indicate that short birth intervals are deleterious to the health of babies. This is particularly true for babies born at intervals of less than 24 months. Table 3.6 shows the percent distribution of births in the five years preceding the survey by the number of months since the previous birth.

The median birth interval is close to three years (33.6 months). This is only ten months longer than the minimum considered safe. Thirty percent of the births were born with intervals of less than 24 months. This percentage shows striking variations by background variables. Among women with at least a secondary -level education, the percentage of risky birth intervals is less than one half of those with no education (16 percent and 32 percent, respectively). The smallest proportion of risky birth intervals is observed in the

Table 3.6 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, Turkey 1993

	Number of months since previous birth							Median number of months since previous birth
Characteristic	7-17	18-23	24-35	36-47	48+	Total	Number of births	
Age of mother								
15-19	(47.8)	(27.3)	(20.3)	(4.6)	(0.0)	100.0	26	(19.2)
20-24	24.9	26.4	28.0	13.5	7.2	100.0	456	23.7
25-29	14.3	13.2	26.8	20.1	25.6	100.0	844	33.6
30-34	11.3	11.6	21.6	14.6	40.9	100.0	694	39.0
35-39	10.1	9.1	21.1	15.8	43.9	100.0	324	42.2
40-44	10.6	12.4	14.9	21.1	41.0	100.0	129	44.4
45-49	(0.0)	(8.4)	(24.8)	(11.0)	(55.8)	100.0	25	(48.7)
Birth order								
2-3	15.4	15.1	22.8	15.6	31.1	100.0	1501	33.8
4-6	11.6	13.3	26.4	17.9	30.8	100.0	665	35.2
7 +	19.3	15.4	25.6	18.6	21.1	100.0	332	28.7
Sex of prior birth								
Male	12.9	14.6	23.7	17.1	31.7	100.0	1216	35.1
Female	16.7	14.7	24.6	16.2	27.8	100.0	1282	32.0
Survival of prior birth								
Living	13.0	14.2	24.2	17.3	31.3	100.0	2286	35.2
Dead	34.5	20.2	23.8	9.2	12.3	100.0	212	23.0
Residence								
Urban	13.7	13.4	22.7	16.1	34.1	100.0	1410	36.1
Rural	16.4	16.3	26.1	17.2	24.0	100.0	1088	31.1
Region								
West	12.2	12.5	18.0	14.5	42.8	100.0	557	41.4
South	15.0	14.2	24.6	14.6	31.6	100.0	407	33.6
Central	17.7	13.1	21.7	16.1	31.4	100.0	545	34.4
North	13.0	15.0	22.5	17.4	32.1	100.0	235	35.7
East	15.4	17.6	30.6	19.4	17.0	100.0	754	29.2
Education								
No educ./Pri. incomp.	16.1	15.9	28.2	17.6	22.2	100.0	1146	30.5
Pri. comp./Sec. incomp.	15.2	14.6	21.0	15.9	33.3	100.0	1132	35.6
Sec. comp./+	7.4	8.6	18.9	15.2	49.9	100.0	220	47.9
Total	14.9	14.7	24.1	16.6	29.7	100.0	2498	33.6

Note: First-order births are excluded. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth.
( ) Figures in parentheses are based on 25-49 cases.

Western region and the highest proportion in the Eastern region (25 percent and 33 percent, respectively). Sex of child appears to be influential in a woman's decision of whether or not to have another child immediately. Short intervals following a female birth are more frequent than for male births (31 percent and 28 percent, respectively). Among all the factors presented in the table, survival status of the preceding child appears to be the most influential in determining the proportion of short birth intervals (27 percent for surviving children and 55 percent for deceased children).

3.5 Age at First Birth

The age at which childbearing begins has important demographic consequences as well as important consequences for the mother and child. In many countries, postponement of first births, reflecting an increase in the age at marriage, has contributed greatly to overall fertility decline. The proportion of women who become mothers before the age of 20 is also a measure of the magnitude of adolescent fertility, which is a major health and social concern in many countries. Table 3.7 presents the distribution of Turkish women by age at first birth, according to their current age.

Table 3.7 Age at first birth

Percent distribution of women 15-49 by age at first birth, according to current age, Turkey 1993

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	93.8	0.1	3.4	2.7	NA	NA	NA	100.0	2460	a
20-24	52.6	1.7	9.3	13.9	16.4	6.1	NA	100.0	1777	a
25-29	22.1	2.3	14.4	17.9	16.9	18.7	7.7	100.0	1436	21.8
30-34	7.7	1.9	16.6	24.4	19.4	16.8	13.2	100.0	1340	20.7
35-39	5.0	2.3	18.6	24.5	19.6	16.4	13.6	100.0	1093	20.4
40-44	4.8	2.7	19.3	20.3	20.0	21.5	11.4	100.0	921	20.7
45-49	2.9	3.1	19.3	20.5	20.7	19.9	13.6	100.0	685	20.6

NA = Not applicable

[a] Less than 50 percent of the women in the age group x to $x+4$ have had a birth by age x

Age of childbearing is increasing gradually. The median has risen from 20.6 years among women age 45-49 years to 21.8 years among women age 25-29 years, despite these women not yet having reached their upper years of childbearing. The table indicates dramatic changes in adolescent fertility. Some 25 percent of women age 20-24 during the survey had become mothers before age 20; this percentage is substantially lower than the percentage for the previous cohort (35 percent). For earlier cohorts, the proportion of women becoming mothers in their teens was more than a third, and even close to half, of the women.

The median age at first birth for different cohorts is summarised in Table 3.8 and the entry age into motherhood for different subgroups of the population can be compared (the medians for cohorts 15-19 and 20-24 could not be determined because half the women had not yet had a birth).

Table 3.8 Median age at first birth by background characteristics

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

Background characteristic	Current age					Women age 25-49
	25-29	30-34	35-39	40-44	45-49	
Residence						
Urban	22.1	21.0	20.6	20.9	20.8	21.1
Rural	21.3	19.9	20.0	20.3	20.1	20.3
Region						
West	22.6	21.3	21.0	20.9	21.2	21.4
South	22.7	21.3	20.6	20.8	20.8	21.3
Central	20.9	20.3	20.0	20.3	20.2	20.3
North	22.1	20.3	20.4	20.9	19.9	20.7
East	20.5	19.7	19.5	20.3	20.2	19.9
Education						
No educ./Pri. incomp.	19.7	19.4	19.6	20.2	20.2	19.8
Pri. comp./Sec. incomp.	21.5	20.5	20.3	20.5	20.5	20.6
Sec. comp./+	25.1	24.0	24.6	23.9	24.4	24.5
Total	21.8	20.7	20.4	20.7	20.6	20.8

Note: The medians for cohorts 15-19 and 20-24 could not be determined because some women may still have a birth before reaching age 20 or 25, respectively.

The median age at first birth is almost 21 years (20.8) among all women 25-49. It varies considerably according to background variables. Women living in urban areas tend to have their first birth one year later than women living in rural areas. Women living in the Eastern region become mothers about 1.5 years younger than women living in the Western region. Levels of education show the biggest difference among the background variables considered in this table. Women with no education become mothers at the age of 19.8 years, and women with at least a secondary level of education wait an additional four years (24.5) to become mothers.

3.6 Teenage Pregnancy and Motherhood

Table 3.9 shows the percentage of women age 15-19 who are mothers or pregnant with their first child. About one in twelve (8 percent) of women age 17 have become mothers or are pregnant with their first child. The proportion increases steeply to one in seven (15 percent) among women age 18 and close to one in four (23 percent) among women age 19. Higher proportions of teenagers living in urban areas have begun childbearing than teenagers living in rural areas (10 percent vs 7 percent). Although fertility is highest in the Eastern region, the highest percentage of teenagers who have begun childbearing is found in the Northern region (11.4 percent). Levels of education again appear to be the most influential variable on teenage fertility, not only because of the years of schooling, which have postponed births, but also because of changed attitudes.

Table 3.9 Teenage pregnancy and motherhood

Percentage of teenagers 15-19 who are mothers or pregnant with their first child, by selected background characteristics, Turkey 1993

	Percentage who are:		Percentage who have begun child-bearing	Number of teenagers
Background characteristic	Mothers	Pregnant with first child		
Age				
15	0.2	0.8	1.0	765
16	1.9	1.5	3.4	287
17	3.8	4.3	8.1	489
18	9.6	4.9	14.5	460
19	17.8	5.2	23.1	459
Residence				
Urban	6.7	3.3	10.1	1360
Rural	4.2	2.3	6.5	1419
Region				
West	5.2	3.2	8.3	669
South	6.8	2.8	9.5	364
Central	6.8	3.4	10.3	541
North	7.8	3.7	11.4	165
East	7.2	3.7	10.9	592
Education				
No educ./Pri. incomp.	14.2	5.5	19.7	217
Pri. comp./Sec. incomp.	7.1	3.6	10.7	1570
Sec. comp./+	1.6	1.4	3.0	610
Total	6.2	3.2	9.3	2460

Note: The sum of the absolute values does not add up to the total value in the last three categories due to the ever-married factors used.

Although most teens who have begun childbearing have given birth only once, a small proportion have given birth twice. Table 3.10 shows the distribution of women age 15-19 by number of children ever born, excluding those who are currently pregnant. One percent of women age 18 and 4 percent of women age 19 have given birth to two children. By giving birth early and presumably with short intervals, these women and their children are at a higher risk of dying. The issue of high-risk childbearing is discussed in Chapter 8.

Table 3.10 Children born to teenagers

Percent distribution of teenagers 15-19 by number of children ever born (CEB), Turkey 1993

	Number of children ever born				Mean number of CEB	Number of teenagers
Age	0	1	2+	Total		
15	99.8	0.2	0.0	100.0	0.00	765
16	98.1	1.9	0.0	100.0	0.02	287
17	96.2	3.8	0.0	100.0	0.04	489
18	90.4	8.6	1.0	100.0	0.11	460
19	82.2	13.8	4.0	100.0	0.22	459
Total	93.8	5.2	1.0	100.0	0.07	2460

CHAPTER 4

FAMILY PLANNING

Ayşe Akın Dervişoğlu
Gül Ergör

Population policy in Turkey has gone through two major phases. Starting from the early years of the Republic, pronatalist policies were in effect until 1965, when antinatalist policies were accepted. A milestone in family planning practices in the country was the 1983 law that allows abortions on request, legalizes voluntary surgical contraception for males and females, permits midwifes to insert IUDs, and authorises general practitioners to terminate pregnancies by the menstrual regulation method after certification.

Family planning services are provided for the most part by the Ministry of Health, primarily through Maternal and Child Health (MCH) and Primary Health Care Centers. Government hospitals also offer family planning services and are the sites for all male and female sterilisations and pregnancy terminations. Other public sector institutions also provide family planning services, including Social Security. Except for vasectomies and pregnancy terminations, all family planning services at public health institutions are provided free of charge. Physicians in private practice are another important group of providers. Some contraceptive methods like the pill, condom and spermicides are available at pharmacies.

Various issues relating to fertility regulation in Turkey are addressed in this chapter beginning with an appraisal of the knowledge of different contraceptive methods and the sources of supply and a consideration of current and past practice. Knowledge of the ovulatory cycle by users of periodic abstinence is examined as is the timing of method adoption for those relying on sterilisation. Special attention is focused on nonuse, reasons for discontinuation, and intention to use in the future.

These topics are of practical use to policymakers and program managers in several ways. The early sections concern the main preconditions to adoption of contraception, such as knowledge of methods and supply of sources. Levels of use of contraceptives provide the most obvious and widely accepted criterion of success of the program, especially when results from earlier surveys are available so that progress can be charted. The examination of use in relation to need pinpoints segments of the population for whom intensified efforts at service provision are most needed.

4.1 Knowledge of Contraception

Determining the level of knowledge of contraceptive methods and of services was a major objective of the TDHS, since knowledge of specific methods and of the places where they can be obtained is a precondition for use. Information about knowledge of contraceptive methods was collected by asking the respondent to name ways or methods by which a couple could delay or avoid pregnancy. If the respondent failed to mention a particular method spontaneously, the interviewer described the method and asked if she recognized it. Eight modern methods — the pill, IUD, injection, barrier methods (diaphragm, foam, foaming tablets and jelly), condoms, female sterilisation, male sterilisation, and Norplant — were described, as well as two traditional methods — periodic abstinence (rhythm method) and withdrawal. Any other methods mentioned by the respondent, such as herbs, vaginal douche or breastfeeding, were also recorded. For each method recognized, the respondent was asked if she knew where a person could obtain the method. If she reported knowing about the rhythm method or withdrawal, she was asked if she knew where a person could obtain advice on how to use the method. Although questions on Norplant and injection were asked, these methods were not available at the time of the survey but were expected to be introduced in the country in the near future.

The data on women's knowledge reported in Table 4.1 is based on the combination of probed and spontaneous answers. Knowledge of any method is almost universal among women. The pill and the IUD are the most widely known modern methods, followed by the condom. Knowledge of female sterilisation and male sterilisation, which were introduced into family planning programs later than other methods, is less than knowledge of the pill, IUD or condom; however, knowledge of these methods has increased from the levels observed in the 1988 TPHS, from 65 percent to 76 percent in the case of female sterilisation and from 28 percent to 35 percent in the case of male sterilisation. Withdrawal is the most widely recognized traditional method.

Almost everyone who knows a method also knows the source of a method; 95 percent of women are aware of at least one place to obtain family planning information or services. Lack of information about where to obtain a method is clearly not a barrier to contraceptive use in Turkey.

Table 4.1 Knowledge of contraceptive methods and source for methods

Percentage of all women and currently married women who know specific contraceptive methods and who know a source (for information or services), by specific methods, Turkey 1993

Contraceptive method	Know method: All women	Know method: Currently married women	Know a source[1]: All women	Know a source[1]: Currently married women
Any method	99.0	99.1	94.7	94.8
Modern method	98.6	98.6	94.5	94.6
Pill	95.7	95.7	88.6	88.7
IUD	96.9	97.1	90.4	90.6
Injection	38.8	38.8	32.6	32.5
Vaginal methods	57.4	57.5	51.7	51.8
Condom	80.5	80.8	73.1	73.4
Female sterilisation	75.5	75.6	67.1	67.2
Male sterilisation	35.1	35.1	31.6	31.7
Norplant	6.7	6.7	3.1	3.0
Any traditional method	89.0	89.1	36.0	36.0
Periodic abstinence	34.9	34.8	21.3	21.0
Withdrawal	87.1	87.4	31.2	31.2
Vaginal douche	3.1	3.1	0.0	0.0
Other traditional methods	6.0	5.9	0.0	0.0
Number of women	6519	6271	6519	6271

[1] For modern methods, source refers to a place to obtain the method or procedure. For traditional methods, source refers to a place or person to obtain advice on practicing these methods.

Knowledge of any *modern* method of contraception is chosen as a summary indicator in preference to knowledge of *any* method because of its greater relevance for program promotion, which is usually confined to modern methods. Knowledge of a source for information or services for modern methods is also presented as are the mean number of methods known. Questions on method and source knowledge were asked of all ever-married women; however, the results are presented for currently married women because they are the immediate potential users.

There are no significant differences in the percentages knowing any modern method according to age, residence, region or level of education; however, both knowledge of a source and the mean number of methods known vary according to these background characteristics. For example, knowledge of a source is 87 percent among women with no education compared to 100 percent among women with a higher than primary education. Knowledge of a source for modern methods is 86 percent among illiterate respondents, compared to 98 percent among those who are literate (data not shown).

Table 4.2 presents differences in contraceptive knowledge by background characteristics. The mean number of methods known is 6.2 methods. For modern methods, the mean is 4.9 methods and the mean for traditional methods is 1.3. The mean number of methods known is highest in the 25-29 and 30-34 age groups and increases as the level of education increases. Urban residents know somewhat more methods

Table 4.2 Knowledge of contraception

Mean number of all methods, modern methods and traditional methods known, by selected background characteristics, Turkey 1993

	Mean number of:			
Background characteristic	Methods known	Modern methods known[1]	Traditional methods known[2]	Number of women
Age				
15-19	5.2	4.2	1.0	329
20-24	6.0	4.7	1.3	1026
25-29	6.5	5.1	1.4	1190
30-34	6.6	5.2	1.4	1254
35-39	6.3	5.0	1.3	1026
40-44	6.1	4.8	1.3	833
45-49	5.7	4.4	1.3	613
Residence				
Urban	6.7	5.2	1.5	4005
Rural	5.3	4.3	1.1	2266
Region				
West	6.6	5.0	1.5	2207
South	6.3	5.0	1.3	964
Central	6.3	5.0	1.3	1472
North	5.9	4.7	1.3	589
East	5.3	4.4	0.9	1039
Education				
No educ./Pri. incomp.	5.2	4.2	1.0	2102
Pri. comp./Sec. incomp.	6.3	4.9	1.4	3227
Sec. comp./+	8.0	6.0	1.9	942
Total	6.2	4.9	1.3	6271

[1] Includes pill, IUD, injection, vaginal methods (foaming tablets/diaphragm/foam/jelly), condom, female sterilisation, male sterilisation and Norplant.
[2] Includes withdrawal, vaginal douche, and periodic abstinence.

than rural residents, and the mean number of methods varies by region from 5.3 methods in the East to 6.6 methods in the West.

4.2 Ever Use of Contraception

All women interviewed in the TDHS who said that they had heard of a method of family planning were asked if they had ever used it. If all the answers were negative, the respondents were further asked whether they had "ever used anything or tried in any way to delay or avoid getting pregnant."

As seen in Table 4.3, 80 percent of currently married women have used a family planning method at some time in their lives. Among currently married women, ever use of any method is lowest for the 15-19 age group (37 percent), it peaks at 88 percent in the 30-34 age group and then it gradually decreases to 78 percent in the 45-49 age group.

Table 4.3 Ever use of contraception

Among currently married women, the percentage who have ever used a contraceptive method, by specific method, according to age, Turkey 1993

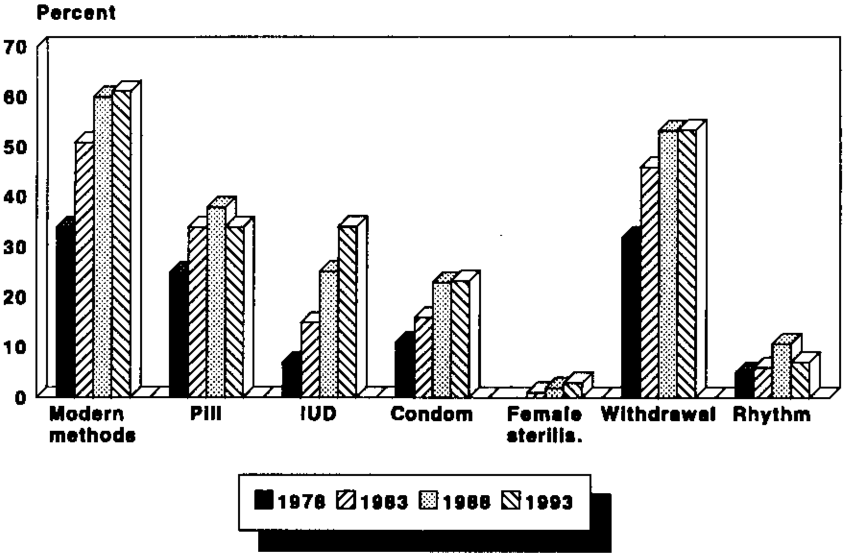
		Modern methods								Traditional methods					
Age	Any method	**Any modern method**	Pill	IUD	Injection	Vaginal methods	Condom	Female sterilisation	Male sterilisation	**Any trad. method**	Periodic abstinence	Withdrawal	Vaginal douche	Other	Number of women
15-19	37.4	16.6	4.6	7.8	0.9	1.4	7.7	0.0	0.0	29.0	1.5	28.5	0.5	0.3	329
20-24	70.0	47.2	18.2	23.8	0.7	4.7	20.7	0.3	0.0	51.2	5.2	49.3	0.8	0.3	1026
25-29	84.7	65.7	32.8	36.8	1.6	7.8	26.9	1.7	0.2	62.4	7.2	59.7	0.7	1.2	1190
30-34	88.4	72.1	41.1	46.7	1.8	11.9	29.2	3.2	0.0	62.5	8.9	58.9	2.0	1.0	1254
35-39	87.8	71.7	43.2	42.1	3.1	13.8	25.3	4.6	0.5	62.6	7.1	59.1	2.0	1.7	1026
40-44	82.6	66.2	42.0	34.9	3.1	14.4	22.4	4.8	0.1	58.2	7.7	52.9	3.0	2.6	833
45-49	78.0	59.3	38.5	25.4	3.5	12.0	19.1	5.0	0.0	54.6	8.6	48.6	3.5	5.2	613
Total	80.1	61.8	34.1	34.6	2.1	10.1	23.7	2.9	0.1	57.5	7.1	54.1	1.8	1.6	6271

The age pattern varies somewhat according to the type of method. Ever use of modern methods is highest among women in their thirties, with almost three in four women in these age groups reporting that they have used a modern method at some time. The level of ever use of traditional methods reaches to more than 60 percent among women age 25-29 and stays at this level among women 30-39, before dropping off among women age 40 and older. Ever use of traditional methods is lower than ever use of modern methods in every age group, with the exception of women age 15-24.

Considering specific methods, around one-third of currently married women report ever using the IUD or the pill while 24 percent have tried the condom. Only one in ten women or fewer have ever used any of the other modern methods. Withdrawal, the most frequently used traditional method, has been used by 54 percent of currently married women.

Comparison of the levels of ever use found in the TDHS with the levels reported in earlier surveys shows that the level of ever use among ever-married women increased steadily between 1978 and 1988 (Figure 4.1). However, with the exception of the IUD, there was little or no change in the level of ever use of most methods between 1988 and 1993, and there were small declines in the ever-use rates for the pill and rhythm.

Figure 4.1
Ever Use of Family Planning,
Turkey 1978-1993



TDHS 1993

4.3 Current Use of Contraception

The level of current use is the most widely used and valuable measure of the success of a family planning program. Further, it can be used to estimate the reduction in fertility attributable to contraception.

Table 4.4 presents data on the proportion of currently married women who are using contraception by age. Overall, 63 percent of currently married women are using a contraceptive method. The majority of these women are modern method users (35 percent), but a substantial proportion use traditional methods (28 percent), particularly withdrawal. Withdrawal is, in fact, the most widely used method (26 percent) as it was in the previous surveys in Turkey. The IUD is the most commonly used modern method (19 percent). The condom (7 percent) and the pill (5 percent) are the second and third most popular modern methods, respectively. Current use of the IUD has increased markedly and that of female sterilisation has increased slightly, but condom and pill use have decreased compared to the 1988 TPHS (Figure 4.2).

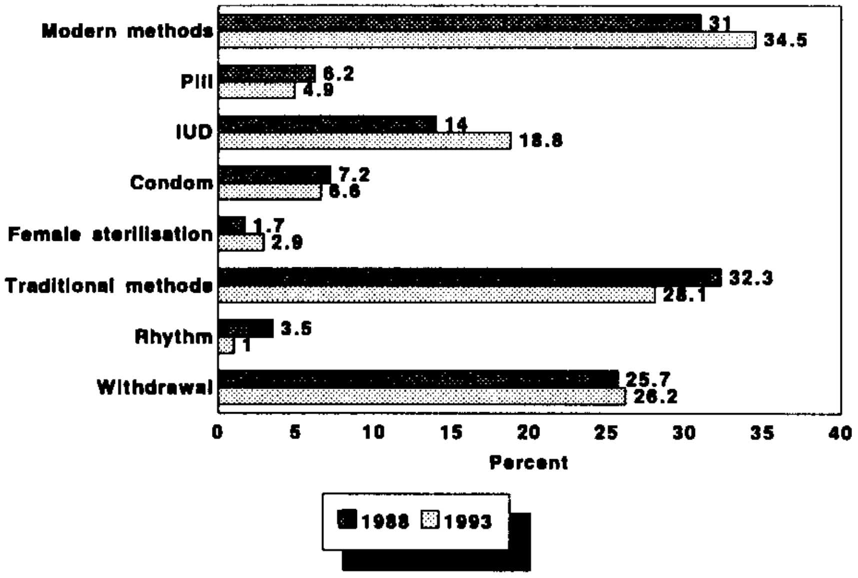
Considering age patterns, modern method use is most prevalent in the 30-34 age group, while traditional method use peaks in the 35-39 age group. Modern methods are practiced more frequently than traditional methods in every age group except the 15-19 and 40-49 age groups.

Table 4.4 Current use of contraception

Percent distribution of currently married women by contraceptive method currently used, according to age, Turkey 1993

		Modern methods								Traditional methods								
Age	Any method	**Any modern meth-od**	Pill	IUD	Injec-tion	Vaginal meth-ods	Con-dom	Female sterili-sation	Male sterili-sation	**Any trad. meth-od**	Periodic absti-nence	With-drawal	Pro-longed absti-nence	Vaginal douche	Other	Not using any method	Total	Number of women
15-19	24.1	9.3	0.6	6.2	0.0	0.0	2.5	0.0	0.0	14.8	0.0	14.2	0.0	0.2	0.4	75.9	100.0	329
20-24	51.1	28.2	5.1	16.4	0.0	0.9	5.5	0.3	0.0	22.9	0.5	22.4	0.0	0.0	0.0	48.9	100.0	1026
25-29	68.0	41.7	9.0	23.3	0.1	0.6	7.0	1.7	0.0	26.3	0.5	25.4	0.2	0.2	0.0	32.0	100.0	1190
30-34	76.5	46.0	6.2	26.3	0.0	1.7	8.5	3.3	0.0	30.5	1.8	27.8	0.2	0.5	0.2	23.5	100.0	1254
35-39	76.8	41.0	3.9	22.1	0.3	1.7	8.2	4.6	0.2	35.8	0.7	34.2	0.1	0.5	0.3	23.2	100.0	1026
40-44	61.0	29.2	2.1	13.4	0.1	1.8	7.0	4.8	0.0	31.8	1.6	28.4	0.0	1.3	0.5	39.0	100.0	833
45-49	41.7	17.5	1.9	6.9	0.0	1.0	2.7	5.0	0.0	24.2	0.8	20.6	0.0	2.1	0.7	58.3	100.0	613
Total	62.6	34.5	4.9	18.8	0.1	1.2	6.6	2.9	0.0	28.1	1.0	26.2	0.1	0.6	0.2	37.4	100.0	6271

Figure 4.2
Current Use of Family Planning
Turkey 1988-1993



TDHS 1993

The levels of current contraceptive use among main groups of the population can be compared in Table 4.5. Overall, use of any method is higher in urban than in rural areas. Much of the urban-rural difference in use is owed to the substantially higher level of use of modern methods among urban women (39 percent) compared to rural women (27 percent). In turn, almost all of the difference in modern method use is due to greater use of the IUD among urban women (22 percent) than rural women (14 percent).

Table 4.5 Current use of contraception by background characteristics

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

		Modern methods					Traditional methods						
Background characteristic	**Any method**	**Any modern method**	Pill	IUD	Vaginal methods	Condom	Female sterilisation	**All traditional**	Periodic abstinence	Withdrawal	Other	**Not currently using**	Total	Number of women
Residence														
Urban	66.2	38.9	5.0	21.5	1.3	7.8	3.3	27.3	1.4	24.9	0.4	33.8	100.0	4005
Rural	56.1	26.8	4.8	14.1	1.1	4.6	2.2	29.3	0.1	28.5	0.7	43.9	100.0	2265
Region														
West	71.5	37.3	6.2	18.8	1.2	8.4	2.7	34.2	1.3	31.5	0.4	28.5	100.0	2207
South	62.8	36.7	4.2	20.9	2.2	6.1	3.3	26.0	1.0	24.7	0.3	37.2	100.0	964
Central	62.7	36.6	4.3	21.9	1.2	6.1	3.1	26.1	1.1	23.7	1.3	37.3	100.0	1472
North	64.2	29.8	5.2	11.5	1.7	7.1	4.3	34.4	0.4	33.6	0.4	35.8	100.0	589
East	42.3	26.3	3.6	16.5	0.7	3.7	1.8	16.0	0.3	15.6	0.1	57.7	100.0	1039
Education														
No educ./Pri. incomp.	50.4	25.6	3.7	13.4	1.3	3.6	3.6	24.8	0.2	23.6	1.0	49.6	100.0	2102
Pri. comp./Sec. incomp.	67.5	35.9	5.6	20.4	1.2	6.3	2.4	31.5	0.6	30.1	0.8	32.5	100.0	3227
Sec. comp./+	73.0	49.7	5.3	25.3	1.7	4.5	2.9	23.3	4.0	18.7	0.6	27.0	100.0	942
Living children														
None	8.6	2.9	1.4	0.2	0.0	1.3	0.0	5.7	1.0	4.6	0.1	91.4	100.0	596
1	58.0	31.4	4.8	17.5	0.8	7.6	0.7	26.5	1.0	25.3	0.2	42.0	100.0	1069
2	78.3	45.6	6.4	26.1	1.6	8.9	2.6	32.6	1.4	30.4	0.8	21.7	100.0	1778
3	73.3	39.8	5.9	20.6	1.5	7.8	4.0	33.6	1.1	31.1	1.3	26.7	100.0	1203
4+	60.2	32.1	4.1	17.0	1.4	4.7	4.9	28.1	0.3	26.4	1.4	39.8	100.0	1625
Total	62.6	34.5	4.9	18.8	1.3	6.6	2.9	28.1	1.0	26.2	0.9	37.4	100.0	6271

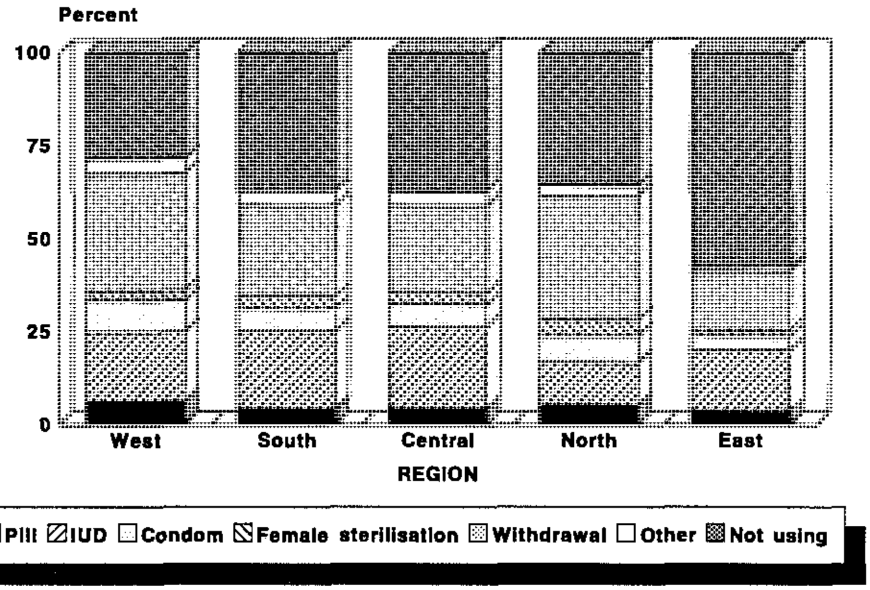
Regional differences in use are substantial. The level of current use is only 42 percent in the East, whereas it exceeds 70 percent in the West and 60 percent in the other three regions. Modern method use is higher than traditional use in all regions except the North, and it decreases from a high of 37 percent in the West to 26 percent in the East. Traditional method use is high in both the Western and Northern regions (34 percent). In fact, much of the difference in overall prevalence between the Western region and the Southern and Central regions is due to the higher level of traditional method use in the West.

Regional differences in the current use of specific methods are presented in Figure 4.3. The main differences between regions are in pill and IUD use, which are lowest in the East and the North, respectively. Female sterilisation and withdrawal are highest in the North.

Current use increases directly with education (Table 4.5). Among women who have no education, the percentages currently using modern and traditional methods are almost identical. In contrast, women with a primary or higher education are more likely to use modern than traditional methods. Women with secondary or more education are the group most likely to be using modern contraceptive methods, especially the IUD and the condom. Half of all women in this education group are users of a modern method, and a quarter are using IUDs.

Use of contraception increases rapidly with number of living children, peaking at 78 percent among women with two children, after which it declines slightly among women with three or more children. There appears to be little effort to delay first birth; less than nine percent of the currently married women with no children are using a method.

Figure 4.3
Current Use of Family Planning
by Region and Method



TDHS 1993

4.4 Number of Children at First Use of Contraception

In many cultures, family planning is used only when couples have already had as many children as they want. As the concept of planning families gains acceptance, however, couples may begin to use contraception for spacing births as well as for limiting family size. Moreover, young women may be particularly motivated to use family planning to delay the timing of the first child. To explore the possible motivation for use of contraceptives, a question was asked on the number of children the respondent had when contraception was first used.

These results shown in Table 4.6 allows us examine cohort change (as indicated by differences between age groups) in the early adoption of contraception. One third of women start using contraception after they have one child. There are clear distinctions between cohorts in the parity at which a method was first accepted, with women who are younger than 35 being much more likely to have adopted at lower parities than older women.

4.5 Problems with Current Method

All current contraceptive users in the TDHS were asked whether they had experienced problems with the method they were using and, if so, what the problems were. Identifying problems with the use of specific methods has practical implications for future educational and promotional campaigns. In the last five years there has been more emphasis on counselling, in order to improve the quality of family planning services. Information, education and communication (IE&C) programs affect the continuation of methods.

In general, most of the current users were pleased with their choice of method (Table 4.7). Most of the problems reported for modern methods are for the pill and, to a lesser degree, for the IUD. Most of the women who are using traditional methods did not report any problems.

Table 4.6 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, Turkey 1993

Current age	Never used contraception	Number of living children at time of first use of contraception 0	1	2	3	4+	Total	Number of women
15-19	62.4	18.2	17.9	1.5	0.0	0.0	100.0	332
20-24	30.7	17.4	42.0	8.5	1.2	0.2	100.0	1040
25-29	15.8	14.8	42.0	17.9	6.1	3.4	100.0	1211
30-34	11.9	10.4	39.2	19.5	9.7	9.3	100.0	1283
35-39	13.2	8.3	30.4	17.7	12.5	17.9	100.0	1073
40-44	18.4	6.4	23.6	19.5	11.2	20.9	100.0	901
45-49	22.8	5.1	17.3	19.6	12.7	22.5	100.0	679
Total	20.4	11.3	33.2	16.3	8.1	10.7	100.0	6519

In Table 4.7, of the specific problems reported, 13 percent of the women using pills complained about side effects and 8 percent had health concerns related to the method. Among IUD users, side effects and health concerns were problems for an identical percentage of users (6 percent). The percentages reporting concerns about side effects and health concerns may reflect inappropriate counselling as well as the prejudice mostly to the pills that is reflected to the women by the medical personnel (i.e., the "medical barrier").

Table 4.7 Problems with current method of contraception

Percent distribution of contraceptive users by the main problem with current method, according to specific methods, Turkey 1993

Main problem	Pill	IUD	Vaginal methods	Condom	Female sterilisation	Periodic abstinence	Withdrawal
No problem	78.4	87.4	94.4	94.4	92.9	93.8	96.1
Husband disapproves	0.4	0.2	1.6	3.0	0.0	0.0	1.4
Side effects	13.2	6.3	2.4	0.4	2.9	0.0	0.2
Health concerns	7.6	6.1	0.0	0.0	3.5	0.0	0.6
Other[1]	0.4	0.0	1.6	2.2	0.7	6.2	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	308	1178	76	415	186	60	1642

[1] Includes access/availability, inconvenient to use, and can get pregnant.

4.6 Use of Name-brand Pills

In order to measure the extent to which the social marketing program has reached the general public, all TDHS respondents who reported that they were currently using the pill were asked to show the packet of the pills they were using, or, if they could not, to tell the interviewer which brand they were using. Table 4.8 presents the percentage of pill users who are using a social marketing brand. Of all the current pill users 73 percent were able to show the pills they were using to the interviewer. The most commonly used pill brand was Lo-femenal (17 percent), which is distributed free of charge by the Ministry of Health; it is followed by Desolet (16 percent), which is sold at pharmacies. Among the group who reported themselves as current users of the pill and could not show the packet, 42 percent could not remember the brand that they were using. Minipill (progesterone only) use is only 1 percent among the pill users ("other" category).

Table 4.8 Use of social marketing brand pills

Percent distribution of pill users who are using a social marketing brand, Turkey 1993

Brand currently used	Pills shown	Pills not shown	Total
Desolet	17.2	14.5	16.4
Eugynon	6.8	3.6	5.9
Femulen	0.9	-	0.7
Lo-femenal	22.6	1.3	16.8
Lo-ovral	2.7	3.6	3.0
Lyndiol	13.1	7.2	11.5
Microgynon	9.9	1.2	7.6
Minulet	-	1.2	0.3
Myralon	0.5	1.2	0.7
Ovral	13.6	6.0	11.5
Ovulen	2.3	4.8	3.0
Triquilar	3.6	4.8	3.9
Trinordiol	3.6	-	2.6
Other	2.7	6.0	3.6
Don't know	-	42.2	11.5
Missing	0.5	2.4	1.0
Total	100.0	100.0	100.0
Number	221	83	304

4.7 Knowledge of the Fertile Period

A basic knowledge of reproductive physiology is useful for successful practice of coitus-related methods such as withdrawal, the condom, or barrier methods, but it is especially important for users of periodic abstinence or the rhythm method. The successful practice of periodic abstinence depends on an understanding of when during the ovulatory cycle a woman is most likely to conceive. Table 4.9 presents the percent distribution of all respondents and those who have ever used periodic abstinence and withdrawal by reported knowledge of the fertile period in the ovulatory cycle.

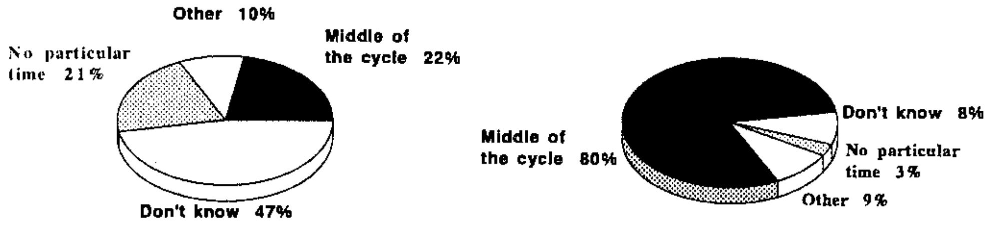
Women in Turkey do not have sufficient knowledge on the timing of ovulation. Only 22 percent of ever-married women know the correct time of ovulation, 47 percent have no idea as to the time, and 31 percent have incorrect knowledge (Figure 4.4). Women who have ever used the rhythm method have better knowledge than all ever-married women; 80 percent know the correct time of ovulation, 8 percent report that they do not know about the time of ovulation and 12 percent have incorrect knowledge. Ever users of withdrawal have similar knowledge about time of ovulation as all women.

Table 4.9 Knowledge of fertile period

Percent distribution of ever-married women, women who have ever used periodic abstinence, and women who have ever used withdrawal, by knowledge of the fertile period during the ovulatory cycle, Turkey 1993

Perceived fertile period	All women	Ever users of periodic abstinence	Ever users of with-drawal
During her period	0.7	0.7	0.9
After period ended	7.7	6.4	8.7
Middle of her cycle	22.3	79.7	24.6
Before period begins	1.0	1.7	1.0
Other	0.4	0.4	0.5
No particular time	20.5	3.0	19.4
Don't know	47.3	8.1	44.8
Missing	0.1	0.0	0.1
Total	100.0	100.0	100.0
Number	6519	465	3480

Figure 4.4
Knowledge of Fertile Period among Ever-Married Women and Users of Periodic Abstinence



Ever-Married Women

Periodic Abstinence

TDHS 1993

4.8 Timing of Sterilisation

In countries where contraceptive sterilisation is practiced, there is interest in knowing the trend in the adoption of the method and in determining whether the age at the time of the operation is declining. Table 4.10 presents the percent distribution of sterilised women by age at the time of sterilisation, according to the number of years since the operation. The median age at the time of the operation is presented only for women less than 40 years of age to minimize problems of censoring.

Table 4.10 Timing of sterilisation

Percent distribution of sterilised women by age at the time of sterilisation, according to the number of years since the operation, Turkey 1993

Years since operation	Age at time of sterilisation						Total	Number of women	Median age[1]
	<25	25-29	30-34	35-39	40-44	45-49			
<2	(1.3)	(26.6)	(46.2)	(17.6)	(5.8)	(2.5)	100.0	45	(32.3)
2-3	(9.2)	(24.9)	(31.3)	(27.9)	(6.7)	(0.0)	100.0	36	(32.2)
4-5	(23.7)	(3.6)	(29.3)	(28.8)	(14.6)	(0.0)	100.0	30	(33.1)
6-7	*	*	*	*	*	*	100.0	21	*
8-9	*	*	*	*	*	*	100.0	22	*
10+	(18.7)	(37.1)	(34.1)	(10.1)	(0.0)	(0.0)	100.0	33	-
Total	11.4	24.9	36.0	20.8	6.3	0.6	100.0	187	31.8

[1] Median age was calculated only for women less than 40 years of age to avoid problems of censoring.
* Less than 25 cases
( ) Figures in parentheses are based on 25-49 cases

The results in Table 4.10 suggest that the age at which sterilisation is adopted has been decreasing slightly in Turkey. The median age at the time of sterilisation for women who have been sterilised 4-7 years before the survey was 33 years, almost one year higher than the median age (32 years) among users who adopted the method more recently. However, conclusions about the timing of sterilisation adoption must be viewed with some caution because of the comparatively small number of users in each time period.

4.9 Sources for Family Planning Methods

At present, the IUD, pills, condoms and other modern methods are available free of charge in the government sector through the primary health care units and hospitals. Pharmacies and private physicians also supply methods, but charge for their services.

All current users of modern methods of family planning were asked to report the most recent source of supply for their methods. Because women often do not know the exact category of the source they use (e.g., government hospital, private health center, etc.), interviewers were instructed to write the *name* of the source. Supervisors and field editors were to verify that the name and the type of source were consistent. This practice was designed to improve the reporting of data on sources of family planning. The results are presented in Table 4.11.

The majority of users (55 percent) obtained their methods from government services (Figure 4.5). Primary health care units (health centers) are the major public sector suppliers of family planning methods (35 percent). Among private sector sources, pharmacies (25 percent) are the major suppliers of methods, followed by private doctors (15 percent) and private hospitals or clinics (3 percent).

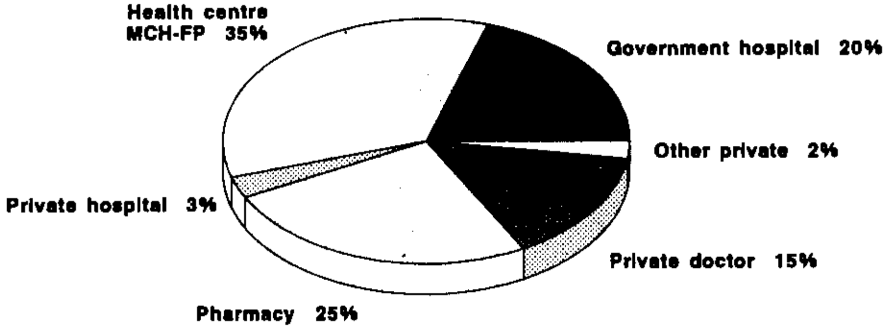
Looking at sources for specific methods (Table 4.11), pharmacies are the main source of pills, condoms and vaginal methods (69 percent, 65 percent and 91 percent, respectively). For the IUD, the principal source is government health centres/houses/MCH-FP centers (49 percent) and hospitals (22 percent); however, private doctors (24 percent) are also important providers of the IUD. The majority of female sterilisation operations take place in government hospitals (83 percent). Provision of modern methods by nongovernmental organizations (NGOs) in Turkey is still at insignificant levels, not exceeding one percent for any of the modern methods.

Table 4.11 Source of supply for modern contraceptive methods

Percent distribution of current users of modern contraceptive methods by most recent source of supply, according to specific methods, Turkey 1993

Source of supply	Pill	IUD	Vaginal methods	Con-dom	Female sterili-sation	**All modern methods**
Public	24.2	70.9	3.7	28.7	83.4	54.8
Government hospital	3.0	22.3	1.6	2.6	82.8	20.3
Government health centre	21.2	48.6	2.1	26.1	0.6	34.5
Medical private	75.3	28.1	96.3	66.2	15.5	43.3
Private hospital/Clinic	0.0	3.8	0.0	0.3	8.9	2.9
Pharmacy	69.4	0.3	91.2	65.2	0.0	25.6
Private doctor	5.9	24.0	5.1	0.7	6.6	14.8
Other	0.5	1.0	0.0	5.1	1.1	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	308	1178	76	415	186	2170

Figure 4.5
Source of Supply of Modern Contraceptive Methods



TDHS 1993

4.10 Contraceptive Discontinuation

Cumulative one-year contraceptive discontinuation rates due to method failure, desire for pregnancy, or other reasons are presented in Table 4.12, according to specific method. The discontinuation rates shown are true,multiple decrement life-table rates (sometimes referred to as "net rates") where the various reasons for discontinuation are treated as competing risks and are additive across reasons for discontinuing. The rates are calculated from information collected in the calendar portion of the questionnaire (see Appendix E). The rates refer to *all episodes* of contraceptive use occurring during the period of time covered by the calendar, not just those episodes that began during this period. Specifically, the rates presented in Table

Table 4.12 Contraceptive discontinuation rates

First-year contraceptive discontinuation rates due to method failure, desire for pregnancy, side effects, or other reasons, according to specific method

Method	Method failure	Desire for pregnancy	Side effects	All other reasons	All reasons
Pill	6.3	5.8	22.5	20.8	55.3
IUD	1.0	0.8	6.0	2.3	10.1
Diaphragm/Foam/Jelly	16.1	4.9	2.3	36.7	60.0
Condom	8.6	5.9	0.6	33.7	48.8
Periodic abstinence	24.6	15.3	0.8	20.2	60.9
Withdrawal	14.9	6.4	0.2	17.3	38.8
Total	9.7	5.0	4.9	17.1	36.7

4.12 refer to the 60-month period 3-63 months prior to the survey; the month of the interview and the prior 2 months are ignored in order to avoid the bias that may be introduced by unrecognized pregnancies.

Proper counselling and type of services affect the continuation of methods. Crowded family planning centres lower the quality of services, limiting one-to-one contact with the clients. Regular follow-ups or visits are required to maintain the continuation of the method.

The highest discontinuation rates are for barrier methods (diaphragm, foam or jelly) and periodic abstinence (60 percent and 61 percent, respectively). The discontinuation rate for the pill (55 percent) is also quite high. The lowest discontinuation rate (10 percent) is for the IUD. The discontinuation rate for withdrawal, the most widely used traditional method, is relatively low (39 percent) in comparison to that for some modern methods.

Side effects for the pill and IUD (23 percent and 6 percent, respectively) account for a large part of their high discontinuation rates. The highest failure rate is observed for periodic abstinence (25 percent). This may be due to the fact that periodic abstinence is used mostly by the delayers, who are not highly motivated. The failure rate for withdrawal for the first year is relatively low compared to the rates for other countries, e.g., 18 percent as reported by Hatcher et al. (1990). The high level of the failure rate for the pill (6 percent), compared to the typical first-year failure rate of 3 percent, may be due to its misuse.

Table 4.13 shows the percent distribution of the discontinuation of contraceptive methods in the last five years by main reason for discontinuation, according to specific method. Major reasons for discontinuation of the pill and IUDs were side effects and health concerns (41 percent and 47 percent, respectively); discontinuation due to side effects was higher among pill users than IUD users. The main reason for discontinuation of withdrawal was becoming pregnant (42 percent) with 17 percent accounting to the desire to change to a more effective method. Similarly, 14 percent of the discontinuation of condom use resulted from changing to a more effective method, while husband disapproval accounted for 23 percent of the discontinuations.

Table 4.13 Reasons for discontinuation of contraception

Percent distribution of contraceptive method discontinuation in the five years preceding the survey by main reason for discontinuation, according to specific methods, Turkey 1993

Reason for discontinuation	Modern methods Pill	IUD	Vaginal meth-ods	Con-dom	Traditional methods Periodic absti-nence	With-drawal	**All methods**
Became pregnant	12.2	6.9	24.0	17.9	39.6	41.7	25.9
To become pregnant	13.3	16.1	10.2	18.9	25.9	18.0	16.7
Husband disapproved	1.0	0.1	5.7	23.3	0.5	3.8	5.1
Side effects	26.8	16.3	0.6	0.2	0.0	0.1	8.0
Health concerns	14.2	30.2	4.8	1.1	2.3	0.5	8.8
Access/Availability	2.6	0.0	5.8	4.8	0.0	0.0	1.3
More effective method	3.4	0.7	11.6	13.6	9.9	17.3	10.8
Inconvenient to use	0.8	0.0	9.9	5.5	2.9	1.2	1.9
Infrequent sex	6.7	1.8	5.4	1.5	0.0	3.3	3.4
Cost	0.8	0.1	1.4	0.1	0.0	0.0	0.2
Fatalistic	0.4	0.0	0.0	0.3	0.0	0.1	0.2
Menopause	2.3	2.5	7.8	1.3	2.5	3.0	2.9
Marital dissolution	0.0	1.1	0.5	0.7	1.0	0.7	0.6
Other	11.3	19.1	9.2	6.9	5.7	2.7	8.2
Missing	4.2	5.1	3.1	3.9	9.7	7.6	6.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	811	848	171	583	121	1942	4547

4.11 Intent to Use Family Planning Among Nonusers

Intent to use contraception in the future provides a forecast of potential demand for services and is a convenient indicator of the disposition towards contraception among current nonusers. Women who were not using a contraceptive method at the time of the survey were asked if they thought they would do something to keep from getting pregnant at any time in the future. In addition, those who reported that they were intending to use were asked whether they planned to begin use within the next 12 months. The distinction between intended use in the next 12 months and later use should provide a more trustworthy indication of demand in the near future. Since intention to use family planning is closely related to the number of children a woman has and past experience with contraception, the data on future use in Table 4.14 are broken down by these two factors. The reasons for not using contraception given by women who do not intend to use a method are presented in Table 4.15. Nonusers who said that they *did* intend to use family planning in the future were asked which method they preferred to use. These results are presented in Table 4.16.

Among currently married nonusers, 46 percent do not intend to use any method in the future while 31 percent intend to begin use in 12 months, 14 percent intend to use later and 8 percent are unsure of their intent or the timing (Table 4.14 and Figure 4.6). The proportion intending to use varies with number of living children, peaking at 64 percent among women with one child. The timing of the intention to use also varies with the number of living children; nonusers with two or more children are much more likely than those with no children to say that they plan to begin use within the next 12 months.

Table 4.14 Future use of contraception

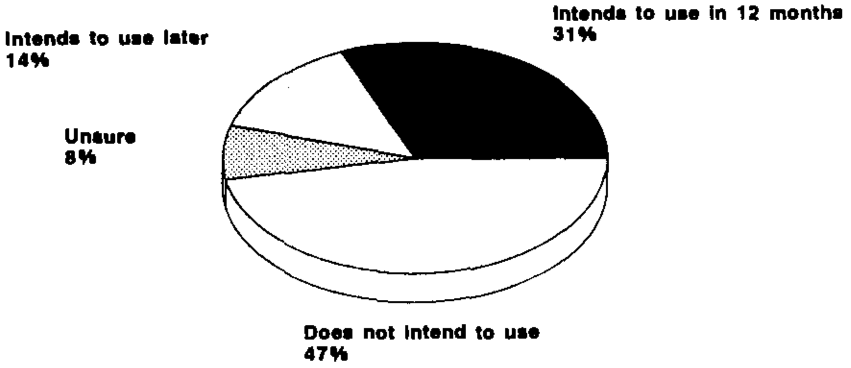
Percent distribution of currently married women who are not using a contraceptive method by past experience with contraception and intention to use in the future, according to number of living children, Turkey 1993

Past experience with contraception and future intentions	Number of living children[1]					
	0	1	2	3	4+	Total
Never used before						
Intend use/12 months	2.9	29.3	11.2	9.1	11.3	13.4
Intend use later	26.3	12.6	4.1	1.0	2.7	8.4
Unsure as to timing	0.8	2.1	0.7	0.0	0.6	0.9
Unsure as to intent	10.3	5.4	2.9	2.5	3.7	4.7
Does not intend use	44.9	19.0	17.4	15.5	28.8	25.0
Missing	0.5	0.8	0.0	0.0	0.4	0.4
Previously used						
Intend use/12 months	2.1	12.3	32.7	25.3	14.9	17.4
Intend use later	8.9	9.3	3.9	4.1	2.3	5.4
Unsure as to timing	0.0	0.4	1.2	1.4	0.3	0.6
Unsure as to intent	0.7	1.0	1.6	2.5	1.0	1.3
Does not intend to use	2.6	7.3	22.8	36.0	33.0	21.4
Missing	0.0	0.5	1.5	2.6	1.0	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Nonusers currently married						
Intend use/12 months	5.0	41.5	43.9	34.4	26.0	30.8
Intend use later	35.2	22.0	7.9	5.1	5.1	13.9
Unsure as to timing	0.8	2.5	1.9	1.4	0.9	1.5
Unsure as to intent	11.0	6.4	4.5	5.0	4.7	6.0
Does not intend to use	47.5	26.4	40.3	51.5	61.9	46.4
Missing	0.5	1.2	1.5	2.6	1.4	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	361	492	459	346	689	2347

---

[1] Includes current pregnancy

Figure 4.6
Future Use of Contraception among Nonusers Currently Married



TDHS 1993

Nonusers are almost evenly divided between past users and never users. An examination of intention to use among these two groups indicates that past users are only slightly more likely than never users to express an intention to use in the future; past users are more likely than never users to say that they will begin use within the next 12 months.

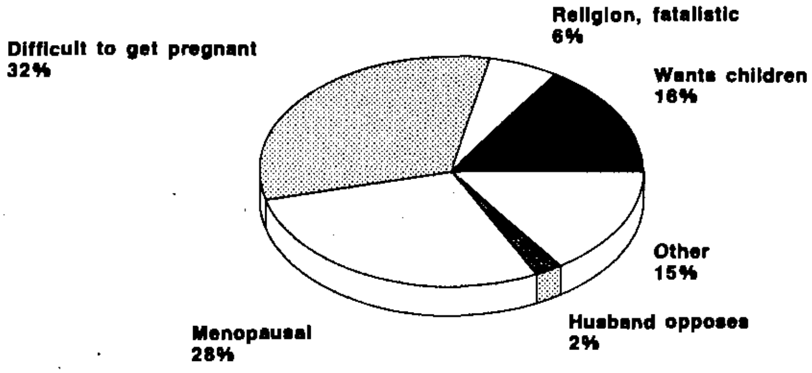
Table 4.15 and Figure 4.7 show the reasons for nonuse among nonusers who do not intend to adopt any method in the future. Nonusers who do not intend to use in the future are mainly over the age of 30 (81 percent), and their reasons for nonuse are quite different from the reasons given by younger nonusers. The majority of these older nonusers are not exposed to pregnancy; 35 percent had a hysterectomy or are menopausal and 35 percent reported that it was difficult for them to get pregnant. The main reason for nonuse among women under age 30 was a desire for children (51 percent), and the second most frequently mentioned reason was infertility (19 percent).

Table 4.15 Reasons for not using contraception

Percent distribution of women who are not using a contraceptive method and who do not intend to use in the future by main reason for not using, according to age, Turkey 1993

Reason for not using contraception	Age		Total
	15-29	30-49	
Wants children	50.7	7.9	15.9
Lack of knowledge	3.5	0.9	1.3
Partner opposed	5.8	1.4	2.3
Costs too much	0.0	0.2	0.1
Side effects	2.6	1.2	1.4
Health concerns	2.7	1.7	1.9
Hard to get methods	0.1	0.6	0.5
Religion	2.5	1.8	2.0
Opposed to family planning	0.1	0.3	0.2
Fatalistic	4.4	3.7	3.9
Infrequent sex	3.0	6.8	6.1
Difficult to be pregnant	18.5	35.4	32.2
Menopausal/Had hysterectomy	0.8	34.9	28.5
Inconvenient	0.0	0.4	0.3
Other	5.4	2.8	3.4
Total	100.0	100.0	100.0
Number	204	886	1090

Figure 4.7
Reasons for Not Using Contraception among Nonusers Currently Married



TDHS 1993

In the groups who intend to use in the next 12 months or later, the majority report that their method of choice will be the IUD. Women who are not sure of the timing of future use also are more likely to prefer the IUD (29 percent) than other methods, but significant proportions also prefer the pill (18 percent), and 11 percent want to be sterilised (Table 4.16).

Table 4.16 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 whether they intend to use in the next 12 months or later, Turkey 1993

	Intend to use			
Preferred method of contraception	In next 12 months	After 12 months	Unsure when	Total
Pill	13.1	14.2	(17.7)	13.5
IUD	54.0	46.7	(29.2)	50.6
Injection	3.2	2.2	(2.9)	2.8
Diaphragm/Foam/Jelly	1.1	1.8	(0.0)	1.3
Condom	2.9	3.1	(4.8)	3.0
Norplant	1.5	1.2	(2.9)	1.4
Female sterilisation	5.2	6.6	(11.4)	5.7
Male sterilisation	0.3	0.2	(0.0)	0.3
Periodic abstinence	0.5	0.0	(0.0)	0.3
Withdrawal	6.9	6.9	(2.9)	6.7
Abstinence	0.0	0.3	(0.0)	0.1
Other	1.2	3.0	(0.0)	1.7
Don't know/Missing	10.1	13.8	(28.2)	12.6
Total	100.0	100.0	100.0	100.0
Number	722	325	35	1082

( ) Figures in parentheses are based on 25-49 cases.

CHAPTER 5

ABORTIONS AND STILLBIRTHS

Ayşe Akın Dervişoğlu
Gül Ergör

In this chapter, the fertility outcomes that have not been discussed in previous chapters—induced abortions, spontaneous abortions, and stillbirths—will be addressed. Greater emphasis will be placed on induced abortions due to the importance of its effects on health and fertility. Although stillbirths and spontaneous abortions are important indicators of prenatal care and maternal health, induced abortions have significance for family planning services.

Abortions have been used as a method of birth control over the years, despite the fact that they were hazardous and/or illegal. Induced abortion is a worldwide problem in women's health. Illegal abortion is a major cause of death among women of reproductive age in developing countries. The aim of family planning is to eliminate unwanted pregnancies. However, lack of access to contraception or non-use of contraception due to psychosocial factors or the failure of a contraceptive method may result in an unwanted pregnancy and may lead women to resort to induced abortion. Legalizing abortion provides safe conditions to terminate unwanted pregnancies. In May 1983, the new population planning law was accepted, by which Turkey chose to provide safe, equally available abortion for every women who needs the service. The new law introduced the following innovations:

- Legalized induced abortion on request during the first ten weeks of gestation
- Provided for pregnancy termination by a trained General Practitioner under the supervision of an ob/gyn specialist
- Legalized surgical contraception on request for both sexes
- Authorized trained nurse-midwives to provide effective contraceptive methods like IUD insertion
- Further emphasized the importance of intersectoral collaboration and cooperation for successful Family Planning activities.

It was a comprehensive law in that it aimed to increase contraceptive use. After 1983, induced abortions have been performed at government hospitals for a nominal fee. The private sector also provides abortion services for a fee.

In the 1993 TDHS, women were asked if they had had any abortions, miscarriages or stillbirths and if so, how many. If these events took place since 1988 the dates were also marked on the calendar section of the questionnaire. Information was also collected on the duration of the pregnancy in months before the abortion, the provider of the abortion, and the reason for the last abortion.

5.1 Abortion and Stillbirth Prevalence

Abortion rates are calculated in three different ways, by dividing the number of abortions by the number of women in a specified time period and multiplying by 100 (per 100 women), by dividing the number of abortions by the number of pregnancies in the same time period and multiplying by 100 (per 100 pregnancies), and by dividing the number of abortions by the number of live births in the same time period and multiplying by 100 (per 100 live births).

The total abortion rates show a slight decrease since 1990 as can be seen in the values for the induced abortions rather than the spontaneous abortions (Table 5.1). The decrease is from 21 per 100 pregnancies in 1990 to 18 in 1992. The low rates for 1988 and 1989 may be due to recall bias, i.e., they belong to a date further in the past. The spontaneous abortion rates were between 5 to 11 per 100 pregnancies during the same time period. The stillbirth incidence, between 1.1 and 1.9, did not show a trend in the five years before the survey. At the time of the survey, respondents reported that 13 of 100 pregnancies ended in induced abortions, 8 pregnancies ended in spontaneous abortions and 2 pregnancies ended in stillbirths.

Table 5.1 Abortions and stillbirths

Induced and spontaneous abortions and stillbirths per 100 pregnancies, 1988-1992, Turkey 1993

	1992	1991	1990	1989	1988	Total[1]
Induced abortion	17.9	18.0	20.6	15.7	12.9	13.4
Spontaneous abortion	10.8	8.9	9.1	6.0	4.7	8.3
Stillbirth	1.1	1.9	1.2	1.8	1.6	1.6

[1] This category reflects the induced and spontaneous abortions and stillbirths per 100 pregnancies that women have had at the time of the survey.

Table 5.2 shows the abortion rates calculated up to the time of the survey. There have been 17 induced abortions per 100 live births and 52 induced abortions per 100 women, compared to 10 spontaneous abortions per 100 live births and 31 spontaneous abortions per 100 women.

Table 5.2 also shows the abortion rates for the three years preceding the survey. There were 29 total abortions for 100 pregnancies, of which 18 were induced and 11 were spontaneous. Out of 100 women, 9 women had induced abortions and 5 women had spontaneous abortions in the same time period. In terms of live births there have been 25 induced abortions and 15 spontaneous abortions per 100 live births. Abortion rates for the year preceding the survey are given at the end of Table 5.2.

Table 5.2 Total abortion rates

Total, induced, and spontaneous abortions per 100 women, 100 pregnancies, and 100 live births, Turkey 1993

	Number of abortions per 100:		
	Women	Pregnancies	Live births
Total			
Total abortions	83.8	21.4	27.6
Induced abortions	52.4	13.4	17.2
Spontaneous abortions	31.4	8.0	10.3
Three years preceding			
Total abortions	13.8	28.5	40.3
Induced abortions	8.7	17.9	25.4
Spontaneous abortions	5.1	10.5	14.9
One year preceding			
Total abortions	5.4	29.4	42.4
Induced abortions	3.3	17.9	25.8
Spontaneous abortions	2.1	11.5	16.6

5.2 Abortions and Stillbirths by Selected Background Characteristics

The induced abortion rates according to region differ considerably from East to West. As seen in Table 5.3 the abortion rates per 100 pregnancies are almost twice as high in the Central, Southern and Northern regions, and almost three times as high in the West as the abortion rate for the East. A similar gap is seen between the rural and urban areas, where induced abortions are nearly twice as high as in the rural areas.

Induced abortions per 100 pregnancies increase steadily by age, reaching the highest level in the 45-49 age group with 48 abortions. This pattern differs from the 1988 TDHS, where the highest abortion rate was seen in the 35-39 age group. The effect of education is similar to that of 1988, with the abortion rate increasing with the level of education, from 14 in the least educated group to 23 in the secondary or higher educated group.

Table 5.3 Induced abortion and stillbirths

Induced abortions and stillbirths per 100 women, per 100 pregnancies according to background characteristics in the five years preceding the survey, Turkey 1993

Background characteristics	Induced abortions per		Stillbirths per	
	100 women	100 pregnancies	100 women	100 pregnancies
Region				
West	16.3	24.9	1.0	1.5
South	13.1	16.3	1.2	1.4
Central	15.4	19.8	1.1	1.4
North	13.7	17.0	1.1	1.4
East	9.5	8.7	1.9	1.7
Residence				
Urban	16.5	21.3	1.1	1.4
Rural	10.2	13.4	1.3	1.6
Age of woman				
15-19	2.3	3.5	0.2	0.3
20-24	8.7	6.7	1.7	1.3
25-29	17.4	13.9	1.8	1.4
30-34	21.1	23.8	0.9	1.0
35-39	20.0	34.7	1.8	3.1
40-44	11.3	37.8	0.6	1.9
45-49	5.0	48.4	0.3	3.0
Education				
No educ./Pri. incomp.	11.2	13.9	1.5	1.9
Pri. comp./Sec. incomp.	15.4	19.4	1.1	1.4
Sec. comp./+	17.2	22.6	0.9	1.2
Total	14.3	17.9	1.2	1.5

There have been 1.5 stillbirths per 100 pregnancies and 1.2 stillbirths per 100 women in the last five years preceding the survey. There are slightly more stillbirths in the East than in the West. The rural and urban differences are not very pronounced. Stillbirths definitely increase after age 35 to 2 or 3 stillbirths per 100 pregnancies. There are more stillbirths in the group that has never attended school or did not complete primary school than in the higher educated groups.

As seen in Table 5.4, overall 72 percent of women have not had an abortion throughout their lives (by the time of the survey), whereas 15 percent had one abortion, 8 percent had two abortions and 6 percent had three or more abortions. As the number of living children increases, the percent of women who had an abortion increases as well as the number of abortions a woman has had. Looking at the abortions according to the desired number of children, the highest percentage of abortions is seen among the women who desire only one child, followed by the women who desire two children.

Table 5.4 Induced abortions throughout life of a woman

Percent distribution of ever-married women by number of induced abortions, according to number of living children and desired number of children, Turkey 1993

	Number of induced abortions					
	None	1	2	3+	Total	Number
Living children						
None	96.7	2.7	0.2	0.4	100.0	623
1	87.2	9.4	2.1	1.3	100.0	1117
2	68.0	17.9	9.0	5.1	100.0	1838
3+	63.6	17.8	10.4	8.2	100.0	2941
Desired children						
None	77.2	12.1	6.8	3.9	100.0	59
1	70.6	17.0	8.3	4.1	100.0	426
2	71.6	15.2	7.9	5.3	100.0	3911
3+	73.0	14.1	6.8	6.1	100.0	2006
Other	72.8	12.1	10.1	5.0	100.0	117
Total	72.0	14.9	7.6	5.5	100.0	6519

5.3 Contraceptive Use Before and After Induced Abortions

Abortions result from either a failure to use contraceptives or a failure to use them effectively. The distribution of women according to the contraceptive method they used in the month preceding the abortion is shown in Table 5.5. In the past five years, 34 percent of women who had an abortion were not using any method whereas 45 percent were using withdrawal one month before the last abortion. The high percentage of withdrawal users among the women who chose to have an abortion implies motivation to control their fertility, but unfortunately the method they have chosen is ineffective. Among the women who terminated their pregnancy with an induced abortion, 6 percent were using condoms, 5 percent the IUD, and 4 percent the pill.

Table 5.5 Method used before abortion

Method used within one month before pregnancy for the last abortion and before pregnancy for all abortions reported in the five years preceding the survey, Turkey 1993

Method	Last abortion	All abortions
Pill	4.2	4.6
IUD	4.7	4.3
Diaphragm/Foam/Jelly	2.7	2.8
Condom	5.5	5.6
Periodic abstinence	2.6	2.5
Withdrawal	45.1	44.7
Other	1.4	1.2
No method	33.8	34.3
Total	100.0	100.0
Number	799	929

Table 5.6 shows the aftermath of abortion in terms of method use. The time during an abortion certainly is an opportunity to offer counseling for effective contraceptive use. However, this seems to be a missed opportunity for health care providers, since 39 percent of women who had an abortion do not use any method one month after an abortion and 27 percent use withdrawal. Effective methods practiced within one month after an abortion include the IUD (11 percent), the pill (9 percent), and the condom (9 percent).

It is interesting to look at the women who used withdrawal and the nonusers, since they account for most of the women who had an abortion. Table 5.7 shows that more than half of the women who were nonusers who had an abortion are still not using any method in the first month after the abortion, only 11 percent started using the pill, 11 percent started using IUD, 8 percent started using the condom, and 12 percent started to use withdrawal.

Table 5.6 Method used after abortion

Method used within one month after last abortion and after all abortions reported in the five years preceding the survey, Turkey 1993

Method	Last abortion	All abortions
Pill	9.1	9.2
IUD	11.1	9.9
Diaphragm/Foam/Jelly	1.6	2.1
Condom	9.3	8.8
Female sterilisation	0.5	0.5
Periodic abstinence	1.3	1.5
Withdrawal	26.8	27.6
Other	1.5	1.7
No method	38.8	38.7
Total	100.0	100.0
Number	799	929

Among the withdrawal users who had an abortion 43 percent continued to use withdrawal and 32 percent were not using any method. Only 10 percent started to use the IUD, 5 percent the pill and 7 percent the condom after the abortion.

Table 5.7 Method used after abortion and past use

Method used within 1 month before last abortion and method used within one month after last abortion in the five years preceding the survey, Turkey 1993

	Method used one month after the abortion										
Method used in the month before abortion	Pill	IUD	Dia-phragm	Con-dom	Female sterili-sation	Peri-odic absti-nence	With-drawal	Other	No method	Total	Number
Pill	(30.3)	(21.3)	(0.0)	(12.0)	(0.0)	(0.0)	(7.5)	(0.0)	(28.9)	100.0	33
IUD	(18.6)	(17.6)	(0.0)	(11.6)	(0.0)	(0.0)	(22.6)	(0.0)	(29.6)	100.0	38
Diaphragm/Foam/Jelly	*	*	*	*	*	*	*	*	*	100.0	22
Condom	(7.1)	(5.1)	(0.0)	(39.5)	(0.0)	(2.2)	(14.1)	(0.0)	(32.0)	100.0	44
Periodic abstinence	*	*	*	*	*	*	*	*	*	100.0	21
Withdrawal	4.9	10.4	0.8	7.3	0.3	0.0	43.4	1.4	31.5	100.0	360
No method	11.1	10.7	0.9	7.7	1.2	0.0	12.2	2.4	53.8	100.0	270
Total	9.1	11.1	1.6	9.3	0.5	1.3	26.8	1.5	38.8	100.0	788[a]

[a] Eleven women who were using "other" methods in the month before the abortion are not included in this table.
( ) Figures in parentheses are based on 25-49 cases.
* Less than 25 cases

5.4 Reasons for Induced Abortion

Reasons for having an abortion for the last abortion a woman had are shown in Table 5.8. The most reported reason was not wanting any more children (58 percent). Socioeconomic reasons followed with 17 percent, physician's recommendation with 12 percent and recently ended a previous pregnancy accounted for 8 percent.

Table 5.8 Reasons for induced abortion

Reason for last induced abortion among women who have at least one induced abortion, Turkey 1993

	Reasons for induced abortion						
Background characteristics	Doctor recommended	Socio-economic	Did not want another	Previous pregnancy just ended	Other[1]	Total	Number
Region							
West	10.0	19.2	56.9	8.2	5.7	100.0	742
South	15.9	12.7	54.7	12.1	4.6	100.0	248
Central	10.6	15.6	60.6	7.4	5.8	100.0	393
North	12.2	18.1	61.0	5.5	4.2	100.0	145
East	22.4	13.1	55.1	4.5	4.9	100.0	171
Residence							
Urban	12.2	18.6	55.1	8.7	5.4	100.0	1269
Rural	13.4	11.1	64.6	5.8	5.1	100.0	430
Age of woman							
15-19	*	*	*	*	*	100.0	6
20-24	12.9	25.3	36.0	14.2	11.6	100.0	86
25-29	13.3	19.9	43.3	15.9	7.6	100.0	239
30-34	12.7	16.7	58.0	9.2	3.4	100.0	390
35-39	9.7	16.8	64.7	4.6	4.2	100.0	403
40-44	14.2	12.8	60.1	6.6	6.3	100.0	342
45-49	12.5	15.9	64.4	3.4	3.8	100.0	233
Education							
No educ./Pri. incomp.	16.7	12.7	61.8	4.5	4.3	100.0	515
Pri. comp./Sec. incomp.	11.0	18.0	55.5	8.9	6.6	100.0	876
Sec. comp./+	9.5	19.7	55.8	11.1	3.9	100.0	308
Total	12.4	16.7	57.5	8.0	5.4	100.0	1699

[1] Includes missing values, which are 4.3.percent of the total

* Less than 25 cases

There were some regional differences in the reasons for abortions. In the East, physician's recommendation was 22 percent, the highest of all the other regions, which is probably due to the high number of pregnancies a woman has. In the South the short time interval seemed to be a more important factor to end a pregnancy than in the other regions. In the urban areas socioeconomic factors and birth spacing were the more important reasons, while in rural areas not wanting any more children was reported more.

As the age of the woman increased, the main reason for having the last induced abortion was "not wanting any more children." Socioeconomic reasons were reported more frequently by the younger age groups. Until age 30 between 12-16 percent of pregnancies were terminated because of a recent pregnancy.

Socioeconomic reasons and child spacing are perceived more as a reason to have an abortion among the higher educated women. Among the uneducated, 17 percent report physician's recommendation as a reason for their abortion and 62 percent report that they did not want any more children.

5.5 Timing of Induced Abortions

Although abortions are legal for up to 10 weeks of pregnancy (2.5 months), it is safer for a woman to have an abortion as early as possible. Table 5.9 shows the distribution of women with recent induced abortions by number of months of pregnancy at the time of the abortion, according to region and place of residence. Overall, 44 percent of abortions took place in the first month, 31 percent in the second month, 13 percent in the third month and 12 percent in the fourth or later months of pregnancy, which shows that at least 12 percent of the induced abortions were performed beyond the legal limits. This is especially noticeable in the East, where one fourth of abortions were done after the legal limits. These statistics may reflect a delay in access to health services.

Urban-rural differences are also more apparent for the abortions after the third month of pregnancy. Notice that 11 percent of induced abortions were carried out after the third month in the urban areas, where access to health care should be easier, compared with 16 percent in the rural areas.

Table 5.9 Timing of induced abortion

Percent distribution of women with recent induced abortions by number of months of pregnancy, according to place of residence, Turkey 1993

Background characteristic	Number of months pregnant				Missing	Total	Number
	1	2	3	4+			
Region							
West	51.5	29.5	10.5	8.5	0.0	100.0	508
South	38.8	33.6	14.6	12.6	0.4	100.0	191
Central	46.8	31.0	11.4	10.8	0.0	100.0	327
North	40.6	38.2	10.8	10.4	0.0	100.0	129
East	25.8	29.2	19.5	25.5	0.0	100.0	208
Residence							
Urban	47.2	29.9	12.0	10.8	0.1	100.0	946
Rural	35.5	34.1	14.4	16.0	0.0	100.0	417
Total	43.6	31.2	12.7	12.4	0.1	100.0	1363

This issue might be better explained when the abortion provider is taken into consideration. Table 5.10 shows that 67 percent of abortions were performed by private physicians and 27 percent by physicians in government hospitals. Although it differs by region, the private physician's share is not lower than 64 percent in any region. The percentage for physicians at government hospitals is the highest in the Western region, followed by the Central and Eastern regions. There are no marked urban and rural differences in terms of the place where the abortion service is provided. Three percent of unsafe induced abortions are performed either by the woman herself or by a nurse-midwife.

Table 5.10 Abortion providers

Percent distribution of women who used induced abortion to terminate their pregnancies during the last five years, by provider, according to place of residence, Turkey 1993

Background characteristic	Self/ Nurse-midwife	Physician (gov't. hospital)	Physician (private)	Missing	Total	Number
Region						
West	1.0	32.7	64.3	2.0	100.0	379
South	7.1	17.6	73.5	1.8	100.0	131
Central	2.7	30.2	64.9	2.2	100.0	234
North	4.3	14.6	78.1	2.9	100.0	84
East	5.0	24.7	67.0	3.3	100.0	101
Residence						
Urban	2.1	28.6	67.4	1.9	100.0	691
Rural	5.2	24.2	67.2	3.4	100.0	238
Total	2.9	27.4	67.4	2.3	100.0	929

CHAPTER 6

PROXIMATE DETERMINANTS OF FERTILITY

Banu Akadlı Ergöçmen

The principal factors other than contraception that affect a woman's risk of becoming pregnant, namely, nuptiality, postpartum amenorrhoea, abstinence from sexual relations, and secondary infertility, are addressed in this chapter. The nuptiality data collection procedure in the TDHS differs in various ways from the standard DHS questionnaire. In the TDHS, the nuptiality questions are after the fertility section and questions on recent sexual activity are not included because of the difficulty in addressing these questions to women. Instead there are some additional questions about family formation, religious marriages, and consanguinity.

Although it is by no means always true, marriage is an indicator of exposure of women to the risk of pregnancy; therefore it is important for the understanding of fertility. Populations in which age at marriage is low also tend to experience early childbearing and high fertility. Trends in the age at which women marry can help to explain the trends in fertility levels. Measures of other proximate determinants of fertility are the durations of postpartum amenorrhoea and postpartum abstinence, and the level of secondary infertility.

In the TDHS, only women 15-49 who had ever been married were interviewed with the Individual Questionnaire. However, some tables presented in this chapter are based on all women, i.e., on both ever-married and never-married women. In constructing these tables, the number of ever-married women interviewed in the survey is multiplied by an inflation factor that is equal to the ratio of all women to ever-married women interviewed as reported in the Household Questionnaire. With this procedure the denominators are expanded to represent all women. The inflation factors are calculated by single years of age and, where the results are presented by background characteristics, single-year inflation factors are calculated separately for each category of the characteristic.

6.1 Current Marital Status

Current marital status at the time of the survey is shown in Table 6.1 and Figure 6.1. Overall, 65 percent are currently married,[1] 2 percent are widowed, 1 percent are divorced and 33 percent have never been married. In Turkey, marriage is almost universal. By the end of the reproductive years, only 1 percent of women have never married. The universality of marriage is also evident from the fact that among women age 30 and over, 96 percent or more are, or have been, married. The percentage of never married women declines rapidly with age, decreasing almost by half, from 87 percent among teenagers to 42 percent among women in their early twenties.

As expected, the proportion of widows increases with age, from less than 1 percent of women under age 30 to 7 percent among women age 45-49. The percentage of divorced women is very low and women who are not living with their husbands are even less common than the divorced group.

---

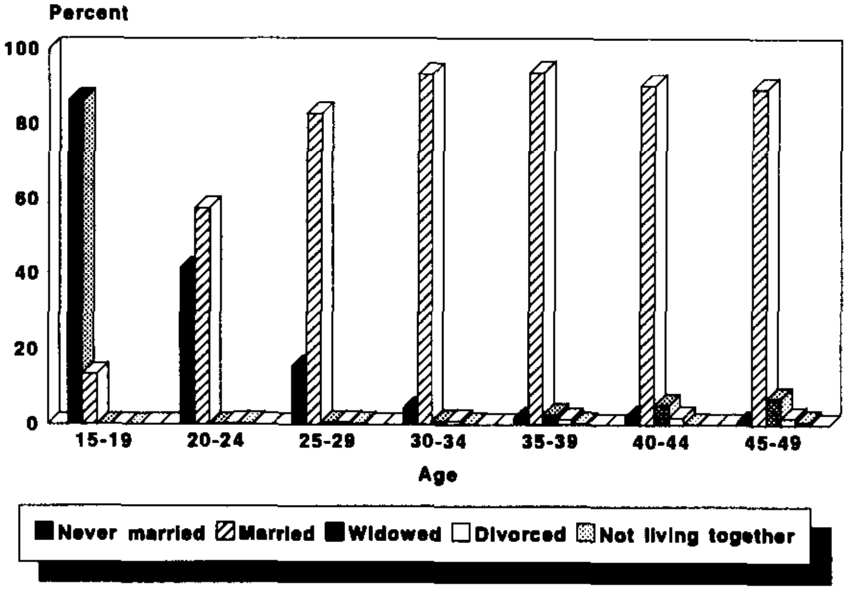
[1] The term married refers both to "currently married" and "currently in union."

Table 6.1 Current marital status

Percent distribution of women by current marital status, according to age, Turkey 1993

Age	Marital status					Total	Number of women
	Never married	Married	Widowed	Divorced	Not living together		
15-19	86.5	13.4	0.0	0.1	0.0	100.0	2460
20-24	41.5	57.7	0.1	0.4	0.3	100.0	1777
25-29	15.6	82.9	0.6	0.6	0.3	100.0	1436
30-34	4.3	93.5	1.0	1.0	0.2	100.0	1340
35-39	1.8	93.9	2.6	1.4	0.3	100.0	1093
40-44	2.2	90.5	5.2	1.9	0.2	100.0	921
45-49	0.9	89.6	7.0	1.7	0.8	100.0	685
Total	32.9	64.6	1.5	0.8	0.2	100.0	9712

Figure 6.1
Current Marital Status



TDHS 1993

6.2 Marital Exposure

Table 6.2 presents marital exposure to the risk of pregnancy. The table is based on the information collected in the calendar. Therefore it shows the percentage of months in the five years before the survey spent in a marital union and incorporates the effects of age at first marriage, marital dissolution, and remarriage. The table shows variations in exposure by age and background characteristics of women.

Table 6.2 Marital exposure

Percentage of time spent in marital union in the five years preceding the survey by age and selected background characteristics, Turkey 1993

Background characteristic	Age at time of survey							
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total
Residence								
Urban	5.3	41.1	76.3	93.0	93.0	90.6	89.1	60.4
Rural	3.3	39.2	75.5	92.4	95.8	94.8	93.8	50.7
Region								
West	4.2	39.1	74.1	92.1	92.3	90.2	89.5	61.6
South	4.8	36.5	66.4	88.9	93.0	92.5	87.4	56.1
Central	5.0	43.1	80.9	95.3	93.5	92.3	93.8	60.8
North	6.6	37.6	81.1	90.2	96.0	91.8	92.3	63.3
East	5.9	44.4	81.5	95.0	96.8	95.3	92.1	53.0
Education								
No educ./Pri. incomp.	13.4	57.6	85.4	94.0	95.4	92.2	94.0	81.4
Pri. comp./Sec. incomp.	5.3	43.9	78.8	93.8	94.9	93.1	87.6	54.8
Sec. comp./+	1.1	23.1	61.5	87.8	86.2	87.1	83.1	40.7
Total	4.8	40.4	76.0	92.7	93.9	91.8	90.9	58.3

Overall, women in Turkey were in marital unions for 58 percent of the time during the five years preceding the survey. The percentage of months spent married varies by age. Younger women spent less time in marriage than older women, because a large proportion were not yet married. The percentage of months spent married increases to 94 percent among women age 35-39 and then declines. This pattern reflects marital dissolution among women age 40 and above, mostly through widowhood, since divorce is less common.

There are significant differences in marital exposure between regions. These differences are more marked in the younger age groups, indicating differences in the pace of entry into marriage. For example, women age 20-24 in the Southern region spent 37 percent of the months in the five years preceding the survey in marital union, compared to 44 percent among women in the same age group in the Eastern region. In the 25-29 age group similar differences are observed between the regions.

With respect to residential variation, the percentage of months spent married is unexpectedly lower among rural women than among women living in urban areas up to age 35. After this age, a reversed pattern is observed, with rural women spending a higher percentage of months married.

There are also large differences in marital exposure by the woman's level of education. Time spent in marital union decreases as the level of education increases. Overall, women with no education spent 81 percent of the months in the five years preceding the survey in marital union, whereas women with secondary and more education spent half of that time in marital union (41 percent).

6.3 Age at First Marriage

In Turkey, marriage is almost universal and almost all births occur within marriage. Therefore, age at first marriage is an important demographic indicator since it represents the beginning of exposure to the risk of pregnancy.

An increase in age at first marriage across cohorts is clearly observed in Table 6.3. Comparison of percentages across age groups indicates an increasing age at first marriage. The percentages at each specific marriage age are all lower for the younger age groups than for the older age groups. For example, among women age 45-49, 68 percent married by age 20, whereas only 50 percent of women age 25-29 married by age 20. Getting married at very young ages is becoming less common. For example, 13 percent of women age 45-49 got married by age 15, whereas only 5 percent of the 20-24 age group did so.

The median age at first marriage is 19 years when women 25-49 are considered. However, a steady increase is observed in the median age at first marriage, ranging from 18.3 years for the 45-49 age group to 20.0 years for the 25-29 age group. This implies that half of women age 25-29 marry after age 20.

Table 6.3 Age at first marriage

Percentage of women who were first married by exact age 15, 18, 20, 22, and 25, and median age at first marriage, according to current age, Turkey 1993

	Percentage of women who were first married by exact age:					Percentage who had never married	Number of women	Median age at first marriage
Current age	15	18	20	22	25			
15-19	1.8	NA	NA	NA	NA	86.5	2460	[a]
20-24	4.7	23.3	41.1	NA	NA	41.5	1777	[a]
25-29	7.5	29.2	49.9	63.7	78.3	15.6	1436	20.0
30-34	6.8	38.0	58.8	74.6	86.9	4.3	1340	19.0
35-39	9.1	43.1	66.5	79.3	90.8	1.8	1093	18.6
40-44	12.0	44.8	66.4	82.1	91.7	2.2	921	18.5
45-49	12.9	45.4	67.8	82.0	91.9	0.9	685	18.3
20-49	8.0	35.0	55.7	69.7	79.9	14.7	7252	19.4
25-49	9.1	38.8	60.4	74.9	86.8	6.0	5475	19.0

NA = Not applicable

[a] Omitted because less than 50 percent of the women in the age group x to $x+4$ were first married by age x

Differences in the median age at first marriage among women age 25-49 by residence, region, and education can be examined in Table 6.4. There is little variation in median age at first marriage by residence. Rural women marry slightly earlier than their urban counterparts (18.4 and 19.3, respectively). However, substantial differences are observed in median age at first marriage by region. The lowest median age, 18.0, is found in the East and the highest, 19.6, in the West, indicating that women in the East marry nearly two years earlier than women in the West. The median ages at first marriage for the Western and Southern regions are higher than the median age for Turkey overall.

Marked differences in age at first marriage are observed by educational level of women. Among women age 25-49, there is a five-year difference in the median age at first marriage between those who never attended school and those who completed at least the secondary level (Figure 6.2). For women with either

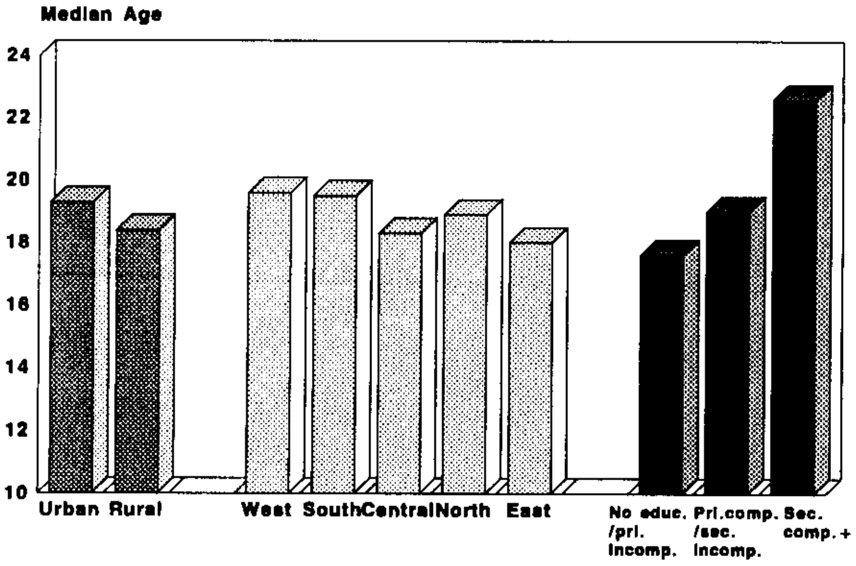
Table 6.4 Median age at first marriage

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

Background characteristic	Current age					Women age 25-49
	25-29	30-34	35-39	40-44	45-49	
Residence						
Urban	20.3	19.5	18.8	18.7	18.8	19.3
Rural	19.5	18.3	18.2	18.0	17.6	18.4
Region						
West	21.0	19.8	19.4	18.9	18.8	19.6
South	20.8	19.8	18.8	18.7	18.8	19.5
Central	19.1	18.5	18.1	17.8	18.0	18.3
North	20.1	18.8	18.5	18.4	18.0	18.9
East	18.7	17.9	17.5	18.0	16.8	18.0
Education						
No educ./Pri. incomp.	18.0	17.6	17.5	17.7	17.6	17.6
Pri. comp./Sec. incomp.	19.8	18.9	18.6	18.5	18.7	19.0
Sec. comp./+	23.3	22.2	22.5	22.3	22.1	22.6
Total	20.0	19.0	18.6	18.5	18.3	19.0

Note: Medians are not shown for women 15-19 and 20-24 because less than 50 percent have married by age 15 and 20 in all subgroups shown in the table.

Figure 6.2
Median Age at First Marriage among Women Age 25-49 by Background Characteristics



TDHS 1993

primary school education or at least secondary level education, there is an upward trend in the median age at first marriage from older cohorts to younger ones. Among these women entry into marriage seems to be delayed by one year. The increase in the median age at first marriage across cohorts observed for women who have no education is not as great as for the other education groups.

6.4 Postpartum Amenorrhoea, Postpartum Abstinence, and Insusceptibility

Postpartum protection from conception can be prolonged by two factors: breastfeeding and sexual abstinence. Breastfeeding lengthens the duration of amenorrhoea (menstruation has not yet returned) and postpartum abstinence delays the resumption of sexual relations. Women are defined as insusceptible if they are not exposed to the risk of pregnancy, either because they are amenorrhoeic or abstaining following a birth. The estimates for postpartum amenorrhoea, postpartum abstinence, and insusceptibility are based on current status measures, that is, the proportion of births at each time period before the survey for which the mothers are still amenorrhoeic, abstaining, or insusceptible at the time of the survey.

The percentage of births whose mothers are postpartum amenorrhoeic, abstaining, and postpartum insusceptible is presented in Table 6.5 by the number of months since the birth. The median and mean duration estimates are calculated from the current status proportions at each time period. The data are grouped by two-month intervals to minimize the fluctuations in the estimates.

Table 6.5 Postpartum amenorrhoea, abstinence and insusceptibility

Percentage of births whose mothers are postpartum amenorrhoeic, abstaining and insusceptible, by number of months since birth, and median and mean durations, Turkey 1993

Months since birth	Amenorrhoeic	Abstaining	Insusceptible	Number of births
< 2	90.2	83.2	95.6	98
2-3	64.2	18.6	69.3	139
4-5	39.6	3.6	41.6	131
6-7	21.9	4.0	25.4	150
8-9	14.9	0.0	14.9	142
10-11	13.8	0.6	14.4	110
12-13	4.6	1.1	5.6	154
14-15	7.8	0.0	7.8	120
16-17	3.5	1.1	4.7	110
18-19	1.3	0.0	1.3	137
20-21	0.0	2.3	2.3	112
22-23	3.6	1.1	4.7	116
24-25	0.0	0.6	0.6	129
26-27	1.1	0.0	1.1	116
28-29	0.0	1.5	1.5	124
30-31	0.0	0.0	0.0	121
32-33	0.0	1.3	1.3	81
34-35	0.0	0.0	0.0	121
Total	14.8	5.8	16.2	2211
Median	3.7	1.9	4.0	NA
Mean	5.6	2.7	6.1	NA
Prevalence/ Incidence mean	5.2	2.1	5.7	NA

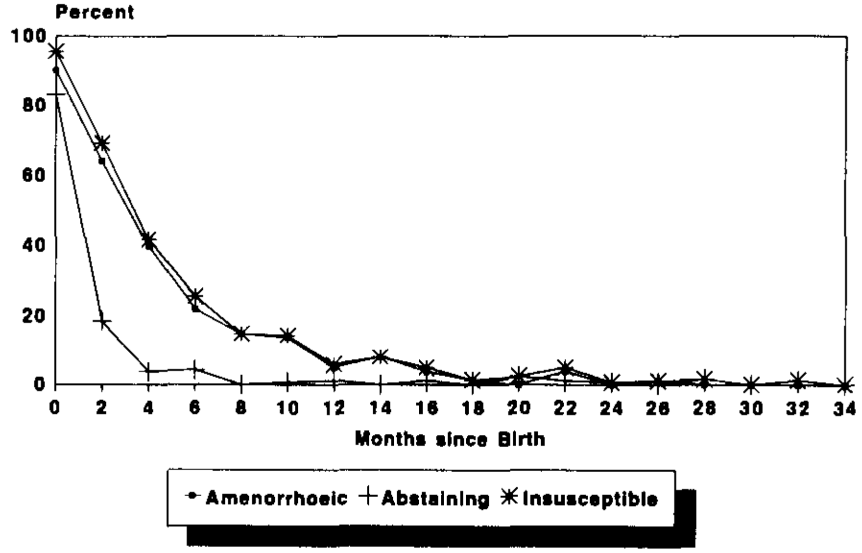
NA = Not applicable

The estimates in Table 6.5 indicate that 15 percent of the mothers have not resumed menstruation and 6 percent have not resumed sexual relations. If the two conditions are combined, 16 percent of births are to women who are insusceptible to the risk of pregnancy. The mean duration of amenorrhoea is about 6 months and the mean duration of abstinence is about 3 months. The median durations are 4 months and 2 months, respectively.

The period of postpartum amenorrhoea is considerably longer than the period of postpartum abstinence and is the major determinant of the length of the period of postpartum insusceptibility to pregnancy for Turkish women. Ninety percent of women are amenorrhoeic immediately following the delivery, but this value decreases to 64 percent 2-3 months after birth and to slightly more than 20 percent 6-7 months after birth (Figure 6.3).

In Turkey, traditionally there is a period of sexual abstinence after birth that lasts 40 days. The estimates in Table 6.5 are in accordance with this tradition. Eighty-three percent of mothers abstain from sexual relations immediately following a birth. At 2-3 months following a birth, the percentage of mothers abstaining decreases to 19 percent and by 6-7 months only 4 percent of mothers have not yet resumed sexual relations.

Figure 6.3
Percentage of Births Whose Mothers Are Amenorrhoeic, Abstaining or Insusceptible



TDHS 1993

Table 6.6 shows the median durations of postpartum amenorrhoea, abstinence, and insusceptibility by background characteristics of mothers. In the absence of contraception, variations in postpartum amenorrhoea and abstinence are the most important determinants of the interval between births and, ultimately, of completed fertility. In some populations differentials across subgroups in the duration of postpartum amenorrhoea and abstinence also may indicate incipient changes in traditional postpartum practices. Average durations of postpartum abstinence in Table 6.6 do not vary greatly according to the background characteristics of women. However, some variation is observed in the durations of postpartum

Table 6.6 Median duration of postpartum abstinence and insusceptibility by background characteristics

Median number of months of postpartum amenorrhoea, postpartum abstinence, and postpartum insusceptibility, by selected background characteristics, Turkey 1993

Background characteristic	Postpartum amenorrhoea	Postpartum abstinence	Postpartum insusceptibility	Number of women
Age				
<30	3.4	1.8	3.8	1584
30+	4.8	1.9	4.9	627
Residence				
Urban	3.7	1.7	4.0	1311
Rural	3.7	2.0	4.0	900
Region				
West	3.1	1.4	3.3	596
South	3.3	2.0	3.7	338
Central	4.1	2.0	4.9	485
North	2.8	2.1	3.2	221
East	4.6	1.9	4.9	571
Education				
No educ./Pri. incomp.	4.9	2.0	5.3	759
Pri. comp./Sec. incomp.	3.2	1.8	3.4	1145
Sec. comp./+	3.4	1.7	3.8	307
Total	3.7	1.9	4.0	2211

Note: Medians are based on current status.

amenorrhoea by age, region, and level of education. For example, older women, women living in the East, and women with less than primary education have the longest median durations for postpartum amenorrhoea. It is noteworthy that the shortest duration for postpartum amenorrhoea, 2.8 months, is found in the Northern region.

The differentials in the median durations of postpartum insusceptibility reflect the combined effects of amenorrhoea and abstinence, but follow a pattern similar to that of amenorrhoea. In general, women over 30, women living in the Central and Eastern regions, and women with no education are insusceptible for relatively longer periods.

6.5 Termination of Exposure to Pregnancy

Later in life, the risk of pregnancy begins to decline with age, particularly beginning around age 30. Table 6.7 presents the indicators of decreasing exposure to the risk of pregnancy for women age 30 and above, menopause and terminal infertility.

Table 6.7 Termination of exposure to the risk of pregnancy

Indicators of menopause and terminal infertility among currently married women age 30-49, by age, Turkey 1993

	Menopause[1]		Terminal infertility[2]	
Age	Percentage	Number	Percentage	Number
30-34	0.6	1118	32.0	157
35-39	2.7	980	58.8	156
40-41	5.1	362	64.1	99
42-43	9.6	325	79.1	87
44-45	18.1	304	86.6	108
46-47	27.6	255	90.3	97
48-49	42.5	181	95.9	90
Total	8.1	3525	68.2	794

[1] Percentage of non-pregnant, non-amenorrhoeic currently married women whose last menstrual period occurred six or more months preceding the survey or who report that they are menopausal.

[2] Percentage of women continuously married and not using contraception during the five years preceding the survey who did not have a birth during the period and who are not pregnant.

Menopausal women include women who are neither pregnant nor postpartum amenorrhoeic, but who have not had a menstrual period in the six months preceding the survey. The second indicator of infecundity is obtained from a demonstrated lack of fertility. A woman is considered terminally infertile if she was continuously married for the five years preceding the survey, did not use contraception, did not give birth in that time, and is not currently pregnant.

The percentage of women in menopause increases gradually with age, rising rapidly after age 44. At age 48-49, 43 percent of women are menopausal. The same pattern is observed for terminal infertility. At the end of the reproductive age, 96 percent of women are terminally infertile.

CHAPTER 7

FERTILITY PREFERENCES

Turgay Ünalan

In the TDHS, several questions were asked to ascertain women's fertility preferences: their desire to have another child, the length of time they wanted to wait before having that child, and the number of children they would want if they could start afresh. The resulting data make the quantification of fertility preferences possible and, in combination with information on contraceptive use, allow us to estimate the demand for family planning, either to space or to limit births. The first two questions were asked of nonsterilised, currently married women; the question to ascertain ideal family size was asked of all women.

Interpretation of data on fertility preferences has always been the subject of controversy. Survey questions have been criticized on the grounds that answers are misleading because a) they reflect unformed, ephemeral views, which are held with weak intensity and little conviction; and b) they do not take into account the effect of social pressures or the attitudes of other family members, particularly the husband, who may exert a major influence on reproductive decisions. Overall, however, the data on fertility preferences provide an indicator of the direction that future fertility will take, as well as an assessment of the need for family planning and the extent of unwanted fertility.

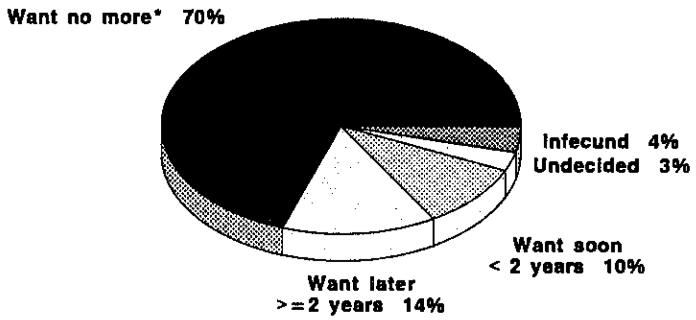
7.1 Desire for More Children

In order to obtain information on future childbearing, currently married women were asked: "Would you like to have another child or would you prefer not to have any more children ?" If they did indeed want another child, they were asked: "How long would you like to wait from now before the birth of another child?" These questions were appropriately phrased if the woman had not yet had any children; if the woman was pregnant, she was asked about her desire following the arrival of the baby she was expecting.

Figure 7.1 shows the percent distribution of currently married women by their intention to have more children and Table 7.1 shows the distribution according to the number of living children. Approximately 1 out of every 10 currently married women indicate that they wanted another child soon, 14 percent of women want another child later, and 70 percent want no more children (including 3 percent who have been sterilised). The proportion of currently married women who want another child decreases rapidly as the number of living children increases. For instance, 78 percent of women with no living children want to have a child soon, whereas less than 1 percent of women with 6 or more living children want another child soon. Conversely, the proportion wanting no more children varies from 2 percent among women with no living children, to 88 percent of women with at least 6 children. The table indicates a considerable interest in controlling fertility, and therefore a potential demand for family planning services for spacing as well as for limiting births.

The percent distribution of currently married women by desire for children according to age is shown in Table 7.2. The desire to space births is concentrated among young women (under age 25). Interest in limiting child bearing increases rapidly with age; 15 percent of currently married women age 15-19 want no more children, whereas more than 80 percent of those age 30-44 and 75 percent of those age 45-49 want to stop childbearing.

Figure 7.1
Fertility Preferences among Currently Married Women Age 15-49



* Includes sterilised

TDHS 1993

Table 7.1 Fertility preference by number of living children

Percent distribution of currently married women by desire for more children, according to number of living children, Turkey 1993

Desire for more children	Number of living children[1]							
	0	1	2	3	4	5	6+	Total
Have another soon[2]	77.5	15.5	3.9	2.4	0.7	1.2	0.7	9.7
Have another later[3]	8.9	56.0	8.7	2.3	1.4	0.8	1.7	13.9
Have another, undecided when	2.1	1.1	0.4	0.3	0.2	0.5	0.0	0.6
Undecided	0.0	4.6	3.2	1.5	0.6	0.1	0.6	2.2
Wants no more	2.0	20.0	78.3	86.6	85.8	86.9	88.3	66.8
Sterilised	0.0	0.7	2.6	3.9	5.4	6.0	2.9	2.9
Declared infecund	9.5	2.1	2.9	2.9	5.8	4.5	5.8	3.9
Missing	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	413	1111	1850	1228	707	419	543	6271

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

Table 7.2 Fertility preference by age

Percent distribution of currently married women by desire for more children, according to age, Turkey 1993

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]	29.4	19.4	12.2	8.1	4.0	1.9	0.9	9.7
Have another later[2]	50.2	40.3	18.0	4.6	1.6	0.3	0.0	13.9
Have another, undecided when	3.1	0.7	0.3	0.8	0.4	0.2	0.0	0.6
Undecided	2.2	4.6	4.0	2.0	0.6	0.4	0.0	2.2
Wants no more	15.1	34.3	63.2	80.4	84.9	84.4	74.7	66.8
Sterilised	0.0	0.3	1.7	3.2	4.8	4.8	5.0	2.9
Declared infecund	0.0	0.3	0.5	0.9	3.6	8.0	19.4	3.9
Missing	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	329	1026	1190	1254	1026	833	613	6271

[1] Wants next birth within 2 years

[2] Wants to delay next birth for 2 or more years

The desire to stop childbearing varies slightly by background characteristics of the respondent (see Table 7.3). Overall, there is only a small variation between rural and urban residence. Also, the percentage of currently married women who want no more children does not show any major regional differences. Education is negatively associated with the desire to stop childbearing. The proportion of women who want no more children decreases as the level of education increases, from 79 percent among uneducated women to 62 percent among women who have completed secondary school or more. Uneducated women may be more likely to want to stop childbearing because they already have more children than educated women.

Table 7.3 Desire to limit (stop) childbearing

Percentage of currently married women who want no more children, by number of living children and selected background characteristics, Turkey 1993

Background characteristic	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Residence								
Urban	2.2	22.2	81.5	91.5	91.8	91.8	92.2	68.8
Rural	1.4	17.6	79.4	88.7	90.6	94.3	90.6	71.6
Region								
West	1.9	25.9	86.6	93.4	90.4	90.0	(83.3)	70.6
South	3.2	17.2	77.4	87.6	88.5	97.5	90.8	68.5
Central	0.0	20.3	79.7	92.7	96.5	93.3	92.0	71.5
North	5.1	14.6	76.8	90.1	88.4	95.7	93.5	67.8
East	1.5	13.5	63.9	82.8	87.8	90.2	92.0	68.1
Education								
No educ./Pri. incomp.	0.7	25.7	73.3	86.4	88.2	93.1	91.1	78.5
Pri. comp./Sec. incomp.	1.7	15.3	80.5	93.1	95.1	92.9	91.7	66.5
Sec. comp./+	4.1	30.1	87.6	90.6	89.1	81.5	*	61.6
Total	2.0	20.8	80.9	90.5	91.2	93.0	91.2	69.8

Note: Women who have been sterilised are considered to want no more children.

[1] Includes current pregnancy

( ) Figure in parentheses is based on 25-49 cases

* Less than 25 cases

7.2 Demand for Family Planning Services

Information on fertility preferences alone is not sufficient to assess the need for family planning services. Many women who do not want to have another child or who want to space the next birth are already using contraception or are not exposed to the risk of pregnancy because they are menopausal or infecund.

In general, women who are currently married, and who declare either that they do not want to have any more children (they want to limit their childbearing) or that they want to wait two or more years before having another child (they want to space their births), but are not currently using contraception, have an *unmet need for family planning*. The calculation of unmet need, being a current status measure, is further refined by excluding women who are currently amenorrhoeic and, therefore, not in need of family planning at present. For an exact description of the calculation, see footnote 1, Table 7.4. Women with unmet need and those currently using contraception constitute the *total demand for family planning*.

Table 7.4 Need for family planning services

Percentage of currently married women with unmet need for family planning, met need for family planning, and the total demand for family planning services, by selected background characteristics, Turkey 1993

Background characteristic	Unmet need for family planning[1]			Met need for family planning (currently using)[2]			Total demand for family planning[3]			Percentage of demand satisfied
	For spacing	For limiting	Total	For Spacing	For limiting	Total	For spacing	For limiting	Total	
Age										
15-19	17.1	3.1	20.2	20.0	4.1	24.1	39.4	7.1	46.5	56.7
20-24	9.7	6.7	16.4	33.1	18.0	51.1	45.0	25.6	70.6	76.8
25-29	3.7	7.0	10.6	19.0	49.0	68.0	24.6	57.5	82.1	87.1
30-34	1.7	9.2	10.8	8.0	68.5	76.5	10.1	78.7	88.8	87.8
35-39	0.7	9.4	10.1	2.0	74.8	76.8	2.8	84.8	87.6	88.5
40-44	0.4	12.4	12.7	0.4	60.6	61.0	0.8	73.1	73.9	82.8
45-49	0.0	8.0	8.0	0.0	41.7	41.7	0.0	49.7	49.7	83.9
Residence										
Urban	3.1	6.6	9.7	14.0	52.2	66.2	18.1	59.5	77.6	87.6
Rural	4.7	11.5	16.2	8.6	47.5	56.1	14.1	59.9	74.0	78.1
Region										
West	2.1	3.8	5.9	14.6	56.9	71.5	17.5	61.1	78.6	92.5
South	3.3	7.8	11.0	12.2	50.5	62.8	16.5	59.3	75.8	85.4
Central	3.2	7.4	10.6	11.4	51.3	62.7	15.6	59.6	75.2	85.9
North	3.7	7.0	10.8	12.7	51.5	64.2	17.7	59.8	77.5	86.1
East	8.0	20.7	28.7	6.9	35.3	42.3	16.0	56.9	73.0	60.6
Education										
No educ./Pri. incomp.	3.9	16.4	20.3	3.3	47.1	50.4	8.0	64.4	72.4	71.9
Pri. comp./Sec. incomp.	3.9	4.7	8.6	14.6	52.8	67.5	19.5	58.2	77.7	88.9
Sec. comp./+	2.3	3.1	5.3	22.7	50.3	73.0	26.5	54.2	80.7	93.4
Total	3.7	8.4	12.0	12.0	50.5	62.6	16.7	59.7	76.3	84.2

[1] *Unmet need for spacing* refers to pregnant women whose pregnancy was mistimed, amenorrhoeic women whose last birth was mistimed, and women who are neither pregnant nor amenorrhoeic, who are not using any method of family planning and who say they want to wait two or more years for their next birth. *Unmet need for limiting* refers to pregnant women whose pregnancy was unwanted, amenorrhoeic women whose last child was unwanted, and women who are neither pregnant nor amenorrhoeic, who are not using any method of family planning and who want no more children. Also excluded are menopausal and infecund women, defined in Footnotes 1 and 2 in Table 6.7.

[2] *Using for spacing* refers to women who are using some method of family planning and who say they want to wait two or more years for their next child. *Using for limiting* refers to women who are using and who want no more children.

[3] Pregnant and amenorrhoeic women whose pregnancy was the result of a contraceptive failure are not included in the category of unmet need (they need a better method of contraception), but are included in total demand for contraception (since they would have been using had their method not failed).

The data in Table 7.4 indicate that 12 percent of currently married women in Turkey are in need of a family planning method, either for spacing (4 percent) or for limiting (8 percent). Of the 63 percent of women using contraception, 12 percent use it to delay their next birth and 51 percent want to stop childbearing. An additional 2 percent of women have need of a better method, since the one they were using failed to protect them from pregnancy. Thus, the total demand for family planning among currently married women in Turkey is 76 percent. Out of this total demand for family planning 17 percent is a demand for spacing purposes and 60 percent is a demand for limiting purposes. More than 80 percent of the total demand has been satisfied by women who are currently using contraception and women who had used it but failed.

The total demand for family planning and the percentage of demand that is satisfied are highest for the most educated women; 81 percent of those who have completed at least secondary school have a demand for family planning and the demand of 93 percent of those women is satisfied. Demand is higher in urban areas (78 percent) than in rural areas (74 percent); only 12 percent of the demand in urban areas remains unsatisfied compared to 22 percent in rural areas. For the great majority of the women, the need for family planning is fulfilled (84 percent). Although the unmet need for spacing purposes is very low when all women are taken into account (4 percent), the proportion increases to 17 percent among younger women.

There is no crucial difference between regions in terms of need for family planning. However, the lowest demand is in the East (73 percent), where only 61 percent is being fulfilled.

7.3 Ideal and Actual Number of Children

Thus far in this chapter, interest has focused on the respondent's wishes for the future, implicitly taking into account the number of children that she already has. To ascertain the ideal number of children (sometimes expressed as desired family size) the respondent is required to perform the more difficult task of considering abstractly and independently of her actual family size, the number of children she would choose if she could start again.

In order to ascertain what women consider to be the ideal number of children, they were asked: "If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?" Table 7.5 shows the ideal number of children according to number of living children (including current pregnancy), and Table 7.6 shows the mean ideal number of children by age and selected background characteristics of the respondents.

Table 7.5 indicates that most women want small families; 60 percent of women prefer a two-child family and another 20 percent consider a three-child family ideal. The mean ideal number of children is 2.4 among ever-married women as well as currently married women. Only 2 percent of women gave non-numeric responses.

Table 7.5 reveals an association between the ideal number of children and the actual number of living children. The mean ideal number of children increases from 2.1 among childless women to 3.3 among women with 6 or more living children. The reason for this correlation is twofold. On the one hand, women may successfully attain their desired family size, and consequently those who want more children have more. On the other hand, women may rationalize and adjust their ideal number of children to the actual number of children that they have already had.

Table 7.5 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, Turkey 1993

Ideal number of children	Number of living children[1]							
	0	1	2	3	4	5	6+	Total
0	1.9	0.5	0.8	0.7	1.4	0.7	1.3	0.9
1	11.5	12.3	5.9	5.7	4.4	1.7	1.3	6.5
2	64.0	67.0	75.3	49.9	56.4	43.5	30.5	60.0
3	14.4	14.7	12.5	33.5	15.7	32.1	26.3	20.0
4	6.4	3.5	3.5	7.0	17.7	12.9	25.2	8.5
5	0.3	0.6	0.4	0.7	0.7	3.7	4.0	1.1
6+	0.2	0.7	0.5	0.6	0.9	2.0	7.1	1.2
Non-numeric response	1.3	0.7	1.1	1.9	2.8	3.4	4.3	1.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	440	1158	1911	1276	733	439	562	6519
Ever-married women								
Mean ideal number[2]	2.1	2.1	2.2	2.5	2.5	2.8	3.3	2.4
Number of women	435	1151	1891	1252	712	424	538	6403
Currently married women								
Mean ideal number[2]	2.1	2.1	2.2	2.5	2.5	2.8	3.3	2.4
Number of women	408	1104	1832	1205	687	405	518	6159

[1] Includes current pregnancy.
[2] Excludes women who gave non-numeric responses.

Table 7.6 presents the mean ideal number of children for ever-married women by age and selected background characteristics. The mean ideal family size increases slightly with age, from 2.3 children among women age 15-19 to 2.5 children among women age 45-49. Typically, urban and more educated women have a smaller ideal family size. Women who live in the East have the largest mean ideal number of children (2.9), whereas women who live in the West have the smallest (2.2).

Table 7.6 Mean ideal number of children by background characteristics

Mean ideal number of children for ever-married women, by age and selected background characteristics, Turkey 1993

Background characteristic	Age of woman							
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total
Residence								
Urban	2.2	2.2	2.3	2.3	2.4	2.5	2.4	2.3
Rural	2.3	2.4	2.4	2.5	2.7	2.7	2.7	2.5
Region								
West	2.1	2.0	2.1	2.1	2.3	2.2	2.3	2.2
South	2.1	2.4	2.4	2.5	2.6	2.7	2.7	2.5
Central	2.3	2.1	2.2	2.3	2.6	2.4	2.5	2.3
North	2.2	2.2	2.3	2.3	2.4	2.7	2.6	2.4
East	2.5	2.6	2.8	2.9	3.2	3.3	3.3	2.9
Education								
No educ./Pri. incomplete	2.4	2.5	2.7	2.7	2.9	2.8	2.7	2.7
Pri. comp./Sec. incomp.	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.3
Sec. comp./+	(2.0)	2.0	2.0	2.0	2.0	2.1	2.1	2.0
Total	2.3	2.2	2.3	2.4	2.5	2.5	2.5	2.4

( ) Figure in parentheses is based on 25-49 cases.

7.4 Fertility Planning

Since the issue of mistimed and unwanted fertility is an important one, respondents were asked whether each birth in the five years preceding the survey was planned (wanted then), unplanned (wanted later), or not wanted at all (wanted no more). These questions form a potentially powerful indication of the degree to which couples are successfully controlling their fertility. However, it must be noted that these questions require the respondent to recall accurately her wishes at one or more points in the last five years and to report them honestly. The danger of rationalization is present; an unwanted conception might well have become a cherished child. Therefore, the values presented here are likely to be underestimates of unplanned and unwanted fertility. The results by birth order and mother's age at the birth of the child are presented in Table 7.7. This is a birth-based rather than a woman-based table.

Table 7.7 shows that 68 percent of births in the past five years were wanted at the time they were conceived whereas 12 percent were wanted later and 20 percent were not wanted at all. The proportion of births that are reported as not wanted or as mistimed increases with birth order; 55 percent of the fourth or higher order births were not wanted and 5 percent of births of this order were wanted but at a later time. The proportion of births that were not wanted increases with mother's age at the time of the birth of the child. Compared to 64 percent of births to women age 40-44, 3 percent of births to the youngest women were not wanted.

Table 7.7 Fertility planning status

Percent distribution of births in the five years preceding the survey by fertility planning status, according to birth order and mother's age at birth, Turkey 1993

Birth order and mother's age at birth	Planning status of birth					Number of births
	Wanted then	Wanted later	Not wanted	Missing	Total	
Birth order						
1	90.6	8.6	0.8	0.0	100.0	1412
2	68.9	23.7	7.3	0.1	100.0	1095
3	59.9	12.1	28.0	0.0	100.0	614
4+	40.8	4.6	54.5	0.1	100.0	1107
Mother's age at birth						
< 20	80.2	16.9	2.9	0.0	100.0	673
20-24	75.7	14.3	9.8	0.2	100.0	1540
25-29	64.0	12.2	23.7	0.1	100.0	1125
30-34	53.8	5.3	40.8	0.1	100.0	576
35-39	38.6	1.4	60.0	0.0	100.0	247
40-44	35.8	0.0	64.2	0.0	100.0	64
45-49	*	*	*	*	*	3
Total	67.5	12.0	20.4	0.1	100.0	4228

Note: Birth order includes current pregnancy.
* Less than 25 cases

Another way of measuring the extent of unwanted fertility is to calculate what the fertility rate would be if all unwanted births were avoided. This rate, known as the *wanted fertility rate,* is calculated in the same manner as the total fertility rate, but with unwanted births excluded from the numerator. In this context, unwanted births are defined as births that exceed the number considered ideal by the respondent (women who do not report a numeric ideal family size are assumed to want all their births). This rate represents the level of fertility that would have prevailed in the one year preceding the survey if all unwanted births had been prevented. A comparison of the total wanted fertility rate and the actual total fertility rate is believed to suggest the potential demographic impact of the elimination of unwanted births.

Table 7.8 presents the total wanted fertility rate and the total fertility rate by selected background characteristics. The total wanted fertility rate for Turkey is 1.8 births per women, almost one child less than the actual total fertility rate (2.7 births). This implies that the total fertility rate is about one-third higher than it would be if unwanted births were avoided. The gap between the wanted and actual fertility rates is largest among rural women, women living in the East, and women who have no education.

Table 7.8 Wanted fertility rates

Total wanted fertility rates and total fertility rates for the year preceding the survey, by selected background characteristics, Turkey 1993

Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.7	2.4
Rural	2.0	3.1
Region		
West	1.7	2.0
South	1.8	2.4
Central	1.7	2.4
North	2.4	3.2
East	2.3	4.4
Education		
No educ./Pri. incomp.	2.6	4.2
Pri. comp./Sec. incomp.	1.8	2.4
Sec. comp./+	1.5	1.7
Total	1.8	2.7

Note: The total fertility rates are the same as those presented in Table 3.2.

CHAPTER 8

INFANT AND CHILD MORTALITY

Attila Hancıoğlu

The level of infant and child mortality is an important indicator of the general standard of living in a society, and of health conditions in particular. Information on mortality rates during infancy and childhood can form the basis for informed decisions on health, as well as on population policies and programs. Such information can be used for population projections and as a means of identifying population groups where children face higher mortality risks, so that detailed short- and long-term strategies can be developed to improve child survival and welfare.

Infant and child mortality rates have been attracting the unmatched interest of decision and policy makers in Turkey, not only because of the aforementioned reasons, but also because these rates have been found to be very high in the past. More specifically, infant and child mortality rates have been considered to be higher than what would be expected on the basis of other indicators of development, particularly demographic indicators.

Presented in this chapter are findings from the TDHS on the levels, trends and differentials in neonatal, postneonatal, infant, child, and under-five mortality. A preliminary assessment of data quality is also presented. The chapter ends with an analysis of high-risk fertility behaviour.

8.1 Definitions of Infant and Child Mortality

All female respondents to the TDHS individual questionnaire were asked to provide a complete birth history, including the sex, birth date, survival status, and current age or age at death for each of their live births. The data were used to calculate the following estimates of infant and child mortality for 5-year periods preceding the TDHS:

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

A detailed description of the method used to calculate these probabilities is given in Rutstein (1984).

8.2 Assessment of Data Quality

Infant and child mortality rates are subject to both sampling and nonsampling errors. Nonsampling errors cover a wide range: from underreporting of births and deaths to errors by the interviewers in recording responses. Presented in this section are some basic checks for various nonsampling errors.

Birth histories are powerful tools used in demographic surveys to collect retrospective information on births and deaths. However, as for any retrospective data collection procedure, birth histories are subject to respondent recall errors, and these errors may result in biased rates and trends over time. It is therefore necessary to undertake a preliminary assessment of the quality of birth history data before one can start to examine estimates derived from them. In this section, such an assessment is made with respect to completeness and accuracy of date reporting, heaping of age at death, and sex selective omission of births.

Unreported birth dates and ages at death are potential problems in birth history data. Completeness of information on dates of birth and ages at death in the birth history section of the TDHS individual questionnaire appear to be of acceptable quality (see Appendix D, Table D.3 and Table D.4). The percentage of live births in the 15 years preceding the survey for which information on month of birth was missing is 2 percent, whereas both month and year of birth were missing for only 0.2 percent of all live births in the same period. Interviewers were required to recover full information on birth date (i.e., month and year of birth) for births in the 5 years immediately preceding the survey. Table D.4 shows that complete information on birth dates were indeed collected for all births in this period. Unreported ages at death were also uncommon in the TDHS data; only 0.4 percent of deaths recorded in the birth histories lacked an age at death. This is also a good indication of the completeness of information collected in the TDHS regarding dates of birth and ages at death.

Table D.4 also shows that there is a deficit of births in the TDHS in the calendar year 1988 and an excess of births in calendar year 1987. This pattern is one found in Demographic and Health Surveys (DHS) data from other countries; it is thought to result, at least partly, from the transference of births by interviewers out of the period for which health and calendar data were collected (January 1988 through the date of the survey) in order to reduce their workload.

A problem common to most retrospective surveys is heaping of age at death on "convenient" digits, for example, 6, 12, and 18 months. This phenomenon introduces biases in the calculation of rates, if the net result is to shift deaths from one age segment to another. Despite the fact that heaping of age at death at 12 months in the TDHS was minimal (see Appendix D, Table D.6) and interviewers at times recorded deaths as "1 year," even though instructions required them to record deaths under two years of age in months, an unknown fraction of these deaths might have actually occurred before the first birthday. Thus, the infant mortality rate might be biased downward somewhat and child mortality biased upward; under-five mortality would be unaffected. Earlier simulation studies using DHS data from other countries indicate that misreporting of age at death can be troublesome (Sullivan et al., 1990). Due to the fact that heaping of age at death at 12 months was minimal in the TDHS, application of the simulation model indicated that any bias in the infant mortality rate from this source would be on the order of 1 percent. The rates presented here are therefore unadjusted; that is, all deaths reported at 12 months or "1 year" are assigned to the post-infant age period.

One other check that can be performed to assess the reliability of birth history data is to calculate sex ratios at birth for all live births. These ratios are expected to be around 105 male births per 100 female births. Sex ratios for single calendar years are likely to be affected by random fluctuations; this appears to have been the case in the TDHS (see Table D.4 in Appendix D). However, when sex ratios based on five-year periods are considered, the findings point to the high quality of data, especially in the last two five-year periods (sex ratios for these periods are calculated as 105.4 and 105.6). The overall sex ratio for all births in the birth history is 106.4, which is also within expected limits. The only problem appears to be with the births that occurred during the years 1979-1983, approximately 10-14 years preceding the survey, where the sex ratio at birth is estimated at 108.6, raising the possibility of underreporting of female deaths. Higher-than-expected ratios of this magnitude, however, are unlikely to affect the reliability of rates based on this period.

8.3 Levels and Trends in Infant and Child Mortality

Presented in Table 8.1 are infant and child mortality rates for periods 0-4, 5-9, and 10-14 years preceding the survey. These periods refer approximately to calendar periods of 1988-1993, 1983-1988, and 1978-1983, respectively. The estimated infant mortality rate for the most recent period (0-4 years preceding the survey) is 53 per 1,000 live births. More than half of infant deaths (56 percent) occurred in the first four weeks of life, during the neonatal period. Child mortality ($_4q_1$) is found to be approximately 9 per 1,000 during this period. The results also show that the probability of dying between birth and the fifth birthday is around 61 per 1,000. Consequently, a large proportion of under-five deaths occurs before the first birthday (86 percent). This finding is consistent with previous information on the pattern of Turkish under-five mortality, where the magnitude of infant mortality rates was found to be high relative to child mortality rates.

The figures in Table 8.1 show that mortality risks during infancy and childhood have been declining at a relatively fast pace in Turkey. For the two most recent periods, the rates of decline seem to have been fastest; with the exception of the child mortality rate, all rates were found to have declined by about 35 percent. For the child mortality rate, the decline is even larger, i.e., about 48 percent. In other words, the child mortality rate has almost halved between the 1983-1988 and 1988-1993 periods, causing the proportion of infant deaths to under five deaths to increase.

Table 8.1 Infant and child mortality

Infant and child mortality rates by five-year periods preceding the 1988 TPHS and 1993 TDHS

Years preceding survey	Approximate reference period	Neonatal mortality (NN)	Postneonatal mortality (PNN)	**Infant mortality** ($_1q_0$)	Child mortality ($_4q_1$)	**Under-five mortality** ($_5q_0$)
1993 TDHS						
0-4	1988-1993	29.2	23.4	52.6	8.8	60.9
5-9	1983-1988	44.6	36.9	81.5	16.8	96.9
10-14	1978-1983	37.5	54.5	92.0	23.7	113.5
1988 TPHS						
0-4	1983-1988	34.7	47.4	82.2	16.7	97.5
5-9	1978-1982	41.5	58.4	99.9	26.4	123.7

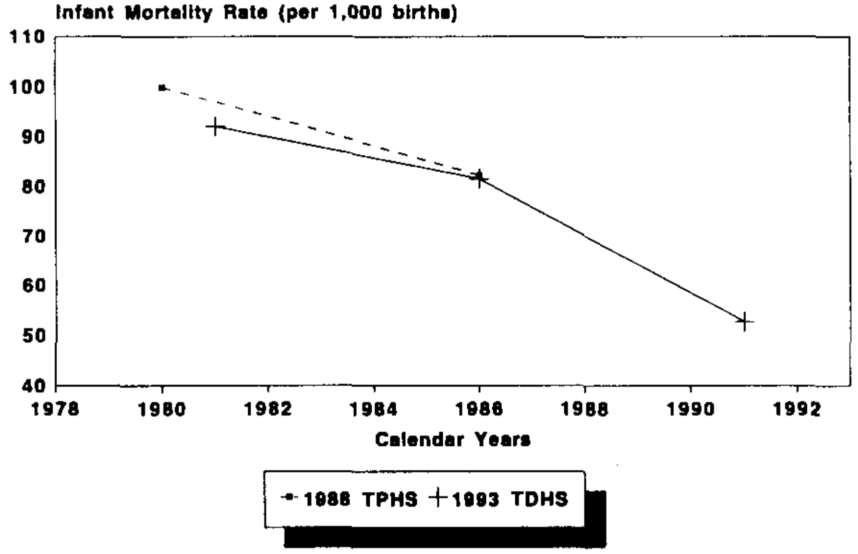
The declines in the mortality rates appear to have been somewhat slower during the period between 10-14 and 5-9 years preceding the survey. This can be attributable to a genuine acceleration of the rates of decline in more recent periods, as well as to the fact that the rates from the 10-14 years preceding the survey might be slightly biased downward due to the truncated nature of the data for this period (rates for this period exclude births to women older than 40 years of age; these births are known to face elevated risks of mortality) and possible underestimation of mortality, since the sex ratio of births for this period is higher than expected, as mentioned in the previous section.

The TDHS findings are also interesting in the sense that for the first time in a demographic survey in Turkey, the neonatal mortality rate is higher than the postneonatal rate (29 versus 23 per 1,000). This pattern is found for the two most recent 5-year periods preceding the TDHS.

Also presented in Table 8.1 are the comparable mortality estimates of the 1988 Turkish Population and Health Survey, the last national demographic survey to have included a birth history, therefore making possible the calculation of mortality estimates using the same methodology of calculation. The consistency between the estimates of the 1988 TPHS and the TDHS is impressive (Figure 8.1). The period 5-9 years preceding the TDHS is comparable with the 0-4 year period preceding the 1988 TPHS (referring to calendar years 1983-1988), during which both surveys indicate infant, child, and under-five mortality rates that are very close. In fact, the rates are within 1 per 1,000 of each other for all three indicators. The TDHS estimates for the period 1978-83 are slightly lower than those for the 1978-82 period from the 1988 TPHS. However, it should be kept in mind that there is a one-year difference in the reference periods and that the TDHS data are slightly truncated for this period.

The only inconsistency between the findings of the TDHS and those of the 1988 TPHS relates to the relative magnitudes of the neonatal and postneonatal mortality rates. The 1988 TPHS findings indicate higher postneonatal mortality than neonatal mortality during the 1983-88 period, whereas the TDHS findings point to a reverse pattern where the neonatal rates are higher. The consistency of the infant mortality rates from the surveys makes it difficult to postulate that postneonatal deaths in the TDHS have been underreported for this period. The inconsistency may well be due to differential heaping of age at death on "one month" in the two surveys, for instance. Further analysis of both the TDHS and TPHS data is needed before any conclusions can be made in this respect.

Figure 8.1
Trends in Infant Mortality in Turkey, 1993 TDHS and 1988 TPHS



TDHS 1993

8.4 Differentials in Infant and Child Mortality

Presented in Table 8.2 are infant and child mortality rates by urban-rural residence, region of residence, level of mother's education, and use of basic maternal health services for the five years preceding the survey. Figure 8.2 shows infant mortality rates by these background characteristics. The findings imply that the infant mortality rate in the rural areas is about 1.5 times higher than in urban areas (65 versus 44 per 1,000). It is clearly observed that the difference between the infant mortality rate of urban and rural areas mainly derives from the difference in the postneonatal mortality rates. Neonatal mortality rates for urban and rural areas are very close. The composition of infant mortality in urban areas is dominated by neonatal deaths, where the proportion of postneonatal mortality in infant mortality is less than 50 percent.

Infant and under-five mortality rates are lower than the national average in the West and the North, whereas the rates from the Eastern region are about 15 percent higher than the national average. The proportion of infant deaths in under-five mortality in the Western and Northern regions appears to be higher than the national average. This finding confirms the expected pattern that the proportion of infant deaths in under-five deaths increases as the overall under-five mortality rates decline.

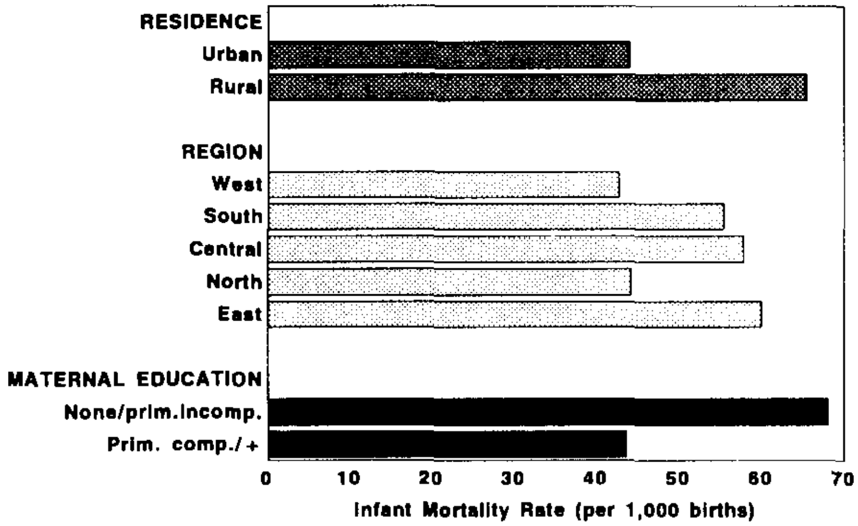
Also provided in Table 8.2 are the TDHS findings regarding the age pattern of infant mortality rates in the five regions. The unusually low neonatal mortality rate in the Northern region (16 per 1,000, as compared with the national average of 29 per 1,000 for the same period) is striking and suggests some problems in the rates estimated for this region, which could be due to underreporting of some neonatal deaths and/or differential heaping of ages at death among regions. The table also includes the interesting finding that the postneonatal rates are higher than the neonatal rates in two regions out of five, the Eastern and Northern regions.

Table 8.2 Infant and child mortality by background characteristics

Infant and child mortality rates for the five-year period preceding the survey, by selected background characteristics, Turkey 1993

Background characteristic	Neonatal mortality (NN)	Postneonatal mortality (PNN)	**Infant mortality** ($_1q_0$)	Child mortality ($_4q_1$)	**Under-five mortality** ($_5q_0$)
Residence					
Urban	29.9	14.1	44.0	6.8	50.5
Rural	28.1	37.4	65.4	11.8	76.4
Region					
West	29.7	13.0	42.7	5.6	48.0
South	34.6	20.8	55.4	7.8	62.8
Central	29.4	28.5	57.9	12.0	69.2
North	16.2	28.0	44.2	5.6	49.5
East	29.9	30.1	60.0	11.0	70.4
Education					
None/Pri. incomp.	31.4	36.5	68.0	12.6	79.7
Pri. comp./+	27.9	15.7	43.6	6.1	49.7
Medical maternity care					
No antenatal/ delivery care	27.9	38.9	66.8	10.7	76.8
Either care	29.6	14.3	43.9	6.1	49.7
Total	29.2	23.4	52.6	8.8	60.9

Figure 8.2
Infant Mortality by Selected Background Characteristics



TDHS 1993

Child survival chances in Turkey are closely related to the level of education of the mother. For this analysis, mothers are classified into two educational groups to provide sufficient numbers of cases for the calculation of the rates. Children of mothers with no education (those who have never attended school or did not complete the primary level) experience over 1.6 times the level of infant and under-five mortality as children of mothers who have at least completed primary school. The strong influence of mother's education is apparent when the postneonatal and child mortality rates of the two groups are compared. Both rates are more than twice as high for children of mothers with no education as those with primary school education or more, demonstrating the positive effects of education on child care. In the case of neonatal rates, the figures are close for the two educational groups.

Medical maternity care is an important factor in the reduction of mortality rates during infancy and childhood. Under-five mortality is 55 percent higher (77 per 1,000) among children born to women who received neither antenatal care (ANC) nor delivery care from a trained health professional, compared to children whose mothers received either or both of these services (50 per 1,000). A similar differential exists when the infant mortality rates for the two groups are compared. As with the differentials by mother's education, the difference between these two groups is manifested in the postneonatal and child mortality rates.

Shown in Table 8.3 are differentials in infant and child mortality by various demographic characteristics for the 10-year period preceding the TDHS. Figure 8.3 shows infant mortality rates by these demographic characteristics. In order to maintain adequate numbers of events and thus ensure statistically reliable estimates, the rates are based on the 10-year period before the survey.

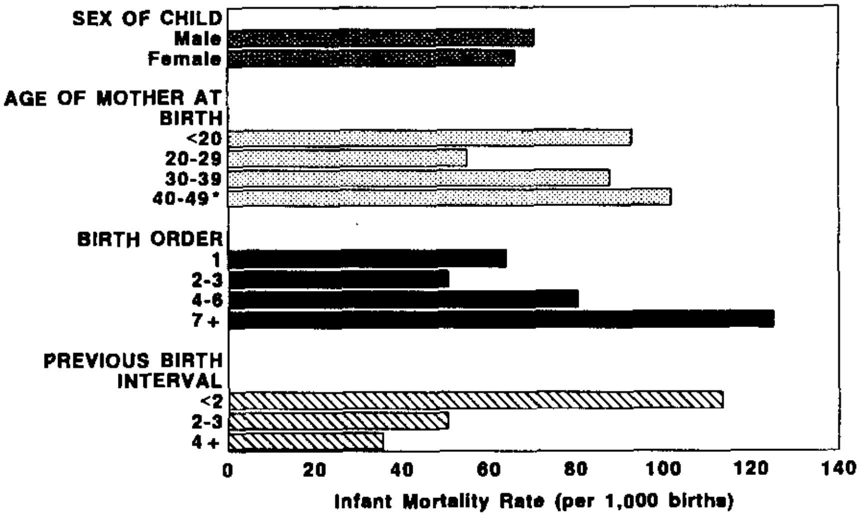
Table 8.3 Infant and child mortality by demographic characteristics

Infant and child mortality rates for the ten-year period preceding the survey, by selected demographic characteristics, Turkey 1993

Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality (PNN)	**Infant mortality** $({}_1q_0)$	Child mortality $({}_4q_1)$	**Under-five mortality** $({}_5q_0)$
Sex of child					
Male	40.7	29.7	70.5	12.4	82.0
Female	34.0	32.0	66.0	13.6	78.7
Age of mother at birth					
< 20	52.0	40.8	92.8	11.9	103.5
20-29	27.7	27.3	55.0	13.5	67.8
30-39	55.8	32.1	87.9	12.7	99.5
40-49	(41.8)	(60.2)	(101.9)	(0.0)	(101.9)
Birth order					
1	37.4	26.6	64.0	8.8	72.2
2-3	26.2	24.4	50.6	11.0	61.0
4-6	41.1	39.3	80.3	20.0	98.7
7 +	75.4	49.7	125.1	16.5	139.5
Previous birth interval					
< 2 years	63.3	50.1	113.4	24.5	135.1
2-3 years	23.2	27.3	50.4	11.5	61.3
4 years and +	20.4	15.0	35.4	3.9	39.1

( ) Rates based on fewer than 500 cases (exposed children) are enclosed in parentheses.

Figure 8.3
Infant Mortality by Selected Demographic Characteristics



* Rate based on less than 500 exposed children

TDHS 1993

The expected biological effects of sex on neonatal, infant, and under-five mortality are observed, i.e., rates for males are higher than those for females. The differentials are not as strong as expected, however (the sex ratio of infant deaths is about 1.07). The reverse situation is observed when postneonatal and child mortality rates are taken into account, i.e., the rates for the females are higher than those of the males. This is by no means an unprecedented finding: the same differentials by sex of the child were also found in the 1978 Turkish Fertility Survey (Rutstein, 1983). This pattern may be explained by child care practices favouring male children, which may lead to lower postneonatal and child mortality rates for males than females (Sullivan et al., 1990). However, the differences are not significant.

Age of mother at birth and order of birth show the expected U-shaped relationship with infant and child mortality rates. Lowest mortality rates are associated with children whose mothers were age 20-29 years at their birth: infant mortality rates are 69 and 60 percent higher in cases where the mother was younger than 20 years or was age 30-39 years, respectively. The strongest effect of mother's age on childhood mortality occurs in the case of neonatal mortality. For example, children of mothers who were younger than 20 at the time of birth experienced 88 percent higher mortality risks during the first months of life than children of mothers who were age 20-29 at their birth. The comparable estimate for children of mothers age 30-39 is even higher, about twice that for children whose mothers were age 20-29 at their birth.

First-order births are known to be under risks of elevated mortality, but these births are unavoidable. Higher order births, however, also experience these elevated risks of mortality. According to the findings in Table 8.3, the lowest mortality risks are associated with birth orders of 2 and 3, whereas very high rates are observed for births of order 7 and more. The infant mortality rate for births of orders of 7 and more is 2.5 times higher than that of the births of orders 2-3, and the differential in the neonatal mortality rate is even greater (75 per 1,000 for births of order 7 and more, as compared to 26 per 1,000 for second- and third-order births). In fact, one does not have to analyse mortality risks of extremely high order births; elevated risks are apparent for fourth to sixth order births as well.

The pace of childbearing has a powerful effect on the survival chances of Turkish children. The differentials in this case are even greater than those observed for the other demographic variables. Short birth intervals are known to be associated with higher mortality risks: Table 8.3 provides convincing evidence of this relationship. According to the table, the longer the birth interval, the lower the mortality rates. Mortality rates for children born after a short interval, i.e., less than 2 years, are especially striking: for instance, such children are found to have experienced mortality risks before their first birthdays 3.2 times higher than those of children born after an interval of 4 years or more.

8.5 High-risk Fertility Behaviour

Demographic research has consistently shown that a strong relationship exists between a mother's pattern of fertility and her children's survival chances. Infants and young children face higher risks of dying if they are born to very young mothers or to older mothers, if they are born after a short birth interval, or if their mothers have already had many children. In the following analysis, mothers are classified as "too young" if they were less than 18 years old at the time of the birth, and "too old" if they were 34 or older at the time of the birth. A "short birth interval" is defined as less than 24 months, and a "high birth order" as one occurring after three or more previous births (i.e., birth order four or higher). Children can be further cross-classified by combinations of these characteristics. First births, although often at increased risk, are not included in this analysis because they are not considered an avoidable risk.

Column 1 in Table 8.4 shows the percentage of children born in the five years preceding the survey who are included in specific risk categories (due to mother's age, time elapsed since previous birth, or number of previous births). In order to calculate the increase in risk attributable to fertility behaviour, risk ratios were calculated for each of the risk categories (see column 2, Table 8.4). A risk ratio in this case is the ratio of the proportion of children in the category who have died to the proportion who have died in the *not in any risk category*, i.e., children whose mothers were age 18-34 at delivery, who were born after an interval of 24 or more months after the previous birth, and who are parity of 3 or less.

Table 8.4 High-risk fertility behaviour

Percent distribution of children born in the five years preceding the survey who are at elevated risk of mortality, and the percent distribution of currently married women at risk of conceiving a child with an elevated risk of mortality, by category of increased risk, Turkey 1993

Risk category	Births in last 5 years preceding the survey: Percentage of births	Births in last 5 years preceding the survey: Risk ratio	Percentage of currently married women[a]
Not in any risk category	**55.7**	**1.00**	**32.1[b]**
Single risk categories	**31.2**	**1.45**	**33.3**
Mother's age < 18	4.1	(2.14)	0.6
Mother's age > 34	1.2	(1.29)	10.4
Birth interval < 24	11.4	1.48	9.4
Birth order > 3	14.4	1.25	13.0
Multiple risk categories	**13.1**	**3.44**	**34.6**
Age <18 and birth interval <24[c]	0.8	(2.93)	0.1
Age >34 and birth interval <24	0.0	(0.00)	0.2
Age >34 and birth order >3	4.8	(1.57)	28.6
Age >34, birth interval <24 and birth order >3	1.4	(7.51)	1.3
Birth interval <24 and birth order >3	6.1	4.10	4.4
In any risk category	**44.3**	**2.04**	**67.9**
Total	**100.0**	NA	**100.0**
Number	**3700**	NA	**6271**

Note: Risk ratio is the ratio of the proportion dead of births in a specific risk category to the proportion dead of births not in any 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 sterilised women

[c] Includes the combined categories age <18 and birth order >3.

NA = Not applicable

( ) Figures in parentheses are ratios based on fewer than 200 cases.

Forty-four percent of children born in the five years preceding the survey are at elevated risk of dying. Of these, 31 percent have an increased risk due to a single risk category (mother's age, birth order, or birth interval), and 13 percent have an increased risk due to multiple risk categories. It is evident from the table that birth order higher than 3 is a major factor contributing to elevated risks of mortality. Approximately 14 percent of births in the last five years are found to have occurred after the mother had already had 3 or more births, whereas the comparable figure for births after short intervals is around 11 percent. The other two factors appear to have operated for smaller groups of children.

The second column in the table shows the elevated risk of dying for children according to the risk categories their mothers were in at the time of their birth. The figures show that the proportion deceased among children whose mothers were in a single risk category at the time of birth was 1.5 times that of children whose mothers were not in a risk category. The comparable figure among children whose mothers were in a multiple risk category is as high as 3.4. Although the number is relatively small, those children who were born after a short interval, who had been born after at least three births and whose mothers were older than 34 years of age were 7.5 times more likely to have died. It is also noteworthy that young maternal age alone increases the risk ratio to 2.1; however, the number of births occurring to such mothers in Turkey appears to be relatively low.

The final column of Table 8.4 includes the distribution of currently married women according to category of increased risk if they were to conceive at the time of the survey. Women who have been sterilised are categorized as not being in a high-risk category. In other words, a woman's current age, time elapsed since last birth, and parity are used to determine into which category her next birth would fall if she were to conceive at the time of the survey. For example, if a woman age 37 who has five children and had her last birth three years ago were to become pregnant, she would fall into the multiple risk category of being too old (35 or older) and at too high a parity (4 or more children).

Since women who have the potential for a high-risk birth can avoid experiencing the risk by using contraception to avoid pregnancy (either to space or limit the pregnancy, depending on which risk category she is in), this analysis should pose a challenge to policy makers and program managers alike - to generate the demand for family planning and to improve the availability of contraceptive methods, so that high-risk births can be avoided. By the same token, the figures in the third column of the table should be interpreted with some caution, especially in relation to provision of services, since some women in these risk categories may well be using effective contraception or be in a situation where they would not need to take any current precautions (amenorrhoeic or pregnant women, for instance).

Sixty-eight percent of the 6,271 women who were married at the time of the TDHS were found to be at risk of conceiving a child with an increased risk of dying. Children of only one-third of women would fall into none of the risk categories. Children of 35 percent of women would fall into a multiple risk category, where the survival chances of a child to be conceived would be considerably lower, according to the findings in the second column of the table. The largest group of women would fall into the multiple risk category where the child to be born would have, at the time of birth, a mother who would be older than 34 and who would already have had at least three births.

Coupled with the findings on demographic differentials of infant and child mortality presented in the previous section, the findings in Table 8.4 indicate that for further reductions in infant and child mortality rates in Turkey, concerted efforts are needed to minimize the number of high-risk births.

CHAPTER 9

MATERNAL AND CHILD HEALTH

Mehmet Ali Biliker
Dilek Haznedaroğlu
Nedret Emiroğlu

Basic questions on maternal and child health care were included in the 1993 TDHS because of the importance and priority of maternal and child health for Turkey. This chapter presents findings on the following maternal and child health areas: ANC, assistance and place of delivery, preventive child health measures such as vaccinations, and common childhood diseases and their treatment.

The vaccination coverage information focuses on the age group of 12-23 months; it is one of the most important sections of child health care. Overall coverage levels by the time of the survey and by 12 months of age are calculated. A written vaccination card or the mother's recall are the sources of the vaccination information.

Treatment practices and contact with health services for children with common childhood illnesses, diarrhoea, and acute respiratory infection (ARI), help to assess the impact of a national programme aimed at reducing the effect of these illnesses.

9.1 Antenatal Care and Delivery Assistance

Data regarding ANC and delivery were obtained for all live births that occurred in the five years preceding the survey. Antenatal care is defined according to the type of provider, the number of visits made, the stage of pregnancy at the time of the first visit, and the number of tetanus toxoid (TT) doses received. Similarly, the delivery services are described according to the person assisting and the type and place of the delivery.

Source of Antenatal Care

Table 9.1 shows the percent distribution of births in the five years preceding the survey by source of ANC received during pregnancy, according to the maternal background characteristics and birth order. The interviewers were instructed to record all responses if more than one source of ANC was mentioned for the same pregnancy. However, for this tabulation only the provider with the highest qualifications is considered if there were more than one response.

As seen in Table 9.1, the majority of the mothers (62 percent) received at least one ANC visit from trained health personnel; 47 percent from a doctor and 16 percent from a nurse or midwife. In the 1988 Turkish Population and Health Survey (1988 TPHS), only 43 percent of women received ANC from medical or trained health personnel for their last births.

There are marked differences in ANC by background characteristics. Younger mothers are more likely to seek ANC from trained health personnel than women over age 35. Likewise, there are striking differences in the proportions of live births with ANC according to birth order. Children whose birth order is 4 or more are less likely to have received ANC than lower order births (Figure 9.1).

Table 9.1 Antenatal care (ANC)

Percent distribution of births in the five years preceding the survey, by source of ANC during pregnancy, according to selected background characteristics, Turkey 1993

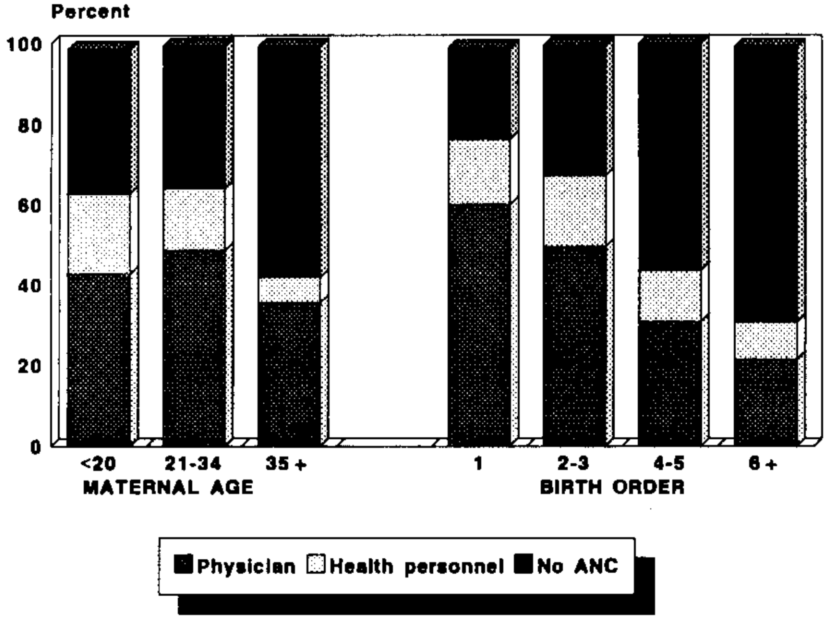
Background characteristic	Antenatal care provider[1] Doctor	Trained nurse/ Midwife	Other/ No response	No ANC	Total	Number
Mother's age at birth						
< 20	42.8	20.0	1.3	35.9	100.0	580
20-34	48.7	15.4	0.6	35.3	100.0	2845
35 +	35.4	6.4	0.8	57.4	100.0	275
Birth order						
1	60.1	16.4	1.1	22.4	100.0	1208
2-3	49.5	17.7	0.5	32.3	100.0	1504
4-5	30.8	12.8	0.0	56.4	100.0	513
6 +	21.5	9.2	0.9	68.4	100.0	475
Residence						
Urban	57.7	15.3	0.5	26.5	100.0	2211
Rural	30.6	15.8	1.0	52.6	100.0	1489
Region						
West	71.3	14.6	0.4	13.7	100.0	985
South	48.8	25.6	0.4	25.2	100.0	584
Central	40.2	18.5	1.0	40.3	100.0	825
North	48.3	14.9	0.0	36.8	100.0	357
East	25.3	7.8	1.1	65.8	100.0	949
Mother's education						
No educ./Pri. incomp.	23.9	13.0	1.0	62.1	100.0	1351
Pri. comp./Sec. incomp.	53.4	19.4	0.5	26.7	100.0	1852
Sec. comp./+	84.6	7.8	0.2	7.4	100.0	497
All births	46.8	15.5	0.7	37.0	100.0	3700

Note: Figures are for births in the period 1-59 months preceding the survey.

[1] If the respondent mentioned more than one provider, only the most qualified provider is considered.

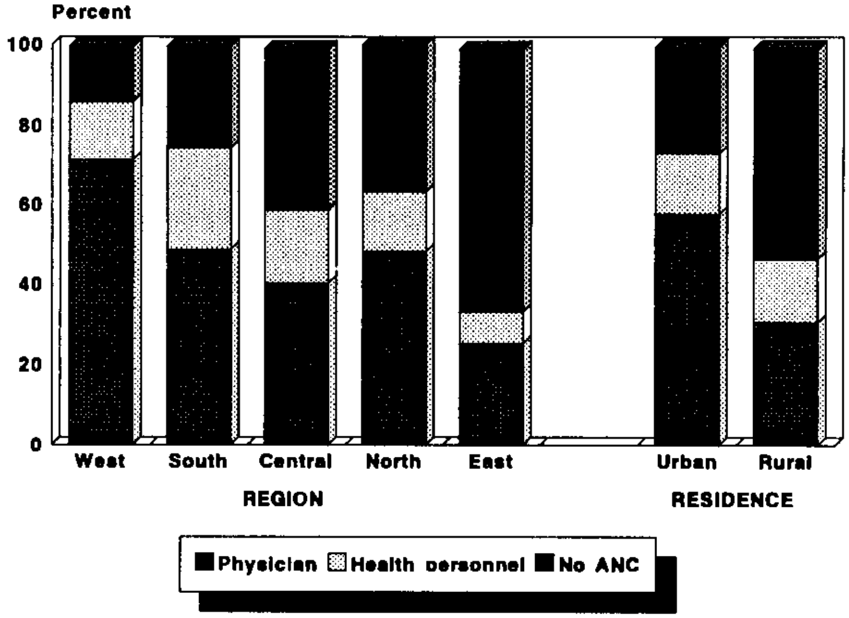
Residential and regional differentials in ANC are also apparent. Those living in cities are more likely to have ANC than those living in rural areas (73 percent and 46 percent, respectively) (Figure 9.2). Antenatal care coverage exceeds 60 percent in all regions except the East, where it was received by only one third of the mothers in the five years prior to the survey. Antenatal care coverage increases sharply by educational level.

Figure 9.1
Source of Antenatal Care (ANC) by Maternal Age and Birth Order



TDHS 1993

Figure 9.2
Antenatal Care by Region and Residence



TDHS 1993

Number and Timing of Antenatal Care Visits

Antenatal care can be more effective when it is sought early in pregnancy. The first antenatal visit should take place before the third month of pregnancy. The advantage of early detection of pregnancy is that a woman's normal baseline health status can be assessed; knowledge of a woman's baseline health will make early diagnosis of any abnormalities easier. The total number of antenatal visits also is an important indicator in assessing the adequacy of ANC. According to the required schedule, health institutions should provide three visits up to 28 weeks (7th month), with subsequent visits in the 32nd, 36th and 39th weeks. Regular visits allow proper monitoring of the mother and child throughout pregnancy.

As shown in Table 9.2, ANC is usually sought relatively early in the pregnancy; for more than half of the births, ANC visits started before the fifth month. With regard to the frequency of care, although 37 percent of women received no ANC, 36 percent had 4 or more visits. Among those who received ANC, the median number of ANC visits is 4.7, and the median time at first visit was 3.1 months.

Table 9.2 Number of antenatal care visits and stage of pregnancy

Percent distribution of live births in the five years preceding the survey by number of antenatal care visits, and by the stage of pregnancy at the time of the first visit, Turkey 1993

Characteristic	Percent
Number of visits	
0	37.0
1	8.2
2-3	18.3
4 +	35.9
Don't know/Missing	0.6
Total	100.0
Median	4.7
Months pregnant at time of first visit	
No antenatal care	37.0
Less than 5 months	53.6
6-7 months	7.0
8 + months	1.7
Don't know/Missing	0.7
Total	100.0
Median	3.1
Number of births	3700

Note: Figures are for births in the period 1-59 months preceding the survey.

Tetanus Toxoid Coverage

Tetanus toxoid (TT) vaccination is one of the important preventive measures for neonatal tetanus. According to the Turkish vaccination schedule, during pregnancy two doses of TT are necessary for full immunisation of unvaccinated woman. However, if a woman has been vaccinated during a previous pregnancy, she might only require one dose for the current pregnancy.

Table 9.3 presents TT coverage during pregnancy for all births in the five years preceding the survey. Among these births, 16 percent had one dose, and 26 percent had two or more doses. In the 1988 TPHS, these figures were 8 percent and 3 percent for the last birth, respectively.

The difference in TT vaccination coverage according to background characteristics in Table 9.3 are similar to those observed for ANC coverage. Both age and level of education show a marked impact on the percent receiving TT vaccinations. Similarly, the data show that there are apparent differentials in TT vaccination by region. The Southern region had both the highest overall TT coverage and the greatest proportion receiving the second dose; this pattern was similar in the 1988 TPHS findings.

Table 9.3 Tetanus toxoid vaccination

Percent distribution of births in the five years preceding the survey, by number of tetanus toxoid injections given to the mother during pregnancy, according to selected background characteristics, Turkey 1993

Background characteristic	Number of tetanus toxoid injections: None	One dose	Two doses or more	Don't know/ Missing	Total	Number of births
Mother's age at birth						
< 20	55.4	14.7	29.5	0.4	100.0	580
20-34	56.4	16.2	26.9	0.5	100.0	2845
35+	74.8	12.4	12.6	0.2	100.0	275
Birth order						
1	50.0	15.5	34.0	0.5	100.0	1208
2-3	55.0	17.8	26.8	0.4	100.0	1504
4-5	66.8	13.8	18.7	0.7	100.0	513
6+	75.4	10.9	12.8	0.9	100.0	475
Residence						
Urban	54.8	16.1	28.6	0.5	100.0	2211
Rural	61.8	15.0	22.7	0.5	100.0	1489
Region						
West	56.4	15.0	28.1	0.5	100.0	985
South	35.5	19.1	45.0	0.4	100.0	584
Central	57.4	16.8	25.1	0.7	100.0	825
North	50.5	21.6	27.6	0.3	100.0	357
East	75.4	11.0	13.3	0.3	100.0	949
Mother's education						
No educ./Pri. incomp.	72.2	12.1	15.5	0.2	100.0	1351
Pri. comp./Sec. incomp.	48.3	17.5	33.6	0.6	100.0	1852
Sec. comp./+	53.1	18.5	27.8	0.6	100.0	497
All births	57.6	15.7	26.2	0.5	100.0	3700

Note: Figures are for births in the period 1-59 months preceding the survey.

Place of Delivery and Assistance During Delivery

Table 9.4 and Figure 9.3 show the distribution of births in the five years preceding the survey by place of delivery according to background characteristics. Table 9.5 presents the distribution of these births by type of assistance during delivery. The type of assistance a woman receives during the birth of her child depends to a great extent on the place of delivery, with births delivered outside the health facility being much less likely than other births to receive assistance from a doctor or other trained health professional. The 1993 TDHS showed that 60 percent of all births were delivered at a health facility. This figure is similar to that reported in the 1988 TPHS. The proportion of all births delivered with the assistance of a doctor or trained health personnel was 76 percent. It is interesting to note that the likelihood of having a birth assisted by qualified health personnel is greater than the likelihood of receiving ANC from a medical care provider (62 percent).

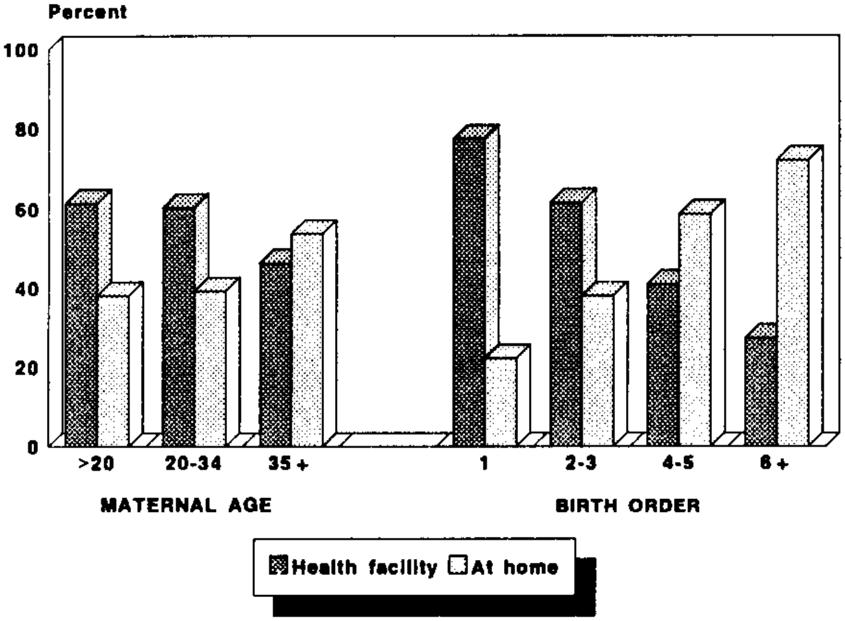
Table 9.4 Place of delivery

Percent distribution of births in the five years preceding the survey, by place of delivery, according to selected background characteristics, Turkey 1993

Background characteristic	Health facility	At home	Other	Total	Number
Mother's age at birth					
< 20	61.6	38.2	0.2	100.0	580
20-34	60.5	39.4	0.1	100.0	2845
35 +	46.3	53.7	0.0	100.0	275
Birth order					
1	77.6	22.3	0.1	100.0	1208
2-3	61.7	38.1	0.2	100.0	1504
4-5	41.0	58.8	0.2	100.0	513
6 +	27.5	72.3	0.2	100.0	475
Residence					
Urban	72.5	27.4	0.1	100.0	2211
Rural	40.5	59.2	0.3	100.0	1489
Region					
West	80.2	19.8	0.0	100.0	985
South	62.8	37.0	0.2	100.0	584
Central	64.0	35.9	0.1	100.0	825
North	66.1	33.6	0.3	100.0	357
East	30.2	69.6	0.2	100.0	949
Mother's education					
No educ./Pri. incomp.	34.0	65.7	0.3	100.0	1351
Pri. comp./Sec. incomp.	70.7	29.1	0.2	100.0	1852
Sec. comp./+	88.0	12.0	0.0	100.0	497
Antenatal care visits					
None	34.8	64.9	0.3	100.0	1371
1-3 visits	61.2	38.7	0.1	100.0	980
4 or more visits	83.9	16.1	0.0	100.0	1328
Don't know/Missing	*	*	*	100.0	21
All births	59.6	40.2	0.2	100.0	3700

Note: Figures are for births in the period 1-59 months preceding the survey.
* Less than 25 cases

Figure 9.3
Place of Delivery
by Maternal Age and Birth Order



TDHS 1993

Table 9.5 Assistance during delivery

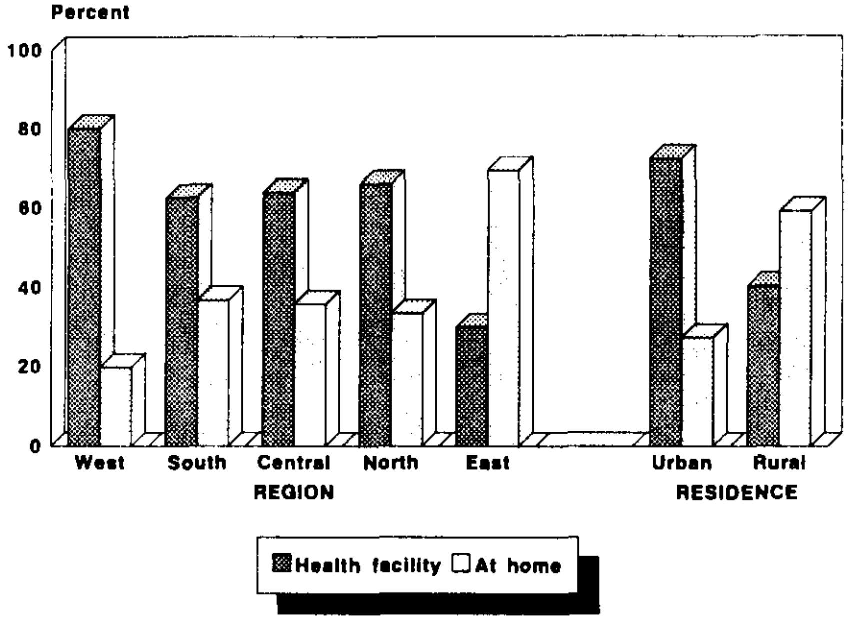
Percent distribution of births in the five years preceding the survey, by type of assistance during delivery, according to selected background characteristics, Turkey 1993

	Attendant assisting during delivery						
Background characteristic	Doctor	Nurse/ Midwife	Traditional midwife	Relative/ Other	No one	Total	Number
Mother's age at birth							
< 20	30.0	46.8	12.5	9.8	0.9	100.0	580
20-34	34.8	42.6	12.0	9.3	1.3	100.0	2845
35 +	29.8	29.0	23.1	15.0	3.1	100.0	275
Birth order							
1	46.3	43.4	5.7	4.2	0.4	100.0	1208
2-3	34.4	45.8	9.9	9.0	0.9	100.0	1504
4-5	20.4	41.7	20.0	14.8	3.1	100.0	513
6 +	13.8	28.3	33.1	20.9	3.9	100.0	475
Residence							
Urban	44.5	42.5	6.8	5.2	1.0	100.0	2211
Rural	17.5	41.9	22.1	16.6	1.9	100.0	1489
Region							
West	59.1	34.5	3.5	2.3	0.6	100.0	985
South	27.3	56.7	7.4	7.1	1.5	100.0	584
Central	33.7	43.3	11.3	10.2	1.5	100.0	825
North	31.7	47.6	13.0	6.8	0.9	100.0	357
East	11.9	38.4	27.4	20.0	2.3	100.0	949
Mother's education							
No educ./Pri. incomp.	16.0	37.0	26.3	18.4	2.3	100.0	1351
Pri. comp./Sec. incomp.	38.7	47.9	6.5	5.7	1.2	100.0	1852
Sec. comp./+	62.9	35.3	0.3	1.5	0.0	100.0	497
Antenatal care visits							
None	14.0	38.3	25.7	19.8	2.2	100.0	1371
1-3 visits	28.5	51.9	10.5	7.5	1.6	100.0	980
4 or more visits	57.4	39.5	1.7	1.0	0.4	100.0	1328
Don't know/Missing	*	*	*	*	*	100.0	21
Total	33.7	42.2	12.9	9.8	1.4	100.0	3700

Note: If the respondent mentioned more than one attendant, only the most qualified attendant is considered.
* Less than 25 cases

Home deliveries are more likely to occur without the assistance of trained health personnel. In rural areas 59 percent of births took place at home, whereas 73 percent took place at a health facility in urban areas (Figure 9.4). The level of education is strongly related to the utilisation of health institutions for delivery. The percentage of home deliveries shows a sharp decrease with increasing educational levels. In cases where the mother has graduated from at least secondary school, 88 percent of births take place in a health facility and almost all births (98 percent) are assisted by a doctor or nurse/midwife, compared to only 34 percent and 53 percent respectively, of births to mothers who have no education. A similar positive relationship is observed between both births occurring in a health facility and the percentage assisted by medical personnel and the number of antenatal care visits.

Figure 9.4
Place of Delivery by Region and Residence



TDHS 1993

Delivery Characteristics

Respondents were asked about the duration of pregnancy and whether the delivery was by Caesarian section. Overall, 8 percent of the births in the last five years were delivered by Caesarian section and 3 percent of babies were born following a pregnancy of less than 9 months duration (data not shown).

9.2 Immunisation of Children

The World Health Organization (WHO) guidelines on childhood immunisation call for all children to receive a BCG vaccination against tuberculosis; three doses of DPT vaccine to prevent diphtheria, pertussis, and tetanus; three doses of polio vaccine; and one dose of measles vaccine before they reach 12 months of age. Immunisation activities in Turkey go back to the 1950s, when the Ministry of Health (MOH) launched a BCG vaccination campaign. The DPT vaccine, the oral polio vaccine (OPV), and more recently the measles vaccine were later added to the immunisation programme. Turkey joined the Expanded Programme on Immunisation (EPI) in 1981. The programme was hindered by many obstacles until 1985, when a mass immunisation campaign was conducted in order to increase the coverage rates and vaccinate susceptible children. Since 1985, EPI has become a part of routine primary health care service delivery.

In the 1993 TDHS survey, information on vaccination status was collected for all children born in the five years preceding the survey. However, the data presented here are restricted to children who were alive at the time of the survey fieldwork.

To obtain immunisation data for each eligible child, mothers were asked whether they had a vaccination card for the child, and if so, to show the card to the interviewer. The dates of the vaccinations were copied from the card to the questionnaire. Mothers were also asked whether the child had been given any vaccinations not recorded on the card. If the vaccination card was not available for the child, the mother was asked a number of questions in order to determine the vaccination status of the child for each specific vaccine, and, in the case of DPT and polio, the number of doses of the vaccine that the child had received. Children who had received one dose of BCG, three doses of DPT and OPV, and one dose of measles vaccine were considered to be fully vaccinated.

Coverage of Children Age 12-23 Months

Table 9.6 presents information on both the percentage of children ever vaccinated and the percentage of these children vaccinated during the first year of life for children age 12-23 months by source of information. The information was gathered from a vaccination card in the case of 42 percent of children, while mothers supplied the information for the remaining cases (58 percent). For children whose information was based on the mother's report, the proportion vaccinated during the first year of life is assumed to be the same as for children with a written record of vaccinations, and the DPT coverage rate for children without a written record is also assumed to be the same as that for polio vaccine, since mothers were asked whether the child had received polio vaccine.

Among children age 12-23 months, the coverage rates for BCG and the first two doses of polio were found to be around 90 percent, and most of the children received those vaccines before the age of one. However, due to high drop-out rates, coverage fell to 76 percent for DPT/OPV3. Measles vaccination coverage rate was even lower at only 69 percent.

Table 9.6 Vaccinations by source of information

Percentage of children 12-23 months who had received specific vaccines at any time before the survey and the percentage vaccinated by 12 months of age, by whether the information was from a vaccination card or from the mother, Turkey 1993

	Percentage of children who received:										Percentage with vacci- nation card	Number of children
		DPT			Polio							
Source of information	BCG	1	2	3+	1	2	3+	Measles	All[1]	None		
Vaccinated at any time before the survey												
Vaccination card	38.8	41.6	41.1	39.4	41.6	41.1	39.4	36.6	34.3	0.0	41.6	298
Mother's report	50.3	51.9	46.4	37.7	52.4	46.8	37.8	41.2	30.4	3.1	58.4	418
Either source	89.1	93.5	87.5	77.1	94.0	87.9	77.2	77.8	64.7	3.1	100.0	716
Vaccinated by												
12 months of age	87.4	91.8	86.7	76.2	92.3	87.1	76.4	69.0	59.0	4.7	-	716
From vaccination card	62.2	99.7	95.7	90.5	99.7	95.7	90.5	82.1	51.1	0.3	-	298

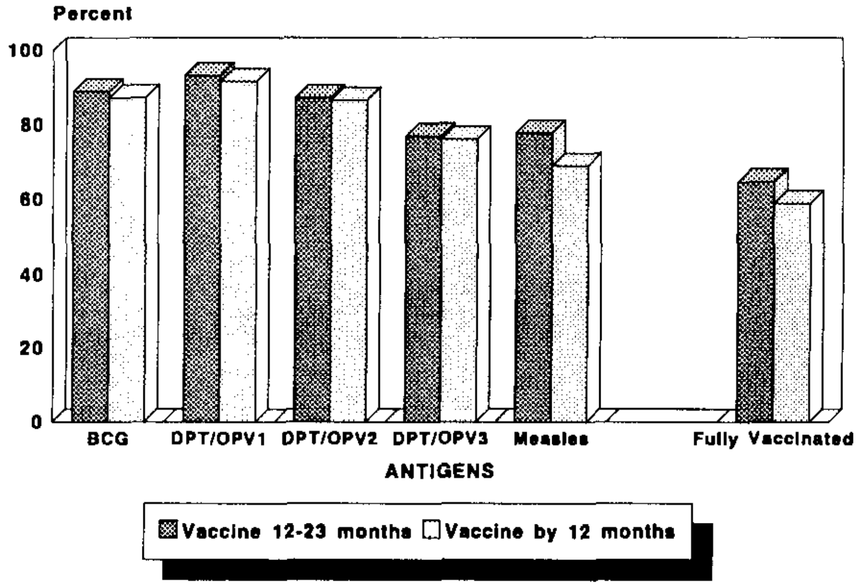
Note: For children whose information was based on the mother's report, the proportion of vaccinations given during the first year of life was assumed to be the same as for children with a written record of vaccination.

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

The 1993 TDHS results can be compared to the findings of an immunisation survey conducted in 1989 in all provinces of Turkey. The 1989 survey, which collected information on the vaccination status of 14099 children age 12-23 months old, relied both on the child's vaccination card and the mother's recall for immunisation information. The vaccination coverage rates reported in the 1989 survey for DPT/OPV and measles vaccines in children vaccinated by 12 months of age were very close to the figures gathered in the 1993 TDHS. The percentage of children receiving the third dose of DPT and OPV by age 12 months was 77 percent for each and 65 percent for measles. The coverage for BCG (67 percent) in the 1989 survey was based on the percentage of children having a BCG scar. Therefore, it is not directly comparable to the 1993 TDHS rate (87 percent).

Table 9.6 shows the percentage of children in the 12-23 month age group who had received all the recommended doses (i.e., who were fully immunised) and the percentage who had not received any immunisations. The results indicate that 65 percent of the children had received all of the immunisations at some time before the survey. Only 3 percent had not received any vaccination at all. The remaining 32 percent were partially vaccinated. The percentage of children who were fully immunised by 12 months of age was 59 percent (Figure 9.5).

Figure 9.5
Vaccination Coverage among
Children Age 12-23 Months



TDHS 1993

Coverage Rates by Background Characteristics

Vaccination coverage rates for children in the 12-23 month age group are presented in Table 9.7 by background characteristics, in order to provide information about the success of EPI in covering various subgroups. There are definite residential differences in vaccination coverage. The percentages receiving the first doses of DPT and OPV are high (over 90 percent) for both urban and rural children and the high

Table 9.7 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, by selected background characteristics, Turkey 1993

	Percentage of children who received:											
		DPT			Polio							
Background characteristic	BCG	1	2	3+	1	2	3+	Measles	All[1]	None	Percentage with vacci-nation card	Number of children
Sex												
Male	87.0	93.2	87.8	77.2	93.8	88.5	77.5	77.8	63.1	3.9	43.4	385
Female	91.6	93.7	87.0	76.9	94.1	87.2	76.9	78.0	66.5	2.0	39.4	331
Birth order												
1	91.9	93.2	88.4	79.9	94.2	89.1	80.1	81.6	68.3	2.5	50.6	261
2-3	92.1	96.4	90.3	79.8	96.8	90.7	80.0	82.4	66.7	1.5	43.1	293
4-5	79.1	87.1	82.8	71.3	87.1	82.8	71.3	64.5	55.3	7.1	28.1	89
6 +	79.4	90.1	78.1	63.3	90.1	78.1	63.3	62.7	55.1	6.0	20.1	73
Residence												
Urban	93.2	94.3	90.7	85.9	94.3	90.7	85.9	82.1	74.3	2.4	51.7	421
Rural	83.2	92.2	82.8	64.5	93.4	83.8	64.9	71.9	50.9	3.9	27.1	295
Region												
West	96.1	95.5	92.9	88.3	96.1	93.5	88.3	83.8	76.0	1.9	57.8	191
South	97.2	98.6	93.0	83.2	98.6	93.0	83.2	93.0	81.1	0.0	51.7	110
Central	90.6	95.3	92.3	82.3	95.3	92.3	82.3	81.2	65.9	1.2	39.1	176
North	96.5	94.7	88.6	78.1	98.2	91.2	79.8	78.1	63.2	0.0	34.2	70
East	71.3	85.3	72.1	54.5	85.3	72.1	54.5	57.8	40.6	9.5	22.2	169
Mother's education												
No educ./Pri. incomp.	74.6	87.3	80.0	62.6	88.3	81.0	63.1	64.5	48.0	8.4	27.4	248
Pri. comp./Sec. incomp.	96.2	96.2	90.5	82.9	96.6	90.6	82.9	83.8	70.9	0.3	49.4	370
Sec. comp./+	99.0	98.4	94.8	91.6	98.4	94.8	91.6	89.3	83.6	0.0	48.0	98
All children	89.1	93.4	87.4	77.1	93.9	87.9	77.2	77.9	64.7	3.1	41.6	716

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

coverage rate is sustained in urban settlements. However, as a result of high drop-out rates, coverage in rural children falls to 65 percent for the third dose of DPT/OPV. BCG and measles coverage rates are also lower for rural children than urban children. Overall, nearly three quarters of urban children are fully vaccinated compared to only about half of rural children.

Considering regional differences, coverage is significantly lower in the Eastern region (41 percent), followed by the Northern and the Central regions (63 percent and 66 percent, respectively). The Southern region has the highest vaccination coverage; 81 percent of children 12-23 months in the South are fully immunised.

The data in Table 9.7 also verify the fact that the drop-out rate is significantly high in the Eastern region and is the main result of low coverage rates. The vaccination card rates are lowest among children in rural areas and in the East; only 27 percent of mothers of rural children and 22 percent of mothers living in the Eastern region were able to show their children's vaccination card.

The mother's educational level is also related to the likelihood that a child will be vaccinated. The percentage of children who are fully vaccinated varies from 48 percent among children whose mothers have no education to around 84 percent among children whose mothers had a secondary or higher education. The DPT/OPV drop-out rates are higher for children of mothers with no education than for other children, with DPT/OPV coverage rates among children of women with no education falling from 87 percent in the case of the first dose to 63 percent for the third dose. Only 65 percent of children of women with no education received a measles vaccination, and only 75 percent received a BCG vaccination.

A child's birth order also is related to coverage rates. The percentage fully immunised among children of birth order 4 or higher is 55 percent, which is considerably lower than the rate for first-born children (68 percent) and for second- and third-order births (67 percent). Coverage falls from 90 percent for the first dose of DPT/OPV in mothers with 6 or more children to 63 percent for the third dose of DPT/OPV, further illustrating the high drop-out rate. There seems to be little difference between the vaccination levels of male and female children.

Trend in Vaccination Coverage During First Year of Life

Table 9.8 provides information on children 12-59 months and shows the percentage of children who have a vaccination record as well as the percentage who have received each vaccine during the first year of life according to information from the vaccination records and mother's recall. As was the case in earlier tables, the distribution of vaccinations during the first year of life for children whose information was based on the mother's recall was assumed to be the same as that for children for whom a vaccination record was available.

Table 9.8 Vaccinations in the first year of life

Percentage of children one to four years of age for whom a vaccination card was shown to the interviewer and the percentage vaccinated for BCG, DPT, polio, and measles during the first year of life, by current age of the child, Turkey 1993

	Current age of child in months				All children 12-59 months
Vaccine	12-23	24-35	36-47	48-59	
Vaccination card shown to interviewer	41.6	26.7	19.0	15.1	25.6
Percent vaccinated at 0-11 months[a]					
BCG	87.4	84.3	86.7	74.8	83.3
DPT 1	91.8	89.6	85.3	80.4	86.8
DPT 2	86.7	84.9	81.5	75.4	82.1
DPT 3	76.2	70.9	68.8	67.9	71.0
Polio 1	92.3	90.4	86.1	81.3	87.5
Polio 2	87.1	85.5	81.9	76.0	82.6
Polio 3	76.4	71.2	69.3	68.2	71.3
Measles	69.0	70.2	59.4	58.0	64.1
All vaccinations[b]	59.0	50.0	51.5	45.3	51.5
No vaccinations	4.7	5.7	8.8	13.6	8.3
Number of children	716	653	717	697	2783

[a] 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.
[b] Children who have received BCG, measles and three doses of DPT and polio vaccines.

The first row in Table 9.8 shows the proportion of children age 12-59 months for whom a vaccination card was seen by the interviewer. The proportion for whom vaccination cards were seen declines with increasing age of child, from 42 percent among children age 12-23 months to only 15 percent among children age 48-59 months.

The variation in vaccination coverage rates by the child's age suggests that coverage rates have increased in the recent past. The proportion of children with no vaccinations during the first year of life has decreased from 14 percent among children age 48-59 months to only 5 percent among children age 12-23 months. The proportion of children who were fully vaccinated during the first year of life also increased from 45 percent among children age 48-59 months to 59 percent among children age 12-23 months. This might be an indicator of some progress in routine immunisation services or it might be evaluated as a result of lower vaccination card keeping in older age groups. The results of the 1989 Cluster Survey on Vaccination are higher than the coverage rates found for children 48-59 months old in the 1993 TDHS. The drop-out rates between DPT1-DPT3 and DPT1-measles are almost the same in all age groups.

9.3 Acute Respiratory Infection

Acute respiratory infection (ARI) is the most prevalent disease among infants and children under age five in Turkey, especially during the winter months. ARI has long been known to contribute significantly to child mortality. For example, a study carried out in the Etimesgut district during 1970 indicated that 34 percent of infant deaths and 32 percent of child deaths were due to pneumonia. In 1986, the Control of Acute Respiratory Infections Programme (CARI) was launched in Turkey. By 1993, the programme was being carried out in 33 provinces out of a total of 76 provinces. In other words, the CARI programme covers 34 percent of the total population.

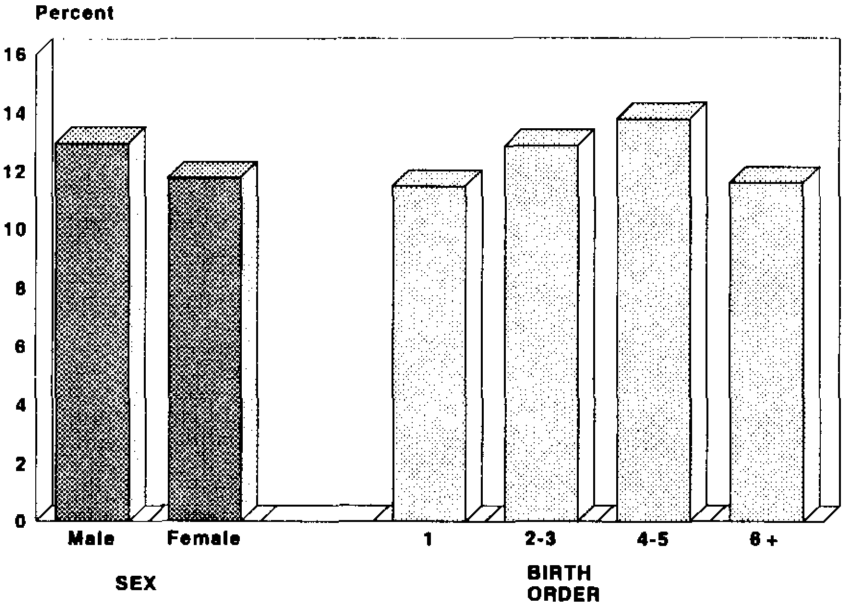
In this survey, the prevalence of ARI was estimated by asking mothers if their children had experienced coughing, accompanied by short, rapid breathing, in the two weeks preceding the survey. For children who had experienced these symptoms, questions were asked about the type of treatment given and the proportion who had contact with the health services. Figures 9.6 and 9.7 shows the distribution of ARI by sex, birth order, residence and region.

According to Table 9.9, 12 percent of children under five years of age were ill with cough and rapid breathing, in other words ARI, at some time in the two weeks preceding the survey. This percentage is somewhat lower than expected; however, one should take into consideration that the data collection activities were carried out during the summer and early fall when ARI levels would be lower than in the winter. Considering treatment patterns, 37 percent of children who have ARI were taken to a health facility, 30 percent were reported to have received antibiotic treatment including injections, 44 percent received cough syrup and 41 percent received other medicines.

There is no apparent differential by sex of the child in using a health facility for ARI treatment or in prescribing antibiotics including injections. However, cough syrup was used somewhat more often for female children than for male children (52 percent and 36 percent, respectively). "Other remedies" for ARI treatment are also used more for female children than for male children (45 percent and 36 percent, respectively).

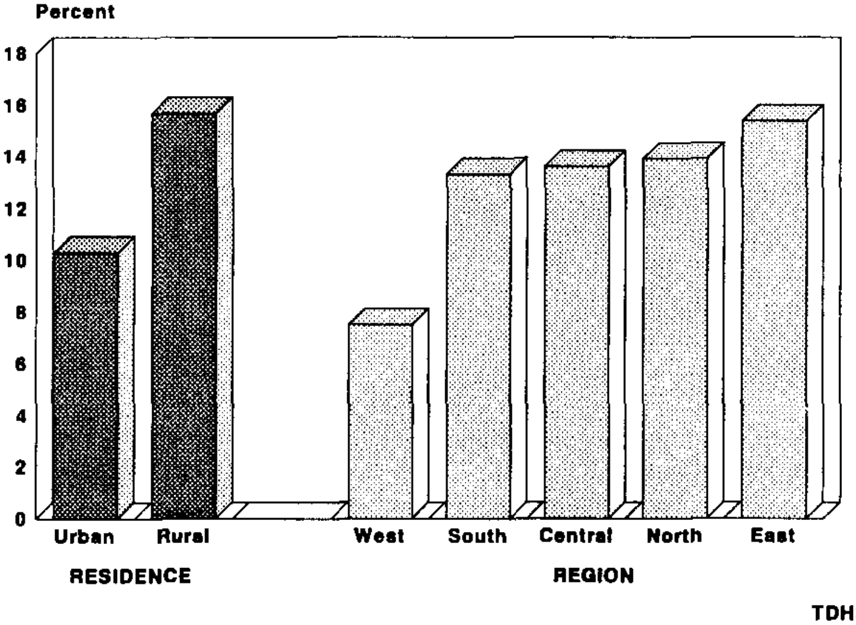
Parents seem to be more sensitive to seeking health care for babies under age one. Similarly, mothers have used both antibiotics and cough syrup more often to treat their first-born children than other children.

Figure 9.6
Prevalence of Acute Respiratory Infection by Sex and Birth Order



TDHS 1993

Figure 9.7
Prevalence of Acute Respiratory Infection by Residence and Region



TDHS 1993

Table 9.9 Prevalence and treatment of acute respiratory infection

Percentage of children under five years who were ill with a cough accompanied by rapid breathing during the two weeks preceding the survey, and the percentage of ill children who were treated with specific remedies, by selected background characteristics, Turkey 1993

		Among children with cough and rapid breathing							
			Percentage treated with:						
Background characteristic	Percentage of children with cough and rapid breathing	Percentage taken to a health facility or provider[1]	Antibiotic pill or syrup	Injection	Cough syrup	Home remedy	Other	None/ Don't know/ Missing	Number of children
Child's age									
< 6 months	13.6	46.6	20.6	0.0	40.8	1.4	55.1	17.8	329
6-11 months	14.5	51.2	26.7	14.0	49.7	2.2	40.6	19.7	386
12-23 months	17.6	32.2	20.0	7.2	45.8	1.2	39.0	29.9	716
24-35 months	9.7	42.5	23.2	7.4	46.8	0.0	30.5	28.6	653
36-47 months	9.6	36.5	24.3	8.5	45.7	9.8	42.8	21.9	717
48-59 months	10.8	26.3	21.4	5.8	32.3	2.1	40.6	33.3	696
Sex									
Male	13.0	36.1	22.5	6.7	36.2	3.2	36.5	31.9	1803
Female	11.8	38.7	22.0	8.0	52.3	2.1	45.2	20.1	1694
Birth order									
1	11.5	49.8	25.5	7.7	57.0	1.9	34.6	21.1	1147
2-3	12.9	33.5	20.4	4.7	43.4	3.6	43.7	23.0	1447
4-5	13.8	27.3	21.7	11.7	25.5	1.2	42.8	43.0	471
6+	11.6	31.5	21.8	10.6	32.7	3.6	41.1	32.2	432
Residence									
Urban	10.3	44.3	28.8	7.5	50.9	3.9	45.9	15.5	2108
Rural	15.7	30.3	15.9	7.2	36.4	1.5	35.2	37.3	1389
Region									
West	7.5	56.1	24.6	3.5	56.1	5.3	49.1	10.5	940
South	13.3	42.1	24.2	13.7	68.4	4.2	50.5	14.7	550
Central	13.6	28.2	12.6	4.8	39.8	1.9	41.7	28.1	776
North	13.9	39.7	25.6	2.6	41.0	3.8	48.7	16.7	342
East	15.4	31.3	26.5	9.5	27.7	0.8	27.0	43.0	889
Mother's education									
No educ./Pri. incomp.	15.3	32.8	21.7	11.2	35.6	2.2	39.6	34.6	1255
Pri. comp./Sec. incomp.	11.2	37.3	20.9	4.5	45.7	2.1	40.1	23.3	1753
Sec. comp./+	9.5	55.8	31.0	3.3	67.6	7.3	46.2	6.4	489
All children	12.4	37.3	22.3	7.3	43.6	2.7	40.5	26.5	3497

Note: Figures are for children born in the period 1-59 months preceding the survey.

[1] Includes health house, health centre, hospital, and private doctor.

The percentage of children taken to a health facility is higher in urban areas (44 percent) than rural areas (30 percent), despite the lower ARI prevalence in urban areas. Urban children suffering from ARI symptoms are also more likely than rural children to receive antibiotics, cough syrup or other treatments. By region, children with ARI are less likely to be taken to a health facility in the Central region, followed by the Eastern region. The Eastern region has the highest percentage of children with ARI symptoms receiving no treatment, while the lowest antibiotic treatment rate is reported in the Central region.

The likelihood that a child with ARI will be taken to a health facility or given at least some treatment increases with the mother's level of education. Only 6 percent of mothers with a secondary or higher education reported that they did nothing to treat ARI symptoms in their children compared to 35 percent of mothers with no education.

9.4 Diarrhoea

Dehydration brought on by severe diarrhoea is an important cause of morbidity and mortality among children in Turkey. The National Control of Diarrhoeal Diseases Programme was implemented in 1986. The main objective of the programme was prevention of deaths by prevention of dehydration. For this reason, Oral Rehydration Therapy (ORT) has been taught actively since the 1980s.

In the 1993 TDHS, mothers of children under age five were asked if their children had experienced a bout of diarrhoea within the past two weeks and in the 24 hours prior to interview. Mothers were also asked what treatment they had given to those children who had diarrhoea. In interpreting these findings, one should take into consideration that the TDHS fieldwork took place between August and October. Since the prevalence of diarrhoea varies seasonally, the results do not represent the average prevalence of diarrhoea throughout the year in Turkey.

Table 9.10 Prevalence of diarrhoea

Percentage of children under five years who had diarrhoea in the two weeks preceding the survey, and the percentage of children who had diarrhoea in the preceding 24 hours, by selected background characteristics, Turkey 1993

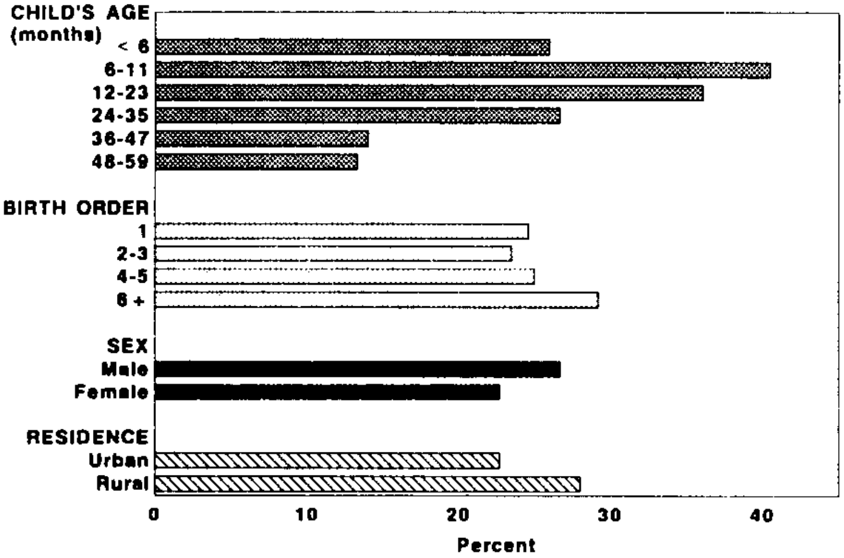
Background characteristic	Diarrhoea in the preceding 2 weeks	Diarrhoea in the past 24 hours	Number of children
Child's age			
<6 months	26.0	15.4	329
6-11 months	40.0	18.8	386
12-23 months	36.1	17.1	716
24-35 months	26.7	12.0	653
36-47 months	14.0	5.5	717
48-59 months	13.3	4.2	696
Sex			
Male	26.7	12.3	1803
Female	22.7	10.1	1694
Birth order			
1	24.6	10.4	1147
2-3	23.5	10.5	1447
4-5	25.0	13.1	471
6+	29.2	14.0	432
Residence			
Urban	22.7	9.1	2108
Rural	28.0	14.5	1389
Region			
West	19.9	7.8	940
South	21.7	9.7	550
Central	24.0	9.8	776
North	22.5	8.7	342
East	33.3	18.1	889
Mother's education			
No educ./Pri. incomp.	28.2	13.8	1255
Pri. comp./Sec. incomp.	24.3	10.7	1753
Sec. comp./+	17.7	6.5	489
All children	24.8	11.2	3497

Note: Figures are for children born in the period 1-59 months preceding the survey.

Table 9.10 and Figure 9.8 show the percentage of children under five years of age with diarrhoea during the two weeks preceding the survey. Overall one-quarter of the children had experienced diarrhoea at some time in the two weeks preceding the survey, and 11 percent were still having an episode of diarrhoea at the time of the survey. In the 1988 TPHS, the two-week prevalence of diarrhoea for the same period (August-September) was 24 percent. This finding suggests that measures designated to prevent diarrhoea, which were introduced following the 1988 survey, have not resulted in any change in diarrhoea prevalence during last five years.

Children age 6-11 months and 12-23 months were the most likely to have experienced diarrhoea in the two weeks preceding the survey (40 percent and 36 percent, respectively). This pattern has been observed in many surveys, including the 1988 TPHS, and is believed to be associated with the effects of weaning practices and poor sanitation, especially the use of contaminated water supplies.

Figure 9.8
Pecentage of Children under Five Years
with Diarrhoea, by Age, Sex,
Birth Order and Residence



TDHS 1993

There are no marked differences in diarrhoea prevalence by sex or birth order. The prevalence of diarrhoea appears to be slightly higher among rural children (28 percent), children in the East (33 percent) and children whose mothers are without any education (28 percent) than among other children. These findings are similar to the 1988 TPHS results.

Table 9.11 shows the practices of mothers in treating diarrhoea. Mothers reported that 24 percent of children with diarrhoea were not given any treatment. Rūral children, children living in the Eastern and Western regions and children whose mothers had no education were the least likely to receive treatment.

With regard to treatment practices, one-fourth of children who had diarrhoea were taken to the health facility for treatment. Fluids made using a packet of oral rehydration salts (ORS) were used in treating the diarrhoea in 11 percent of cases and 5 percent were given recommended home fluids; in 57 percent of the cases fluids were increased.

The proportion of mothers who took their child to a health facility is higher in urban areas than in rural areas (30 percent and 19 percent, respectively), and urban mothers were more likely than rural mothers to use some form of oral rehydration therapy (ORT) or to increase fluids (69 percent and 52 percent, respectively). The Southern region shows both the highest percentages seeking health care (30 percent) and using ORS packets (14 percent). Use of ORS is highest in children age 6-23 months. This finding supports the theory that these mothers may be receiving training in diarrhoea treatment during weaning instruction by health personnel.

Table 9.11 Treatment of diarrhoea

Percentage of children under five years who had diarrhoea in the two weeks preceding the survey who were taken for treatment to a health facility or provider, the percentage who received increased fluids and oral rehydration therapy (ORT), the percentage who received neither ORT nor increased fluids, and the percentage receiving other treatments, according to selected background characteristics, Turkey 1993

		Oral rehydration therapy (ORT)				Percentage receiving other treatments:				
Background characteristic	Percentage taken to a health facility or provider[1]	ORS packets[2]	Recommended home solution	Percentage receiving increased fluids	Percentage receiving neither ORT nor increased fluids	Antibiotics	Injection	Home remedy/ Other	No treatment	Number of children with diarrhoea
Child's age										
< 6 months	27.3	9.7	5.8	36.5	55.1	15.3	4.2	33.4	33.0	86
6-11 months	35.7	15.4	3.7	52.6	42.3	23.0	3.4	27.1	26.7	154
12-23 months	28.4	15.2	5.6	63.4	31.9	21.5	4.2	36.3	20.6	259
24-35 months	20.9	9.8	4.4	58.8	38.0	20.1	1.1	37.4	23.3	174
36-47 months	12.1	6.6	2.8	57.3	40.6	15.0	2.0	35.5	25.9	100
48-59 months	15.7	4.0	6.9	61.3	37.0	15.9	0.0	36.6	21.5	93
Sex										
Male	25.7	12.1	4.9	56.8	39.2	20.7	3.6	34.5	23.4	481
Female	23.7	10.5	4.9	57.1	38.4	18.1	1.7	34.6	25.2	385
Birth order										
1	27.3	13.4	3.1	58.7	35.9	21.6	1.9	36.2	23.1	282
2-3	25.0	9.9	6.4	58.4	38.8	17.5	2.6	35.7	23.3	340
4-5	23.0	7.8	4.8	53.2	43.0	13.0	4.1	39.3	28.0	118
6 +	20.4	14.3	4.7	52.7	41.5	26.5	3.6	23.2	25.5	126
Residence										
Urban	29.9	12.2	4.4	64.7	31.2	22.7	3.6	39.0	17.4	478
Rural	18.6	10.4	5.4	47.4	48.2	15.6	1.7	29.0	32.6	388
Region										
West	27.8	11.3	7.9	52.3	41.1	14.6	2.6	35.1	27.2	187
South	29.7	14.2	2.6	70.3	24.5	30.3	3.9	48.4	14.8	119
Central	18.8	6.6	3.8	59.0	39.3	17.1	2.7	38.2	22.7	186
North	21.4	9.5	11.1	62.7	33.3	15.1	0.8	37.3	19.0	78
East	25.6	13.8	2.9	51.8	44.3	21.0	2.9	25.6	28.4	296
Mother's education										
No educ./Pri. incomp.	23.9	8.0	2.9	48.0	48.9	22.3	4.0	26.9	30.0	354
Pri. comp./Sec. incomp.	24.6	13.7	7.1	61.4	33.3	16.5	1.5	38.7	22.1	425
Sec. comp./+	29.7	13.8	2.3	71.9	24.4	23.1	3.5	45.3	11.0	87
All children	24.8	11.4	4.9	57.0	38.8	19.5	2.7	34.5	24.2	866

---

[1] Includes health house, health centre, hospital, and private doctor.

[2] Oral rehydration salts

The 1993 TDHS also directly investigated the extent to which mothers made changes in the amount of liquids that a child received during a diarrhoeal episode. To obtain the data, mothers who reported that they were still breastfeeding a child suffering from diarrhoea were asked whether they had changed the pattern of breastfeeding during the diarrhoeal episode. In addition, all mothers who had a child with diarrhoea were asked if they had changed the amount of fluids given to the child having the diarrhoeal episode.

Table 9.12 shows that mothers of 19 percent of children who had diarrhoea and were still being breastfed reported that they had increased the frequency of breast feeding during the diarrhoeal episode, and 74 percent reported that they had maintained the same frequency of feedings. Mothers of only 4 percent of the children reported a reduced frequency of breastfeeding. In the 1988 TPHS, a somewhat higher percentage (6 percent) of the mothers who were breastfeeding before diarrhoea started reported that they stopped breastfeeding during a diarrhoeal attack.

Table 9.12 also shows that, among all children with diarrhoea, the majority either were given more fluids (56 percent) or received the same amount (36 percent). The amount of fluid given was reduced in only 7 percent of the cases.

Table 9.12 Feeding practices during diarrhoea

Percent distribution of children under five years who had diarrhoea in the two weeks preceding the survey, by feeding practices during diarrhoea, Turkey 1993

Feeding practices	Percent
Breastfeeding frequency[1]	
Same as usual	74.4
Increased	19.2
Reduced	4.1
Stopped	0.5
Don't know/Missing	1.8
Number of children	733
Amount of fluids given	
Same as usual	35.6
More	55.6
Less	7.4
Don't know/Missing	1.4
Number of children with diarrhoea[2]	866

[1] Applies only to children who are still breastfed.
[2] Children born in the period 1-59 months preceding the survey.

CHAPTER 10

INFANT FEEDING, MATERNAL AND CHILDHOOD NUTRITION

Ergül Tunçbilek

This chapter covers two related topics: infant feeding and nutritional status. Infant feeding includes breastfeeding practices, introduction of supplementary weaning foods, and use of feeding bottles. Nutritional status is based on height and weight measurements of both children under the age of five years and their mothers.

10.1 Breastfeeding and Supplementation

Infant feeding has an impact on both the child and the mother. Feeding practises are important determinants of the child's nutritional status, which in turn influences the risk of dying. The mother is affected by breastfeeding through its effects on postpartum infertility, which is related to the length of birth intervals, and thus to fertility levels. These effects are influenced by both the duration and intensity of breastfeeding and the age at which the child receives supplemental foods and liquids. Breast milk is sterile and contains all the nutrients needed by children in the first few months of life. In addition, it provides some immunity to disease through the mother's antibodies and helps in reducing the prevalence of diarrhoea and nutritional deficiencies.

International guidelines[1] for the feeding of infants and young children recommend that infants receive only breast milk for the first 4 to 6 months of life. During this time, no other foods or liquids are needed. Beginning at about 4 months, adequate and appropriate complementary foods should gradually be added to the infant's diet in order to provide sufficient nutrients for optimal growth. Breastfeeding should continue, along with the complementary foods, up to the second birthday or beyond. It is recommended that a feeding bottle should not be used at any age. In addition, the recommendations of the Baby Friendly Hospitals Initiative, launched by WHO, include the early initiation of breastfeeding.

As Table 10.1 indicates, breastfeeding is almost universal in Turkey; 95 percent of all children are breastfed for some period of time. Differentials in the proportion of children breastfed are quite small. No subgroup has less than 94 percent of children as having ever been breastfed.

Early initiation of breastfeeding is of benefit to both mother and infant. Suckling stimulates production of oxytocin, a hormone that causes the mother's uterus to contract. The first breast milk, colostrum, protects the newborn infant from infections because of its high concentration of antibodies. Information presented on the timing of initiation of breastfeeding for last-born children indicates that initiation to breastfeeding is rather late (Table 10.1). Only one-fifth of last-born children were started breastfeeding as early as within one hour of birth. As regards the subgroups, there is almost no variation in the initiation of breastfeeding with respect to sex of the child, residence, educational level of the mother, and utilisation of health services during delivery. The only marked variation in the timing of initiation of breastfeeding is observed among regions. The percentage of last-born children who started breastfeeding within one hour of birth is highest in the Northern region (24 percent) and lowest in the Eastern region (17 percent).

---

[1] The 1990 Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding resulted from a meeting sponsored by WHO and UNICEF, and cosponsored by SIDA and USAID.

Table 10.1 Initial breastfeeding

Percentage of children born in the five years preceding the survey who were ever breastfed, and the percentage of last-born children who started breastfeeding within one hour of birth and within one day of birth, by selected background characteristics, Turkey 1993

Background characteristic	Among all children: Percentage ever breastfed	Among all children: Number of children	Among last-born children, percentage who started breastfeeding: Within 1 hour of birth	Among last-born children, percentage who started breastfeeding: Within 1 day of birth	Among last-born children, percentage who started breastfeeding: Number of children
Sex					
Male	94.6	1924	20.0	74.0	1478
Female	95.8	1812	19.8	78.0	1322
Residence					
Urban	94.2	2236	20.2	76.8	1748
Rural	96.7	1500	19.4	74.3	1052
Region					
West	94.9	996	18.6	80.1	820
South	95.6	591	20.8	74.2	445
Central	95.7	833	22.4	77.4	638
North	95.9	359	24.3	75.7	273
East	94.5	957	16.5	70.1	624
Education					
No educ./Pri. incomp.	95.4	1362	19.0	70.3	899
Pri. comp./Sec. incomp.	94.7	1872	20.1	78.1	1464
Sec. comp./+	96.5	502	21.2	79.8	437
Assistance at delivery					
Medically trained person	95.0	2838	19.6	77.6	2233
Traditional midwife	96.9	480	20.6	69.5	288
Other, none or missing	94.4	418	21.6	68.3	279
Place of delivery					
Health facility	94.4	2233	18.9	76.1	1795
At home, other or missing	96.6	1503	21.7	75.5	1005
All children	95.2	3736	19.9	75.9	2800

Note: Table is based on all children born in the five years preceding the survey, whether living or dead at the time of the interview.

A large proportion of children did not start breastfeeding within one day of birth. In the East, where mothers are usually less educated and give birth without the assistance of a medically trained person, 30 percent of last-born children were not put to the breast during the first day. This delayed exposure to the mother's breast may be influenced by cultural norms. In Turkey, there is a religious practice that calls for breastfeeding to start after 3 calls to prayer (ezan) following the child's birth, which means that there is almost a 15-hour delay.

The percent distribution of living children by breastfeeding status at the time of the survey is shown in Table 10.2 (based on feeding practises in the last 24 hours before the interview). "Exclusively breastfed" denotes children who receive breast milk only. "Children who are fully breastfed" includes those who are exclusively breastfed and those who receive only plain water in addition to breast milk.

Table 10.2 shows that even in the first month of life, only 19 percent of children were exclusively breastfed. However, the percentage of fully breastfed children in the first month of life reaches 46 percent. One-third of the children (33 percent) are being given supplementary food as early as one month of age. The percentage of children receiving supplements rapidly increases to 53 percent among children 2-3 months of age. Early introduction of supplementary food to infant nutrition increases the risk of gastrointestinal infections, which is one of the leading causes of infant mortality in Turkey.

Table 10.2 Breastfeeding status

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

	Percentage of living children who are:						
			Breastfeeding and:				
Age in months	Not breast-feeding	Exclusively breast-fed	Plain water only	Sugar and water	Supple-ments	Total	Number of living children
0-1	1.0	18.9	27.5	19.7	32.9	100.0	95
2-3	10.1	10.3	20.7	5.6	53.3	100.0	139
4-5	20.3	4.3	9.8	0.9	64.7	100.0	130
6-7	30.2	0.9	4.6	1.3	63.0	100.0	144
8-9	38.3	0.9	3.0	0.0	57.8	100.0	135
10-11	39.3	2.9	3.6	0.0	54.2	100.0	107
12-13	54.6	1.4	0.0	0.0	44.0	100.0	145
14-15	49.9	0.0	0.0	0.0	50.1	100.0	118
16-17	61.3	1.0	1.2	0.0	36.5	100.0	102
18-19	82.3	0.0	0.8	0.0	16.9	100.0	129
20-21	86.0	0.0	0.0	0.0	14.0	100.0	108
22-23	85.1	0.0	1.0	0.0	13.9	100.0	113
24-25	91.8	0.6	0.0	0.0	7.6	100.0	127
26-27	90.6	0.0	0.0	0.0	9.4	100.0	107
28-29	91.1	0.0	0.0	0.0	8.9	100.0	116
30-31	90.5	0.0	0.0	0.0	9.5	100.0	111
32-33	97.1	0.0	0.0	0.0	2.9	100.0	76
34-35	98.8	0.0	0.0	0.0	1.2	100.0	116

Note: Breastfeeding status refers to preceding 24 hours. Children classified as *breastfeeding and plain water only* receive no supplements.

Table 10.3 shows the percentage of breastfeeding children receiving various types of supplements; the categories are not mutually exclusive, that is, a child may be receiving more than one type of supplement. Looking at the type of supplement received by breastfed children in more detail, one sees that 15 percent of children 0-1 months of age receives infant formula and this percentage increases rapidly to 28 percent among children 4-5 months of age, and then drops slowly as age increases. Children are more likely to receive other kinds of milk or liquids other than infant formula after 0-1 months of age. Nearly half of the children 10-18 months of age were given other milk, most probably cow's milk, as a supplement to weaning food (Table 10.3).

Table 10.3 Breastfeeding and supplementation by age

Percentage of breastfeeding children who are receiving specific types of food supplementation, and the percentage who are using a bottle with a nipple, by age in months, Turkey 1993

	Percentage of breastfeeding children who are:					
	Receiving supplement				Using a bottle with a nipple	Number of children
Age in months	Infant formula	Other milk	Other liquid	Solid/ Mushy		
0-1	14.7	6.3	21.2	0.0	17.7	94
2-3	20.7	28.7	44.9	8.3	30.4	125
4-5	27.5	34.9	73.5	28.6	30.9	104
6-7	20.2	42.2	86.4	35.0	35.0	101
8-9	12.1	38.5	92.6	47.0	13.9	83
10-11	10.5	49.2	88.2	48.6	23.1	65
12-13	18.5	40.9	96.0	55.9	28.6	66
14-15	8.3	52.1	98.2	67.4	11.3	59
16-17	(5.6)	(32.1)	(94.5)	(55.5)	(18.5)	40
18-19	*	*	*	*	*	23
20-21	*	*	*	*	*	15
22-23	*	*	*	*	*	17
24-25	*	*	*	*	*	10
26-27	*	*	*	*	*	10
28-29	*	*	*	*	*	10
30-31	*	*	*	*	*	11
32-33	*	*	*	*	*	2
34-35	*	*	*	*	*	1

Note: Breastfeeding status refers to preceding 24 hours. Percents by type of supplement among breastfeeding children may sum to more than 100 percent, as children may have received more than one type of supplement.
( ) Figures in parentheses are based on 25-49 cases.
* Less than 25 cases

One of the most striking results is the early introduction of solid or mushy food into the diet. Solid or mushy food begins to be introduced into the diet as early as 2-3 months of age, and the proportion of children receiving it rises to 29 percent by age 4-5 months. On the other hand, almost half of the breastfed children do not receive any solid or mushy food until they are around one year of age. This deleterious practice may be considered as one of the underlying factors of undernutrition among Turkish children.

In Table 10.3, the extent to which bottles are used to feed infants is also presented. Although the majority of infants are not fed with a bottle, bottle feeding is beyond the desirable level. Around one-third of the breastfed children 2-7 months of age are bottle fed. During this period children are vulnerable to various gastrointestinal infections.

Table 10.4 presents the estimates of medians and durations of breastfeeding patterns among subgroups; the mean duration is shown for all children. The median duration of breastfeeding is 12 months. There is some variation in breastfeeding duration across subgroups. The longest durations observed are for women living in the East (17 months) and for illiterate women (16 months). Children living in rural areas, children of women with less than primary education, and those children who are not assisted by medically trained personnel at delivery are more likely to have longer breastfeeding durations than others. Shorter median durations of 8-9 months are observed for children of mothers with secondary education and for those from the Western and Northern regions. Median durations for exclusive and full breastfeeding are very short, and there are no marked variations in the median durations of full and exclusive breastfeeding according to various background characteristics.

Frequency of breastfeeding is also presented in Table 10.4. Eighty-one percent of children under 6 months of age were breastfed 6 or more times in the 24 hours preceding the interview. This feeding pattern occurs less often for children whose mothers have at least a secondary school education. Although breastfeeding is very common and the median duration is 12 months in Turkey, early introduction of supplementary food to the diet of some children and frequency of feeding are not enough to stimulate the contraceptive effect of breast milk. The limited contraceptive effect of breastfeeding is reflected in the relatively short median duration of postpartum amenorrhoea (4 months, see Table 6.5).

Table 10.4 Median duration and frequency of breastfeeding

Median duration of any breastfeeding and full breastfeeding, and the percentage of children under six months of age who were breastfed six or more times in the 24 hours preceding the survey, by selected background characteristics, Turkey 1993

	Median duration in months					
Background characteristic	Any breast-feeding	Exclusive breast-feeding	Full breast-feeding[1]	Number of children	Percentage < 6 months breastfed 6+ times in last 24 hours	Number of children < 6 months
Sex						
Male	12.8	0.5	0.7	1151	79.9	185
Female	11.5	0.4	0.7	1083	82.6	178
Residence						
Urban	10.6	0.5	0.6	1326	80.7	218
Rural	14.0	0.5	0.7	908	82.0	145
Region						
West	8.7	0.4	0.6	603	77.3	93
South	13.1	0.5	1.4	338	80.9	52
Central	10.8	0.5	0.7	494	86.4	83
North	7.5	0.5	0.6	223	(63.6)	40
East	17.3	0.5	0.6	576	88.2	95
Education						
No educ./Pri. incomp.	15.6	0.5	0.6	767	85.2	117
Pri. comp./Sec. incomp.	10.3	0.4	0.7	1160	80.9	192
Sec. comp./+	8.8	0.5	0.9	307	73.8	54
Assistance at delivery						
Medically trained person	10.3	0.5	0.7	1731	79.0	275
Traditional midwife	10.3	0.6	0.6	256	(90.6)	48
Other or none	14.4	0.4	0.5	247	(85.5)	40
All children	11.9	0.5	0.7	2234	81.2	363
Mean	13.3	1.5	2.7	NA	NA	NA
Prevalence/Incidence mean	13.3	0.7	2.1	NA	NA	NA

Note: Medians and means are based on current status.

[1] Either exclusively breastfed or received plain water only in addition to breastfeeding.

NA = Not applicable

( ) Figures in parentheses are based on 25-49 cases.

10.2 Nutritional Status

One of the major contributions of the TDHS to the study of child health status is the anthropometric data collected on the children of respondents. These data on children under five years of age allow for calculation of indicators of nutritional status. These indicators are important because children's nutritional status influences their susceptibility to disease and untimely death. Children's nutritional status reflects infant and child feeding practices as well as recurrent and chronic infections. Both the height and weight of children were measured and three indices were constructed based on the data and the child's age: height-for-age, weight-for-height, and weight-for-age.[2]

As recommended by WHO, the nutritional status of children in the survey is compared with an international reference population defined by the U.S. National Center for Health Statistics (NCHS) and accepted by the U.S. Centers for Disease Control (CDC). Use of this reference population is based on the finding that well-nourished young children of all population groups (for which data exist) follow very similar growth patterns (see Martorell and Habicht, 1986). In any large population, there is variation in height and weight; this variation approximates a normal distribution. The reference population serves as a point of comparison, facilitating the examination of differences in the anthropometric status of subgroups in a population and of changes in nutritional status over time.

The height-for-age index is an indicator of linear growth retardation. Children whose height-for-age is below minus two standard deviations (-2 SD) from the median of the reference population are considered short for their age ("stunted"), and are chronically undernourished. Children who are below minus three standard deviations (-3 SD) from the median of the reference population are considered severely stunted. Stunting reflects the outcome of a failure to receive adequate nutrition over a long period of time, and is also affected by recurrent and chronic illness. Height-for-age, therefore, represents a measure of the long-term effects of undernutrition in a population and does not vary appreciably according to the season of data collection. Stunted children are not immediately obvious in a population; a stunted three-year-old child could look like a well-fed two-year-old.

The weight-for-height index measures body mass in relation to body length and describes current nutritional status. Children who are below minus two standard deviations (-2 SD) from the median of the reference population are considered thin ("wasted") and are acutely undernourished. Wasting represents a failure to receive adequate nutrition in the period immediately preceding the survey and may be the result of recent episodes of illness, causing loss of weight and the onset of undernutrition. Wasting may also reflect acute food shortage. Children whose weight-for-height is below minus three standard deviations (-3 SD) from the median of the reference population are considered to be severely wasted.

Weight-for-age is a composite index of height-for-age and weight-for-height; it takes into account both acute and chronic undernutrition. It is a useful tool in clinical settings for continuous assessment of nutritional progress and growth. Children whose weight-for-age is below minus two standard deviations from the median of the reference population are classified as "underweight." In the reference population only 2.3 percent of children fall below minus two (-2 SD) for each of the three indices.

Table 10.5 shows the percentage of children under five years of age classified as undernourished according to height-for-age, weight-for-height, and weight-for-age indices, by the child's age group and selected demographic characteristics.

---

[2] Although the term "height" is used here, children younger than 24 months were measured lying down on a measuring board (recumbent length), whereas standing height was measured for older children.

Table 10.5 Nutritional status by demographic characteristics

Percentage of children under five years who are classified as undernourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by selected demographic characteristics, Turkey 1993

	Height-for-age		Weight-for-height		Weight-for-age		
Demographic 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
Age							
<6 months	0.5	3.7	0.0	1.9	0.0	0.7	313
6-11 months	0.6	7.4	0.6	2.9	2.8	9.2	348
12-23 months	2.3	15.8	0.1	5.0	1.3	9.7	638
24-35 months	8.4	19.9	0.4	3.0	3.4	12.0	570
36-47 months	9.1	25.3	0.7	2.0	0.9	10.3	643
48-59 months	9.4	28.6	0.6	2.4	2.0	10.9	622
Sex							
Male	5.4	19.1	0.4	3.3	1.7	9.3	1617
Female	6.3	18.7	0.4	2.6	1.9	9.8	1517
Birth order							
1	3.4	13.0	0.2	2.1	0.9	7.3	1020
2-3	4.7	18.4	0.2	2.1	1.0	8.0	1316
4-5	10.1	24.3	1.3	4.9	3.4	13.0	407
6 +	11.9	30.5	0.5	6.0	4.8	16.7	391
Birth interval							
First birth	3.3	13.1	0.2	2.1	0.9	7.3	1029
< 2 years	11.3	30.0	0.3	3.2	2.9	16.2	575
2-3 years	8.1	24.8	0.7	4.1	2.8	10.8	891
4 or more years	2.0	10.1	0.4	2.5	0.7	5.5	639
All children	5.9	18.9	0.4	3.0	1.8	9.5	3134

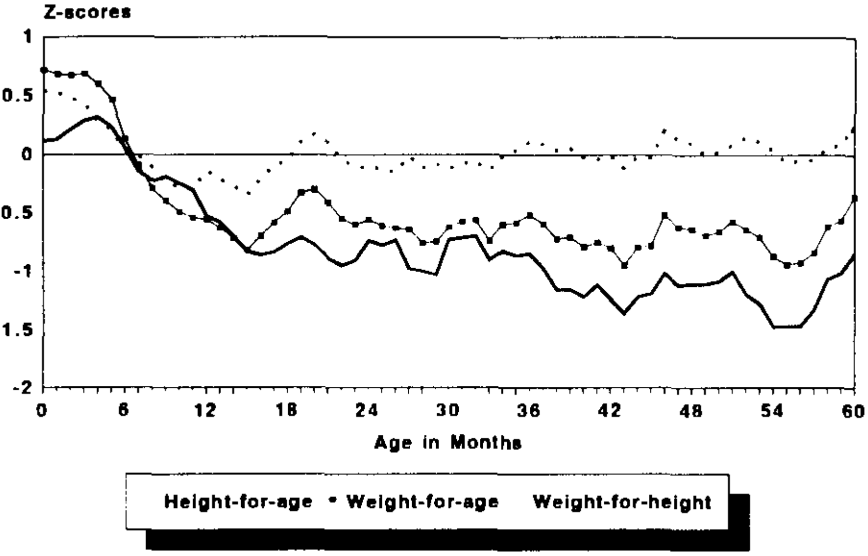
Note: Figures are for children born in the period 1-59 months preceding the survey. Each index is expresse in terms of the number of standard deviation (SD) units from the median of the NCHS/CDC/WHO international reference population. Children are classified as undernourished if their z-scores are below minu 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

In the TDHS, all children under five years of age whose mothers were present in the sample household the night before the interview were eligible to be included in the anthropometric data collection. However, not all eligible children are included in the results presented here; the height or weight measurement is missing for 9.5 percent of eligible children (see Appendix D). Two of the indices (height-for-age and weight-for-age) are influenced by the accuracy of the reporting of the child's age, and the month and year of birth is not known for only 0.2 percent of the cases. Hence, height and weight data are shown for only 89 percent of the eligible children.

The height-for-age index is an important indicator of chronic undernutrition. A period of at least 12 months or even 24 months is necessary to see the outcome of chronic nutritional problems. But, according to the survey results there is a marked deterioration in nutritional status after 6 months of age (Figure 10.1). This may imply that, contrary to expectations, height can be affected in a shorter duration than 2 years. We believe these findings should be investigated further. For each indicator of nutritional

Figure 10.1
Growth of Children Under Five Years,
Mean Z-scores by Age in Months



TDHS 1993

status, a comparison is made with the reference population and expressed as the mean number of z-scores from the median of the reference population. The weight-for-height z-score is close to that of the referenee population except for children in the second half of the first year, when the z-scores are negative (i.e., the children are thinner). There is a rapid decline in the height-for-age and weight-for age z-scores after the first 6 months of life. Height-for-age continues to decline until the fourth year of life and reaches one-third of the children between 48-59 months of age. However, weight-for-age stabilizes around the second birthday.

Overall, the youngest children show no evidence of undernutrition (Table 10.5). However, the proportion classified as stunted shows a steady increase starting in the first year of life. The deterioration in nutritional status continues through the second and third years of life, and thereafter appears to reach a plateau. Among children 24-59 months of age, 25 percent are classified as stunted (weighted average of the percentages in age groups 24 to 59). According to the survey (Table 10.5), by age 5 nearly one-fifth of the children are chronically undernourished and about 10 percent are severely stunted. These patterns reflect inadequate feeding practices and the presence of recurrent and chronic illness.

One of the important observations is that increasing birth order is associated with an increase in the percentage of undernutrition. Nearly one-third of children whose birth order is 6 or above and one-fourth of children whose birth order is 4-5 are stunted and about 10 percent of these children are severely undernourished.

Birth interval is one of the most important variables affecting the height-for-age index. Children who are born with an interval of less than two years are much more prone to be stunted. Of these children, 30 percent are stunted and 11 percent are severely stunted.

Overall, wasting is not a problem. Three percent of children have a weight-for-height z-score below -2SD which is very close to the reference population. However, this figure increases to 5 percent among children between 12-23 months of age and for those with a birth order of 4-5 whereas it increases to 6 percent among children whose birth orders are more than 6.

Weight-for-age is an index reflecting both height-for-age and weight-for-height. According to the survey results, nearly 10 percent of all children are underweight and almost 2 percent are severely underweight. Birth order and birth interval are the two most important factors affecting this index.

Table 10.6 shows the percentage of children under five years of age classified as undernourished (according to the three anthropometric indices) by socioeconomic characteristics. There are striking differences in the percentage classified as stunted according to the mother's level of education. Undernutrition is not a problem among children of mothers with secondary education or higher; the percentage of children who are below the -2 SD cut-off point (4.4 percent) is close to that seen for the reference population (2.3 percent). In contrast, almost one-third of children whose mothers lack formal education are classified as stunted. There are also urban-rural and regional differences. Stunting is more common in rural (25 percent) than in urban areas (15 percent). The highest levels of stunting are seen in the Eastern region (33 percent) and the lowest levels are in the Western and Northern regions (10-13 percent). Similar findings hold for weight-for-height and weight-for-age. There are also marked regional differences.

Table 10.6 Nutritional status by socioeconomic characteristics

Percentage of children under five years who are classified as undernourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height and weight-for-age, by selected socioeconomic characteristics, Turkey 1993

	Height-for-age		Weight-for-height		Weight-for-age		
Socioeconomic 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
Residence							
Urban	3.7	14.8	0.4	2.9	1.2	7.9	1892
Rural	9.2	25.2	0.5	3.0	2.6	12.0	1242
Region							
West	1.6	10.2	0.3	2.6	0.4	4.8	852
South	3.7	14.8	0.2	1.4	0.6	6.8	486
Central	5.1	18.8	0.3	1.8	1.3	7.0	703
North	5.2	12.9	0.2	1.4	0.4	6.4	303
East	12.7	33.3	0.9	5.9	4.8	19.7	790
Education							
No educ./Pri. incomp.	11.6	30.3	0.7	4.5	3.8	16.2	1115
Pri. com./Sec. incomp.	3.2	14.9	0.3	2.3	0.8	6.7	1583
Sec. comp./+	0.8	4.4	0.3	1.5	0.0	2.5	436
Total	5.9	18.9	0.4	3.0	1.8	9.5	3134

Note: Figures are for children born in the period 1-59 months preceding the survey. Each index is expresse 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 undernourished if their z-scores are below minu 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

10.3 Maternal Nutrition

Several indicators can be used to assess women's nutritional status (Krasovec and Anderson, 1991). In the TDHS, women who had given birth in the last 5 years before the interview were weighed and measurements were taken of their height and mid-upper-arm circumference. The same equipment, i,e., an electronic scale with accuracy of +/- 100 grams and an expandable wooden measuring board, was used to measure the weight and height of both women and children. Women's arm circumference was measured using an insertion tape.

Height or weight measurements are missing for 4 percent of respondents. Table 10.7 shows the distribution as well as the means and standard deviations of the anthropometric indicators: height, weight, body mass index, and mid-upper-arm circumference. Indicators based on a woman's weight are not shown for currently pregnant women.

Attained adult height is associated with socioeconomic status, reflecting the end result of access to food and severity of illness during the childhood and adolescent years. Maternal height can be used to predict the risk of delivery complications because short stature is associated with a small pelvis. Cut-off points between 140 and 150 centimetres are usually used to identify women who are at risk of potentially complicated deliveries. In the TDHS, the average height for mothers was 155 centimetres. Two percent are shorter than 145 centimetres and 16 percent were below 150 centimetres.

The body mass index (BMI) relates a woman's weight to her height: it is defined as the weight in kilograms divided by the squared height in metres. A cut-off point of 18.5 has been suggested for defining chronic undernutrition. In the TDHS, 2.3 percent of the women measured fall in this category, and the mean value of the BMI is found to be 25.8. Clear guidelines for defining obesity are not agreed upon; however, it has been suggested that those with a BMI above 25.0 are overweight. Fifty-one percent of the mothers measured fall in this category, including 19 percent who have a BMI of at least 30.0, indicating obesity.

Maternal mid-upper-arm circumference can be used as an indicator of maternal nutritional status. It is useful even in pregnant women because of a correlation with pre-pregnant weight-for-height indicators. Cut-off points of 21.0-23.5 centimetres have been suggested. Seven percent of the mothers have an arm circumference below 23 centimetres, the mean being 28 centimetres. Thirty-eight percent have an arm circumference above 29 centimetres. The findings suggest that obesity is a problem among mothers.

Table 10.8 summarises maternal nutritional status by background characteristics, showing mean height and percent with a height below 145 centimetres, mean BMI and percent with a BMI below 18.5, and mean arm circumference and percent with arm circumference below 23.0 centimetres. There was a consistent difference in height by the woman's level of education: increasing from a mean height of 154.7 centimetres among those who had never been to school or not completed their primary education to 156.7 centimetres for women who had completed secondary education. Differences by age should be interpreted cautiously because of the nature of the sample. However, it is interesting to note that the youngest mothers (< 20 years) are taller than women 20-34 years of age, suggesting that there might be an overall improvement in nutritional status over time. The proportion with BMI below a cut-off point of 18.5 was slightly higher in the Western and Eastern regions than in the other areas of the country. The proportion with arm circumference below a 23.0 centimetre cut-off was 11 percent in the Eastern region compared to 5-6 percent in the other regions. A higher proportion of women in rural areas had arm circumference below the cut-off point than in urban areas (8 versus 6 percent).

Table 10.7 Anthropometric indicators of maternal nutritional status

Percent distribution and mean and standard deviation for women who had a birth in the five years preceding the survey by selected anthropometric indicators (height, weight, body mass index (BMI), and arm circumference), Turkey 1993

Indicator	Total	Distribution including missing
Height (cm)		
< 140	0.3	0.3
140-144	1.9	1.9
145-149	13.4	12.9
150-159	64.3	61.5
160-169	19.7	18.8
170-179	0.3	0.3
≥ 180	0.1	0.1
Missing	-	4.2
Total	100.0	100.0
Number of women	2646	2763
Mean	**155.4**	-
Standard deviation	5.5	-
Weight (kg)		
< 40	0.4	0.4
40-49	14.0	13.5
50-59	34.3	33.0
60-69	27.6	26.5
≥ 70	23.7	22.8
Missing	-	3.8
Total	100.0	100.0
Number of women	2311	2402
Mean	**62.2**	-
Standard deviation	12.1	-
BMI		
< 16.0	0.0	0.0
16.0-18.4	2.3	2.2
18.5-20.4	9.0	8.6
20.5-22.9	21.1	20.2
23.0-24.9	16.9	16.2
25.0-26.9	14.7	14.0
27.0-28.9	12.4	11.8
29.0-29.9	4.9	4.7
≥ 30.0	18.7	18.0
Missing	-	4.3
Total	100.0	100.0
Number of women	2300	2402
Mean	**25.8**	-
Standard deviation	4.9	-
Arm circumference (cm)		
< 21.0	0.7	0.6
21.0-21.9	2.0	2.0
22.0-22.9	4.2	4.1
23.0-23.9	5.9	5.7
24.0-24.9	7.3	7.0
25.0-25.9	10.2	9.8
26.0-26.9	12.8	12.3
27.0-27.9	8.1	7.8
28.0-28.9	10.6	10.2
29.0-29.9	9.5	9.1
≥ 30.0	28.7	27.6
Missing	-	3.8
Total	100.0	100.0
Number of women	2658	2763
Mean	**28.1**	-
Standard deviation	3.7	-

Table 10.8 Differentials in maternal anthropometric indicators

Mean height and percentage of women shorter than 145 centimetres, mean body mass index (BMI) and percentage of women whose BMI is less than 18.5, and mean arm circumference and percentage of women with arm circumference less than 23 centimetres, according to selected background characteristics, Turkey 1993

	Height			BMI			Arm circumference		
Background characteristic	Mean	Percent <145 cm	Number	Mean	Percent <18.5	Number	Mean	Percent <23 cm	Number
Residence									
Urban	155.7	2.0	1643	26.0	3.0	1446	28.3	6.2	1650
Rural	154.9	2.6	1003	25.5	1.8	854	27.7	8.2	1008
Region									
West	155.5	1.9	764	25.8	3.5	678	28.3	5.8	765
South	155.5	1.8	418	26.5	1.5	368	28.6	5.2	426
Central	155.3	2.4	604	26.0	1.8	526	28.0	6.1	606
North	154.3	4.9	262	25.9	1.3	231	28.0	6.3	261
East	155.8	1.4	598	24.9	3.6	497	27.4	10.6	600
Age of woman									
< 20	156.2	0.5	146	23.3	4.6	110	25.8	12.9	148
20-34	155.5	2.2	2133	25.5	2.9	1850	27.9	7.3	2138
35 +	154.6	2.9	367	28.0	0.0	340	29.8	2.6	372
Children ever born									
1	156.1	1.9	782	24.1	4.6	626	26.9	9.9	788
2-3	155.3	2.1	1161	26.1	2.5	1052	28.3	6.1	1166
4-5	154.8	2.7	375	27.0	0.6	326	28.9	5.9	374
6 +	154.7	2.5	328	26.9	0.7	296	28.8	4.0	330
Education									
No educ./Pri. incomp.	154.7	3.3	855	26.2	2.0	712	28.1	8.2	861
Pri. comp./Sec. incomp.	155.4	1.7	1387	25.8	2.4	1216	28.1	6.2	1391
Sec. comp./+	156.9	1.8	404	24.8	4.3	372	27.8	6.5	406
Total	155.4	2.2	2646	25.8	2.6	2300	28.1	6.9	2658

REFERENCES

Hacettepe University, Institute of Population Studies (HIPS). 1980. *Turkish Fertility Survey, 1978. First Report, Volume 1: Methodology and Findings*. Ankara: HIPS.

Hacettepe University, Institute of Population Studies (HIPS). 1987. *1983 Turkish Population and Health Survey*. Ankara: HIPS.

Hacettepe University, Institute of Population Studies (HIPS). 1989. *1988 Turkish Population and Health Survey*. Ankara: HIPS.

Hancıoğlu, A. 1991. *Estimation of Levels and Trends in Mortality from Information on the Survival Status of a Close Relative: Turkey 1970-1985*. Unpublished Doctoral Dissertation. Ankara: Hacettepe University, Institute of Population Studies.

Hancıoğlu, A. and B. Akadlı Ergöçmen. 1992. Some Social Aspects of Turkish Marital Unions and their Relationship with Early Age Mortality. *The Turkish Journal of Population Studies*, 14:3-26.

Hatcher, R.A., O. Kowal, F. Guest, J. Trussell, F. Stewart, S. Bowen, and W. Gate. 1990. *Contraceptive Technology: International Edition*. Atlanta.

Krasovec, K. and M.A. Anderson. 1991. *Maternal Nutrition and Pregnancy Outcomes: Anthropometric Assessment*, Scientific Publication No. 529. Washington D.C.: Pan American Health Organization.

Martorell, R. and J.P. Habicht. 1986. Growth in Early Childhood in Developing Countries, in *Human Growth: A Comprehensive Treatise*. ed. F. Falkner and J.M. Tanner, 3:241-262. New York: Plenum Press.

Rutstein, S.O. 1983. *Infant and Child Mortality: Levels, Trends, and Demographic Differentials*. WFS Comparative Studies No. 38. Voorburg, Netherlands: International Statistical Institute.

Rutstein, S.O. 1984. Infant and Child Mortality: Levels, Trends, and Demographic Differentials.. Revised Edition. WFS Comparative Studies No. 43. Voorburg, Netherlands: International Statistical Institute.

Shorter, F. 1994. *An Assessment of the Demographic Situation: Part 1*. Unpublished manuscript prepared for the Scientific Advisory Committee of the Demographic Analysis Unit, the State Institute of Statistics. Ankara, Turkey.

State Institute of Statistics (SIS). 1991. 1989 Turkish Demographic Survey. Ankara: SIS.

State Institute of Statistics (SIS). 1992. *Statistical Yearbook of Turkey, 1991*. Ankara: SIS.

State Institute of Statistics (SIS). 1993. *1990 Census of Population: Social and Economic Characteristics of Population*. Ankara: SIS.

State Institute of Statistics (SIS). 1994. *Basic Indicators for Women, 1978-1993*. Ankara: SIS.

State Planning Organisation. 1993. *Turkey: National Report to the 1994 International Conference on Population and Development*. Ankara: State Planning Organisation.

Sullivan, J., G.T. Bicego and S.O. Rutstein. 1990. Assessment of the Quality of Data Used for the Direct Estimation of Infant and Child Mortality in the Demographic Surveys. In *An Assessment of DHS-I Data Quality*. DHS Methodological Reports, No.1. Columbia, Maryland: Institute for Resource Development/Macro Systems, Inc.

United Nations Department of International Economic and Social Affairs. 1985. *Socio-economic Development and Fertility Decline in Turkey*. Background paper prepared for the Project on Socio-Economic Development and Fertility Decline. New York: United Nations.

APPENDIX A

PERSONNEL INVOLVED IN THE TURKISH DEMOGRAPHIC AND HEALTH SURVEY

APPENDIX A

PERSONNEL INVOLVED IN THE TURKISH DEMOGRAPHIC AND HEALTH SURVEY

Project Director
Prof.Dr.Ayşe Akın Dervişoğlu
General Directorate of MCH/FP, Ministry of Health

Project Technical Director
Assist.Prof.Dr.Attila Hancıoğlu
Hacettepe University, Institute of Population Studies

Field Director
Assist.Prof.Dr.Turgay Ünalan
Hacettepe University, Institute of Population Studies

Anthropometric Consultant
Assoc.Prof.Dr.Turgay Coşkun
Hacettepe University, Department of Paediatrics

Research Assistants
Selma Tokcan
Hacettepe University, Institute of Population Studies
Funda Albayrak
Hacettepe University, Institute of Population Studies

Steering Committee
Prof.Dr.Ayşe Akın Dervişoğlu
General Directorate of MCH/FP, Ministry of Health
Prof.Dr.Ergül Tunçbilek
Hacettepe University, Institute of Population Studies
Prof.Dr.Aykut Toros
Hacettepe University, Institute of Population Studies
Assist.Prof.Dr.Attila Hancıoğlu
Hacettepe University, Institute of Population Studies
Sühendan Ekni
State Institute of Statistics
Assoc.Prof.Dr.Nesrin Çilingiroğlu
State Planning Organisation
Dr.Mehmet Ali Biliker
General Directorate of MCH/FP, Ministry of Health
Prof.Dr.Müncvver Bertan
Hacettepe University, Department of Public Health
Uğur Aytaç
General Directorate of MCH/FP, Ministry of Health
Pınar Senlet
Population Advisor, USAID
Nuran Üstünoğlu
General Directorate of MCH/FP, Ministry of Health

Survey Director
Prof.Dr.Ergül Tunçbilek
Hacettepe University, Institute of Population Studies

Head of Data Processing
Assist.Prof.Dr.Banu Akadlı Ergöçmen
Hacettepe University, Institute of Population Studies

Head of Sampling and Listing
Assoc.Prof.Dr.Mahir Ulusoy
Hacettepe University, Institute of Population Studies

Regional Coordinators
Güler Sel
Hacettepe University, Institute of Population Studies
İsmet Koç
Hacettepe University, Institute of Population Studies
Ali Erman Özsoy
Hacettepe University, Institute of Population Studies
Dr.Gül Ergör
Hacettepe University, Department of Public Health

DHS/MACRO Staff
Dr.Edilberto Loaiza
Country Monitor
Dr.Alfredo Aliaga
Sampling
Dr.Ann Way
Data Dissemination and Utilisation
Kaye Mitchell
Document Production
Aylene Kovensky
Editor
Jonathan Dammons
Graphics

APPENDIX B

SURVEY DESIGN

APPENDIX B

SURVEY DESIGN

Mahir Ulusoy, Alfredo Aliaga, and Attila Hancıoğlu

The major features of sample **design** and **implementation** for the Turkish Demographic and Health Survey (TDHS) are described in this section. **Sample design** features include: target sample size, choice of domains, sampling stages, stratification, degree of clustering, and the relationship of design decisions to the nature of the sample frame. For a more complete description of the material covered in the description of sample designs of DHS surveys, see the DHS *Sampling Manual,* Basic Documentation Series, No. 8, pp. 59-66. **Sample implementation** refers to any cartographic and listing work that was needed to update, improve, or generate the ultimate sample lists of households or individuals, and includes procedures for the final household selection.

This section also presents information on fieldwork, including descriptions of recruitment and training of interviewers, the composition of interviewing teams, quality control procedures, and various practical problems encountered. Response rates for urban and rural areas and regions are presented. For a more complete discussion of the calculation of response rates, see the DHS *Sampling Manual,* Basic Documentation Series, No. 8, pp. 55-57.

An account is also given of the data collection, data processing and analysis, which covers such topics as questionnaire design, pretest, training, and the final weighting factors (design plus nonresponse weights) used for tabulations.

B.1 Sample Design and Implementation

A weighted, multistage, stratified cluster sampling approach was used in the selection of the TDHS sample.

The TDHS was designed so that a variety of characteristics would be analyzed for various domains. These domains, which are distinguished in the tabulation of important characteristics, are:

- Turkey as a whole;
- Urban and rural areas (each as a separate domain);
- Each of the major five regions of the country, namely the Western, Southern, Central, Northern and Eastern regions.

The major focus of the TDHS was to provide estimates with acceptable precision for important demographic characteristics, such as fertility, infant and child mortality, and contraceptive prevalence, as well as several health indicators. The universe of the TDHS was defined as the total population of Turkey for the Household Questionnaire, and as a subset, all ever-married women younger than age 50 for the Individual Questionnaire. The aim was to survey the population by designing a sample of households and interviewing an adult member of the household in order to collect information on household members. In addition, all eligible women who were present in the household were interviewed.[1]

B.2 Sample Frame

Currently Turkey is divided administratively into 76 provinces. This figure was 67 for a long time; new provinces have been formed since the late 1980s. At the time of the last Turkish population census, in October 1990, there were 73 provinces.

Turkey is divided geographically into five regions, as described in Chapter 1. This regional breakdown of the country was used for sampling purposes in previous demographic surveys and has been popularised as a powerful variable for understanding the demographic, social, cultural, and economic differences between different parts of the country. These five regions, Western, Southern, Central, Northern and Eastern regions, include varying numbers of provinces of geographical proximity. In other words, borders of provinces divide the five regions.

Different criteria have been used to describe "urban" and "rural" settlements in Turkey. In the demographic surveys of the 1970s a population size of 2,000 was used to differentiate between urban and rural settlements. In the 1980s, this was increased to 10,000 and, in some surveys in the 1990s, to 20,000. A number of surveys used the administrative status of settlements in combination with population size for the purpose of differentiation.

The urban frame of the TDHS consists of a list of provincial centres, district centres, and settlements with populations larger than 10,000, regardless of administrative status. The rural frame, on the other hand, consists of all subdistricts and villages not included in the urban frame. Initial information on these settlements was obtained from the 1985 census and the 1990 Population Census report (State Institute of Statistics, *Census of Population: Administrative Division,* Ankara, 1992). However, the final sampling frame was redefined, mainly due to the transference of a number of rural settlements in the 1990 Population Census into urban settlements due to population growth. Additionally, the administrative status of a number of settlements had changed during the period between the 1990 Population Census and the fieldwork date; several subdistricts and villages were made district centres. The final frame was also corrected to encompass these changes.

The 1990 Population Census report provides the list of urban settlements (provincial and district centres) and their population. Every urban settlement in Turkey is divided administratively into quarters. Each quarter contains a number of streets within its boundaries.

Since probability proportional to size (PPS) sampling was intended in the selection of urban settlements, it was essential to estimate the populations of settlements as of the fieldwork date. For this purpose, the compound interest formula

$$P_t = P_0 * e^{rt}$$

was used. The growth rates of individual settlements were calculated by using their 1985 and 1990 census populations. The 1990 census populations of urban settlements were then extrapolated to the fieldwork date, using the estimated growth rates.

---

[1] Although all women who were permanent residents of or were visitors to the sampled households were interviewed during the fieldwork, the tabulations were restricted to those who had slept in the household the night before the interview, i.e., the analysis was based on the de facto population.

A number of settlements in the 1990 Population Census report were administratively classified as "villages" but had populations larger than 10,000. Some of these villages had populations much less than 10,000 in the 1985 Population Census. Individual projections of such settlements yielded unreasonably large populations for the fieldwork date. Thus, a different procedure was implemented; a single growth rate (*r*) was calculated for the total population of all "villages" with more than 10,000 population and was then used to estimate the populations of these settlements, as of the fieldwork date.

A high rate of growth (33.4 per thousand) was observed in the urban population of Turkey during the 1985-1990 intercensal period. Because a number of settlements with populations less than 10,000 in the 1990 Population Census would be expected to exceed 10,000 at the time of the survey, a modified procedure was used for all those with populations between 7,000 and 9,999. The total population of these settlements was forecast by extrapolation to the fieldwork date, using the estimated intercensal growth rate of these settlements. Settlements exceeding 10,000 as of the fieldwork date were included in the urban frame.

In addition, information on administrative status was combined with information on population size for the classification of settlements as "urban." In Turkey, a district centre, no matter what its population size, is entitled to receive health and education investments (such as a state hospital) from the central government. In order to distinguish such settlements in the sample, as well as to enable their separate analysis, all settlements designated as district centres despite having less than 10,000 population were also added to the urban frame.

Therefore, the rural frame of the TDHS consisted of all subdistricts and villages with populations less than 10,000 (projected population by the fieldwork date). To estimate the populations of rural settlements as of the date of the field work, it was assumed that the growth rates of individual subdistrict centres and villages that appear in the same district were the same, and the "rural" population of each district was projected separately. This frame was initially updated to allow for the fact that some "villages" in the 1990 Population Census had been made into district centres after the census was taken. Such settlements were excluded from the projections of the rural populations.

B.3 Stratification

One of the priorities of the TDHS was to produce a sample design that was methodologically and conceptually consistent with the designs of previous demographic surveys carried out by the Hacettepe Institute of Population Studies. For this reason, comparable subregions and settlement-size categories were used as the criteria of stratification.

In the prior surveys, a five-region division of the country was used for stratification purposes. In the TDHS, a more detailed regional stratification was used to obtain a better dispersion of the selected sample. The criteria selected for further subdividing the five major regions into subregions were the infant mortality rates of each province, estimated from the 1990 Population Census using indirect techniques (see Hancıoğlu, A. 1991. *Indirect estimation of mortality from information on the survival status of a close relative: Turkey 1970-1985,* Unpublished Doctoral Dissertation, Hacettepe Institute of Population Studies, Ankara). Using geographical proximity and infant mortality as the two variables, the provinces in each region were further grouped into subregions. This procedure created a total of 14 subregions embedded in the initial five major regions.

The provinces of Turkey were classified into 5 regions and 14 subregions as follows:

Region	Sub-region	Provinces	Number of Provinces
West	1	Edirne, İstanbul, Kırklareli, Tekirdağ	4
West	2	Balıkesir, Kocaeli, Sakarya, Çanakkale, Bursa	5
West	3	İzmir, Denizli, Manisa, Aydın	4
South	4	Muğla, Burdur, Isparta, Antalya	4
South	5	Hatay, Adana, İçel, Gaziantep	4
Central	6	Çankırı, Çorum, Yozgat, Tokat, Amasya	5
Central	7	Bilecik, Eskişehir, Uşak, Kütahya, Afyon	5
Central	8	Ankara, Kırşehir, Nevşehir, Bolu, Konya, Kayseri, Niğde, Aksaray, Karaman, Kırıkkale	10
North	9	Trabzon, Rize, Giresun, Ordu, Artvin	5
North	10	Samsun, Kastamonu, Zonguldak, Sinop, Bartın	5
East	11	Mardin, Diyarbakır, Siirt, Hakkari, Bitlis, Van, Batman, Şırnak	8
East	12	Kars, Bingöl, Ağrı, Muş, Erzurum, Ardahan, Iğdır	7
East	13	Urfa, Malatya, Adıyaman, K.Maraş, Sivas	5
East	14	Tunceli, Elazığ, Erzincan, Gümüşhane, Bayburt	5

The second criterion for stratification was the population size category of each settlement. Again, in order to be consistent with previous surveys and with the stratification conventions of other government organisations, such as the State Planning Organisation and the State Institute of Statistics (SIS), settlement size categories were formed as follows :

Rural: 1. Subdistrict centres and villages with populations less than 10,000
Urban: 2. District centres with populations less than 10,000
Settlements with populations of;
3. 10,000-19,999
4. 20,000-49,999
5. 50,000-499,999
6. 500,000-999,999
7. 1,000,000 and more.

It should be noted here that although these strata are defined primarily for sampling purposes, it is possible to combine all settlement size categories and subregions for analytical purposes.

B.4 Sample Allocation

Sampling errors were evaluated for 20 variables from the 1988 Turkish Population and Health Survey, using the CLUSTERS computer software program (see Ulusoy, M. 1991."Sampling errors for selected variables from the 1988 Turkish Population and Health Survey," *Turkish Journal of Population Studies,* 13:33-55). The target sample size of 10,000 households was determined using the sampling error estimates in combination with the power allocation technique (see Bankier, M.D., 1988. "Power allocations: Determining sample sizes for subnational areas," *The American Statistician,* 42:(3):174-177) with the expectation that this target sample size would provide about 8,000 completed individual interviews. The optimal distribution of the target sample size of 10,000 households among the five major regions was performed; the results are shown in Table B.1.

Table B.1 Number of households to be selected from regions by power allocation and allocation proportional for each region

Region	Number of households selected by: Power allocation	Proportional allocation
West	2,700	3,400
South	1,700	1,400
Central	2,100	2,300
North	1,500	900
East	2,000	2,000

To have an adequate representation of clusters within each of the five major regions, it was decided that selection of an average of 20 households per standard segment (each consisting of 100 households) would be sufficient. On such a basis, the total number of selected standard segments by regions is shown in Table B.2.

Table B.2 Distribution of clusters in regions and urban and rural areas

Region	Urban segments	Rural segments	No. of segments
West	104	31	135
South	53	32	85
Central	63	42	105
North	33	42	75
East	49	51	100
Total	302	198	500

B.5 Sample Selection

In Turkey, lack of information on standard segments made it unfeasible to obtain well-defined standard segments with clear boundaries. Therefore, the standard segments had to be selected by increasing the number of sampling stages, first by selecting administrative area units that were larger than the standard segments. The lists of the provinces and the district centres for the urban areas and of subdistricts and villages for the rural areas constituted the sample frame for the first stage of the sample selection. The list of quarters for each selected province or district centre constituted the sample frame for the second sampling stage. Every selected quarter (or combined quarter having a minimum size of 75 households according to the 1990 Population Census) was subdivided according to the number of divisions (in terms of 100 households in the 1990 Census) assigned to it.

B.5.1 Selection Procedures

For the selection of the urban sample, the list of urban centres by region and size stratum were grouped and a systematic PPS random sample was selected from these settlements. Lists of quarters were then obtained for each selected urban centre. If any quarter had less than 100 households according to the 1990 Population Census, it was combined with a neighbouring quarter to attain a total of at least 90 households. Quarters were selected according to the assigned numbers for the selection of standard segments. Every selected quarter was subdivided in terms of standard segments, according to the 1990 Population Census, meaning they were of almost equal sizes but having clear boundaries. During the listing activity, described below, every selected segment was completely listed.

In the rural areas, villages and subdistricts were selected directly; therefore, each village was subdivided into standard segments during the listing activity and the households in one of the segments were listed completely.

B.5.2 Listing and Mapping Activities

The SIS prepared the household urban frame in Turkey that could be used for sampling purposes. The frame was created in April 1989 during the preparations for the 1990 Population Census. It contained a list of dwelling units with their full addresses (quarter, area, avenue, street, building and door number, etc.). The frame was created by a quick count of buildings; however, the quality of the resulting lists varied primarily due to two reasons: first, the quality of work produced by the listers varied across listing teams, and second, circumstances in some areas of Turkey allowed listers to produce detailed lists of quarters, but other areas were very restrictive in the quality of work to be produced.

Although the SIS had a set of dwelling lists, they did not have the corresponding maps. For this reason, the selected clusters were formed with streets that were not always adjacent to each other. The cluster (standard segment) size was around 100 households for most of the clusters in urban areas. Only two urban clusters had extremely high numbers of households; these were truncated at 200 households.

The lists provided by the SIS did not reflect the changes that may have occurred during the period from the 1990 Population Census to the survey date. Two types of changes were possible: those that could be updated during listing, such as the construction of a new building on the street, a change in the use of a building (e.g., a flat can be used as an office instead of a dwelling), or changes in the names of streets, and those that were more problematic, e.g., the appearance of new quarters in urban centres. The latter places had a probability of zero of being selected to the TDHS sample since they were not included in the SIS lists.

An attempt to identify the possible problems that could arise during the actual listing work was made by undertaking a listing activity in the capital, Ankara, before the actual listing activity began. Listing forms and listing and mapping manuals were developed based on this experience.

Listing teams were formed following a four-day training program in May 1993. Each team was provided with the necessary materials, as well as with maps describing the location of the settlements they were expected to visit.

The performance of the listers was supervised by research assistants of the Hacettepe Institute of Population Studies. More than 60 percent of the clusters in the sample were listed under the supervision of the research assistants.

In 15 of the selected 198 villages, the total populations were too small, and therefore did not yield the standard segment size of 100 households. In these cases, the village that was nearest to the selected village was also included in the sample, and the names of these villages were provided to the listing teams; the lists of 100 households were completed from the two villages.

Most of the listing activity was completed before the training for the main fieldwork began in July; however, listing of 25 clusters was completed independently by separate listing teams after the main fieldwork began. A number of clusters could not be listed due to problems of accessibility; information on these clusters is presented later in this Appendix.

B.6 Questionnaire Development and Pretest

B.6.1 Questionnaires

Two main types of questionnaires were used to collect the TDHS data: the Household Questionnaire and the Individual Questionnaire for ever-married women of reproductive ages. The contents of these questionnaires were based on the DHS Model "A" Questionnaire, which was designed for the DHS program for use in countries with high contraceptive prevalence. Additions, deletions and modifications were made to the model questionnaire in order to collect information particularly relevant to Turkey; a number of questions were included to ascertain the comparability of the TDHS findings with previous demographic surveys carried out by the Hacettepe Institute of Population Studies. In the process of designing the TDHS questionnaires, national and international population and health agencies were consulted for their comments.

A third type of questionnaire used in the TDHS was the Cluster Questionnaire, which was designed slightly differently for urban and rural areas. This questionnaire was based on community-type questionnaires used in previous surveys in Turkey. The aim was to collect information on each cluster in the TDHS sample that related to the general economic and social environment in which the cluster was situated.

All TDHS questionnaires were developed in English and then translated into Turkish. English versions of the Household and Individual questionnaires are reproduced in Appendix F.

The Household Questionnaire was used to enumerate all usual members of and visitors to the selected households and to collect information relating to the socioeconomic position of the households. In the first part of the Household Questionnaire, basic information was collected on the age, sex, educational attainment, marital status, and relationship to the head of household of each person listed as a household member or visitor. The objective of the first part of the Household Questionnaire was to obtain the information needed to identify women who were eligible for the individual interview as well as to provide basic demographic data for Turkish households. In the second part of the Household Questionnaire, questions were included on the dwelling unit, such as the number of rooms, the flooring material, the source of water, and the type of toilet facilities, and on the household's ownership of a variety of consumer goods.

The Individual Questionnaire for women was designed with the following section headings:

- Background characteristics
- Reproduction
- Marriage
- Contraception
- Pregnancy and breastfeeding
- Immunisation and health
- Fertility preferences
- Husband's background and woman's work
- Values, attitudes and beliefs
- Maternal and child anthropometry.

The Individual Questionnaire included a monthly calendar, which was used to record fertility, contraception, postpartum amenorrhea and abstinence, breastfeeding, marriage and migration histories for a period of approximately six years beginning in January 1988 up to the survey month. In addition, fieldwork teams measured the heights and weights of children under age five and of their mothers, as well as mothers' arm circumference.

As mentioned earlier, the DHS Model "A" Questionnaire was modified to include subjects of particular interest in Turkey. The following is a list of some of the main differences between the standard DHS questionnaire and the TDHS questionnaire.

- Information on the mother tongues and second languages known by the respondent, her husband, and their parents was collected in the TDHS.

- Additional questions were asked to respondents regarding their cumulative numbers of abortions, miscarriages and stillbirths; specific questions regarding the last abortion were also included.

- A separate section on nuptiality was included in the Individual Questionnaire of the TDHS; this included a number of questions already in the standard DHS questionnaire, as well as questions on the type of marriage, arrangement of marriage, and consanguinity, etc.

- Withdrawal users were asked two additional questions to determine whether they were using this method in combination with other methods.

- Respondents were asked a series of additional questions concerning their attitudes and beliefs regarding the pill, the IUD, the condom and withdrawal. The questions probed whether women thought these methods were reliable, easy to use, or harmful to their health and whether their husbands opposed their use.

- A number of questions regarding recent sexual activity as well as initiation of sexual activity were not included in the TDHS.
- A separate section dealing with the attitudes, beliefs and behaviour of women regarding intramarital relationships, child rearing, and status of women was included in the TDHS Individual Questionnaire.

B.6.2 Pretest

In May 1993, a pretest was conducted to ensure that the questions in the TDHS questionnaires were in a logical sequence; that the wording of the questions was comprehensible, appropriate and meaningful; and that the precoded answers were adequate.

Fifteen interviewers were trained at the Hacettepe Institute of Population Studies for a period of two weeks. The training period included both classroom training and interviews in the field. The interviewers were mostly university graduates who had worked on previous surveys. In addition to the interviewers, research assistants, who would later become regional coordinators and supervisors, also received training.

Fieldwork for the pretest was carried out in one district in central Ankara, two districts in squatter housing areas of Ankara, and a village in Ankara province. Notebook computers were used by the research assistants to enter data in the field.

Some 180 interviews were completed during the pretest. Frequency distributions and cross tabulations were obtained shortly after the completion of the interviews. Based on the evaluation of these results and on the feedback obtained from the interviewers, several minor changes were made to the TDHS questionnaires.

B.7 Data Collection Activities

Staff Recruitment. Candidates for the positions of interviewers, field editors, supervisors and measurers were solicited from newspaper advertisements and Institute of Population Studies files of field editors and supervisors who had worked on previous surveys. All candidates for the field staff positions were interviewed in three groups by the staff of the Institute of Population Studies using interview guidelines prepared for this purpose. Individuals who met a number of the requirements and had the necessary qualifications were accepted into the training program.

All candidates for the field staff positions were at least high school graduates and the majority were university students. Previous survey experience was not among the qualifications for the candidates for the position of interviewers to ensure that the trainees had no biases that might result from their previous experience. Approximately 120 applicants were accepted for the training program.

Training. Training of the candidates for the fieldwork positions began on 19 July 1993 at the Hacettepe Institute of Population Studies. The training program included general lectures related to the demographic situation in Turkey, family planning and mother and child health, questionnaire training, role playing and mock interviews, field practice in areas not covered in the survey and quizzes to test the progress and capabilities of the candidates. A variety of materials were used during the training sessions, including manuals for supervisors and editors, and for interviewers.

All trainees received the same classroom training during the first two weeks of the training period; at the beginning of the third week, supervisors, field editors, and measurers were selected from among the candidates, and a number of unsuccessful candidates were eliminated at this stage. Separate classroom training sessions were organised for supervisors, field editors, and measurers.

Towards the end of the third week of the training program, teams that would eventually participate in the main fieldwork were selected. Six field editors were randomly selected to do data entry and editing in the field using notebook-type computers and were trained separately for this purpose. The training program continued for about 20 days.

Fieldwork. Fieldwork for the TDHS, including initial interviews, callbacks and reinterviews began in the first week of August 1993 and was completed at the end of October 1993.

Fieldwork activities were completed in two stages. In the first stage, data collection was carried out by 13 teams, each consisting of a supervisor, a field editor, a measurer and 4 or 5 interviewers, depending on the workload of that specific team. All teams worked in Ankara in the beginning and as soon as all initial visits to all the selected households were completed they left for the other provinces.

The first stage of the fieldwork was completed by the end of September, at which point a number of fieldwork staff, as agreed initially, discontinued working in the field. Four new teams were set up from among the 13 teams who worked in the first stage of fieldwork. The teams at this second stage had the same composition as those in the first stage but only one team used a notebook to enter and edit data rather than five in the first stage. This stage continued until the end of October.

Four regional coordinators were responsible for visiting the fieldwork teams in turn, checking the quality of data collected, and reporting periodically to the field director in Ankara. All interviewers and field editors were female and all measurers were male; both male and female supervisors were present.

Fieldwork teams visited 68 of the 76 provinces in Turkey. Some 41 percent of the clusters in the sample were from provincial centres, 21 percent were from district centres, and 38 percent were from subdistrict centres and villages. The TDHS fieldwork was a relatively fast operation because of the specific conditions prevailing in the country, i.e., a large proportion of the fieldwork staff consisted of students who had to begin school in October and climatic conditions in many parts of the country limited access to many areas after October.

A total of 500 clusters were selected for the TDHS sample. Of these, interviews were successfully completed in 478 clusters. Due to accessiblity problems and lack of security, 8 clusters were not listed and consequently were not visited by the fieldwork teams; 14 clusters were listed but fieldwork teams could not visit them because of the problems mentioned before.

B.8 Data Processing and Analysis

Office Editing. The questionnaires were returned to the Institute of Population Studies by the fieldwork teams for data processing as soon as each provincial interview was completed. The office editing staff checked that the questionnaires for all the selected households and eligible respondents were returned from the field. The comparatively few questions that had not been precoded (e.g., occupation) were coded at this time.

Machine Entry and Editing. The data were entered and edited on microcomputers using the Integrated System for Survey Analysis (ISSA), a packaged program specifically developed to process DHS data. ISSA allows range, skip, and consistency errors to be detected and corrected at the data entry stage. The machine entry and editing activities were initiated within two days after the beginning of the fieldwork and were completed 10 days after the completion of the fieldwork.

Advantage was taken of the fact that data processing activities ran concurrently with fieldwork. Field check tables from edited data were periodically produced for each interviewing team. These focused on such potential problems as high proportions of incomplete households and displacement of eligible respondents and were used to check the progress and quality of data from the field.

The Weighting Procedure. An important aspect of the TDHS data is that analysis has to be performed using weights. As mentioned earlier, the TDHS sampling plan is not a self-weighted one; in order to have sufficient numbers of observations for meaningful statistical analyses, more sample units were chosen from the Northern and Southern regions, which would have yielded inadequate numbers of observations if the target number of households had been allocated by PPS.

The number of households that were selected in each region according to power allocation as well as the expected numbers of households assuming a PPS distribution of the targeted 10,000 households can be seen in Table B.1.

The weight assigned to any stratum is simply the reciprocal of the sampling fraction employed in calculating the number of units in that particular stratum:

$$w\,(i) = 1\,/\,f\,(i)\,.$$

The term f (i), the sampling fraction at the i^{th} stratum, is the product of the probabilities of selection at every stage in a stratum:

$$f\,(i) = P\,(i,1)\ *\ P\,(i,2)\ *\ \ldots\ldots\ *\ P\,(i,s)$$

where s is the stage.

The weights for the regions were assumed to be compensated for the nonresponse to the Household Questionnaire and to the Individual Questionnaire during fieldwork. The compensating factor for the nonresponse for the Household Questionnaire is the inverse value of:

R (i,2) = Completed households/Eligible households.

Eligible households include the households where interviews were completed, households where there were no competent respondents, households where interviews were postponed and eventually not completed, refusals, and those dwellings that were not found by the fieldwork teams.

Similarly, the compensating factor for the nonresponse to the Individual Questionnaire is the inverse value of:

R (i,3) = Completed individual questionnaires/Eligible women.

The weights for the regions and the compensating factors for nonresponse are shown in Table B.3.

Since selection was carried out proportionately in the urban/rural breakdown within the regions, and since there is almost no variation in nonresponse rates among the rural areas of the five regions, there was no need to calculate separate weights for rural and urban areas. The response rates in the rural and urban areas of the five regions are presented in Table B.4.

Table B.3 Weights for regions and compensating factors for nonresponse

Region	Compensating factor for: Selection probability	Household Questionnaire	Individual Questionnaire
West	20869813 / (2720 * 5)	2801 / 2673	1985 / 1875
South	8617554 / (1700 * 5)	1751 / 1731	1341 / 1295
Central	13888833 / (2080 * 5)	1966 / 1932	1523 / 1471
North	5777776 / (1500 * 5)	1200 / 1186	1080 / 1009
East	11995698 / (2000 * 5)	1151 / 1098	936 / 877

Note: 5 is the average household size.

Table B.4 Response rates in five regions and settlement types

Region	Urban	Rural
West	0.9409	0.9956
South	0.9889	0.9933
Central	0.9730	0.9986
North	0.9939	0.9928
East	0.9665	0.9950

Weights should also include compensating factors for the missing clusters that were not visited at all for various reasons. Since sample selection was done in subregions, it would be better to have compensating factors in the subregional level. The subregions and compensating factors for missing clusters are given below:

Subregion	Compensating factor
Central (Ankara)	21/20
East 11 urban	19/16
" 12 urban	6/5
" 11 rural	17/8
" 12 rural	13/6
" 13 rural	17/16

The weights for the households were calculated by multiplying the above factors for each region and subregion. They were then standardized by multiplying these weights by the ratio of the number of interviewed households to the total weighted number of households. Standardization of the weights of individual women was undertaken by multiplying the individual weights by the ratio of the number of interviewed women to the total weighted number of women. The final weights for households and individual women are shown in Table B.5.

Table B.5 Final weights for households and individual women

Region	Household	Women
Central Ankara	1.082846	1.073883
Central (rest)	1.031282	1.022746
North	0.591379	0.609340
South	0.777267	0.770961
West	1.222905	1.240095
East subregion 11 Urban	1.130194	1.156888
East subregion 11 Rural	2.022452	2.070221
East subregion 12 Urban	1.142090	1.169066
East subregion 12 Rural	2.062108	2.110814
East subregion 13 Rural	1.011226	1.035110
East (rest)	0.951742	0.974222

B.9 Coverage of the Sample

The results of sample implementation for the household and the individual interviews for the country as a whole, for urban and rural areas, and for the five regions of Turkey are shown in Table B.6. The results indicate that of the 10,631 households selected, the TDHS fieldwork teams successfully completed interviews with 8,619 (81 percent). The main reasons fieldwork teams were unable to interview some households were that some of the listed dwelling units were found to be vacant at the time of the interview or the household was away for an extended period. Eight thousand nine hundred households were identified as being occupied, and 8,619 households were successfully interviewed. Consequently, the household response rate was calculated as 96.8 percent. The household response rate was higher in rural areas than in urban areas and highest in the Southern and Northern regions.

In the interviewed households, 6,862 eligible women were identified, of whom 95 percent were interviewed. Eligibility for the individual interview required that the woman be ever-married, be younger than 50 years of age, and be present in the household on the night before the interview. Among the small number of eligible women not interviewed in the survey, the principal reason for nonresponse was the failure to find the woman at home after repeated visits to the household. The eligible woman response rate was higher in rural areas than in urban areas and was higher in the Southern and Central regions than in the other three regions.

The overall response rate for the TDHS was calculated as 92 percent, ranging from 89 percent in the Eastern region to 95 percent in the Southern region.

Table B.6 Results of the household and individual interviews by residence and region

Percent distribution of households and eligible women in the sample by results of the household and individual interviews, and household, eligible women and overall response rates, according to residence and region, Turkey 1993

	Residence		Region					
Result	Urban	Rural	West	South	Central	North	East	Total
Selected households								
Completed (C)	77.7	87.7	79.2	84.6	85.1	76.3	79.0	81.1
No competent respondent at home (HP)	0.3	0.3	0.2	0.3	0.4	0.5	0.2	0.3
Refused (R)	2.8	0.1	3.7	0.5	1.3	0.5	1.9	1.9
Dwelling not found (DNF)	0.6	0.1	0.3	0.3	0.1	0.2	1.7	0.4
Household absent (HA)	11.8	7.0	9.8	7.9	8.6	16.0	10.7	10.2
Dwelling vacant/address not a dwelling (DV)	6.3	4.1	6.2	5.7	4.1	6.1	5.5	5.6
Dwelling destroyed (DD)	0.4	0.3	0.3	0.3	0.3	0.3	0.6	0.3
Other (O)	0.1	0.4	0.2	0.2	0.1	0.1	0.4	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	7065	3566	3374	2045	2269	1554	1389	10631
Household response rate (HRR)[a]	95.5	99.4	94.9	98.6	97.9	98.5	95.3	96.8
Eligible women								
Completed (EWC)	95.0	95.1	94.5	96.6	96.6	93.0	93.7	95.0
Not at home (EWNH)	3.2	3.4	3.2	2.4	2.5	5.2	4.0	3.3
Postponed (EWP)	0.1	0.1	0.3	0.1	0.1	0.2	0.0	0.1
Refused(EWR)	0.9	0.2	1.1	0.1	0.3	0.6	1.1	0.6
Partly completed (EWPC)	0.5	0.4	0.5	0.3	0.3	0.6	1.1	0.5
Incapacitated (EWI)	0.1	0.5	0.3	0.3	0.2	0.3	0.0	0.2
Other (EWO)	0.2	0.3	0.3	0.2	0.1	0.3	0.2	0.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	4344	2518	1985	1341	1523	1080	933	6862
Eligible women response rate (EWRR)[b]	95.0	95.1	94.5	96.6	96.6	93.0	93.7	95.0
Overall response rate (ORR)[c]	90.6	94.5	89.6	95.2	94.6	91.6	89.3	92.0

---

[a] Using the number of households falling into specific response categories, the household response rate (HRR) is calculated as:

$$\frac{C}{C + HP + P + R + DNF}$$

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

$$\frac{EWC}{EWC + EWNH + EWP + EWR + EWPC + EWI + EWO}$$

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

$$ORR = HRR * EWRR$$

APPENDIX C

ESTIMATES OF SAMPLING ERRORS

APPENDIX C

ESTIMATES OF SAMPLING ERRORS

Mahir Ulusoy and Alfredo Aliaga

The estimates from a sample survey are affected by two types of errors—nonsampling and sampling. Nonsampling errors result from 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 to minimise this type of error during the implementation of the TDHS, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of women selected in the TDHS 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 would differ somewhat from the results of the actual sample selected. The sampling error is a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

Sampling error is usually measured in terms of the *standard error* for a particular statistic (mean, percentage, etc.), which is the ratio of the standard deviation to the square root of the sample size. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design.

If the sample of women had been selected as a simple random sample, it would have been possible to use straightforward formulas for calculating sampling errors. However, the TDHS sample is the result of a three-stage stratified design, and, consequently, it was necessary to use more complex formulas. The computer package CLUSTERS, developed by the International Statistical Institute for the World Fertility Survey, was used to compute the sampling errors for 42 variables with the proper statistical methodology.

The CLUSTERS package treats any percentage or average as a ratio estimate, $r = y/x$, where y represents the total sample value for variable y, and x represents the total number of cases in the group or subgroup under consideration. The variance of r is computed using the formula given below, with the standard error being the square root of the variance,

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

in which

$$z_{hi} = y_{hi} - r.x_{hi} \text{ , } and \quad z_h = y_h - r.x_h$$

where	h	represents the stratum that varies from 1 to H
	m_h	is the total number of standard segments selected in the hth stratum
	y_{hi}	is the sum of the values of variable y in standard segments i in the hth stratum
	x_{hi}	is the sum of the number of cases (women) in standard segments i in the hth stratum
	f	is the overall sampling fraction, which is so small that CLUSTERS ignores it.

In addition to the standard errors, CLUSTERS computes the design effect (DEFT) for each estimate, which is defined as the ratio of the standard error using the given sample design to the standard error that would result if a simple random sample had been used. A DEFT value of 1.0 indicates that the sample design is as efficient as a simple random sample, whereas 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. CLUSTERS also computes the relative error and confidence limits for the estimates.

The results for the 42 variables mentioned, which are those considered to be of primary interest, are presented in this appendix for the country as a whole, for urban and rural areas, for the five regions, and for age groups. The type of statistic (mean or proportion) and the base population for each variable are given in Table C.1. Tables C.2 to C.12 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.

Additionally, sampling errors were calculated for the total fertility rate of the last year prior to the survey date and the infant mortality rate for the 5 years preceding the survey, for the national total, and for urban-rural areas. These calculations were undertaken using the Jacknife methodology rather than the CLUSTERS package because of the nature of these two estimates. The Jacknife methodology is based on having replicate values for the estimates and applying the simple standard error formulae to these replicates.

The TDHS included 478 clusters. Each replication considers all clusters but deletes one cluster at a time for the calculations and then creates pseudoindependent replicates. In total, 478 replications for the infant mortality and total fertility rates create the pseudoindependent values:

$$e_{(-i)} = 478 * \text{estimate (all clusters)} - 477 * \text{estimate (all minus } i^{th}\text{)}$$

$$e = \text{estimate (all clusters)}$$

and the sampling errors for the estimate is given by:

$$\text{SE (estimate)} = \{\Sigma\ (e_{(-i)} - c)^2 / (478 * (478-1))\ \}^{1/2}\ .$$

The results of the calculations using the Jacknife methodology to estimate sampling errors for the infant mortality rate and the total fertility rate for the national total, for urban and rural areas, and for the five major regions is shown in Table C.13.

The confidence interval (e.g., as calculated for EVBORN) can be interpreted as follows: the overall average from the national sample is 3.041 and the standard error is 0.044. Therefore, to obtain the 95 percent confidence limits, one adds and subtracts twice the standard error to the sample estimate, i.e., 3.041 ± 0.088. There is a high probability (95 percent) that the *true* average number of children ever born to all women age 15 to 49 is between 2.954 and 3.128.

Of the 42 variables for which CLUSTERS was used for the estimation of sampling errors, 28 are based on women, and 14 are based on children under age 5. 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 estimates of subpopulations such as urban and rural areas. For example, for the variable SECATT (secondary school attendance), the relative standard errors as a percent of the estimated proportion for urban and rural areas are 4.6 percent and 12.5 percent, respectively. The same is true for SECGRD (proportion of women who completed secondary school) with values of 5 percent and 14.2 percent, for XCUPIL (current use of the pill) with values of 8.1 and 13.6 percent, for XCUIUD (current use of IUD) with values of 3.4 and 8.5 percent, and for XCUPAB (current use of periodic abstinence) with values of 17 percent and 0 percent, for urban and rural areas, respectively for each variable.

Of the 42 variables, 24 were found to have SE/R values of less than 0.03, which means that the SE of those variables is at most 3 percent of the estimate. SE/R values are between 0.031 and 0.059 for 13 variables, and greater than 0.06 for only 5 variables; the maximum value being 16.6 percent. The variables with the highest SE/R ratio are the ones calculated for relatively rare events.

The DEFT value is less than 1.3 for 24 variables; between 1.31 and 1.5 for 13 variables; and greater than 1.51 for only 5 variables. The maximum DEFT value obtained is 1.668. The average of 42 variables is 1.301. The average is 1.213 in urban areas and 1.293 in rural areas for 41 variables (due to the exclusion of the URBAN variable).

Table C.1 List of selected variables for sampling errors, Turkey 1993

Variable	Estimate	Base	Population
URBAN	Urban	Proportion	Ever-married women
SECATT	Attended secondary or higher	Proportion	Ever-married women
SECGRD	Graduated secondary or higher	Proportion	Ever-married women
CURMAR	Currently married	Proportion	Ever-married women
AGEMAR	Age at marriage	Mean	Ever-married women
PREGNT	Currently pregnant	Proportion	Ever-married women
NUPREG	Number of pregnancies	Mean	Ever-married women
NUMISC	Number of miscarriages	Mean	Ever-married women
EVBORN	Children ever born	Mean	Ever-married women
XEVB	Children ever born	Mean	Currently married women
XEVB40	Children ever born	Mean	Currently married women 40-49
SURVIV	Children surviving	Mean	Ever-married women
KMETHO	Know any method	Proportion	Ever-married women
XKMOD	Know modern method	Proportion	Currently married women
XKSOUR	Know source of method	Proportion	Currently married women
XEVUSE	Ever used any method	Proportion	Currently married women
XCUSE	Currently using any method	Proportion	Currently married women
XCUPIL	Current use pill	Proportion	Currently married women
XCUIUD	Current use IUD	Proportion	Currently married women
XCUCON	Current use condom	Proportion	Currently married women
XCUWIT	Current use withdrawal	Proportion	Currently married women
XCUSTE	Current use female steril.	Proportion	Currently married women
XCUPAB	Current use periodic abst.	Proportion	Currently married women
XCUMOD	Currently using modern method	Proportion	Currently married women
XPSOUR	Using public source	Proportion	Modern users married women
XNOMOR	Want no more children	Proportion	Currently married women
XDELAY	Delay at least two years	Proportion	Currently married women
IDEAL	Ideal number of children	Mean	Ever-married women
TETANU	Mother received tetanus injection	Proportion	Births last five years
MEDELI	Mother received medical attention	Proportion	Births last five years
DIARR1	Had diarrhoea in last 2 weeks	Proportion	Children under five years
DIARR2	Had diarrhoea in last 24 hours	Proportion	Children under five years
ORSTRE	Children ORS treated diarrhoea	Proportion	Children with diarrhoea last 2 weeks
MEDTRE	Children medical treated diarrhoea	Proportion	Children with diarrhoea last 2 weeks
RESPI2	Had resp. disease last 2 weeks	Proportion	Children under five years
RESPI1	Had resp. disease last 24 hours	Proportion	Children under five years
HCARD	Children having health card	Proportion	Children 12 to 23 months
BCG	Children with BCG	Proportion	Children 12 to 23 months
DPT3	Children with DPT (3 doses)	Proportion	Children 12 to 23 months
POL3	Children with Polio (3 doses)	Proportion	Children 12 to 23 months
MEASLE	Children with measles	Proportion	Children 12 to 23 months
FULLIM	Children fully immunised	Proportion	Children 12 to 23 months

Table C.2 Sampling errors - Entire sample, Turkey 1993

Variable	Value (R)	Standard error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)			R-2SE	R+2SE
URBAN	.641	.010	6519	6519	1.636	.015	.622	.661
SECATT	.175	.008	6519	6519	1.664	.045	.159	.191
SECGRD	.151	.007	6519	6519	1.668	.049	.136	.166
CURMAR	.962	.003	6519	6519	1.154	.003	.956	.967
AGEMAR	18.499	.064	6519	6519	1.466	.003	18.371	18.628
PREGNT	.076	.004	6519	6519	1.089	.047	.068	.083
NUPREG	3.910	.047	6519	6519	1.290	.012	3.815	4.005
NUMISC	.314	.010	6519	6519	1.060	.031	.294	.333
EVBORN	3.041	.044	6519	6519	1.492	.014	2.954	3.128
XEVB	3.035	.044	6273	6271	1.475	.014	2.947	3.122
XEVB40	4.740	.101	1433	1447	1.384	.021	4.538	4.942
SURVIV	2.671	.034	6519	6519	1.440	.013	2.603	2.738
KMETHO	.990	.002	6519	6519	1.307	.002	.987	.993
XKMOD	.986	.002	6273	6271	1.233	.002	.983	.990
XKSOUR	.948	.004	6273	6271	1.495	.004	.940	.957
XEVUSE	.802	.008	6273	6271	1.513	.009	.787	.817
XCUSE	.626	.008	6273	6271	1.331	.013	.609	.642
XCUPIL	.049	.004	6273	6271	1.283	.071	.042	.056
XCUIUD	.188	.006	6273	6271	1.290	.034	.175	.201
XCUCON	.066	.004	6273	6271	1.215	.058	.059	.074
XCUWIT	.262	.007	6273	6271	1.338	.028	.247	.277
XCUSTE	.029	.002	6273	6271	.958	.070	.025	.033
XCUPAB	.010	.002	6273	6271	1.294	.166	.006	.013
XCUMOD	.345	.007	6273	6271	1.221	.021	.331	.360
XPSOUR	.547	.014	2161	2164	1.272	.025	.520	.574
XNOMOR	.701	.006	6273	6271	1.002	.009	.689	.713
XDELAY	.141	.005	6273	6271	1.054	.036	.131	.151
IDEAL	2.396	.018	6399	6402	1.328	.007	2.361	2.432
TETANU	.424	.013	3688	3700	1.421	.032	.397	.451
MEDELI	.759	.015	3688	3700	1.630	.019	.730	.788
DIARR1	.248	.009	3493	3497	1.221	.038	.229	.266
DIARR2	.112	.007	3493	3497	1.175	.059	.099	.126
ORSTRE	.161	.014	836	866	1.050	.085	.134	.189
MEDTRE	.248	.017	836	866	1.106	.068	.214	.282
RESPI2	.155	.008	3493	3497	1.231	.053	.138	.171
RESPI1	.397	.011	3493	3497	1.270	.029	.374	.419
HCARD	.416	.023	716	716	1.204	.054	.371	.461
BCG	.891	.017	716	716	1.463	.019	.857	.925
DPT3	.776	.021	716	716	1.309	.026	.735	.817
POL3	.772	.020	716	716	1.272	.026	.732	.813
MEASLE	.779	.019	716	716	1.195	.024	.741	.816
FULLIM	.642	.020	716	716	1.130	.032	.601	.683

Table C.3 Sampling errors - Urban areas, Turkey 1993

Variable	Value (R)	Standard error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)			R-2SE	R+2SE
SECATT	.249	.011	4125	4181	1.691	.046	.226	.272
SECGRD	.216	.011	4125	4181	1.692	.050	.195	.238
CURMAR	.958	.004	4125	4181	1.143	.004	.951	.965
AGEMAR	18.820	.082	4125	4181	1.464	.004	18.655	18.985
PREGNT	.071	.004	4125	4181	1.090	.062	.062	.079
NUPREG	3.669	.048	4125	4181	1.102	.013	3.573	3.765
NUMISC	.306	.011	4125	4181	.982	.036	.284	.328
EVBORN	2.710	.042	4125	4181	1.317	.015	2.627	2.794
XEVB	2.700	.042	3957	4005	1.318	.016	2.616	2.785
XEVB40	4.130	.095	868	884	1.198	.023	3.939	4.321
SURVIV	2.439	.036	4125	4181	1.355	.015	2.367	2.510
KMETHO	.995	.001	4125	4181	1.133	.001	.992	.997
XKMOD	.992	.002	3957	4005	1.149	.002	.989	.995
XKSOUR	.975	.003	3957	4005	1.175	.003	.969	.981
XEVUSE	.837	.008	3957	4005	1.424	.010	.820	.854
XCUSE	.662	.009	3957	4005	1.252	.014	.643	.681
XCUPIL	.050	.004	3957	4005	1.170	.081	.042	.058
XCUIUD	.215	.007	3957	4005	1.126	.034	.200	.229
XCUCON	.078	.005	3957	4005	1.289	.070	.067	.089
XCUWIT	.249	.009	3957	4005	1.293	.036	.231	.267
XCUSTE	.033	.003	3957	4005	.932	.081	.027	.038
XCUPAB	.014	.002	3957	4005	1.292	.170	.010	.019
XCUMOD	.389	.008	3957	4005	1.096	.022	.372	.406
XPSOUR	.532	.015	1548	1558	1.162	.028	.502	.561
XNOMOR	.691	.008	3957	4005	.988	.011	.676	.706
XDELAY	.146	.007	3957	4005	1.080	.045	.133	.159
IDEAL	2.321	.020	4062	4118	1.233	.009	2.282	2.361
TETANU	.452	.016	2203	2211	1.328	.035	.420	.484
MEDELI	.870	.014	2203	2211	1.551	.016	.842	.899
DIARR1	.227	.011	2101	2108	1.111	.047	.205	.248
DIARR2	.091	.007	2101	2108	1.021	.074	.078	.105
ORSTRE	.167	.017	475	478	.958	.103	.132	.201
MEDTRE	.299	.023	475	478	1.074	.078	.252	.345
RESPI2	.133	.008	2101	2108	1.045	.060	.117	.149
RESPI1	.372	.012	2101	2108	1.060	.032	.348	.396
HCARD	.517	.027	417	421	1.075	.052	.464	.571
BCG	.932	.015	417	421	1.205	.016	.903	.962
DPT3	.865	.025	417	421	1.464	.028	.816	.914
POL3	.859	.024	417	421	1.421	.028	.810	.908
MEASLE	.821	.022	417	421	1.145	.027	.777	.864
FULLIM	.739	.025	417	421	1.147	.034	.689	.789

Table C.4 Sampling errors - Rural areas, Turkey 1993

Variable	Value (R)	Standard error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)			R-2SE	R+2SE
SECATT	.043	.005	2394	2338	1.297	.125	.032	.053
SECGRD	.034	.005	2394	2338	1.300	.142	.024	.044
CURMAR	.969	.004	2394	2338	1.174	.004	.961	.977
AGEMAR	17.925	.101	2394	2338	1.500	.006	17.722	18.128
PREGNT	.084	.006	2394	2338	1.087	.073	.072	.097
NUPREG	4.341	.098	2394	2338	1.498	.023	4.144	4.538
NUMISC	.327	.019	2394	2338	1.177	.057	.290	.364
EVBORN	3.634	.091	2394	2338	1.623	.025	3.452	3.815
XEVB	3.626	.090	2316	2265	1.587	.025	3.445	3.806
XEVB40	5.697	.191	565	563	1.478	.034	5.314	6.080
SURVIV	3.085	.068	2394	2338	1.537	.022	2.949	3.222
KMETHO	.982	.004	2394	2338	1.373	.004	.974	.989
XKMOD	.976	.004	2316	2265	1.269	.004	.968	.984
XKSOUR	.901	.010	2316	2265	1.670	.011	.881	.922
XEVUSE	.741	.015	2316	2265	1.623	.020	.711	.770
XCUSE	.561	.015	2316	2265	1.430	.026	.532	.591
XCUPIL	.048	.007	2316	2265	1.472	.136	.035	.061
XCUIUD	.141	.012	2316	2265	1.663	.085	.117	.165
XCUCON	.046	.004	2316	2265	.901	.086	.038	.053
XCUWIT	.285	.013	2316	2265	1.427	.047	.258	.312
XCUSTE	.022	.003	2316	2265	1.006	.139	.016	.028
XCUPAB	.001	.000	2316	2265	.000	.000	.001	.001
XCUMOD	.268	.013	2316	2265	1.465	.050	.241	.295
XPSOUR	.587	.030	613	606	1.494	.051	.527	.646
XNOMOR	.718	.010	2316	2265	.998	.014	.698	.738
XDELAY	.133	.008	2316	2265	.985	.057	.118	.148
IDEAL	2.532	.035	2337	2284	1.506	.014	2.462	2.602
TETANU	.382	.023	1485	1488	1.539	.061	.335	.428
MEDELI	.594	.026	1485	1488	1.679	.044	.541	.646
DIARR1	.280	.017	1392	1389	1.346	.062	.245	.314
DIARR2	.145	.013	1392	1389	1.311	.091	.119	.171
ORSTRE	.155	.022	361	388	1.163	.142	.111	.199
MEDTRE	.186	.022	361	388	1.062	.117	.142	.230
RESPI2	.188	.016	1392	1389	1.339	.084	.156	.219
RESPI1	.434	.021	1392	1389	1.472	.049	.391	.477
HCARD	.271	.035	299	295	1.347	.128	.202	.340
BCG	.832	.034	299	295	1.565	.041	.765	.900
DPT3	.650	.032	299	295	1.164	.050	.586	.714
POL3	.649	.031	299	295	1.135	.048	.586	.712
MEASLE	.719	.033	299	295	1.252	.046	.653	.785
FULLIM	.504	.032	299	295	1.102	.064	.440	.568

Table C.5 Sampling errors - Western Region, Turkey 1993

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	R+2SE
URBAN	.761	.016	1875	2325	1.600	.021	.730	.793
SECATT	.236	.013	1875	2325	1.372	.057	.209	.263
SECGRD	.202	.013	1875	2325	1.405	.065	.176	.228
CURMAR	.949	.006	1875	2325	1.108	.006	.938	.961
AGEMAR	19.119	.116	1875	2325	1.402	.006	18.888	19.350
PREGNT	.057	.005	1875	2325	1.016	.096	.046	.067
NUPREG	3.395	.070	1875	2325	1.178	.021	3.255	3.535
NUMISC	.273	.015	1875	2325	.967	.056	.242	.303
EVBORN	2.446	.050	1875	2325	1.272	.021	2.346	2.547
XEVB	2.439	.051	1780	2207	1.270	.021	2.338	2.540
XEVB40	3.590	.112	441	547	1.224	.031	3.366	3.813
SURVIV	2.197	.040	1875	2325	1.256	.018	2.117	2.277
KMETHO	.996	.002	1875	2325	1.012	.002	.993	.999
XKMOD	.991	.003	1780	2207	1.122	.003	.986	.996
XKSOUR	.964	.006	1780	2207	1.305	.006	.953	.976
XEVUSE	.878	.009	1780	2207	1.163	.010	.860	.896
XCUSE	.715	.010	1780	2207	.936	.014	.695	.735
XCUPIL	.062	.007	1780	2207	1.249	.115	.048	.076
XCUIUD	.188	.010	1780	2207	1.062	.052	.169	.208
XCUCON	.084	.008	1780	2207	1.288	.101	.067	.101
XCUWIT	.315	.013	1780	2207	1.188	.042	.289	.341
XCUSTE	.027	.004	1780	2207	.927	.132	.020	.034
XCUPAB	.013	.004	1780	2207	1.312	.272	.006	.020
XCUMOD	.373	.013	1780	2207	1.098	.034	.348	.398
XPSOUR	.468	.020	664	823	1.024	.042	.429	.508
XNOMOR	.711	.012	1780	2207	1.039	.017	.686	.735
XDELAY	.137	.010	1780	2207	1.110	.077	.116	.157
IDEAL	2.155	.021	1848	2292	1.011	.010	2.113	2.197
TETANU	.436	.021	794	985	1.074	.047	.395	.477
MEDELI	.936	.012	794	985	1.106	.012	.913	.959
DIARR1	.199	.018	758	940	1.220	.091	.163	.236
DIARR2	.078	.011	758	940	1.122	.142	.056	.100
ORSTRE	.192	.034	151	187	1.044	.180	.123	.261
MEDTRE	.278	.040	151	187	1.061	.143	.198	.358
RESPI2	.108	.010	758	940	.922	.097	.087	.129
RESPI1	.354	.021	758	940	1.147	.059	.312	.395
HCARD	.578	.040	154	191	.993	.069	.499	.657
BCG	.961	.013	154	191	.837	.014	.935	.987
DPT3	.890	.024	154	191	.954	.027	.841	.938
POL3	.883	.023	154	191	.895	.026	.837	.930
MEASLE	.838	.030	154	191	1.025	.036	.777	.899
FULLIM	.760	.031	154	191	.911	.041	.697	.823

Table C.6 Sampling errors - Southern Region, Turkey 1993

Variable	Value (R)	Standard error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)			R-2SE	R+2SE
URBAN	.677	.017	1295	998	1.330	.026	.643	.712
SECATT	.171	.020	1295	998	1.910	.117	.131	.211
SECGRD	.147	.019	1295	998	1.968	.132	.109	.186
CURMAR	.964	.006	1295	998	1.125	.006	.953	.976
AGEMAR	18.812	.134	1295	998	1.330	.007	18.543	19.080
PREGNT	.073	.008	1295	998	1.048	.104	.057	.088
NUPREG	3.967	.092	1295	998	1.111	.023	3.783	4.151
NUMISC	.337	.021	1295	998	.998	.062	.295	.378
EVBORN	3.101	.079	1295	998	1.222	.025	2.944	3.259
XEVB	3.080	.080	1249	963	1.225	.026	2.921	3.239
XEVB40	4.933	.198	285	220	1.236	.040	4.538	5.329
SURVIV	2.778	.065	1295	998	1.213	.023	2.648	2.909
KMETHO	.990	.003	1295	998	1.087	.003	.984	.996
XKMOD	.989	.003	1249	963	1.002	.003	.983	.995
XKSOUR	.965	.007	1249	963	1.391	.008	.950	.979
XEVUSE	.813	.014	1249	963	1.271	.017	.785	.841
XCUSE	.628	.014	1249	963	1.047	.023	.599	.656
XCUPIL	.042	.008	1249	963	1.329	.181	.027	.057
XCUIUD	.209	.013	1249	963	1.106	.061	.184	.234
XCUCON	.061	.006	1249	963	.886	.098	.049	.073
XCUWIT	.247	.016	1249	963	1.333	.066	.215	.280
XCUSTE	.033	.005	1249	963	.927	.142	.023	.042
XCUPAB	.010	.003	1249	963	1.012	.279	.005	.016
XCUMOD	.367	.013	1249	963	.919	.034	.342	.393
XPSOUR	.584	.033	459	354	1.422	.056	.518	.649
XNOMOR	.685	.011	1249	963	.836	.016	.663	.707
XDELAY	.139	.010	1249	963	.976	.069	.120	.158
IDEAL	2.515	.038	1269	978	1.225	.015	2.440	2.591
TETANU	.645	.030	758	584	1.481	.047	.584	.706
MEDELI	.840	.024	758	584	1.435	.029	.792	.888
DIARR1	.217	.016	714	551	.983	.073	.185	.249
DIARR2	.097	.013	714	551	1.123	.137	.070	.123
ORSTRE	.168	.028	155	120	.838	.166	.112	.223
MEDTRE	.297	.045	155	120	1.166	.153	.206	.387
RESPI2	.181	.018	714	551	1.172	.100	.145	.217
RESPI1	.437	.021	714	551	1.022	.047	.396	.478
HCARD	.517	.046	143	110	1.101	.089	.425	.609
BCG	.972	.019	143	110	1.408	.020	.933	1.011
DPT3	.839	.038	143	110	1.245	.046	.763	.916
POL3	.832	.039	143	110	1.234	.046	.755	.909
MEASLE	.930	.019	143	110	.896	.021	.892	.968
FULLIM	.811	.040	143	110	1.221	.049	.731	.891

Table C.7 Sampling errors - Central Region, Turkey 1993

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	.616	.020	1471	1520	1.585	.033	.575	.656
SECATT	.163	.018	1471	1520	1.881	.111	.127	.199
SECGRD	.141	.016	1471	1520	1.801	.116	.108	.174
CURMAR	.969	.006	1471	1520	1.291	.006	.957	.980
AGEMAR	18.082	.132	1471	1520	1.537	.007	17.818	18.346
PREGNT	.078	.007	1471	1520	1.025	.092	.063	.092
NUPREG	4.007	.082	1471	1520	1.066	.020	3.842	4.171
NUMISC	.367	.023	1471	1520	1.064	.062	.321	.413
EVBORN	3.072	.071	1471	1520	1.209	.023	2.930	3.213
XEVB	3.062	.071	1425	1472	1.201	.023	2.920	3.205
XEVB40	4.773	.166	341	352	1.163	.035	4.442	5.105
SURVIV	2.642	.059	1471	1520	1.287	.022	2.524	2.760
KMETHO	.994	.002	1471	1520	1.015	.002	.990	.998
XKMOD	.992	.002	1425	1472	1.013	.002	.987	.997
XKSOUR	.950	.007	1425	1472	1.175	.007	.936	.963
XEVUSE	.832	.010	1425	1472	1.006	.012	.812	.851
XCUSE	.627	.015	1425	1472	1.140	.023	.598	.656
XCUPIL	.043	.007	1425	1472	1.239	.154	.030	.057
XCUIUD	.219	.015	1425	1472	1.379	.069	.189	.249
XCUCON	.061	.007	1425	1472	1.079	.112	.047	.075
XCUWIT	.237	.015	1425	1472	1.350	.064	.206	.267
XCUSTE	.031	.004	1425	1472	.934	.138	.022	.040
XCUPAB	.011	.003	1425	1472	1.274	.326	.004	.018
XCUMOD	.366	.017	1425	1472	1.297	.045	.333	.399
XPSOUR	.580	.030	520	538	1.379	.051	.520	.640
XNOMOR	.715	.011	1425	1472	.895	.015	.694	.737
XDELAY	.131	.008	1425	1472	.856	.058	.116	.146
IDEAL	2.343	.033	1451	1499	1.434	.014	2.277	2.408
TETANU	.426	.027	800	825	1.307	.063	.372	.480
MEDELI	.770	.021	800	825	1.137	.027	.729	.812
DIARR1	.240	.019	752	776	1.104	.077	.203	.277
DIARR2	.098	.012	752	776	1.031	.125	.074	.123
ORSTRE	.105	.021	181	186	.909	.199	.063	.147
MEDTRE	.188	.030	181	186	.980	.158	.128	.247
RESPI2	.188	.016	752	776	1.058	.086	.156	.221
RESPI1	.404	.023	752	776	1.198	.058	.357	.450
HCARD	.391	.042	171	176	1.077	.107	.307	.475
BCG	.906	.025	171	176	1.112	.027	.857	.956
DPT3	.823	.027	171	176	.927	.033	.769	.878
POL3	.823	.028	171	176	.939	.034	.768	.879
MEASLE	.812	.031	171	176	.986	.038	.749	.874
FULLIM	.647	.035	171	176	.935	.055	.577	.718

Table C.8 Sampling errors - Northern Region, Turkey 1993

			Number of cases				Confidence limits	
Variable	Value (R)	Standard error (SE)	Unweighted (N)	Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	R-2SE	R+2SE
URBAN	.384	.025	1004	612	1.601	.064	.335	.434
SECATT	.145	.017	1004	612	1.503	.115	.112	.179
SECGRD	.123	.016	1004	612	1.515	.128	.091	.154
CURMAR	.963	.005	1004	612	.792	.005	.954	.973
AGEMAR	18.594	.163	1004	612	1.551	.009	18.268	18.920
PREGNT	.060	.008	1004	612	1.085	.136	.044	.076
NUPREG	3.826	.112	1004	612	1.249	.029	3.601	4.050
NUMISC	.322	.027	1004	612	1.103	.083	.269	.375
EVBORN	3.025	.091	1004	612	1.278	.030	2.844	3.206
XEVB	3.030	.092	967	589	1.284	.030	2.846	3.214
XEVB40	4.844	.187	199	121	1.043	.039	4.471	5.218
SURVIV	2.665	.076	1004	612	1.306	.029	2.513	2.818
KMETHO	.987	.004	1004	612	1.217	.004	.978	.996
XKMOD	.983	.005	967	589	1.317	.005	.973	.994
XKSOUR	.948	.011	967	589	1.605	.012	.925	.971
XEVUSE	.841	.016	967	589	1.331	.019	.809	.872
XCUSE	.642	.016	967	589	1.047	.025	.610	.674
XCUPIL	.052	.009	967	589	1.289	.178	.033	.070
XCUIUD	.115	.013	967	589	1.244	.111	.089	.140
XCUCON	.071	.009	967	589	1.066	.124	.054	.089
XCUWIT	.336	.016	967	589	1.050	.047	.304	.368
XCUSTE	.043	.007	967	589	1.126	.170	.029	.058
XCUPAB	.004	.002	967	589	1.003	.501	.000	.008
XCUMOD	.298	.014	967	589	.979	.048	.269	.327
XPSOUR	.500	.040	288	176	1.369	.081	.419	.581
XNOMOR	.688	.019	967	589	1.094	.028	.650	.726
XDELAY	.163	.019	967	589	1.266	.115	.126	.201
IDEAL	2.371	.030	985	600	1.076	.013	2.311	2.430
TETANU	.495	.031	584	356	1.383	.063	.433	.557
MEDELI	.793	.034	584	356	1.642	.043	.724	.862
DIARR1	.225	.016	561	342	.898	.072	.192	.257
DIARR2	.087	.009	561	342	.706	.100	.070	.105
ORSTRE	.190	.034	126	77	.935	.178	.123	.258
MEDTRE	.214	.031	126	77	.780	.142	.153	.275
RESPI2	.103	.020	561	342	1.429	.189	.064	.142
RESPI1	.392	.025	561	342	1.180	.064	.342	.442
HCARD	.342	.062	114	70	1.386	.181	.218	.466
BCG	.965	.021	114	70	1.228	.022	.923	1.007
DPT3	.781	.039	114	70	.986	.050	.702	.859
POL3	.798	.044	114	70	1.127	.055	.711	.886
MEASLE	.781	.049	114	70	1.230	.063	.682	.879
FULLIM	.614	.055	114	70	1.183	.089	.505	.723

Table C.9 Sampling errors - Eastern Region, Turkey 1993

			Number of cases				Confidence limits	
Variable	Value (R)	Standard error (SE)	Unweighted (N)	Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	R-2SE	R+2SE
URBAN	.531	.028	874	1064	1.631	.052	.476	.586
SECATT	.081	.016	874	1064	1.736	.198	.049	.113
SECGRD	.074	.015	874	1064	1.742	.208	.043	.105
CURMAR	.976	.005	874	1064	.981	.005	.966	.987
AGEMAR	17.393	.182	874	1064	1.543	.010	17.029	17.757
PREGNT	.126	.012	874	1064	1.114	.099	.101	.151
NUPREG	4.893	.155	874	1064	1.295	.032	4.583	5.204
NUMISC	.302	.027	874	1064	1.130	.089	.249	.356
EVBORN	4.252	.157	874	1064	1.448	.037	3.939	4.565
XEVB	4.221	.154	852	1039	1.407	.036	3.913	4.529
XEVB40	7.468	.334	167	206	1.397	.045	6.799	8.136
SURVIV	3.649	.121	874	1064	1.384	.033	3.406	3.891
KMETHO	.975	.007	874	1064	1.409	.008	.961	.990
XKMOD	.968	.007	852	1039	1.216	.008	.954	.983
XKSOUR	.898	.017	852	1039	1.591	.018	.864	.931
XEVUSE	.567	.031	852	1039	1.847	.055	.505	.630
XCUSE	.423	.031	852	1039	1.843	.074	.360	.485
XCUPIL	.036	.007	852	1039	1.053	.186	.023	.050
XCUIUD	.165	.019	852	1039	1.511	.117	.126	.203
XCUCON	.037	.007	852	1039	1.008	.175	.024	.050
XCUWIT	.156	.019	852	1039	1.543	.123	.117	.194
XCUSTE	.018	.004	852	1039	.967	.246	.009	.027
XCUPAB	.003	.002	852	1039	.963	.585	.001	.007
XCUMOD	.263	.021	852	1039	1.391	.080	.221	.305
XPSOUR	.703	.035	230	273	1.152	.050	.633	.772
XNOMOR	.681	.015	852	1039	.935	.022	.651	.710
XDELAY	.156	.011	852	1039	.899	.072	.134	.178
IDEAL	2.912	.072	846	1033	1.435	.025	2.767	3.057
TETANU	.247	.027	752	949	1.469	.111	.192	.302
MEDELI	.503	.036	752	949	1.595	.072	.431	.576
DIARR1	.333	.023	708	889	1.236	.069	.287	.379
DIARR2	.181	.017	708	889	1.158	.097	.146	.216
ORSTRE	.167	.027	223	296	1.092	.163	.112	.222
MEDTRE	.256	.033	223	296	1.141	.128	.191	.322
RESPI2	.178	.022	708	889	1.360	.125	.133	.222
RESPI1	.413	.029	708	889	1.434	.069	.356	.470
HCARD	.222	.043	134	169	1.207	.196	.135	.309
BCG	.713	.050	134	169	1.293	.070	.614	.813
DPT3	.557	.051	134	169	1.192	.091	.456	.658
POL3	.545	.048	134	169	1.128	.088	.449	.640
MEASLE	.578	.047	134	169	1.121	.082	.483	.672
FULLIM	.406	.038	134	169	.908	.094	.329	.482

Table C.10 Sampling errors - Age 15-24, Turkey 1993

Variable	Value (R)	Standard error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Unweighted (N)	Weighted (WN)			R-2SE	R+2SE
URBAN	.623	.016	1361	1372	1.245	.026	.590	.655
SECATT	.196	.013	1361	1372	1.206	.066	.170	.222
SECGRD	.160	.011	1361	1372	1.131	.070	.138	.183
CURMAR	.987	.003	1361	1372	.935	.003	.982	.993
AGEMAR	17.659	.080	1361	1372	1.223	.005	17.498	17.819
PREGNT	.203	.011	1361	1372	1.050	.056	.180	.226
NUPREG	1.379	.036	1361	1372	1.114	.026	1.307	1.452
NUMISC	.142	.012	1361	1372	1.064	.084	.118	.166
EVBORN	1.140	.032	1361	1372	1.135	.028	1.077	1.203
XEVB	1.145	.032	1342	1355	1.134	.028	1.081	1.209
SURVIV	1.062	.027	1361	1372	1.068	.025	1.009	1.116
KMETHO	.987	.004	1361	1372	1.295	.004	.979	.995
XKMOD	.984	.004	1342	1355	1.234	.004	.976	.992
XKSOUR	.926	.008	1342	1355	1.130	.009	.910	.942
XEVUSE	.621	.015	1342	1355	1.123	.024	.591	.651
XCUSE	.446	.015	1342	1355	1.123	.034	.415	.476
XCUPIL	.040	.006	1342	1355	1.034	.139	.029	.051
XCUIUD	.139	.011	1342	1355	1.111	.075	.118	.160
XCUCON	.048	.006	1342	1355	1.062	.129	.035	.060
XCUWIT	.204	.013	1342	1355	1.155	.062	.179	.230
XCUSTE	.002	.001	1342	1355	1.005	.595	-.000	005
XCUPAB	.004	.002	1342	1355	1.056	.458	.000	.008
XCUMOD	.236	.013	1342	1355	1.117	.055	.210	.262
XPSOUR	.582	.029	318	320	1.057	.050	.523	.640
XNOMOR	.299	.012	1342	1355	.953	.040	.275	.323
XDELAY	.427	.014	1342	1355	1.002	.032	.400	.454
IDEAL	2.244	.025	1346	1357	1.065	.011	2.193	2.295
TETANU	.464	.020	1261	1281	1.244	.044	.423	.505
MEDELI	.790	.024	1261	1281	1.623	.030	.743	.837
DIARR1	.286	.015	1195	1210	1.118	.053	.256	.317
DIARR2	.128	.012	1195	1210	1.164	.093	.105	.152
ORSTRE	.185	.025	331	346	1.119	.133	.136	.234
MEDTRE	.272	.025	331	346	1.009	.092	.222	.322
RESPI2	.171	.014	1195	1210	1.188	.081	.144	.199
RESPI1	.421	.016	1195	1210	1.091	.039	.388	.454
HCARD	.419	.032	294	299	1.102	.075	.356	.482
BCG	.890	.022	294	299	1.233	.025	.846	.935
DPT3	.739	.031	294	299	1.232	.043	.677	.802
POL3	.733	.032	294	299	1.236	.043	.670	.797
MEASLE	.783	.027	294	299	1.119	.034	729	.836
FULLIM	.616	.033	294	299	1.172	.054	.550	.682

Table C.11 Sampling errors - Age 25-34, Turkey 1993

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	.666	.013	2510	2494	1.368	.019	.640	.692
SECATT	.208	.011	2510	2494	1.385	.054	.186	.230
SECGRD	.184	.011	2510	2494	1.365	.057	.163	.205
CURMAR	.980	.003	2510	2494	1.149	.003	.973	.986
AGEMAR	18.993	.099	2510	2494	1.377	.005	18.796	19.190
PREGNT	.074	.006	2510	2494	1.112	.078	.063	.086
NUPREG	3.407	.052	2510	2494	1.282	.015	3.302	3.511
NUMISC	.263	.012	2510	2494	1.018	.047	.238	.288
EVBORN	2.675	.048	2510	2494	1.477	.018	2.579	2.771
XEVB	2.694	.048	2460	2443	1.464	.018	2.598	2.790
SURVIV	2.438	.040	2510	2494	1.438	.016	2.359	2.518
KMETHO	.995	.002	2510	2494	1.125	.002	.992	.998
XKMOD	.994	.002	2460	2443	1.110	.002	.990	.997
XKSOUR	.967	.005	2460	2443	1.279	.005	.958	.977
XEVUSE	.866	.009	2460	2443	1.361	.011	.848	.885
XCUSE	.724	.012	2460	2443	1.313	.016	.700	.747
XCUPIL	.076	.006	2460	2443	1.204	.085	.063	.089
XCUIUD	.249	.011	2460	2443	1.245	.044	.227	.270
XCUCON	.078	.006	2460	2443	1.105	.077	.066	.090
XCUWIT	.267	.011	2460	2443	1.184	.040	.246	.288
XCUSTE	.025	.003	2460	2443	1.043	.132	.018	.031
XCUPAB	.012	.002	2460	2443	1.129	.207	.007	.017
XCUMOD	.439	.012	2460	2443	1.210	.028	.415	.463
XPSOUR	.545	.018	1072	1073	1.216	.034	.508	.582
XNOMOR	.745	.009	2460	2443	1.031	.012	.727	.763
XDELAY	.112	.007	2460	2443	1.133	.064	.097	.126
IDEAL	2.334	.019	2479	2462	1.026	.008	2.296	2.372
TETANU	.430	.016	1945	1935	1.226	.037	.398	.462
MEDELI	.767	.018	1945	1935	1.485	.024	.730	.803
DIARR1	.223	.012	1853	1843	1.130	.052	.200	.246
DIARR2	.099	.008	1853	1843	1.070	.079	.083	.115
ORSTRE	.138	.017	396	411	.964	.123	.104	.172
MEDTRE	.231	.025	396	411	1.137	.106	.182	.281
RESPI2	.147	.010	1853	1843	1.120	.069	.127	.168
RESPI1	.382	.015	1853	1843	1.224	.040	.352	.412
HCARD	.439	.033	342	340	1.196	.074	.373	.504
BCG	.898	.019	342	340	1.182	.022	.859	.936
DPT3	.815	.026	342	340	1.205	.031	.764	.866
POL3	.811	.027	342	340	1.262	.033	.757	.865
MEASLE	.775	.025	342	340	1.079	.032	.725	.825
FULLIM	.663	.027	342	340	1.041	.041	.609	.717

Table C.12 Sampling errors - Age 35-49, Turkey 1993

			Number of cases				Confidence limits	
Variable	Value (R)	Standard error (SE)	Unweighted (N)	Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	R-2SE	R+2SE
URBAN	.628	.012	2648	2653	1.329	.020	.603	.653
SECATT	.133	.010	2648	2653	1.541	.076	.113	.153
SECGRD	.115	.009	2648	2653	1.485	.080	.097	.133
CURMAR	.932	.005	2648	2653	1.052	.006	.922	.942
AGEMAR	18.470	.089	2648	2653	1.179	.005	18.292	18.647
PREGNT	.011	.002	2648	2653	.939	.177	.007	.014
NUPREG	5.692	.082	2648	2653	1.308	.014	5.529	5.856
NUMISC	.451	.020	2648	2653	1.087	.044	.411	.490
EVBORN	4.370	.075	2648	2653	1.474	.017	4.220	4.519
XEVB	4.406	.077	2471	2473	1.474	.018	4.251	4.560
XEVB40	4.740	.101	1433	1447	1.384	.021	4.538	4.942
SURVIV	3.720	.056	2648	2653	1.420	.015	3.608	3.833
KMETHO	.988	.003	2648	2653	1.198	.003	.983	.993
XKMOD	.981	.003	2471	2473	1.159	.003	.974	.987
XKSOUR	.942	.006	2471	2473	1.328	.007	.929	.954
XEVUSE	.838	.009	2471	2473	1.257	.011	.819	.857
XCUSE	.628	.010	2471	2473	1.003	.016	.608	.647
XCUPIL	.028	.004	2471	2473	1.073	.127	.021	.035
XCUIUD	.154	.009	2471	2473	1.230	.058	.136	.172
XCUCON	.065	.006	2471	2473	1.129	.086	.053	.076
XCUWIT	.289	.010	2471	2473	1.115	.035	.268	.309
XCUSTE	.048	.004	2471	2473	1.018	.092	.039	.056
XCUPAB	.010	.003	2471	2473	1.259	.249	.005	.015
XCUMOD	.312	.011	2471	2473	1.126	.034	.291	.333
XPSOUR	.535	.020	771	772	1.085	.036	.496	.574
XNOMOR	.877	.007	2471	2473	.898	.008	.862	.891
XDELAY	.014	.005	2471	2473	1.025	.373	.004	.025
IDEAL	2.536	.033	2574	2583	1.342	.013	2.470	2.602
TETANU	.291	.026	482	484	1.087	.088	.240	.342
MEDELI	.647	.035	482	484	1.291	.054	.578	.717
DIARR1	.244	.024	445	444	1.113	.098	.196	.292
DIARR2	.124	.019	445	444	1.146	.154	.086	.163
ORSTRE	.173	.041	109	108	1.078	.238	.091	.255
MEDTRE	.235	.038	109	108	.923	.164	.158	.312
RESPI2	.139	.019	445	444	1.092	.137	.101	.177
RESPI1	.392	.029	445	444	1.157	.074	.334	.451
HCARD	.301	.056	80	77	.987	.187	.189	.413
BCG	.866	.050	80	77	1.282	.058	.766	.966
DPT3	.748	.053	80	77	1.056	.071	.643	.854
POL3	.754	.054	80	77	1.091	.072	.646	.863
MEASLE	.779	.046	80	77	.953	.058	.688	.870
FULLIM	.652	.058	80	77	1.048	.089	.536	.768

Table C.13 Sampling errors for total fertility rates and infant mortality rates, Turkey 1993

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
Total fertility rate								
Urban	2.373	.114	5703	5775	1.159	.048	2.144	2.602
Rural	3.101	.248	3672	3687	1.575	.080	2.604	3.598
Total[1]	2.647	.112	9201	9263	1.324	.042	2.423	2.870
Infant mortality rate								
Urban	44.038	4.992	2277	2284	1.027	.113	34.053	54.022
Rural	65.442	7.860	1538	1539	1.276	.120	49.722	81.163
Total	52.574	4.391	3815	3823	1.148	.084	43.793	61.355

[1] It should be noted that adding the number of cases for urban and rural areas does not provide the total number of cases for the entire country. The calculation of the total fertility rate is based on years of exposure by women and the cases are not additive in separate domains.

APPENDIX D

DATA QUALITY TABLES

Table D.1 Household age distribution

Single-year age distribution of the de facto household population by sex (weighted), Turkey 1993

	Male		Female			Male		Female	
Age	Number	Percentage	Number	Percentage	Age	Number	Percentage	Number	Percentage
0	396	2.1	373	1.9	37	250	1.3	212	1.1
1	328	1.8	315	1.6	38	258	1.4	271	1.4
2	329	1.8	323	1.7	39	187	1.0	183	0.9
3	365	1.9	325	1.7	40	285	1.5	297	1.5
4	374	2.0	355	1.8	41	134	0.7	149	0.8
5	362	1.9	355	1.8	42	183	1.0	188	1.0
6	385	2.1	415	2.1	43	221	1.2	224	1.1
7	468	2.5	444	2.3	44	130	0.7	135	0.7
8	481	2.6	468	2.4	45	227	1.2	217	1.1
9	467	2.5	392	2.0	46	125	0.7	139	0.7
10	517	2.8	499	2.5	47	130	0.7	134	0.7
11	450	2.4	419	2.1	48	158	0.8	157	0.8
12	521	2.8	511	2.6	49	102	0.5	81	0.4
13	546	2.9	497	2.5	50	226	1.2	198	1.0
14	446	2.4	472	2.4	51	105	0.6	169	0.9
15	444	2.4	471	2.4	52	118	0.6	209	1.1
16	446	2.4	498	2.5	53	150	0.8	191	1.0
17	439	2.3	521	2.7	54	104	0.6	130	0.7
18	428	2.3	492	2.5	55	248	1.3	285	1.5
19	344	1.8	382	2.0	56	127	0.7	126	0.6
20	298	1.6	453	2.3	57	100	0.5	126	0.6
21	221	1.2	352	1.8	58	126	0.7	116	0.6
22	311	1.7	389	2.0	59	87	0.5	76	0.4
23	358	1.9	360	1.8	60	269	1.4	327	1.7
24	310	1.7	317	1.6	61	95	0.5	64	0.3
25	360	1.9	355	1.8	62	106	0.6	99	0.5
26	261	1.4	284	1.5	63	116	0.6	108	0.6
27	297	1.6	315	1.6	64	72	0.4	78	0.4
28	298	1.6	298	1.5	65	222	1.2	239	1.2
29	228	1.2	221	1.1	66	82	0.4	116	0.6
30	355	1.9	382	1.9	67	85	0.5	97	0.5
31	203	1.1	219	1.1	68	65	0.3	57	0.3
32	221	1.2	246	1.3	69	41	0.2	27	0.1
33	250	1.3	332	1.7	70+	544	2.9	582	3.0
34	203	1.1	218	1.1	Don't know/				
35	305	1.6	292	1.5	Missing	7	0.0	5	0.0
36	212	1.1	199	1.0					
					Total	18710	100.0	19574	100.0

Note: The de facto population includes all residents and nonresidents who slept in the household the night before the interview.

Table D.2 Age distribution of eligible and interviewed women

Five-year age distribution of the de facto household population of women age 10-54, five-year age distribution of interviewed women age 15-49, and percentage of eligible women who were interviewed (weighted), Turkey 1993

	Household		Ever-married women in household		Women		
Age	Number	Percentage	Number	Percentage	Number	Percentage	Percentage interviewed
10-14	2398	NA	NA	NA	NA	NA	NA
15-19	2364	23.7	321	4.7	298	4.6	92.9
20-24	1871	18.7	1089	16.0	1041	16.1	95.6
25-29	1474	14.8	1239	18.2	1196	18.5	96.5
30-34	1396	14.0	1334	19.6	1283	19.9	96.1
35-39	1158	11.6	1133	16.6	1070	16.6	94.5
40-44	992	9.9	969	14.2	899	13.9	92.8
45-49	728	7.3	721	10.6	674	10.4	93.5
50-54	897	NA	NA	NA	NA	NA	NA
15-49	9983	NA	6806	NA	6461	NA	94.9

Note: The de facto population includes all residents and nonresidents who slept in the household the night before interview.
NA = Not applicable

Table D.3 Completeness of reporting

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

Subject	Reference group	Percentage of reference group with missing information	Number
Birth date	Last 15 years		
Month only		2.05	12639
Month and year		0.24	12639
Age at death	Last 15 years	0.35	1112
Age/date at first union[1]	Ever-married respondents	0.15	6519
Respondent's education	Ever-married respondents	0.00	6519
Anthropometry[2]	Living children age 1-59 months		
Child's weight		9.36	3532
Child's height		7.61	3532
Weight and height		9.45	3532
Diarrhoea in last 2 weeks	Living children age 1-59 months	0.38	3532

[1] Both year and age missing
[2] Child not measured

Table D.4 Births by calendar year since birth

Distribution of births by calendar years since birth for living, dead, and all children, according to reporting completeness, sex ratio at birth, and ratio of births by calendar year, Turkey 1993

	Total number of births			Percentage with complete birth date[1]			Sex ratio at birth[2]			Calendar ratio[3]			Number of male births			Number of female births		
Year	Living	Dead	All	Living	Dead	All	Living	Dead	All	Living	Dead	All	Living	Dead	All	Living	Dead	All
93	570	18	588	100.0	100.0	100.0	108.0	368.9	111.6	-	-	-	296	14	310	274	4	278
92	724	47	771	100.0	100.0	100.0	111.9	85.0	110.0	117.4	154.8	119.2	382	22	404	342	26	367
91	663	44	707	100.0	100.0	100.0	101.3	103.8	101.4	92.5	100.4	93.0	334	22	356	329	21	351
90	709	39	748	100.0	100.0	100.0	96.1	78.0	95.1	102.4	93.0	101.9	347	17	365	361	22	383
89	722	41	762	100.0	100.0	100.0	108.7	149.2	110.6	105.4	83.3	104.0	376	24	400	346	16	362
88	660	59	719	100.0	100.0	100.0	101.1	108.3	101.7	82.5	96.2	83.5	332	31	362	328	28	356
87	878	81	959	98.2	93.4	97.8	103.9	126.5	105.7	119.0	119.6	119.1	448	45	493	431	36	466
86	816	77	893	97.7	92.6	97.2	112.9	86.3	110.3	95.3	97.0	95.4	433	36	468	383	41	425
85	834	78	912	97.2	86.6	96.3	95.9	93.6	95.7	106.1	88.3	104.3	408	38	446	426	40	466
84	757	99	856	98.2	89.3	97.2	114.4	125.4	115.6	-	-	-	404	55	459	353	44	397
89-93	3388	189	3577	100.0	100.0	100.0	105.0	111.7	105.4	-	-	-	1735	100	1835	1653	89	1742
84-88	3944	395	4339	98.2	91.9	97.6	105.4	107.8	105.6	-	-	-	2024	205	2229	1920	190	2110
79-83	4067	508	4575	97.2	89.4	96.3	106.1	131.5	108.6	-	-	-	2093	289	2382	1974	220	2193
74-78	3160	566	3725	96.5	85.8	94.9	103.5	118.8	105.7	-	-	-	1607	307	1915	1552	259	1811
< 74	2851	760	3610	95.5	84.1	93.1	105.7	107.7	106.1	-	-	-	1465	394	1859	1386	366	1752
All	17409	2418	19827	97.6	88.1	96.4	105.2	115.3	106.4	-	-	-	8925	1294	10219	8485	1123	9608

[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 1 month of age by age at death in days and the percentage of neonatal deaths reported to occur at ages 0-6 days, for five-year periods preceding the survey, Turkey 1993

Age at death (in days)	Number of years preceding the survey				**Total**
	0-4	5-9	10-14	15-19	**0-19**
0	27	25	13	25	91
1	24	38	29	44	135
2	9	16	11	11	45
3	9	24	22	18	72
4	4	2	0	6	12
5	6	8	9	5	28
6	1	3	3	3	10
7	6	28	23	21	79
8	0	3	1	1	4
9	2	2	2	2	8
10	6	4	9	9	28
11	0	1	1	2	4
12	0	4	0	2	6
13	0	1	3	4	8
14	2	1	0	1	4
15	2	15	7	8	32
16	0	1	5	1	7
17	0	1	2	3	6
18	0	1	2	1	3
19	1	0	0	0	1
20	4	13	19	19	55
21	1	2	1	0	4
22	1	0	1	1	3
23	0	1	0	1	2
24	0	0	1	2	3
25	2	2	4	1	8
27	1	0	1	0	2
28	1	2	0	0	3
29	0	0	0	1	1
30	0	0	1	0	1
31	0	0	7	5	12
Missing	1	0	0	0	1
Total 0-30	107	198	168	191	664
Early neonatal (%)[1]	73.5	58.8	51.3	57.9	59.0

---

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

Table D.6 Reporting of age at death in months

Distribution of reported deaths under 2 years of age by age at death in months and the percentage of infant deaths reported to occur at age under one month, for five-year periods preceding the survey, Turkey 1993

Age at death (in months)	Number of years preceding the survey				Total
	0-4	5-9	10-14	15-19	**0-19**
< 1 month[1]	108	198	168	191	665
1	9	22	51	39	122
2	8	17	32	34	91
3	7	21	33	36	98
4	14	14	23	27	77
5	12	10	17	19	57
6	10	23	22	27	83
7	7	17	20	14	57
8	4	10	14	21	49
9	5	4	10	14	33
10	3	4	8	5	20
11	0	6	8	11	25
12	7	8	25	20	60
13	1	0	1	2	4
14	1	1	3	1	6
15	2	0	2	1	5
16	1	0	2	3	6
17	0	1	0	2	3
18	2	11	12	10	35
20	0	1	1	1	3
24+	0	0	1	1	2
Total 0-11	186	345	407	437	1376
1 year	1	7	8	13	29
Percent neonatal[2]	58.0	57.2	41.3	43.7	48.3

---

[1] Includes deaths under 1 month reported in days

[2] Under 1 month/under 1 year

APPENDIX E

CALCULATION OF CONTRACEPTIVE DISCONTINUATION RATES

APPENDIX E

CALCULATION OF CONTRACEPTIVE DISCONTINUATION RATES

The cumulative one-year discontinuation rates represent the proportion of users discontinuing a method within 12 months after the start of use (Q_{12j}). The monthly rates (q_{ij}) are calculated by dividing the number of discontinuations for reason j at each duration of use i in single months (d_{ij}) by the number of women exposed at that duration (e_i):

$$q_{ij} = \frac{d_{ij}}{e_i}$$

p_{ij} is the probability of continuing to use at each duration,

$$p_{ij} = \quad (1 - q_{kj})$$

and the cumulative probability of discontinuing within 12 months is

$$Q_{kj} = 1 - p_{kj}$$

where k = 12.

Note that these are true multiple decrement life tables (sometimes referred to as "net rates"); the various reasons for discontinuation are treated as competing risks and the q's are additive across reasons for discontinuing. The tabulation program is set up to present results for three specific reasons for discontinuation—stopped to get pregnant, became pregnant while using, side effects/health concerns—plus a column for "all other reasons" and a total column. The program can be modified to include additional specific reasons for discontinuation.

All episodes of contraceptive use between January of the first year of the calender and the date of interview are recorded in the calender along with the reason for any discontinuation of use during this period. In addition, in order to obtain the duration of use of any episode that was in progress in January of the first year of the calendar, the date that the respondent started this period of use is collected. Women who were using a method in January of the first year of the calender enter the life table at their duration of use as of that date. (If the woman or her husband was sterilised before January of the first year of the calendar, we use the date of sterilisation to calculate the duration at which she should enter the life table.) Thus, discontinuation rates presented in this table refer to **all episodes** of contraceptive use occurring during the period of time covered by the calendar, not just those episodes that began during this period. Specifically, the rates presented in Table 4.12 refer to the 60-month period 3-63 months prior to the survey; the month of interview and the prior 2 months are ignored in order to avoid the bias that may be introduced by unrecognised pregnancies.

The program is currently set up to suppress results for specific contraceptive methods that have fewer than 125 women exposed in month 1.

Special cases are handled as follows:

- If the reason for discontinuation in the calendar is missing, the discontinuation is grouped in the "All other reasons" category.

- If the year of the start date of the segment of use in progress in January of the first year of the calendar is missing and:

  - If there is a birth prior to the calendar period, then the segment of use is assumed to begin one month after the birth

  - If there is no birth prior to the calendar period, but the marriage started before the calendar, then the segment of use is assumed to begin one month after marriage.

- If the year of the start date of the segment of use in progress in January of the first year of the calendar is known, a range of possible start dates (January-December of the year given if the month is not known) is calculated. Note that if the month is known, the range consists of only one month.

  - If the lower bound of the range is on or before the date of the last birth prior to the start of the calendar, the segment is assumed to begin one month after the birth

  - If the lower bound of the range is after the date of the last birth prior to the start of the calendar, the segment is assumed to begin at the mid-point of the range

- If the date of sterilisation is **on or before** the date of the last birth prior to the start of the calendar, the segment is assumed to begin on the date of that birth. Note that the date of sterilisation should be before the date of the last birth only in the case of male sterilisation.

APPENDIX F

SURVEY INSTRUMENTS

1993 TURKISH DEMOGRAPHIC AND HEALTH SURVEY
HOUSEHOLD SCHEDULE

HOUSEHOLD IDENTIFICATION

CLUSTER NO............ ☐☐☐	PROVINCE________________ ☐☐
HOUSEHOLD NO............. ☐☐	DISTRICT________________ ☐☐
REGION.................. ☐☐	SUB-DISTRICT____________ ☐☐
URBAN(1)/RURAL(2)........... ☐	VILLAGE_________________ ☐☐
	QUARTER ______________________
	STREET_____________DOOR NO ____

INTERVIEWER VISITS

		1	2	3	FINAL VISIT
DATE : DAY AND MONTH		__ __	__ __	__ __	☐☐ ☐☐
INTERVIEWER'S NAME AND SURNAME		______ ______	______ ______	______ ______	☐☐
RESULT (*)		__	__	__	☐
NEXT VISIT	DAY MONTH HOUR	__ __ __ __	__ __ __ __	▨	TOTAL NUMBER OF VISITS ☐

(*) RESULT CODES :

1 COMPLETED
2 HOSEHOLD PRESENT BUT NO COMPETENT RESPONDENT AT HOME
3 HOUSEHOLD ABSENT
4 POSTPONED
5 REFUSED
6 DWELLING VACANT OR ADDRESS NOT A DWELLING
7 DWELLING DESTROYED
8 DWELLING NOT FOUND

9 OTHER________________
(SPECIFY)

TOTAL IN HOUSEHOLD.............. ☐☐

TOTAL ELIGIBLE WOMEN............ ☐☐

		DAY	MONTH
FIELD EDITED BY ______________	☐☐	☐☐	☐☐
OFFICE EDITED BY ______________	☐☐	☐☐	☐☐
KEYED BY ______________	☐☐	☐☐	☐☐

HOUR ☐☐ MINUTE ☐☐

Now I would like some information about people in this household, such as age and sex.

LINE NO.	HOUSEHOLD LIST ADD BY ASKING QUESTIONS A-B-C-D	RELATIONSHIP TO HOUSEHOLD HEAD	RESIDENCE		SEX	AGE
	A. Could you please tell me the name of the household head ? B. Could you please tell the names of other people living in this household ? C. Is there anyone who usually lives in this household but is absent at present ? D. Additionally, are there persons who do not usually live here but who have stayed here last night ?	What is the relationship of ...... to the household head ? What is .... to the head ? USE CODE LIST (*) PROVIDED	Does ...... usually live here ? YES....1 NO.....2	Did ...... sleep here last night ? YES....1 NO.....2	Is ..... male or female ? MALE...1 FEMALE.2	How old is .... ? IN COMPLETED YEARS
(1)	(2)	(3)	(4)	(5)	(6)	(7)
01		0 1	1 2	1 2	1 2	☐☐
02		☐☐	1 2	1 2	1 2	☐☐
03		☐☐	1 2	1 2	1 2	☐☐
04		☐☐	1 2	1 2	1 2	☐☐
05		☐☐	1 2	1 2	1 2	☐☐
06		☐☐	1 2	1 2	1 2	☐☐
07		☐☐	1 2	1 2	1 2	☐☐
08		☐☐	1 2	1 2	1 2	☐☐
09		☐☐	1 2	1 2	1 2	☐☐
10		☐☐	1 2	1 2	1 2	☐☐

I want to be sure that I have completed the full list of those in this household :

1. Are there any other persons such as small children and infants ? YES ☐ → ADD TO THE LIST ☐ NO

2. Are there any other persons who are not members of your family but live here, such as lodgers, friends, servants ? YES ☐ → ADD TO THE LIST ☐ NO

IF THE HOUSEHOLD LIST COMPRISES MORE THAN 10 PERSONS, TICK HERE AND CONTINUE LISTING THE HOUSEHOLD ON A SEPARATE FORM. PROCEED WITH THE REST OF THE INTERVIEW ON THE ADDITIONAL FORM. ☐

LINE NO.	PARENTAL SURVIVORSHIP				LITERACY AND EDUCATION ASK IF AGED 6 AND OVER.			
	Is ....'s natural mother alive ? ALIVE.....1 DEAD......2 DK........8 (Q.10)←	RECORD LINE NO. IF LISTED IN THE HOUSE. RECORD "96" IF LIVING ELSEWHERE.	Is ....'s natural father alive ? ALIVE.....1 DEAD......2 DK........8 (Q.12)←	RECORD LINE NO. IF LISTED IN THE HOUSE. RECORD "96" IF LIVING ELSEWHERE.	Is ...... literate ? YES......1 NO.......2 DK.......8	Has ...... ever been to school ? YES.......1 NO........2 DK........8 (Q.18)←	What is the highest level .... attended ? PRIMARY.....1 SECONDARY...2 HIGHSCHOOL..3 UNIVERSITY..4 DK.........8	What is the highest grade ..... completed at that level ?
	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
01	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
02	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
03	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
04	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
05	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
06	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
07	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
08	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
09	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐
10	1 2 8	☐☐	1 2 8	☐☐	1 2 8	1 2 8	1 2 3 4 8	☐

(*) CODES FOR RELATIONSHIP TO HOUSEHOLD HEAD :

- 01.HEAD
- 02.WIFE-HUSBAND
- 03.SON-DAUGHTER
- 04.SON-DAUGHTER IN LAW
- 05.GRANDCHILD
- 06.MOTHER-FATHER
- 07.MOTHER-FATHER IN LAW
- 08.BROTHER-SISTER
- 09.BROTHER-SISTER IN LAW
- 10.FATHERS SIBLING
- 11.MOTHERS SIBLING
- 12.STEP CHILD
- 13.OTHER RELATIVE
- 14.NOT RELATED
- 98.DK

LINE NO.			MARITAL STATUS AND ELIGIBILITY ASK IF AGED 12 AND OVER.				
	Did ...... graduate from this school ? YES.......1 NO........2 DK........8	ASK IF AGED LESS THAN 25 : Is ..... still attending school ? YES.............1 NO..............2 DK..............8	Has ...... ever married ? YES.......1 NO........2 DK........8 NEXT ← PERSON	What is ......'s marital status ? Currently married, widowed, divorced or separated? MARRIED.......1 WIDOWED.......2 DIVORCED......3 SEPARATED.....4 → Q. 21 DK...........8	IF CURRENTLY MARRIED, RECORD LINE NO. OF SPOUSE. IF SPOUSE NOT IN THE HOUSEHOLD LIST, RECORD "96".	How many times did ...... marry ?	CIRCLE LINE NUMBER IF ELIGIBLE WOMAN. ELIGIBILITY : EVER-MARRIED WOMEN LESS THAN AGE 50
	(16)	(17)	(18)	(19)	(20)	(21)	(22)
01	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	01
02	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	02
03	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	03
04	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	04
05	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	05
06	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	06
07	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	07
08	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	08
09	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	09
10	1 2 8	1 2 8	1 2 8	1 2 3 4 8	☐☐	☐	10

HOUSING CHARACTERISTICS

33	What is the source of water your household uses for handwashing and dishwashing ?	PIPED WATER PIPED WATER IN HOUSE/GARDEN...11 PUBLIC TAP....................12 WELL WATER WELL IN RESIDENCE/YARD/PLOT...21 PUBLIC WELL...................22 SURFACE WATER SPRING........................31 RIVER/STREAM..................32 POND/LAKE.....................33 DAM...........................34 RAINWATER.......................41 TANKER..........................51 BOTTLED WATER/DEMIJOHN......... 61 OTHER ____________________ 71 (SPECIFY)	
35	Do you obtain drinking water from the same source as water for handwashing and dishwashing ?	YES.............................1 NO..............................2	›37
36	What is the source of your drinking water ?	PIPED WATER PIPED WATER IN HOUSE/GARDEN...11 PUBLIC TAP....................12 WELL WATER WELL IN RESIDENCE/YARD/PLOT...21 PUBLIC WELL...................22 SURFACE WATER SPRING........................31 RIVER/STREAM..................32 POND/LAKE.....................33 DAM...........................34 RAINWATER.......................41 TANKER..........................51 BOTTLED WATER/DEMIJOHN......... 61 OTHER ____________________ 71 (SPECIFY)	
37	Now I would like to ask you questions about the toilet facility of your house. Is the toilet in the house or outside ?	INSIDE..........................1 OUTSIDE.........................2 NO TOILET FACILITY..............3 OTHER ____________________4 (SPECIFY)	→46
38	What type of toilet is it ? Is it a flush toilet, a closed pit or an open pit ?	FLUSH TOILET....................1 CLOSED PIT......................2 OPEN PIT........................3	

39	Is the toilet used by only those in this household, or is it shared by members of another household ?	THIS HOUSEHOLD ONLY............1 SHARED.........................2
41	Is there a place for washing hands in the toilet ?	YES............................1 NO.............................2
46	What is the source of heating in winter ?	RADIATOR (CENTRAL HEATING).......1 RADIATOR (PRIVATE)...............2 STOVE............................3 CHARCOAL BRAZIER.................4 OVEN.............................5 OTHER____________________________6 (SPECIFY)
47	How many rooms in your household are normally used sleeping ?	ROOMS USED FOR SLEEPING....☐☐
49	What is the main material of the floor ?	NATURAL FLOOR EARTH........................11 RUDIMENTARY WOOD PLANKS..................21 FINISHED FLOOR PARQUET OR POLISHED WOOD......31 CEMENT........................34 CARPET........................35 MARLEY........................36 MOZAIC........................37 OTHER_________________________41 (SPECIFY)

			YES	NO
50	Do you have the following in the household ?			
	Refrigerator	REFRIGERATOR............	1	2
	Oven for Cooking	OVEN....................	1	2
	Washing Machine	WASHING MACHINE..........	1	2
	Dishwasher	DISHWASHER..............	1	2
	Vacuum Cleaner	VACUUM CLEANER..........	1	2
	Television	TELEVISION..............	1	2
	Video Recorder	VIDEO RECORDER..........	1	2
	Radio-Cassette Player	RADIO-CASSETTE PLAYER....	1	2
	Music Set	MUSIC SET...............	1	2
	Telephone	TELEPHONE...............	1	2
	A Car (Exclduing tractors and taxis etc)	A CAR...................	1	2
	Computer	COMPUTER................	1	2
	More than 30 Books (Excluding school books)	MORE THAN 30 BOOKS.......	1	2

51	LINE NO. OF RESPONDENT TO THE HOUSEHOLD SCHEDULE	LINE NO. . . . . ☐☐	
52	LANGUAGE USED FOR CONDUCTING THE HOUSEHOLD QUESTIONNAIRE	TURKISH. . . . . .1 ARABIC. . . . . .2 KURDISH. . . . . .3 OTHER________________________4 (SPECIFY)	→54
53	WAS AN INTERPRETER USED ?	YES. . . . . .1 NO. 2	
54	RECORD THE TIME.	HOUR. . . . . ☐☐ MINUTE. ☐☐	

GO BACK TO THE FRONT COVER AND
COMPLETE THE NECESSARY INFORMATION.

1993 TURKISH DEMOGRAPHIC AND HEALTH SURVEY
WOMAN'S QUESTIONNAIRE

IDENTIFICATION

CLUSTER NO............ ☐☐☐

HOUSEHOLD NO............. ☐☐

REGION................... ☐☐

URBAN (1)/RURAL(2).......... ☐

NAME OF WOMAN ________________________

LINE NO OF WOMAN......... ☐☐

PROVINCE__________________ ☐☐

DISTRICT__________________ ☐☐

SUB-DISTRICT______________ ☐☐

VILLAGE___________________ ☐☐

QUARTER _________________________

STREET_______________DOOR NO ____

INTERVIEWER VISITS

		1	2	3	FINAL VISIT
DATE : DAY AND MONTH		___ ___	___ ___	___ ___	☐☐ ☐☐
INTERVIEWER'S NAME AND SURNAME		________ ________	________ ________	________ ________	☐☐
RESULT (*)		___	___	___	☐
NEXT VISIT	DAY MONTH HOUR	___ ___ ___ ___	___ ___ ___ ___		TOTAL NUMBER OF VISITS ☐

(*) RESULT CODES :

1 COMPLETED
2 NOT AT HOME
3 POSTPONED
4 REFUSED
5 PARTLY COMPLETED

6 OTHER____________________
(SPECIFY)

		DAY	MONTH
FIELD EDITED BY ________________	☐☐	☐☐	☐☐
OFFICE EDITED BY ________________	☐☐	☐☐	☐☐
KEYED BY ________________	☐☐	☐☐	☐☐

SECTION 1. RESPONDENT'S BACKGROUND

101	RECORD THE TIME.	HOUR........................ ☐☐ MINUTES.................... ☐☐	
102	First I would like to ask some questions about you and your household. For most of the time until you were 12 years old, did you live in a province centre, a district centre, a sub-district or a village, or abroad ?	PROVINCE CENTRE.................1 DISTRICT CENTRE.................2 SUB-DISTRICT OR VILLAGE.........3 ABROAD..........................4	——>103
102A	In which province was this place at that time ? (RECORD THE NAME AND CODE OF THE PROVINCE)	NAME OF PROVINCE ☐☐ ____________________ PROVINCE CODE	
103	In what month and year were you born?	MONTH...................... ☐☐ DK MONTH......................98 YEAR....................... ☐☐ DK YEAR.......................98	
104	How old are you exactly ? What age have you completed ? COMPARE RESPONSES TO 103 AND 104. MAKE THE NECESSARY CALCULATIONS IN THE SPACE ON THE RIGHT. CORRECT IF INFORMATION IS INCONSISTENT.	AGE IN COMPLETED YEARS..... ☐☐	
105	Have you ever attended school?	YES............................1 NO.............................2	——>109
106	What is the highest level you have attended ?	PRIMARY..........................1 SECONDARY........................2 HIGH SCHOOL......................3 UNIVERSITY.......................4	
107	What is the highest grade you have completed at that level ?	GRADE........................ ☐	
107A	Did you graduate from this school ?	YES............................1 NO.............................2	

108	CHECK 106 : PRIMARY ☐ ↓ SECONDARY OR HIGHER ☐		→110
109	Can you read and understand a letter or newspaper easily, with difficulty, or not at all?	EASILY..........................1 WITH DIFFICULTY................2 NOT AT ALL.....................3	 →111
110	Do you read a newspaper or magazine at least once a week?	YES............................1 NO.............................2	
111	Do you listen to the radio at least once a week?	YES............................1 NO.............................2	
112	Do you watch television at least once a week?	YES............................1 NO.............................2	
113A	Do you smoke ?	YES............................1 NO.............................2	 →114A
113B	How many cigarettes do you smoke per day on the average?	AVERAGE NO.OF CIGARETTES... ☐☐	
114A	What is your mother tongue ? RECORD ONLY ONE RESPONSE.	TURKISH.......................01 KURDISH, ZAZA.................02 ARABIC........................03 ARMENIAN......................04 CIRCASSIAN....................05 GEORGIAN......................06 HEBREW........................07 PERSIAN.......................08 GREEK.........................09 LAZ LANGUAGE..................10 EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,ETC.)................11 WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)..........12 OTHER________________________13 (SPECIFY)	

114B	In addition to your mother tongue, which language(s) can you speak and / or understand ? RECORD ALL MENTIONED.	TURKISH..........................A KURDISH, ZAZA....................B ARABIC...........................C ARMENIAN.........................D CIRCASSIAN.......................E GEORGIAN.........................F HEBREW...........................G PERSIAN..........................H GREEK............................I LAZ LANGUAGE.....................J EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,BOSNIAN ETC)..........K WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)...........L OTHER______________________M (SPECIFY) KNOWS NO OTHER LANGUAGE.........P
114C	What is (was) your mother's mother tongue ? RECORD ONLY ONE RESPONSE.	TURKISH.........................01 KURDISH, ZAZA...................02 ARABIC..........................03 ARMENIAN........................04 CIRCASSIAN......................05 GEORGIAN........................06 HEBREW..........................07 PERSIAN.........................08 GREEK...........................09 LAZ LANGUAGE....................10 EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,BOSNIAN ETC).........11 WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)..........12 OTHER______________________13 (SPECIFY)
114D	What is (was) your father's mother tongue ? RECORD ONLY ONE RESPONSE.	TURKISH.........................01 KURDISH, ZAZA...................02 ARABIC..........................03 ARMENIAN........................04 CIRCASSIAN......................05 GEORGIAN........................06 HEBREW..........................07 PERSIAN.........................08 GREEK...........................09 LAZ LANGUAGE....................10 EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,BOSNIAN ETC).........11 WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)..........12 OTHER______________________13 (SPECIFY)

115	CHECK QUESTION 4 IN THE HOUSEHOLD QUESTIONNAIRE THE WOMAN INTERVIEWED IS NOT A USUAL RESIDENT ☐ v	THE WOMAN INTERVIEWED IS A USUAL RESIDENT ☐	>201
116	Now I would like to ask about the place in which you usually live. Do you usually live in a province centre, a district centre, a sub-district or a village, or abroad ?	PROVINCE CENTRE.................1 DISTRICT CENTRE.................2 SUB-DISTRICT OR VILLAGE.........3 ABROAD..........................4	 >117A
117	In which province is this place ? (RECORD THE NAME AND CODE OF THE PROVINCE)	NAME OF PROVINCE ☐☐ ______________ PROVINCE CODE	
117A	How many persons do usually live in your house ?	NUMBER..................... ☐☐	
118	What is the source of water your household uses for handwashing and dishwashing ?	PIPED WATER PIPED WATER IN HOUSE/GARDEN...11 PUBLIC TAP....................12 WELL WATER WELL IN RESIDENCE/YARD/PLOT...21 PUBLIC WELL...................22 SURFACE WATER SPRING........................31 RIVER/STREAM..................32 POND/LAKE.....................33 DAM...........................34 RAINWATER.....................41 TANKER........................51 BOTTLED WATER.................. 61 OTHER ____________________ 71 (SPECIFY)	
120	Do you obtain drinking water from the same source as water for handwashing and dishwashing ?	YES.............................1 NO..............................2	>121A

121	What is the source of your drinking water ?	PIPED WATER PIPED WATER IN HOUSE/GARDEN...11 PUBLIC TAP....................12 WELL WATER WELL IN RESIDENCE/YARD/PLOT...21 PUBLIC WELL...................22 SURFACE WATER SPRING........................31 RIVER/STREAM..................32 POND/LAKE.....................33 DAM...........................34 RAINWATER.....................41 TANKER........................51 BOTTLED WATER.................. 61 OTHER ____________________ 71 (SPECIFY)	
121A	Now I would like to ask you questions about the toilet facility of your house. Is the toilet in the house or outside ?	INSIDE.........................1 OUTSIDE........................2 NO TOILET FACILITY.............3 OTHER ____________________ 4 (SPECIFY)	 →122C
121B	What type of toilet is it ? Is it a flush toilet, a closed pit or an open pit ?	FLUSH TOILET...................1 CLOSED PIT.....................2 OPEN PIT.......................3	
121C	Is the toilet used by only those in this household, or is it shared by members of another household ?	THIS HOUSEHOLD ONLY............1 SHARED.........................2	
122B	Is there a place for washing hands in the toilet ?	YES............................1 NO.............................2	
122C	What is the source of heating in winter ?	RADIATOR (CENTRAL HEATING).......1 RADIATOR (PRIVATE)...............2 STOVE............................3 CHARCOAL BRAZIER.................4 OVEN.............................5 OTHER____________________6 (SPECIFY)	
124	How many rooms in your household are used for sleeping ?	ROOMS FOR SLEEPING......... ☐☐	

125	What is the main material of the floor ?	NATURAL FLOOR	
		EARTH	11
		RUDIMENTARY	
		WOOD PLANKS	21
		FINISHED FLOOR	
		PARQUET OR POLISHED WOOD	31
		CEMENT	34
		CARPET	35
		MARLEY	36
		MOSAIC	37
		OTHER ____________________ (SPECIFY)	41

			YES	NO
126	Do you have the following in the household ?			
	Refrigerator	REFRIGERATOR	1	2
	Oven for Cooking	OVEN	1	2
	Washing Machine	WASHING MACHINE	1	2
	Dishwasher	DISHWASHER	1	2
	Vacuum Cleaner	VACUUM CLEANER	1	2
	Television	TELEVISION	1	2
	Video Recorder	VIDEO RECORDER	1	2
	Radio-Cassette Player	RADIO-CASSETTE PLAYER	1	2
	Music Set	MUSIC SET	1	2
	Telephone	TELEPHONE	1	2
	A Car (excluding tractors, taxis etc)	A CAR	1	2
	Computer	COMPUTER	1	2
	More than 30 Books (Excluding school books)	MORE THAN 30 BOOKS	1	2

SECTION 2A. REPRODUCTION

201	Now I would like to ask about all the births you have had during your life. Have you ever given birth?	YES.............................1 NO..............................2	 →206
202	Do you have any sons or daughters to whom you have given birth who are now living with you?	YES.............................1 NO..............................2	 →204
203	How many sons live with you? And how many daughters live with you? IF NONE RECORD '00'.	SONS AT HOME.............. ☐☐ DAUGHTERS AT HOME.......... ☐☐	
204	Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?	YES.............................1 NO..............................2	 →206
205	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? IF NONE RECORD '00'.	SONS ELSEWHERE............ ☐☐ DAUGHTERS ELSEWHERE........ ☐☐	
206	Have you ever given birth to a boy or a girl who was born alive but later died? IF NO, PROBE: Any baby who cried or showed any sign of life but only survived a few hours or days?	YES.............................1 NO..............................2	 →208
207	In all, how many boys have died? And how many girls have died? IF NONE RECORD '00'.	BOYS DEAD................. ☐☐ GIRLS DEAD................ ☐☐	
208	FIND THE TOTAL NUMBER OF CHILDREN EVER BORN : SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE, RECORD '00'.	TOTAL...................... ☐☐	
209	CHECK 208: Just to make sure that I have this right: you have had in TOTAL ____ births during your life. Is that correct? YES ☐ ↓ NO ☐ → PROBE AND CORRECT 201-208 AS NECESSARY		
210	CHECK 208: ONE OR MORE BIRTHS ☐ ↓ NO BIRTHS ☐		→225

CONTINUE WITH THE BIRTH HISTORY (Q.211)

BIRTH HISTORY

211 Now I would like to talk to you about all of your births, whether still alive or not, starting with the first one you had.
RECORD NAMES OF ALL BIRTHS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE LINES. MAKE SURE TO RECORD DECEASED CHILDREN FROM MULTIPLE BIRTHS BEFORE THOSE SURVIVING.

212 What name was given (first, next) baby ? WRITE 'BABY' IF THE BABY DIED BEFORE A NAME WAS GIVEN.	213 RECORD SINGLE OR MULTIPLE BIRTH STATUS	214 Is (NAME) a boy or a girl ?	214A Where were you living at the time of (NAME)s birth ? Which province was this place in ? IF IN CURRENT PLACE, CIRCLE "00" AND CONTINUE. OTHERWISE, RECORD NAME AND CODE OF THE PROVINCE. CIRCLE "90" IF ABROAD.
01 ☐ ________________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD....................90
02 ☐ ________________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD....................90
03 ☐ ________________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD....................90
04 ☐ ________________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD....................90
05 ☐ ________________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD....................90

215 In what month and year was (NAME) born ? PROBE : What is his/her birthday ? OR : In what season was he/she born ? NOTE : THE YEAR OF BIRTH HAS TO BE DETERMINED	216 Is (NAME) still alive ?	217 IF ALIVE : How old was (NAME) at his last birthday ? RECORD AGE IN COMPLETED YEARS. MAKE CALCULATIONS FOR CONSISTENCY	220 IF DEAD : How old was he/she when she died ? IF "1 YEAR", PROBE : How many months old was (NAME) ? RECORD DAYS IF LESS THAN 1 MONTH, RECORD MONTHS IF LESS THAN 2 YEARS, RECORD YEARS OTHERWISE.
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3

212 What name was given (next) baby ? WRITE 'X' IF THE BABY DIED BEFORE A NAME WAS GIVEN.	213 RECORD SINGLE OR MULTIPLE BIRTH STATUS	214 Is (NAME) a boy or a girl ?	214A Where were you living at the time of (NAME)s birth ? Which province was this place in ? IF IN CURRENT PLACE, CIRCLE "00" AND CONTINUE. OTHERWISE, RECORD NAME AND CODE OF THE PROVINCE. CIRCLE "90" IF ABROAD.
06 ☐ __________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD...................90
07 ☐ __________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD...................90
08 ☐ __________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD...................90
09 ☐ __________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD...................90
10 ☐ __________ (NAME)	SINGLE..........1 MULTIPLE........2	BOY..........1 GIRL.........2	CURRENT PROVINCE..........00 PROVINCE NAME__________ ☐☐ ABROAD...................90

TICK HERE IF NUMBER OF BIRTHS IS MORE THAN 10 AND CONTINUE IN ANOTHER QUESTIONNAIRE FORM. ☐

215 In what month and year was (NAME) born ? PROBE : What is his/her birthday ? OR : In what season was he/she born ? NOTE : THE YEAR OF BIRTH HAS TO BE DETERMINED	216 Is (NAME) still alive ?	217 IF ALIVE : How old was (NAME) at his last birthday ? RECORD AGE IN COMPLETED YEARS. MAKE CALCULATIONS FOR CONSISTENCY	220 IF DEAD : How old was he/she when she died ? IF "1 YEAR", PROBE : How many months old was (NAME) ? RECORD DAYS IF LESS THAN 1 MONTH. RECORD MONTHS IF LESS THAN 2 YEARS. RECORD YEARS OTHERWISE.
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3
MONTH............ YEAR.............	YES......1 NO.......2 220 <	AGE IN YEARS v (NEXT BIRTH)	DAYS............1 MONTHS..........2 YEARS...........3

221 COMPARE 208 WITH NUMBER OF BIRTHS IN HISTORY ABOVE AND MARK:

NUMBERS ARE SAME ☐ ↓

NUMBERS ARE DIFFERENT ☐ → (PROBE AND FIND OUT THE CAUSE OF THE INCONSISTENCY.MAKE ALL NECESSARY CORRECTIONS)

CHECK: FOR EACH BIRTH: YEAR OF BIRTH IS RECORDED (215) ☐

FOR EACH LIVING CHILD: CURRENT AGE IS RECORDED (217) ☐

FOR EACH DEAD CHILD: AGE AT DEATH IS RECORDED (220) ☐

FOR AGE AT DEATH 12 MONTHS: PROBE TO DETERMINE EXACT NUMBER OF MONTHS (220) ☐

222 CHECK 215 AND ENTER THE NUMBER OF BIRTHS SINCE JANUARY 1988.
IF NONE, ENTER 0 AND SKIP TO 224. ☐

223 FOR EACH BIRTH AFTER JANUARY 1988 :

- ENTER "D" IN MONTH AND YEAR OF BIRTH.
- ENTER "H" FOR EACH OF THE 8 PRECEDING MONTHS.
- WRITE THE NAME OF THE CHILD TO THE LEFT OF THE "D" CODE.

NOTE : IN CASES WHEN YOU HAVE OBTAINED THE INFORMATION THAT THE PREGNANCY ENDED BEFORE 9 MONTHS, YOU SHOULD STILL MARK 8 "H"s. HOWEVER, PUT NOTES IN THE CALENDAR SECTION.

224 AT THE BOTTOM OF THE CALENDAR, ENTER THE NAME AND BIRTH DATE OF THE LAST CHILD BORN PRIOR TO JANUARY 1988, IF APPLICABLE.

225	Are you pregnant now?	YES............................1 NO.............................2 UNSURE.........................8	 →228 →228
226	How many months pregnant are you? ENTER "H" IN COLUMN 1 OF CALENDAR IN MONTH OF INTERVIEW AND IN EACH PRECEDING MONTH PREGNANT.	MONTHS..................... ☐☐	
227	At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to become pregnant at all?	THEN...........................1 LATER..........................2 NOT AT ALL.....................3	

227A	Do you want this child to be a boy or a girl ?	BOY............................1 GIRL...........................2 INDIFFERENT....................3 OTHER________________________4 (SPECIFY)	
228	Have you ever had a pregnancy that ended in a miscarriage?	YES............................1 NO.............................2	 >228B
228A	In all, how many miscarriages have you had?	NUMBER OF MISCARRIAGES..... ☐☐	
228B	Have you ever had a pregnancy that ended in an induced abortion?	YES............................1 NO.............................2	 >228D
228C	In all, how many induced abortions have you had?	NUMBER OF INDUCED ABORTIONS.................. ☐☐	
228D	Have you ever had a pregnancy that ended in an still birth?	YES............................1 NO.............................2	 >228F
228E	In all, how many still births have you had?	NUMBER OF STILL BIRTHS..... ☐☐	
228F	CALCULATE THE TOTAL NUMBER OF PREGNANCIES. TOTAL NUMBER OF PREGNANCIES ENDING IN MISCARRIAGES, INDUCED ABORTIONS OR STILL BIRTHS: SUM THE ANSWERS TO 228A, 228C AND 228E ________ TOTAL NUMBER OF PREGNANCIES ENDING IN LIVE BIRTHS: SUM THE NUMBER OF SINGLE BIRTHS IN THE BIRTH HISTORY. + ________ ADD TO THAT SUM THE NUMBER OF MULTIPLE BIRTHS. + ________ TOTAL NUMBER OF PREGNANCIES: = ________	TOTAL...................... ☐☐	

228G	CHECK 228F: Just to make sure that I have this right: you have had in TOTAL ____ completed pregnancies in your life. Is that correct ? YES ☐ ↓ NO ☐ → PROBE AND CORRECT 201-228F AS NECESSARY		
228H	CHECK 228A, 228C AND 228E : HAD AT LEAST ONE ABORTION, MISCARRIAGE OR STILLBIRTH ☐ ↓ HAD NO ABORTIONS, MISCARRIAGES OR STILLBIRTHS ☐		→234
229	Now I would like to ask about any recent miscarriages, abortions or still births which you may have had. When did the last such pregnancy end?	MONTH..................... ☐☐ YEAR...................... ☐☐	
229A	Was this an induced abotion, a miscarriage, or a stillbirth ?	INDUCED ABORTION.................1 MISCARRIAGE......................2 STILLBIRTH.......................3	 →230 →230
229B	What was the main reason behind the decision to end this pregnancy with an abortion ?	DOCTOR'S RECOMMENDATION/DECISION.1 BIRTH WOULD BE EXTRAMARITAL......2 DID NOT WANT A CHILD AT THAT TIME (SOCIAL-ECONOMIC REASONS)........3 DID NOT WANT (ANOTHER) CHILD.....4 THE PREVIOUS PREGNANCY HAD JUST ENDED..................6 OTHER ______________________7 (SPECIFY)	

230 CHECK 229:

LAST PREGNANCY ENDED SINCE JANUARY 1988 ☐ ↓

LAST PREGNANCY ENDED BEFORE JANUARY 1988 ☐ →234

231	How many months pregnant were you when the pregnancy ended?	MONTHS..................... ☐☐

WASTED PREGNANCIES AFTER JANUARY 1988
(IN COLUMNS 1 AND 2 OF THE CALENDAR)

- PROBE TO DETERMINE HOW PREGNANCY ENDED (INDUCED ABORTION, MISCARRIAGE, STILLBIRTH)

- ENTER THE APPROPRIATE CODE IN THE MONTH AND YEAR PREGNANCY TERMINATED.
  CODES : F - MISCARRIAGE
  K - INDUCED ABORTION
  J - STILLBIRTH

- ENTER "H" IN EACH PRECEDING MONTH PREGNANT.

- IF THE PREGNANCY ENDED WITH AN INDUCED ABORTION, ENTER CODE FOR THE PERSON INITIATING THE ABORTION IN COLUMN 2 OF THE CALENDAR, IN THE MONTH AND YEAR OF TERMINATION.

CODES : L - HERSELF	E - MIDWIFE/NURSE
A - RELATIVE / FRIEND	T - DOCTOR IN HOSPITAL
N - TRADITIONAL MIDWIFE	R - PRIVATE DOCTOR
	W - OTHER

THEN ASK FOR DATES AND DURATIONS OF ANY OTHER PREGNANCIES BACK TO JANUARY 1988. REPEAT THE PROCEDURES AS DESCRIBED ABOVE FOR THESE PREGNANCIES.

ILLUSTRATIVE QUESTIONS :
- How did this pregnancy end ? (Was it an abortion, a miscarriage or a stillbirth etc)
- What was the total duration of this pregnancy ? How any months pregnant were you ?
- Who initiated the abortion ?

234	When did your last menstrual period start?	DAYS AGO.................1 ☐☐ WEEKS AGO................2 ☐☐ MONTHS AGO...............3 ☐☐ YEARS AGO................4 ☐☐ CURRENTLY MENSTRUATING........993 IN MENOPAUSE..................994 BEFORE LAST BIRTH.............995 NEVER MENSTRUATED.............996	
235	Between the first day of a woman's period and the first day of her next period, are there certain times when she has a greater chance of becoming pregnant than other times?	YES............................1 NO.............................2 DK.............................8	 >250

236	During which times of the monthly cycle does a woman have the greatest chance of becoming pregnant?	DURING HER PERIOD...............1 RIGHT AFTER HER PERIOD HAS ENDED......................2 IN THE MIDDLE OF THE CYCLE......3 JUST BEFORE HER PERIOD BEGINS...4 OTHER__________________________5 (SPECIFY) DK..............................8	

2B. MARRIAGE

250	What is your current marital status ? Are you married, divorced, widowed, or separated ? ACCEPT THOSE LIVING TOGETHER AS BEING MARRIED.	CURRENTLY MARRIED...............1 WIDOWED.........................2 DIVORCED........................3 SEPARATED.......................4	→ 252
251	Is your husband living with you now or is he staying elsewhere because of work, military service, a journey abroad etc. ?	LIVING WITH HER.................1 STAYING ELSEWHERE...............2	
252	How many times did you marry ?	TIMES........................☐	
253	In what month and year did you marry (started living with) your (first) husband ?	MONTH.....................☐☐ DK MONTH.......................98 YEAR......................☐☐ DK YEAR........................98	
254	How old were you when you started living with your (first) husband ?	AGE.......................☐☐ DK AGE.........................98	
255	How old was your (first) husband when you started living with him ? IF THE WOMAN DOES NOT KNOW HER HUSBAND'S AGE AT MARRIAGE, ASK HOW MANY YEARS DIFFERENCE IS THERE BETWEEN HER AND HER HUSBAND AND ESTIMATE HER HUSBAND'S MARRIAGE AGE.	AGE.......................☐☐ DK AGE.........................98	

256 CHECK 253 AND 254 :

YEAR AND AGE
GIVEN ? YES ☐ NO ☐ ——>258

257 CHECK CONSISTENCY OF 253 AND 254 :

YEAR OF BIRTH (103) ☐☐ ——IF YEAR OF BIRTH NOT GIVEN IN 103——>

PLUS +

AGE AT MARRIAGE (254) ☐☐

=

CALCULATED
YEAR OF MARRIAGE ☐☐

IF NECESSARY, CALCULATE
YEAR OF BIRTH

CURRENT YEAR 9 3

MINUS -

CURRENT AGE (104) ☐☐

=

CALCULATED
YEAR OF BIRTH ☐☐

IS THE CALCULATED YEAR OF MARRIAGE WITHIN ONE YEAR OF THE REPORTED YEAR OF MARRIAGE (253) ?

YES ☐ NO ☐ ——>PROBE AND CORRECT 253 AND 254.

258 DETERMINATION OF MONTHS WHEN THE WOMAN WAS MARRIED AND NOT MARRIED :

BEGINNING WITH THE MONTH OF INTERVIEW, DETERMINE MONTHS SINCE JANUARY 1988 WHEN THE WOMAN WAS MARRIED. RECORD "X" IN COLUMN 6 FOR MONTHS MARRIED AND "O" FOR MONTHS NOT MARRIED.

FOR WOMEN NOT CURRENTLY MARRIED OR WITH MORE THAN MARRIAGE :
PROBE FOR DATE COUPLE STOPPED LIVING TOGETHER OR DATE WIDOWED, AND FOR STARTING DATE OF ANY SUBSEQUENT MARRIAGE.

NOTE : ALL BOXES IN COLUMN 6 SHOULD BE FILLED AFTER YOU HAVE COMPLETED THIS SECTION.

WRITE DATES AND
EVENTS IMPORTANT
IN COMPLETING COLUMN 6
HERE
____
____

259	Did you have a civil marriage ceremony with your (last) husband ?	YES.............................1 NO..............................2	
260	Did you have a religious marriage ceremony with your (last) husband ?	YES.............................1 NO..............................2	
261	CHECK 259 AND 260 : HAD BOTH CIVIL AND RELIGIOUS CEREMONIES ☐ ↓	HAD ONLY CIVIL OR ONLY RELIGIOUS CEREMONY (OR NEITHER) ☐	→265
262	Did you have the civil and religious ceremonies with your (last) husband in the same week ?	YES.............................1 NO..............................2	→ 265
263	Which one took place earlier ?	CIVIL...........................1 RELIGIOUS.......................2	
264	How much time elapsed between the two ceremonies ? RECORD "00" MONTHS IF LESS THAN ONE MONTH.	YEARS...................1 ☐☐ MONTHS..................2 ☐☐ DK.........................998	
265	How was your marriage with your (last) husband arranged ?	WE ARRANGED OURSELVES...........1 ARRANGED BY THE FAMILIES........2 ESCAPED / ABDUCTED..............3 OTHER ______________________ 4 (SPECIFY)	 →267 ┐ ┘→269
266	Did you have to seek the consent of your family to get married to your (last) husband ?	YES.............................1 NO..............................2	┐ ┘→ 268

267	Did your family seek your consent on your marriage to your (last) husband ?	YES....................................1 NO......................................2	
268	Did your (last) husband or his family pay bridesmoney to your family ?	YES....................................1 NO......................................2	
269	Are (were) you blood relatives with your (last) husband ?	YES....................................1 NO......................................2	→301
270	What (was) is his relationship to you ?	FATHER'S BROTHER'S SON.........01 FATHER'S SISTER'S SON..........02 MOTHER'S SISTER'S SON..........03 MOTHER'S BROTHER'S SON.........04 OTHER ______________________05 (SPECIFY)	

SECTION 3. CONTRACEPTION

301 Now I would like to talk with you about family planning. There are various methods that a married couple can use to avoid pregnancy. Which ways or methods have you heard ?

- LISTEN TO THE WOMAN'S RESPONSES WITHOUT INTERRUPTING. CIRCLE CODE 1 IN 302 FOR EACH METHOD MENTIONED SPONTANEOUSLY. KEEP HER CONTINUING BY ASKING "ANY OTHER METHOD ?".
- BEGINNING WITH THE UPPERMOST METHOD IN THE LIST, READ THE DESCRIPTIONS OF THE METHODS NOT MENTIONED SPONTANEOUSLY AND ASK WHETHER SHE HAS HEARD OF THE METHOD. IF SHE RECOGNIZES THE METHOD, CIRCLE "2" IN 302 ; IF NOT, CIRCLE "3". AFTER YOU HAVE COMPLETED THIS ROUTINE, ALL METHODS MUST HAVE BEEN CODED IN 302.
- BEGINNING WITH THE UPPERMOST METHOD IN THE LIST, ASK 303 AND 304 FOR ALL METHODS MENTIONED SPONTANEOUSLY OR AFTER PROBING IN 302.

NOTE : IF THE WOMAN SAYS "YES" TO 304, PROBE TO ASCERTAIN WHETHER THIS IS REALLY A "PLACE".

	302 Have you ever heard of this method ? READ DESCRIPTION OF EACH METHOD.	303 Have you ever used this method ?	304 Do you know where this method could be obtained from ?
01 PILL Women can avoid a pregnancy by taking a pill every day.	YES/SPONT.........1 YES/PROBED........2 NO...............3	YES..............1 NO...............2	YES..................1 NO...................2
02 IUD Women can have the so called spiral or IUD placed in them by a doctor or a nurse which is left there and this avoids pregnancy.	YES/SPONT.........1 YES/PROBED........2 NO...............3	YES..............1 NO...............2	YES..................1 NO...................2
03 INJECTIONS Women can have an injection which stops them from becoming pregnant for a certain period of time.	YES/SPONT.........1 YES/PROBED........2 NO...............3	YES..............1 NO...............2	YES..................1 NO...................2
04 DIAPHRAGM,FOAM,JELLY Women can place a sponge, suppository, diaphragm, jelly or cream inside them before intercourse.	YES/SPONT.........1 YES/PROBED........2 NO...............3	YES..............1 NO...............2	YES..................1 NO...................2
05 CONDOM There are methods that men can use so that their wives will not get pregnant. They can use a rubber sheath called condom during sexual intercourse.	YES/SPONT.........1 YES/PROBED........2 NO...............3	YES..............1 NO...............2	YES..................1 NO...................2
06 NORPLANT Now there is a new method. A small capsule is placed by a doctor underneath the skin of the arm and this avoids the women from getting pregnant.	YES/SPONT.........1 YES/PROBED........2 NO...............3	YES..............1 NO...............2	YES..................1 NO...................2

	302 Have you ever heard of this method ? READ DESCRIPTION OF EACH METHOD.	303 Have you ever used this method ?	304 Do you know where this method could be obtained from ?
07 TUBAL LIGATION Some women can have an operation of tubal ligation to avoid having any more children. Afterwards they continue to have their normal husband-wife relationship but they don't have children.	YES/SPONT.........1 YES/PROBED........2 NO................3	Have you ever had such an operation to avoid having any more children ? YES..........1 NO...........2	YES...................1 NO....................2
08 MALE STERILIZATION Some men can have an operation called vasectomy so that their wives would not get pregnant. Afterwards they have their normal husband-wife relationship but they don't have children.	YES/SPONT.........1 YES/PROBED........2 NO................3	Has (Had) your husband ever have such an operation ? YES...............1 NO................2	YES...................1 NO....................2
09 RHYTHM (PERIODIC ABSTINENCE) Couples can avoid having sexual intercourse on certain days of the month when the woman is more likely to become pregnant.	YES/SPONT.........1 YES/PROBED........2 NO................3	YES...............1 NO................2	Do you know a place where a person can get information about rhythm if he/she wants to ? YES...................1 NO....................2
10 WITHDRAWAL Some men pull out during sexual intercourse, that is they can be careful and pull out before climax.	YES/SPONT.........1 YES/PROBED........2 NO................3	YES...............1 NO................2	Do you know a place where a person can get information about withdrawal if he/she wants to ? YES...................1 NO....................2
11 ABSTINENCE In order to avoid pregnancy, some couples do not have sexual intercourse for several months.		YES...............1 NO................2 ASK BY READING THE DESCRIPTION	
12 Have you heard of any other method that women or men can use to avoid pregnancy ?	YES/SPONT.........1 YES/PROBED........2 NO................3		
1 ______________ (SPECIFY)		YES...............1 NO................2	
2 ______________ (SPECIFY)		YES...............1 NO................2	
3 ______________ (SPECIFY)		YES...............1 NO................2	

305 CHECK 303:

NOT A SINGLE "YES" (NEVER USED) ☐

AT LEAST ONE "YES" (EVER USED) ☐ → SKIP TO 309

306	Have you ever used any method or tried in any way to delay or avoid getting pregnant ?	YES.......................... ☐ NO.......................... ☐	→308
307	ENTER "0" IN COLUMN 1 OF CALENDAR IN EACH BLANK MONTH.		→338A
308	What have you used or done? CORRECT 303-305 (AND 302 IF NECESSARY).		
309	What is the first thing you ever did or method you ever used to delay or avoid getting pregnant?	PILL..........................01 IUD..........................02 INJECTIONS....................03 DIAPHRAGM/FOAM/JELLY..........04 CONDOM........................05 NORPLANT......................06 TUBAL LIGATION................07 MALE STERILIZATION............08 RHYTHM........................09 WITHDRAWAL....................10 ABSTINENCE....................11 OTHER ______________________12 (SPECIFY)	07–12 →311
310	Where did you go to get this method the first time ? TRY TO ASCERTAIN THAT THE RESPONSE REFERS TO A PLACE. CONTINUE PROBING FOR RESPONSES SUCH AS "MY HUSBAND", "FRIEND" ETC.	PUBLIC SECTOR GOVERNMENT/INSTITUT.HOSP......11 HEALTH CENTER/HEALTH HOUSE....12 PRIVATE SECTOR PRIVATE CLINIC OR HOSPITAL....21 PHARMACY......................22 PRIVATE DOCTOR................23 OTHER PRIVATE NGO LIKE THE FP FOUNDATION OR THE FP ASSOC...............31 OTHER ______________________41 (SPECIFY) DK............................ 98	
311	Did you have children at that time ? IF YES: How many living children did you have at that time ? IF NONE, RECORD '00'.	NUMBER OF CHILDREN......... ☐☐	

312	CHECK 225 : NOT PREGNANT OR UNSURE ☐ ↓ PREGNANT ☐		>331
313	CHECK 303: WOMAN NOT STERILIZED ☐ ↓ WOMAN STERILIZED ☐		>315A
313A	CHECK 250 : CURRENTLY MARRIED ☐ ↓ NOT MARRIED ☐		>331
314	Are you currently doing something to delay or avoid getting pregnant ?	YES............................1	
		NO.............................2	>331
315	Which method are you using ?	PILL..........................01	>318
		IUD...........................02	>323
		INJECTIONS....................03	>323
		DIAPHRAGM/FOAM/JELLY..........04	>323
		CONDOM........................05	>323
		NORPLANT......................06	>323
315A	CIRCLE '07' FOR TUBAL LIGATION.	TUBAL LIGATION................07	>321
		MALE STERILIZATION............08	>321
		RHYTHM........................09	>325A
		WITHDRAWAL....................10	
		ABSTINENCE....................11	>325A
		OTHER ______________________ 12 (SPECIFY)	>325A
315B	You are saying that you are currently using withdrawal. Do you only use withdrawal or do you actually use another method in combination with it ?	YES............................1	
		NO.............................2	>325A
315C	What is this method ? DO NOT MAKE ANY CORRECTIONS TO 315 IF ANOTHER METHOD IS MENTIONED. SKIP TO 325A AND PROCEED BY ACCEPTING WITHDRAWAL AS THE CURRENT METHOD USED.	PILL..........................01	>325A
		IUD...........................02	>325A
		INJECTIONS....................03	>325A
		DIAPHRAGM/FOAM/JELLY..........04	>325A
		CONDOM........................05	>325A
		NORPLANT......................06	>325A
		TUBAL LIGATION................07	>325A
		MALE STERILIZATION............08	>325A
		RHYTHM........................09	>325A
		ABSTINENCE....................11	>325A
		OTHER ______________________ 12 (SPECIFY)	>325A

318	May I see the package of pills you are using now? RECORD NAME OF BRAND.	PACKAGE SEEN....................1 BRAND NAME______________ ☐☐ PACKAGE NOT SEEN................2	>323
319	Do you know the brand name of the pills you are now using? RECORD NAME OF BRAND.	☐☐ BRAND NAME______________ DK............................98	>323
321	In what month and year was the sterilization operation performed?	MONTH...................... ☐☐ YEAR....................... ☐☐	
322	ENTER STERILIZATION METHOD CODE IN MONTH OF INTERVIEW IN COLUMN 1 OF CALENDAR AND IN EACH MONTH BACK TO DATE OF OPERATION OR TO JANUARY 1988 IF OPERATION OCCURRED BEFORE 1988 WRITE THIS CODE UNTIL JANUARY 1988.		
323	CHECK 315: SHE/HE STERILIZED ☐ v Where did the sterilization take place? USING ANOTHER METHOD ☐ v Where did you obtain (METHOD) the last time? ______________________________ (NAME OF PLACE)	PUBLIC SECTOR GOVERNMENT HOSPITAL..........11 HEALTH CENTER/HEALTH HOUSE...12 PRIVATE SECTOR PRIVATE CLINIC OR HOSPITAL...21 PHARMACY.....................22 PRIVATE DOCTOR...............23 OTHER PRIVATE NGO LIKE THE FP FOUNDATION OR THE FP ASSOC..............31 OTHER ____________________41 (SPECIFY) DK............................98	

324	CHECK 303: WOMAN NOT STERILIZED ☐ v WOMAN STERILIZED ☐		→326
325A	Would you like to use a different method of family planning than the one you are currently using ?	YES....................................1 NO......................................2	 →326
325B	What method would you prefer to use ?	PILL...................................01 IUD....................................02 INJECTIONS.............................03 DIAPHRAGM/FOAM/JELLY...................04 CONDOM.................................05 NORPLANT...............................06 TUBAL LIGATION.........................07 MALE STERILIZATION.....................08 RHYTHM.................................09 WITHDRAWAL.............................10 ABSTINENCE.............................11 OTHER________________________12 (SPECIFY) ANY METHOD.............................77 NOT SURE...............................88	 →326
325C	What is the most important reason that you do not use that method ?	DOCTOR WILL NOT PRESCRIBE IT...01 COST...................................02 NOT AVAILABLE/UNRELIABLE SUPPLIES/DIFFICULT ACCESS......03 TOO FAR AWAY...........................04 DO NOT KNOW HOW TO OBTAIN IT...05 DO NOT KNOW HOW TO USE IT......06 HUSBAND OBJECTS........................07 RELIGIOUS REASONS......................08 OTHER________________________09 (SPECIFY) DONT KNOW..............................98	
326	Who decided to use the method you are currently using ? Yourself, your husband, or did you decide together ?	HERSELF................................1 HER HUSBAND............................2 TOGETHER...............................3	

326A	What is the main reason you decided to use (CURRENT METHOD IN 315) rather than some other method of family planning ?	RECOMMENDATION OF HEALTH PROFESSIONAL...........01 RECOMMENDATION OF RELATIVE/FRIEND...............02 SIDE EFFECTS OF OTHER METHODS..03 CONVENIENCE...................04 EASILY OBTAINED...............05 COST..........................06 WANTED PERMANENT METHOD........07 HUSBAND PREFERRED THIS ONE.....08 WANTED MORE EFFECTIVE METHOD...09 OTHER____________________10 (SPECIFY) DK............................98	
327	Are you having any problems in using (CURRENT METHOD)?	YES............................1 NO.............................2	 →329
328	What is the main problem?	HUSBAND DISAPPROVES/RELUCTANT..01 SIDE EFFECTS..................02 HEALTH CONCERNS...............03 DIFFICULT TO OBTAIN...........04 HIGH COST.....................05 INCONVENIENT TO USE...........06 STERILIZED BUT WANTS CHILDREN......................07 OTHER____________________08 (SPECIFY) DK............................98	

329 CHECK 315 AND 321 :

WOMAN NOT STERILIZED ☐

STERILIZED BEFORE JANUARY 1988 ☐ → 348

STERILIZED SINCE JANUARY 1988 ☐ → 331

329A CHECK 250 :

CURRENTLY MARRIED ☐

NOT MARRIED ☐ → 331

330 ENTER METHOD CODE FROM 315 IN CURRENT MONTH IN COL.1 OF CALENDAR. THEN DETERMINE WHEN SHE STARTED USING THIS METHOD THIS TIME. ENTER METHOD CODE IN EACH MONTH OF USE.

ILLUSTRATIVE QUESTIONS:
- When did you start using this method continuously? ____________________
- How long have you been using this method continuously? ____________________

NOTE : MAKE NOTES OF THE RESPONSES HERE. ____________________

331 CHECK COLUMN 6 OF THE CALENDAR :

FOR MONTHS NOT MARRIED, CODE "N" IN COLUMN 1 OF THE CALENDAR

331A CHECK COLUMN 1 OF THE CALENDAR :

UNCODED BOXES ☐ ALL BOXES CODED ☐ →332

331B CODING METHOD USE SINCE JANUARY 1988 IN COLUMNS 1 AND 2 OF THE CALENDAR :

BEGIN BY ASKING :
I would like to ask some questions about the periods during which your husband
or you used a method to avoid getting pregnant.

- BEGIN WITH THE LAST METHOD USED. USE CALENDAR TO PROBE FOR EARLIER PERIODS OF USE AND NONUSE. USE NAMES OF CHILDREN, DURATIONS OF PREGNANCY, DATES OF BIRTH, DATES OF MARRIAGE ETC. TO PROBE.

- IN EACH MONTH OF USE, ENTER CODE FOR METHOD IN COLUMN 1. FOR MONTHS OF NONUSE, ENTER "0".

- ENTER CODES OF DISCONTINUATION IN COLUMN 2. DETERMINE LAST MONTH OF USE IN COLUMN 1, AND ENTER DISCONTINUATION CODES IN THIS MONTH IN COLUMN 2.

- ASK WHY SHE STOPPED USING THE METHOD. IF A PREGNANCY FOLLOWED, ASK WHETHER SHE BECAME PREGNANT UNINTENTIONALLY WHILE USING THE METHOD OR DELIBERATELY STOPPED TO BECOME PREGNANT. ENTER THE RESPONSE IN COLUMN 2, TO THE LAST MONTH OF METHOD USE.

NOTE : NUMBER OF CODES ENTERED IN COLUMN 2 MUST BE THE SAME AS
THE NUMBER OF INTERRUPTIONS OF CONTRACEPTIVE USE IN COLUMN 1

ILLUSTRATIVE QUESTIONS:
COLUMN 1:
-When was the last time you used a method? Which method was that?
-When did you start using that method? How long after the birth of (NAME)?
-How long did you use the method then?

COLUMN 2:
-Why did you stop using the (METHOD) ?
-Did you become pregnant while using (METHOD), or did you stop to get pregnant,
or stop for some other reason?

IF DELIBERATELY STOPPED TO BECOME PREGNANT, ASK:
"How many months did it take you to get pregnant after you stopped using (METHOD)?
AND ENTER '0' IN EACH SUCH MONTH IN COLUMN 1.

NOTE : EXTRA PROBING MAY BE NECESSARY FOR LONG PERIODS OF NONUSE : THESE MAY ACTUALLY
INCLUDE METHOD USE NOT MENTIONED OR A NOT MENTIONED PREGNANCY.

NOTE : ALL BOXES IN COLUMN 1 SHOULD BE FILLED AT THIS POINT.

332	CHECK COLUMN 6 OF CALENDAR (AND 253 IF NECESSARY) : MARRIED IN JANUARY 1988 ☐ NOT MARRIED IN JANUARY 1988, BUT FIRST MARRIED BEFORE JAN 1988 ☐ FIRST MARRIED AFTER JAN 1988 ☐		 >334 >338
332A	CHECK COLUMN 1 OF CALENDAR : METHOD USED IN MONTH OF JAN. 1988 ☐ NO METHOD USED IN MONTH OF JANUARY 1988 ☐		 >334
333	I see that you were using (METHOD) in Jan. 1988. When did you start using (METHOD) that time? THIS DATE SHOULD BE BEFORE JANUARY 1988 BUT SHOULD NOT PRECEDE THE DATE OF BIRTH OF ANY CHILD BORN BEFORE JANUARY 1988.	MONTH...................... ☐☐ YEAR....................... ☐☐	>338
334	I see that you were not using any method of contraception in January 1988. Did you ever use a method before that?	YES............................1 NO.............................2	 >338
335	CHECK 215: HAD BIRTH BEFORE JAN. 1988 ☐ NO BIRTH BEFORE JAN. 1988 ☐		 >337
336	Did you use a method between the birth of (NAME OF LAST CHILD BORN BEFORE JAN. 1988) and Jan. 1988 ?	YES............................1 NO.............................2	 >338
337	When did you stop using a method the last time prior to Jan. 1988 ?	MONTH...................... ☐☐ YIL........................ ☐☐	

338	CHECK 315: NOT CURRENTLY USING A METHOD ☐	CURRENTLY USING RHYTHM, WITHDRAWAL, ABSTINENCE OR OTHER TRADITIONAL METHOD ☐ (SKIP TO 344)	CURRENTLY USING A MODERN METHOD ☐ ——> 348

338A	CHECK 250 : CURRENTLY MARRIED ☐	NOT MARRIED ☐	——>344

339	Do you intend to use a method to delay or avoid pregnancy at any time in the future?	YES............................1 NO.............................2 DK.............................8	——>341 ——>344
340	What are the reasons you do not intend to use a method ? RECORD ALL ANSWERS IF THERE IS MORE THAN ONE ANSWER. IF ONLY ONE REASON IS MENTIONED, ACCEPT THIS AS THE PRINCIPAL REASON AND CODE IT IN THE BOX. What is the main (principal) reason ? CODE THE PRINCIPAL REASON IN BOX——>	WANTS CHILDREN..................A LACK OF KNOWLEDGE...............B PARTNER OPPOSED.................C COST TOO MUCH...................D SIDE EFFECTS....................E HEALTH CONCERNS.................F HARD TO GET METHODS.............G SIN/ RELIGIOUS REASONS..........H OPPOSED TO FAMILY PLANNING......I FATALISTIC......................J OTHER PEOPLE OPPOSED............K INFREQUENT SEX..................L DIFFICULT TO GET PREGNANT.......M MENOPAUSAL/HAD HYSTERECTOMY.....N INCONVENIENT....................O OTHER______________________P (SPECIFY) DK............................ R ☐	——>344
341	Do you intend to use a method within the next 12 months?	YES............................1 NO.............................2 DK.............................8	
342	When you use a method, which method would you prefer to use?	PILL..........................01 IUD...........................02 INJECTIONS....................03 DIAPHRAGM/FOAM/JELLY..........04 CONDOM........................05 NORPLANT......................06 TUBAL LIGATION................07 MALE STERILIZATION............08 RHYTHM........................09 WITHDRAWAL....................10 ABSTINENCE....................11 OTHER_____________________12 (SPECIFY) UNSURE........................98	——>344 (09–98)

343	Where can you get this method (METHOD MENTIONED IN 342) ________________________ (NAME OF PLACE)	PUBLIC SECTOR GOVERNMENT HOSPITAL...........11 HEALTH CENTER/HEALTH HOUSE....12 PRIVATE SECTOR PRIVATE CLINIC OR HOSPITAL... 21 PHARMACY..................... 22 PRIVATE DOCTOR............... 23 OTHER PRIVATE NGO LIKE FP FOUNDATION OR FP ASSOC......................31 OTHER ____________________41 (SPECIFY) DK........................... 98	 >347 >347 >347 > 348
344	Do you know of a place where you can obtain a method of family planning?	YES............................1 NO.............................2	 > 348
345	Where is that? ________________________ (NAME OF PLACE)	PUBLIC SECTOR GOVERNMENT/INSTITUT.HOSP......11 HEALTH CENTER/HEALTH HOUSE....12 PRIVATE SECTOR PRIVATE CLINIC OR HOSPITAL....21 PHARMACY......................22 PRIVATE DOCTOR................23 OTHER PRIVATE NGO LIKE FP FOUNDATION OR FP ASSOC......................31 OTHER ____________________41 (SPECIFY) DK........................... 98	 > 348
347	Is it easy or difficult to get there?	EASY............................1 DIFFICULT.......................2	

348	CHECK 302: HAS HEARD OF THE PILL ☐ v HAS NOT HEARD OF THE PILL ☐		→ 353
349	I would like to ask you a few questions on the contraceptive pill. Do you think the pill is a reliable method to use to avoid pregnancies ? Does it provide satisfactory protection from becoming pregnant ?	YES, IT IS RELIABLE..............1 NO, IT IS NOT RELIABLE...........2 DK...............................8	
350	Do you think using the pill is easy or difficult ?	EASY.............................1 DIFFICULT........................2 DK...............................8	
351	Do you think using the pill can harm a woman's health ?	YES..............................1 NO...............................2 DK...............................8	
352	What (was) is your (last) husband's view on the pill ? Is he against it's use, or does he have no objections to pill use ?	HUSBAND AGAINST PILL USE.........1 HUSBAND NOT AGAINST PILL USE.....2 SAYS HUSBAND DOES NOT KNOW PILL..3 DK...............................8	
353	CHECK 302: HAS HEARD OF IUD ☐ v HAS NOT HEARD OF IUD ☐		→ 358
354	Do you think IUD is a reliable method to use to avoid pregnancies ? Does it provide satisfactory protection from becoming pregnant ?	YES, IT IS RELIABLE..............1 NO, IT IS NOT RELIABLE...........2 DK...............................8	
355	Do you think using IUD is easy or difficult ?	EASY.............................1 DIFFICULT........................2 DK...............................8	
356	Do you think having an IUD inserted in a woman can harm her health ?	YES..............................1 NO...............................2 DK...............................8	
357	What (was) is your (last) husband's view on the IUD ? (Was) Is he against it's use, or (would) does he have objections to pill use ?	HUSBAND AGAINST IUD USE..........1 HUSBAND NOT AGAINST IUD USE......2 SAYS HUSBAND DOESNOT KNOW IUD....3 DK...............................8	

358	CHECK 302: HAS HEARD OF THE CONDOM ☐ v HAS NOT HEARD OF THE CONDOM ☐		> 362
359	Do you think that using condom is a reliable method to avoid pregnancy ? Does it provide satisfactory protection from becoming pregnant ?	YES, IT IS RELIABLE..............1 NO, IT IS NOT RELIABLE...........2 DK...............................8	
360	Do you think using condom is easy or difficult ?	EASY.............................1 DIFFICULT........................2 DK...............................8	
361	What (was) is your (last) husband's view on the condom ? (Was) Is he against it's use, or (would) does he have no objections to use of condom ?	HUSBAND AGAINST CONDOM USE.......1 HUSBAND NOT AGAINST CONDOM USE...2 SAYS HUSBAND DOESNT KNOW CONDOM..3 DK...............................8	
362	CHECK 302: HAS HEARD OF WITHDRAWAL ☐ v HAS NOT HEARD OF WITHDRAWAL ☐		> 366
363	Let us talk about the withdrawal method. Do you think withdrawal is a reliable method to use to avoid pregnancies ? Does it provide satisfactory protection from becoming pregnant ?	YES..............................1 NO...............................2 DK...............................8	
364	Do you think using withdrawal is easy or difficult ?	EASY.............................1 DIFFICULT........................2 DK...............................8	
365	What (was) is your (last) husband's view on the withdrawal ? (Was) Is he against it's use, or (would) does he have no objections to the use of withdrawal ?	HUSBAND AGAINST WITHDRAWAL.......1 HUSBAND NOT AGAINST WITHDRAWAL...2 SAYS HUSBAND DOESNT KNOW WITHDR..3 DK...............................8	

366	Do you think that using family planning methods is against religion ?	YES..............................1 SOME METHODS ARE AGAINST RELIGION....................2 NO..............................3 DK..............................4	› 368 › 368
367	Which method(s) do you think (are) is against religion ? RECORD ALL MENTIONED.	PILL............................ A IUD.............................B INJECTIONS.......................C DIAPHRAGM/FOAM/JELLY.............D CONDOM...........................E NORPLANT.........................F TUBAL LIGATION...................G MALE STERILIZATION...............H RHYTHM...........................I WITHDRAWAL.......................J ABSTINENCE.......................K OTHER________________________L (SPECIFY) ABORTION.........................M	
368	(Did) Does your husband have any objections to any family planning method or to family planning in general on religious grounds ?	YES..............................1 THINKS SOME METHODS ARE AGAINST RELIGION....................2 NO..............................3 DK..............................4	

SECTION 4A. PREGNANCY AND BREASTFEEDING

401 CHECK 222:

ONE OR MORE BIRTHS SINCE JAN. 1988 ☐

NO BIRTHS SINCE JAN. 1988 ☐ > (SKIP TO 444)

402 ENTER THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH SINCE JANUARY 1988 IN THE TABLE. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 3 BIRTHS, USE ADDITIONAL FORMS - DO NOT USE THE LAST BIRTH COLUMN IN THE ADDITIONAL FORM).

Now I would like to ask you some more questions about the health of all your children born in the past five years. (We will talk about one child at a time.)

	LINE NUMBER FROM Q. 212	☐☐	☐☐	☐☐
	FROM Q. 212 AND Q. 216	LAST BIRTH NAME ______ ALIVE ☐ DEAD ☐	NEXT-TO-LAST BIRTH NAME ______ ALIVE ☐ DEAD ☐	SECOND-FROM-LAST BIRTH NAME ______ ALIVE ☐ DEAD ☐
403	At the time you became pregnant with (NAME), did you want to become pregnant then, did you want to become pregnant later or did you not want at all ?	THEN....................1 (SKIP TO 405)< LATER...................2 NO MORE.................3 (SKIP TO 405)<	THEN....................1 (SKIP TO 405)< LATER...................2 NO MORE.................3 (SKIP TO 405)<	THEN....................1 (SKIP TO 405)< LATER...................2 NO MORE.................3 (SKIP TO 405)<
404	How much longer would you like to have waited?	MONTHS...........1 ☐☐ YEARS............2 ☐☐ DK....................998	MONTHS...........1 ☐☐ YEARS............2 ☐☐ DK....................998	MONTHS...........1 ☐☐ YEARS............2 ☐☐ DK....................998
405	When you were pregnant with (NAME), did you see anyone for antenatal care for this pregnancy ? IF YES, Whom did you see? Anyone else? RECORD ALL PERSONS SEEN.	HEALTH PROFESSIONAL DOCTOR.................A MIDWIFE/NURSE..........B OTHER PERSONS TRADITIONAL MIDWIFE.....D OTHER______________F (SPECIFY) NO ONE ....G (SKIP TO 409)<	HEALTH PROFESSIONAL DOCTOR.................A MIDWIFE/NURSE..........B OTHER PERSONS TRADITIONAL MIDWIFE.....D OTHER______________F (SPECIFY) NO ONE ....G (SKIP TO 409)<	HEALTH PROFESSIONAL DOCTOR.................A MIDWIFE/NURSE..........B OTHER PERSONS TRADITIONAL MIDWIFE.....D OTHER______________F (SPECIFY) NO ONE ....G (SKIP TO 409)<

		LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
407	How many months pregnant were you when you first saw someone for an antenatal check on this pregnancy?	MONTHS.............. ☐☐ DK......................98	MONTHS.............. ☐☐ DK......................98	MONTHS.............. ☐☐ DK......................98
408	How many antenatal visits did you have during the pregnancy of (NAME)?	NO. OF VISITS....... ☐☐ DK......................98	NO. OF VISITS....... ☐☐ DK......................98	NO. OF VISITS....... ☐☐ DK......................98
408A	During the pregnancy of (NAME), did you receive any advice on breastfeeding from this (these) person(s) that you consulted ?	YES......................1 NO.......................2		
409	When you were pregnant with (NAME) were you given an injection, a tetanus injection in the arm to prevent the baby from tetanus, that is, convulsions after birth ?	YES......................1 NO.......................2 (SKIP TO 411)< DK.......................8	YES......................1 NO.......................2 (SKIP TO 411)< DK.......................8	YES......................1 NO.......................2 (SKIP TO 411)< DK.......................8
410	During this pregnancy how many times did you get this tetanus injection ?	TIMES.................. ☐ DK.......................8	TIMES.................. ☐ DK.......................8	TIMES.................. ☐ DK.......................8
410A	How many months pregnant were you when you had the tetanus injection for the first time ?	MONTH............. ☐☐ DK......................98	MONTH............. ☐☐ DK......................98	MONTH............. ☐☐ DK......................98
411	Where did you give birth to (NAME) ?	HOME YOUR HOME.............11 OTHER HOME.............12 PUBLIC SECTOR HOSP./MATERNITY HOSP...21 HEALTH CENTER..........22 PRIVATE SECTOR PRIVATE HOSP./CLINIC...31 OTHER________________41 (SPECIFY)	HOME YOUR HOMEN.............11 OTHER HOME.............12 PUBLIC SECTOR HOSP./MATERNITY HOSP...21 HEALTH CENTER..........22 PRIVATE SECTOR PRIVATE HOSP./CLINIC...31 OTHER________________41 (SPECIFY)	HOME YOUR HOMEN.............11 OTHER HOME.............12 PUBLIC SECTOR HOSP./MATERNITY HOSP...21 HEALTH CENTER..........22 PRIVATE SECTOR PRIVATE HOSP./CLINIC...31 OTHER________________41 (SPECIFY)

		LAST BIRTH NAME ______	NEXT-TO-LAST BIRTH NAME ______	SECOND-FROM-LAST BIRTH NAME ______
412	Who assisted with the delivery of (NAME) ? Anyone else? PROBE FOR THE TYPE OF PERSON AND RECORD ALL PERSONS ASSISTING.	HEALTH PROFESSIONAL DOCTOR..................A MIDWIFE/NURSE...........B OTHER PERSONR TRADITIONAL MIDWIFE.....C NEIGHBOUR/RELATIVE......F OTHER ______ G (SPECIFY) NO ONE...................H	HEALTH PROFESSIONAL DOCTOR..................A MIDWIFE/NURSE...........B OTHER PERSONR TRADITIONAL MIDWIFE.....C NEIGHBOUR/RELATIVE......F OTHER ______ G (SPECIFY) NO ONE...................H	HEALTH PROFESSIONAL DOCTOR..................A MIDWIFE/NURSE...........B OTHER PERSONR TRADITIONAL MIDWIFE.....C NEIGHBOUR/RELATIVE......F OTHER ______ G (SPECIFY) NO ONE...................H
412A	How many months did your pregnancy to (NAME) last ?	MONTHS............. ☐☐	MONTHS............. ☐☐	MONTHS............. ☐☐
412B	CHECK 411 : BIRTH IN A HEALTH INSTITUTION?	YES ☐ >414 NO ☐ ↓	YES ☐ >414 NO ☐ ↓	YES ☐ >414 NO ☐ ↓
412C	What is the main reason for not having done (NAME)s birth in a health institution ?	ACCESSIBILITY PROBLEMS...01 DISTRUST OF INSTITUTIONS OR PERSONNEL...........02 HAPPENED SUDDENLY........03 PROBLEMS IN USING HEALTH INSTITUTIONS...........04 TRADITIONS ETC...........05 OTHER ______ 06 (SPECIFY) NO SPECIFIC REASON.......07 DK.......................98 (SKIP TO 418)	ACCESSIBILITY PROBLEMS...01 DISTRUST OF INSTITUTIONS OR PERSONNEL...........02 HAPPENED SUDDENLY........03 PROBLEMS IN USING HEALTH INSTITUTIONS...........04 TRADITIONS ETC...........05 OTHER ______ 06 (SPECIFY) NO SPECIFIC REASON.......07 DK.......................98 (SKIP TO 420)	ACCESSIBILITY PROBLEMS...01 DISTRUST OF INSTITUTIONS OR PERSONNEL...........02 HAPPENED SUDDENLY........03 PROBLEMS IN USING HEALTH INSTITUTIONS...........04 TRADITIONS ETC...........05 OTHER ______ 06 (SPECIFY) NO SPECIFIC REASON.......07 DK.......................98 (SKIP TO 420)
414	Was (NAME) delivered by caesarian section?	YES......................1 NO.......................2	YES......................1 NO.......................2	YES......................1 NO.......................2

		LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
418	Has your period returned since the birth of (NAME) ?	YES ....1 (SKIP TO 420) NO.......................2		
419	CODING PERIODS OF AMENNHOREA TO THE CALENDAR	ENTER "X" IN COLUMN 3 OF CALENDAR AND IN EACH MONTH TO CURRENT MONTH (OR TO CURRENT PREGNANCY) SKIP TO 421		
420	For how many months after the birth of (NAME) did you not have a period ?	ENTER "X" IN COL.3 OF CALENDAR FOR THE NUMBER OF SPECIFIED MONTHS WITHOUT A PERIOD, STARTING IN THE MONTH AFTER BIRTH. IF LESS THAN ONE MONTH WITHOUT A PERIOD, ENTER "0" IN COL.3 IN MONTH AFTER BIRTH. NOTE THE RESPONSE HERE ________		
421	CHECK 225: RESPONDENT PREGNANT?	NOT PREGNANT ☐ PREGNANT OR UNSURE ☐ (SKIP TO 424)		
422	Have you resumed sexual relations since the birth of (NAME) ?	YES......................1 (SKIP TO 424) NO.......................2		

		LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
423	ENTER "X" IN COL.4 OF CALENDAR IN MONTH AFTER BIRTH AND IN EACH MONTH TO CURRENT MONTH. (SKIP TO 424A)			
424	For how many months after the birth of (NAME) did you not have sexual relations ?	ENTER "X" IN COL.4 OF CALENDAR FOR THE NUMBER OF SPECIFIED MONTHS WITHOUT SEXUAL RELATIONS, STARTING IN THE MONTH AFTER BIRTH. IF LESS THAN ONE MONTH WITHOUT SEXUAL RELATIONS, ENTER "0" IN COL.4 OF CALENDAR IN THE MONTH AFTER BIRTH. NOTE THE RESPONSE HERE ________		
424A	Have you ever swaddled (NAME) ?	YES......................1 NO......................2		
424B	Have you ever swaddled (NAME) with earth ?	YES......................1 NO......................2		
424C	Was (NAME) given to you soon after birth ?	YES......................1 NO......................2	YES......................1 NO......................2	YES......................1 NO......................2
424D	Did you give the collostrum to (NAME) ?	YES......................1 NO......................2	YES......................1 NO......................2	YES......................1 NO......................2
425	Did you ever breastfeed (NAME) ?	YES......................1 (SKIP TO 428) NO......................2	YES......................1 (SKIP TO 436) NO......................2	YES......................1 (SKIP TO 436) NO......................2
426	ENTER "N" IN COL.5 OF CALENDAR IN MONTH AFTER BIRTH			

		LAST BIRTH NAME ____________	NEXT-TO-LAST BIRTH NAME ____________	SECOND-FROM-LAST BIRTH NAME ____________
427	Why did you not breastfeed (NAME) ?	MOTHER ILL/WEAK.........01 CHILD ILL/WEAK..........02 CHILD DIED..............03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.......05 MOTHER WORKING..........06 CHILD REFUSED...........07 OTHER ____________ 08 (SPECIFY) (SKIP TO 438)<	MOTHER ILL/WEAK.........01 CHILD ILL/WEAK..........02 CHILD DIED..............03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.......05 MOTHER WORKING..........06 CHILD REFUSED...........07 OTHER ____________ 08 (SPECIFY) (SKIP TO 438)<	MOTHER ILL/WEAK.........01 CHILD ILL/WEAK..........02 CHILD DIED..............03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.......05 MOTHER WORKING..........06 CHILD REFUSED...........07 OTHER ____________ 08 (SPECIFY) (SKIP TO 438)<
428	How long after birth did you first put (NAME) to the breast? IF LESS THAN 1 HOUR, RECORD '00' HOURS. IF LESS THAN 24 HOURS, RECORD HOURS. OTHERWISE, RECORD DAYS.	IMMEDIATELY............000 HOURS.............1 ☐☐ DAYS...............2 ☐☐		
429	CHECK 216: CHILD ALIVE?	ALIVE ☐ DEAD ☐ v (SKIP TO 436)		
430	Are you still breast-feeding (NAME) ?	YES.....................1 NO......................2 (SKIP TO 436)<		
431	ENTER "X" IN COL.5 OF CALENDAR IN MONTH AFTER BIRTH AND IN EACH MONTH TO CURRENT MONTH			
432	How many times did you breastfeed (NAME) last night between sunset and sunrise? IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER	NUMBER OF NIGHTTIME FEEDINGS ☐☐		
433	How many times did you breastfeed (NAME) yesterday during the daylight hours? IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER	NUMBER OF DAYLIGHT FEEDINGS ☐☐		

		LAST BIRTH NAME ______	NEXT-TO-LAST BIRTH NAME ______	SECOND-FROM-LAST BIRTH NAME ______
434	At any time yesterday or last night was (NAME) given any of the following :	YES NO		
	Plain water ?	PLAIN WATER..........1 2		
	Sugar water ?	SUGAR WATER..........1 2		
	Fruit juice ?	FRUIT JUICE..........1 2		
	Tea ?	TEA..................1 2		
	Baby formula ?	BABY FORMULA.........1 2		
	Yoghurt ?	YOGHURT..............1 2		
	Pudding ?	PUDDING..............1 2		
	Juice of cooked meal ?	JUICE OF COOKED MEAL.1 2		
	Turkish delight ?	TURKISH DELIGHT......1 2		
	Cow's milk ?	COW'S MILK...........1 2		
	Pasteurized milk ?	PASTEURIZED MILK.....1 2		
	Other liquids ?	OTHER LIQUIDS........1 2		
	Any solid or mushy food ?	SOLID/MUSHY FOOD.....1 2		
435	CHECK 434 : FOOD OR LIQUID GIVEN YESTERDAY ?	"YES" TO ONE OR MORE ☐ (SKIP TO 440) "NO" TO ALL ☐ (SKIP TO 439)		
436	For how many months did you breastdfeed (NAME) ?	ENTER "X" IN COL.5 OF CALENDAR FOR THE NUMBER OF SPECIFIED MONTHS OF BREASTFEEDING, STARTING IN THE MONTH OF BIRTH. IF BREASTFED FOR LESS THAN ONE MONTH, ENTER "0" IN COL.5 IN MONTH AFTER BIRTH. NOTE THE RESPONSE HERE ______		
437	Why did you stop breastfeeding (NAME) ?	MOTHER ILL/WEAK.........01 CHILD ILL/WEAK..........02 CHILD DIED..............03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.......05 MOTHER WORKING..........06 CHILD REFUSED...........07 WEANING AGE.............08 BECAME PREGNANT.........09 STARTED USING CONTRACEPTION..........10 OTHER ______ 11 (SPECIFY)	MOTHER ILL/WEAK.........01 CHILD ILL/WEAK..........02 CHILD DIED..............03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.......05 MOTHER WORKING..........06 CHILD REFUSED...........07 WEANING AGE.............08 BECAME PREGNANT.........09 STARTED USING CONTRACEPTION..........10 OTHER ______ 11 (SPECIFY)	MOTHER ILL/WEAK.........01 CHILD ILL/WEAK..........02 CHILD DIED..............03 NIPPLE/BREAST PROBLEM...04 INSUFFICIENT MILK.......05 MOTHER WORKING..........06 CHILD REFUSED...........07 WEANING AGE.............08 BECAME PREGNANT.........09 STARTED USING CONTRACEPTION..........10 OTHER ______ 11 (SPECIFY)

		LAST BIRTH NAME ______	NEXT-TO-LAST BIRTH NAME ______	SECOND-FROM-LAST BIRTH NAME ______
438	CHECK 216: CHILD ALIVE?	ALIVE ☐ DEAD ☐ (SKIP TO 440)	ALIVE ☐ DEAD ☐ (SKIP TO 440)	ALIVE ☐ DEAD ☐ (SKIP TO 440)
439	Was (NAME) ever given water or anything else to drink or eat (other than breastmilk) ?	YES....................1 NO.....................2 (SKIP TO 441)	YES....................1 NO.....................2 (SKIP TO 443)	YES....................1 NO.....................2 (SKIP TO 443)
440	How many months old was (NAME) when you started giving the following on a regular basis ?			
	Formula or milk other than breastmilk ?	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96
	Plain or sugar water ?	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96
	Yoghurt ?	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96
	Any other liquids ?	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96
	Any other solid or mushy food ?	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96	AGE IN MONTHS...... ☐☐ NOT GIVEN..............96
	IF LESS THAN 1 MONTH, RECORD "00".		(SKIP TO 443)	(SKIP TO 443)
441	CHECK 216: CHILD ALIVE?	ALIVE ☐ DEAD ☐ (SKIP TO 443)		

		LAST BIRTH NAME ____________	NEXT-TO-LAST BIRTH NAME ____________	SECOND-FROM-LAST BIRTH NAME ____________
442	Was (NAME) drink anything from a bottle with a nipple yesterday or last night ?	YES......................1 NO.......................2		
442B	Was (NAME) given a dummy or teats yesterday or last night ?	YES......................1 NO.......................2		

443 GO BACK TO 403 FOR NEXT BIRTH, IF NO MORE BIRTHS, GO TO 444.

444 CHECK 215 : IS THERE ANY BIRTH IN 1985,1986 OR 1987 ?

YES ☐ NO ☐ ——>449

NAME OF LAST BIRTH PRIOR TO 1987 : ____________
(NAME)

445	Did you ever breastfeed (NAME) ?	YES............................1 NO.............................2	 ——>447
446	For how many months did you breastfeed (NAME) ?	MONTHS.................... ☐☐	
447	For how many months after the birth of (NAME) did you not have a period?	MONTHS.................... ☐☐ HAS NOT RETURNED/ DID NOT RETURN.................96	
448	For how many months after the birth of (NAME) did you not have husband-wife relationship?	MONTHS.................... ☐☐ NOT RESUMED...................96	

449 CHECK 401 :

ONE OR MORE BIRTHS SINCE JAN. 1988 ☐
(SKIP TO 451)

NO BIRTHS SINCE JAN. 1988 ☐ ——> 601

451	ENTER THE LINE NUMBER AND NAME OF EACH BIRTH SINCE JANUARY 1988 IN THE TABLE. ASK THE QUESTIONS ABOUT ALL THESE BIRTHS. BEGIN WITH THE LAST BIRTH (IF THERE ARE MORE THAN 3 BIRTHS, USE ADDITIONAL FORMS - DO NOT USE THE LAST BIRTH COLUMN IN THE ADDITIONAL FORM).			
	LINE NUMBER FROM Q.212	☐☐	☐☐	☐☐
		LAST BIRTH NAME ____________ ALIVE ☐ DEAD ☐	NEXT-TO-LAST-BIRTH NAME ____________ ALIVE ☐ DEAD ☐	SECOND-FROM-LAST BIRTH NAME ____________ ALIVE ☐ DEAD ☐
452	Does (NAME) have a card where his/her vaccinations are written down? IF YES: May I see this card, please? ASK FOR THE IDENTITY CARD WITH THE VACCINATION CARD, TO BE USED LATER.	YES, CARD SEEN..........1 (SKIP TO 454) YES, CARD NOT SEEN.......2 (SKIP TO 456) NO CARD..................3	YES, CARD SEEN..........1 (SKIP TO 454) YES, CARD NOT SEEN.......2 (SKIP TO 456) NO CARD..................3	YES, CARD SEEN..........1 (SKIP TO 454) YES, CARD NOT SEEN.......2 (SKIP TO 456) NO CARD..................3
453	Did (NAME) ever have a vaccination card?	YES.....................1 (SKIP TO 456) NO......................2	YES.....................1 (SKIP TO 456) NO......................2	YES.....................1 (SKIP TO 456) NO......................2
454	(1) COPY VACCINATION DATES FOR EACH VACCINE FROM THE CARD.CHECK CONSISTENCY OF DATES AND BE CAREFUL OF APPOINTMENT DATES. (2) WRITE "44" IN 'DAY' COLUMN IF CARD SHOWS THAT A VACCINATION WAS GIVEN, BUT NO DATE RECORDED.	DAY MO YR	DAY MO YR	DAY MO YR
	BCG	BCG ☐☐ ☐☐ ☐☐	BCG ☐☐ ☐☐ ☐☐	BCG ☐☐ ☐☐ ☐☐
	POLIO 1	P1 ☐☐ ☐☐ ☐☐	P1 ☐☐ ☐☐ ☐☐	P1 ☐☐ ☐☐ ☐☐
	POLIO 2	P2 ☐☐ ☐☐ ☐☐	P2 ☐☐ ☐☐ ☐☐	P2 ☐☐ ☐☐ ☐☐
	POLIO 3	P3 ☐☐ ☐☐ ☐☐	P3 ☐☐ ☐☐ ☐☐	P3 ☐☐ ☐☐ ☐☐
	DPT 1	D1 ☐☐ ☐☐ ☐☐	D1 ☐☐ ☐☐ ☐☐	D1 ☐☐ ☐☐ ☐☐
	DPT 2	D2 ☐☐ ☐☐ ☐☐	D2 ☐☐ ☐☐ ☐☐	D2 ☐☐ ☐☐ ☐☐
	DPT 3	D3 ☐☐ ☐☐ ☐☐	D3 ☐☐ ☐☐ ☐☐	D3 ☐☐ ☐☐ ☐☐
	MEASLES	MEA ☐☐ ☐☐ ☐☐	MEA ☐☐ ☐☐ ☐☐	MEA ☐☐ ☐☐ ☐☐

		LAST BIRTH NAME ____________	NEXT-TO-LAST BIRTH NAME ____________	SECOND-FROM-LAST BIRTH NAME ____________
455	Has (NAME) received any vaccination that are not recorded on this card? RECORD "YES" ONLY IF WOMAN MENTIONS BCG, DPT 1-3, POLIO 1-3 AND/OR MEASLES VACCINE(S).	YES......................1 (PROBE FOR VACCINATIONS AND WRITE "66" IN THE CORRESPONDING DAY COLUMN IN 454 AND SKIP TO 457A) NO........................2 DK........................8 (SKIP TO 457A)	YES......................1 (PROBE FOR VACCINATIONS AND WRITE "66" IN THE CORRESPONDING DAY COLUMN IN 454 AND SKIP TO 458) NO........................2 DK........................8 (SKIP TO 458)	YES......................1 (PROBE FOR VACCINATIONS AND WRITE "66" IN THE CORRESPONDING DAY COLUMN IN 454 AND SKIP TO 458) NO........................2 DK........................8 (SKIP TO 458)
456	Did (NAME) ever receive any vaccinations to prevent him/her from diseases ?	YES......................1 NO........................2 (SKIP TO 457A) DK........................8	YES......................1 NO........................2 (SKIP TO 458) DK........................8	YES......................1 NO........................2 (SKIP TO 458) DK........................8
457	Please tell me if (NAME) (has) received any of the following vaccinations : READ NAME OF VACCINATION FIRST READ DESCRIPTION IF NAME IS NOT KNOWN			
	A BCG vaccination against tuberculosis, which leaves a scar on the left arm or shoulder?	YES......................1 NO........................2 DK........................8	YES......................1 NO........................2 DK........................8	YES......................1 NO........................2 DK........................8
	A polio vaccine, as drops in the mouth?	YES......................1 NO........................2 DK........................8	YES......................1 NO........................2 DK........................8	YES......................1 NO........................2 DK........................8
	IF YES: How many times?	HOW MANY TIMES......... ☐	HOW MANY TIMES......... ☐	HOW MANY TIMES......... ☐
	A vaccination which is called the composite vaccine and provides protection from diphteria, whooping-cough and tetanus ?	YES......................1 NO........................2 DK........................8	YES......................1 NO........................2 DK........................8	YES......................1 NO........................2 DK........................8
	IF YES: How many times?	HOW MANY TIMES......... ☐	HOW MANY TIMES......... ☐	HOW MANY TIMES......... ☐
	An injection against measles?	YES......................1 NO........................2 DK........................8	YES......................1 NO........................2 DK........................8	YES......................1 NO........................2 DK........................8

		LAST BIRTH NAME ______________	NEXT-TO-LAST BIRTH NAME ______________	SECOND-FROM-LAST BIRTH NAME ______________
457A	CHECK 454 AND 457 : CHILD RECEIVED ANY OF THE VACCINES ?	"YES" TO ONE OR MORE ☐ NO TO ALL ☐ (SKIP TO 458)		
457B	Where did (NAME) receive the vaccination the last time ?	MCH/FP....................1 HOSP./MATERNITY HOSP....2 HEALTH CENTER...........3 PRIVATE HOSP./CLINIC....4 MOBILE TEAMS............5 OTHER______________6 (SPECIFY)		
458	CHECK 216 : CHILD ALIVE?	ALIVE ☐ (SKIP TO 460) DEAD ☐	ALIVE ☐ (SKIP TO 460) DEAD ☐	ALIVE ☐ (SKIP TO 460) DEAD ☐
459	GO BACK TO 452 FOR NEXT BIRTH. IF NO MORE BIRTHS, SKIP TO 601.			
460	Has (NAME) been ill with a fever at any time in the last 2 weeks ?	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8
461	Has (NAME) been ill with a cough at any time in the last 2 weeks ?	YES......................1 NO.......................2 (SKIP TO 465) DK.......................8	YES......................1 NO.......................2 (SKIP TO 465) DK.......................8	YES......................1 NO.......................2 (SKIP TO 465) DK.......................8
462	Has (NAME) been ill with a cough in the last 24 hours ?	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8
463	For how many days (has the cough lasted / did the cough last) ? IF LESS THAN 1 DAY,RECORD '00'	DAYS............... ☐☐	DAYS............... ☐☐	DAYS............... ☐☐
464	When (NAME) had the illness with a cough, did he/she breathe faster than usual with short, rapid breaths ?	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8
465	CHECK 460 AND 461 : FEVER OR COUGH ?	'YES' IN EITHER 460 OR 461 ☐ OTHER ☐ >470	'YES' IN EITHER 460 OR 461 ☐ OTHER ☐ >470	'YES' IN EITHER 460 OR 461 ☐ OTHER ☐ >470

		LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
466	Was anything given to treat the fever / cough ?	YES....................1 NO.....................2 (SKIP TO 468)< DK.....................8	YES....................1 NO.....................2 (SKIP TO 468)< DK.....................8	YES....................1 NO.....................2 (SKIP TO 468)< DK.....................8
467	What was given to treat the fever / cough ? Anything else ? RECORD ALL MENTIONED.	INJECTION.............A ANTIBIOTIC (PILL OR SYRUP).......B PILL OR SYRUP FOR FEVER.................C COUGH SYRUP...........D OTHER PILL OR SYRUP....E HOME REMEDY...........G OTHER________________H (SPECIFY)	INJECTION.............A ANTIBIOTIC (PILL OR SYRUP).......B PILL OR SYRUP FOR FEVER.................C COUGH SYRUP...........D OTHER PILL OR SYRUP....E HOME REMEDY...........G OTHER________________H (SPECIFY)	INJECTION.............A ANTIBIOTIC (PILL OR SYRUP).......B PILL OR SYRUP FOR FEVER.................C COUGH SYRUP...........D OTHER PILL OR SYRUP....E HOME REMEDY...........G OTHER________________H (SPECIFY)
468	Did you seek advice or treatment for the feve/cough ?	YES....................1 NO.....................2 (SKIP TO 470)<	YES....................1 NO.....................2 (SKIP TO 470)<	YES....................1 NO.....................2 (SKIP TO 470)<
468A	Where did you seek advice or treatment ? Anywhere else ? RECORD ALL MENTIONED.	PUBLIC SECTOR GVT.HOSPITAL.........A HEALTH CENTER........B PRIVATE SECTOR PRIV.CLINIC/HOSP.....F PHARMACY.............G PRIVATE DOCTOR.......H OTHER________________M (SPECIFY)	PUBLIC SECTOR GVT.HOSPITAL.........A HEALTH CENTER........B PRIVATE SECTOR PRIV.CLINIC/HOSP.....F PHARMACY.............G PRIVATE DOCTOR.......H OTHER________________M (SPECIFY)	PUBLIC SECTOR GVT.HOSPITAL.........A HEALTH CENTER........B PRIVATE SECTOR PRIV.CLINIC/HOSP.....F PHARMACY.............G PRIVATE DOCTOR.......H OTHER________________M (SPECIFY)
469	How many days after the beginning of fever/cough did you seek advice or treatment ?	ON THE FIRST DAY.......00 DAYS.............. ☐☐	ON THE FIRST DAY.......00 DAYS.............. ☐☐	ON THE FIRST DAY.......00 DAYS.............. ☐☐
470	Has (NAME) had diarrhea in the last 15 days?	YES......................1 NO.......................2 (SKIP TO 489)< DK.......................8	YES......................1 NO.......................2 (SKIP TO 489)< DK.......................8	YES......................1 NO.......................2 (SKIP TO 489)< DK.......................8
472	Did (NAME) have diarrhea in the last 24 hours?	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8	YES......................1 NO.......................2 DK.......................8
473	For how many days (has the diarrhea lasted/did the diarrhea last)? IF LESS THAN ONE DAY, RECORD "00".	DAYS.............. ☐☐	DAYS.............. ☐☐	DAYS.............. ☐☐

		LAST BIRTH NAME ____________	NEXT-TO-LAST BIRTH NAME ____________	SECOND-FROM-LAST BIRTH NAME ____________
475	CHECK 425/430: LAST CHILD STILL BREASTFED?	YES ☐ NO ☐ (SKIP TO 478)		
476	During (NAME)'s diarrhea, did you make any changes in the frequency of breastfeeding?	YES......................1 NO.......................2 (SKIP TO 478)<		
477	Did you increase the number of breastfeeds or reduce them or did you stop completely ?	INCREASED...............1 REDUCED.................2 STOPPED COMPLETELY.......3		
478	(Aside from breastmilk) Was (NAME) given the same amount to drink as before the diarrhea, or more, or less ?	SAME.....................1 MORE.....................2 LESS.....................3 DK.......................8	SAME.....................1 MORE.....................2 LESS.....................3 DK.......................8	SAME.....................1 MORE.....................2 LESS.....................3 DK.......................8
479	Did you give anything to (NAME) to treat the diarrhea?	YES......................1 NO.......................2 (SKIP TO 481) < DK.......................8	YES......................1 NO.......................2 (SKIP TO 481) < DK.......................8	YES......................1 NO.......................2 (SKIP TO 481) < DK.......................8
480	What did you give ? Anything else? RECORD ALL MENTIONED	ORS PACKAGE (SALT WATER PACKAGE FOR DIARRHEA)...........A ORS PREPARED AT HOME (HOME MADE SALT WATER SOLUTION)................B ANTIBIOTIC (PILL OR SYRUP) ....C OTHER PILL OR SYRUP...................D INJECTION................E (I.V.)INTRAVENOUS........F TEA-AYRAN ETC............G OTHER_______________H (SPECIFY)	ORS PACKAGE (SALT WATER PACKAGE FOR DIARRHEA)...........A ORS PREPARED AT HOME (HOME MADE SALT WATER SOLUTION)................B ANTIBIOTIC (PILL OR SYRUP) ....C OTHER PILL OR SYRUP...................D INJECTION................E (I.V.)INTRAVENOUS........F TEA-AYRAN ETC............G OTHER_______________H (SPECIFY)	ORS PACKAGE (SALT WATER PACKAGE FOR DIARRHEA)...........A ORS PREPARED AT HOME (HOME MADE SALT WATER SOLUTION)................B ANTIBIOTIC (PILL OR SYRUP) ....C OTHER PILL OR SYRUP...................D INJECTION................E (I.V.)INTRAVENOUS........F TEA-AYRAN ETC............G OTHER_______________H (SPECIFY)

		LAST BIRTH NAME ________	NEXT-TO-LAST BIRTH NAME ________	SECOND-FROM-LAST BIRTH NAME ________
481	Did you seek advice or treatment for the diarrhea?	YES......................1 NO......................2 (SKIP TO 489)<	YES......................1 NO......................2 (SKIP TO 489)<	YES......................1 NO......................2 (SKIP TO 489)<
481B	Where did you seek advice or treatment ? Anywhere else ? RECORD ALL MENTIONED	PUBLIC SECTOR GOVERN./INSTITUT.HOSP...A HEALTH CENTRE...........B PRIVATE SECTOR PRIVATE HOSP/CLINIC.....F PHARMACY................G PRIVATE DOCTOR..........H OTHER________________M (SPECIFY)	PUBLIC SECTOR GOVERN./INSTITUT.HOSP...A HEALTH CENTRE...........B PRIVATE SECTOR PRIVATE HOSP/CLINIC.....F PHARMACY................G PRIVATE DOCTOR..........H OTHER________________M (SPECIFY)	PUBLIC SECTOR GOVERN./INSTITUT.HOSP...A HEALTH CENTRE...........B PRIVATE SECTOR PRIVATE HOSP/CLINIC.....F PHARMACY................G PRIVATE DOCTOR..........H OTHER________________M (SPECIFY)
482	How many days after the beginning of diarrhea did you seek advice or treatment ?	ON THE FIRST DAY.......00 DAYS.............. ☐☐	ON THE FIRST DAY.......00 DAYS.............. ☐☐	ON THE FIRST DAY.......00 DAYS.............. ☐☐
489	Does (NAME) have an identity card issued to his name ? IF YES : May I see it ?	YES, CARD SEEN..........1 YES, BUT CARD NOT SEEN..2 (SKIP TO 495)< NO......................3 DK......................8	YES, CARD SEEN..........1 YES, BUT CARD NOT SEEN..2 (SKIP TO 495)< NO......................3 DK......................8	YES, CARD SEEN..........1 YES, BUT CARD NOT SEEN..2 (SKIP TO 495) NO......................3 DK......................8
490	WRITE MONTH AND YEAR OF BIRTH FROM IDENTITY CARD	☐☐ ☐☐ MONTH YEAR	☐☐ ☐☐ MONTH YEAR	☐☐ ☐☐ MONTH YEAR
491	CHECK 215 : WRITE MONTH AND YEAR OF BIRTH AS REPORTED BY THE WOMAN	☐☐ ☐☐ MONTH YEAR	☐☐ ☐☐ MONTH YEAR	☐☐ ☐☐ MONTH YEAR
492	COMPARE MONTH AND YEAR IN 490 AND 491 COMPARE YEAR IF MONTH NOT PROVIDED IN 491	MONTH-YEAR SAME........1 (SKIP TO 495)< MONTH AND/OR YEAR DIFFERENT..............2	MONTH-YEAR SAME........1 (SKIP TO 495)< MONTH AND/OR YEAR DIFFERENT..............2	MONTH-YEAR SAME........I (SKIP TO 495)< MONTH AND/OR YEAR DIFFERENT..............2
493	I see that the date of birth on (NAME)s identity card and the date you had given to me are different (MENTION BOTH DATES). Which one is wrong ?	WOMEN'S DECLARATION WRONG.................1 (SKIP TO 495)< IDENTITY CARD WRONG....2	WOMEN'S DECLARATION WRONG.................1 (SKIP TO 495)< IDENTITY CARD WRONG....2	WOMEN'S DECLARATION WRONG.................1 (SKIP TO 495)< IDENTITY CARD WRONG....2

		LAST BIRTH NAME ______	NEXT-TO-LAST BIRTH NAME ______	SECOND-FROM-LAST BIRTH NAME ______
494	What is the reason for this inaccuracy in the identity card ?	______ ☐ ______ ______	______ ☐ ______ ______	______ ☐ ______ ______
495	GO BACK TO 452 FOR NEXT BIRTH. IF NO MORE BIRTHS, GO TO 601			

SECTION 6. FERTILITY PREFERENCES

601	CHECK 250 : CURRENTLY MARRIED ☐ v	NOT CURRENTLY MARRIED ☐	>612
602	CHECK 315 : NEITHER STERILIZED ☐ v	SHE OR HE STERILIZED ☐	>612
603	CHECK 225 : NOT PREGNANT OR UNSURE ☐ v Now I have some questions about the future. Would you like to have (a/another) child or would you prefer not to have any (more) children? PREGNANT ☐ v Now I have some questions about the future. After the child you are expecting, would you like to have another child or would you prefer not to have any more children?	HAVE A (ANOTHER) CHILD..........1 NO MORE / NONE..................2 SAYS THAT SHE CANNOT GET PREGNANT..................3 UNDECIDED OR DK.................8	 >610 (2, 3, 8)
603A	CHECK 225 : NOT PREGNANT OR UNSURE ☐ v How many more children would you like to have in the future ? PREGNANT ☐ v How many more children would you like to have in the future, not counting the one you are currently pregnant with ?	NUMBER..................... ☐☐ OTHER ANSWERS _______________ 96 (SPECIFY)	>604
603B	CHECK 225 : NOT PREGNANT OR UNSURE ☐ v How many boys, how many girls ? PREGNANT ☐ v How many boys and how many girls would you like to have, not counting the one you are currently pregnant with ?	BOYS GIRLS EITHER NUMBER... ☐☐ ☐☐ ☐☐ OTHER _______________ 999996 (SPECIFY)	

604	CHECK 225 : NOT PREGNANT OR UNSURE ☐ v How long would you like to wait from now before the birth of (a/another) child? PREGNANT ☐ v How long would you like to wait after the birth of the child you are expecting before the birth of another child?	MONTHS..................1 ☐☐ YEARS...................2 ☐☐ SOON / NOW....................994 SAYS THAT SHE CANNOT GET PREGNANT................995 OTHER ________________ 996 (SPECIFY) DK...........................998	>610
605	CHECK 216 AND 225 : HAS LIVING CHILD(REN) OR PREGNANT ? YES ☐ v NO ☐		>610
606	CHECK 225 : NOT PREGNANT OR UNSURE ☐ v How old would you like your youngest child to be when your next child is born? PREGNANT ☐ v How old would you like the child you are expecting to be when your next child is born?	AGE OF CHILD YEARS..................... ☐☐ DK...........................98	
610	Have you and your husband ever discussed the number of children you would like to have?	YES...........................1 NO............................2	
611	Do you think your husband wants the same number of children that you want, or does he want more or fewer than you want ?	SAME NUMBER....................1 MORE CHILDREN..................2 FEWER..........................3 DK.............................8	
612	CHECK 216 : HAS LIVING CHILD(REN) ☐ v If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be? NO LIVING CHILD(REN) ☐ v If you could choose exactly the number of children to have in your whole life, how many would that be? RECORD SINGLE NUMBER OR OTHER ANSWER.	NUMBER.................... ☐☐ OTHER ANSWERS ________________ 96 (SPECIFY)	
613	What do you think is the best period of time between the birth of one child and the birth of the next child?	MONTHS..................1 ☐☐ YEARS...................2 ☐☐ OTHER ________________ 996 (SPECIFY)	

SECTION 7A. BACKGROUND CHARACTERISTICS OF HUSBAND AND WOMEN'S WORK

702	Did your (last) husband ever attend school ?	YES............................1 NO............................2	 →705
703	What is the highest level he attended ?	PRIMARY SCHOOL..................1 SECONDARY SCHOOL................2 HIGH SCHOOL.....................3 UNIVERSITY......................4	
704	What is the highest grade he completed at that level ?	GRADE........................☐	
704B	Did he graduate from this school ?	YES............................1 NO............................2	
705	What job (did) does your (last) husband do ? DO NOT WRITE IN THE BOXES	☐☐ ____________________ ____________________ ____________________	
705B	(Did) Does your (last) husband pay social security when doing this job ? IF YES : According to which schedule ?	NO.............................0 SSK............................1 EMEKLI SANDIGI..................2 BAG-KUR.........................3 OTHER ____________________4 (SPECIFY) DK.............................8	
705C	(Did) Does your (last) husband have health insurance ? IF YES : According to which schedule ?	NO.............................0 SSK............................1 EMEKLI SANDIGI..................2 BAG-KUR.........................3 PRIVATE.........................4 GREEN CARD......................5 OTHER ____________________6 (SPECIFY) DK.............................8	

705D	Does (did) your (last) husband read a newspaper or a magazine, for instance, at least once a week ?	YES............................1 NO.............................2
705E	Does (did) your (last) husband listen to radio, for instance, at least once a week ?	YES............................1 NO.............................2
705F	Does (did) your (last) husband watch television, for instance, at least once a week ?	YES............................1 NO.............................2
705G	What is (was) your (last) husband's mother tongue ? RECORD ONLY ONE RESPONSE.	TURKISH........................01 KURDISH, ZAZA..................02 ARABIC.........................03 ARMENIAN.......................04 CIRCASSIAN.....................05 GEORGIAN.......................06 HEBREW.........................07 PERSIAN........................08 GREEK..........................09 LAZ LANGUAGE...................10 EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,BOSNIAN ETC).........11 WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)..........12 OTHER________________________13 (SPECIFY)
705H	In addition to his mother tongue, which language(s) does (did) your (last) husband speak and/or understand ? RECORD ALL MENTIONED.	TURKISH.........................A KURDISH, ZAZA...................B ARABIC..........................C ARMENIAN........................D CIRCASSIAN......................E GEORGIAN........................F HEBREW..........................G PERSIAN.........................H GREEK...........................I LAZ LANGUAGE....................J EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,BOSNIAN ETC)..........K WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)...........L OTHER_________________________M (SPECIFY) KNOWS NO OTHER LANGUAGE.........P

705I	What language(s) do (did) you usually use to speak with your (last) husband ? RECORD ALL MENTIONED.	TURKISH..........................A KURDISH, ZAZA..................B ARABIC..........................C ARMENIAN........................D CIRCASSIAN......................E GEORGIAN........................F HEBREW..........................G PERSIAN.........................H GREEK...........................I LAZ LANGUAGE....................J EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,BOSNIAN ETC)..........K WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)...........L OTHER____________________M (SPECIFY)
705J	What is (was) your (last) husband's mother's mother tongue ? RECORD ONLY ONE RESPONSE.	TURKISH........................01 KURDISH, ZAZA..................02 ARABIC.........................03 ARMENIAN.......................04 CIRCASSIAN.....................05 GEORGIAN.......................06 HEBREW.........................07 PERSIAN........................08 GREEK..........................09 LAZ LANGUAGE...................10 EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,BOSNIAN ETC).........11 WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)..........12 OTHER____________________13 (SPECIFY)
705K	What is (was) your (last) husband's father's mother tongue ? RECORD ONLY ONE RESPONSE.	TURKISH........................01 KURDISH, ZAZA..................02 ARABIC.........................03 ARMENIAN.......................04 CIRCASSIAN.....................05 GEORGIAN.......................06 HEBREW.........................07 PERSIAN........................08 GREEK..........................09 LAZ LANGUAGE...................10 EAST EUROPEAN LANGUAGES (BULGARIAN,RUSSIAN,SERBIAN, RUMANIAN,BOSNIAN ETC).........11 WEST EUROPEAN LANGUAGES (ENGLISH,FRENCH,GERMAN, SPANISH,ITALIAN ETC)..........12 OTHER____________________13 (SPECIFY)

708	Have you lived in only one settlement or in more than one settlements since January 1988 ?	ONE SETTLEMENT..................1 MORE THAN ONE SETTLEMENT........2	 →710
709	ENTER (IN COL.7 OF CALENDAR) THE APPROPRIATE CODE FOR SETTLEMENT OF CURRENT RESIDENCE ("1" PROVINCE CENTRE, "2" DISTRICT CENTRE, "3" SUB-DISTRICT / VILLAGE, "4" ABROAD). BEGIN IN THE MONTH OF INTERVIEW AND CONTINUE WITH ALL PRECEDING MONTHS BACK TO JAN. 1988		→711
710	In what month and year did you move to (NAME OF SETTLEMENT WOMEN IS CURRENTLY RESIDING) - ENTER IN COL.7 OF CALENDAR "X" IN THE MONTH AND YEAR OF THE MOVE, AND IN THE SUBSEQUENT MONTHS. ENTER THE CODE OF THE CURRENT PLACE OF SETTLEMENT UP TO AND INCLUDING THE MONTH OF INTERVIEW. CODES : 1- PROVINCE CENTRE 2- DISTRICT CENTRE 3- SUBDISTRICT OR VILLAGE 4- ABROAD - CONTINUE PROBING FOR PREVIOUS SETTLEMENTS AND RECORD MOVES AND TYPES OF SETTLEMENTS ACCORDINGLY. - WRITE NAMES OF SETTLEMENTS TO THE RIGHT OF THE CALENDAR. ILLUSTRATIVE QUESTIONS - Where did you live before.....? - In what month and year did you arrive there? - Is that place in an urban settlement or a rural settlement ?	______________ ______________	
711	REFER TO PLACE OF RESIDENCE IN JANUARY 1988 : When did you move to (PLACE OF RESIDENCE IN JANUARY 1988)? THE DATE ENTERED HERE SHOULD BE BEFORE JANUARY 1988.	LIVED THERE SINCE BIRTH........96 LIVED THERE SINCE MARRIAGE.....97 MONTH...................... ☐☐ DK MONTH.......................98 YEAR....................... ☐☐ DK YEAR........................98	
713	Now I would like to ask you questions about working. Aside from your own housework, are currently working ?	YES............................1 NO.............................2	→717
714	You say that you are not working. As you know, some women sell small things, sell goods at the marketplace, work on the family farm or business, look after children, work as cleaning ladies etc. Are you doing any of these at the moment, or any other work of similar nature ?	YES............................1 NO.............................2	 →717B

717	What type of work are you doing ? What kind of job are you in ? DO NOT WRITE IN THE BOXES.	☐☐ ____________________ ____________________ ____________________
717A	Do you pay social security when doing this job ? IF YES : According to which schedule ?	NO..............................0 SSK.............................1 EMEKLI SANDIGI..................2 BAG-KUR.........................3 OTHER____________________4 (SPECIFY)
717B	Are you covered by health insurance ? IF YES : According to which schedule ?	NO..............................0 SSK.............................1 EMEKLI SANDIGI..................2 BAG-KUR.........................3 PRIVATE.........................4 GREEN CARD......................5 OTHER____________________6 (SPECIFY)
717C	Did you work before you got married ?	YES.............................1 NO..............................2
723	CHECK 215 AND 216 DOES SHE HAVE CHILD(REN) BORN SINCE JANUARY 1988 AND SURVIVING AT PRESENT ?	YES ☐ NO ☐ ——>733
724	CHECK 713 AND 714 : CURRENTLY WORKING ?	YES ☐ NO ☐ ——>733
725	While you are working, do you usually have (NAME OF YOUNGEST CHILD AT HOME) with you, sometimes have him/her with you, or never have him/her with you?	USUALLY........................1 ——>733 SOMETIMES......................2 NEVER..........................3 WORKS AT HOME, NO NEED..........4
726	Who takes care of (NAME OF YOUNGEST CHILD) while you are working ?	HUSBAND.......................01 OLDER CHILDREN................02 OTHER RELATIVES...............03 NEIGHBOURS....................04 FRIENDS.......................05 CHILD SITTER..................06 CHILD GOES TO SCHOOL..........07 INSTITUTIONAL CHILDCARE.......08 WORKS AT HOME, NO NEED FOR CHILD TO BE LOOKED AFTER.......09 OTHER____________________10 (SPECIFY)

733 CHECK 250 :

MARRIED ↓

CURRENTLY NOT MARRIED ——→ 735

		HER SELF	HUSB.	OTHER PERSN IN FAMIL	PERSN. OUT OF FAMIL.	NO ONE
734	Now I have questions to you regarding house work. Can you please tell me who usually takes care of the following in your home ?					
	Cooking ?	A	B	C	D	E
	Cleaning ?	A	B	C	D	E
	Washing the dishes ?	A	B	C	D	E
	Ironing ?	A	B	C	D	E
	Shopping ?	A	B	C	D	E
	Keeping the family budget ?	A	B	C	D	E
	Going to offices outside home (paying bills etc) ?	A	B	C	D	E

735 CHECK 217 :

HAS AT LEAST ONE LIVING CHILD YOUNGER THAN 5 YEARS OF AGE ↓

NO LIVING CHILDRE UNDER AGE 5 ——→ 738

		HER SELF	HUSB.	OTHER PERSN IN FAMIL	PERSN. OUT OF FAMIL.	NO ONE
736	Who usually takes (took) care of the following tasks concerning childcare ?					
	Preparing food for children ?	A	B	C	D	E
	Dressing up children ?	A	B	C	D	E
	Looking after children in times of illness ?	A	B	C	D	E
	Playing with children ?	A	B	C	D	E

737	Who decides in your family whether to take your sick child to a doctor or not ?	SELF............................1 HUSBAND.........................2 SELF AND HUSBAND TOGETHER.......3 MOTHER-FATHER IN LAW............4 RESPONDENT'S PARENTS............5 OTHER ______________________6 (SPECIFY)

		AGREE	DISAGREE	HAS NO IDEA
738	I will now read to you a few sentences. I would like to learn what you think about the ideas in these sentences. Do you think they are right or wrong ?			
	Men are usually wiser than women.	1	2	8
	A man can beat up his wife in case of inobedience.	1	2	8
	A woman should not argue with her husband if she does not share the same views with him.	1	2	8
	It is quite normal for a married man to go out on his own when he wants to.	1	2	8

		SUFFICIENT	INSUFFICIENT	HAS NO IDEA
739	Which of the following do you think constitutes a sufficient reason for seeking divorce ?			
	Husband drinks too much	1	2	8
	Marital discord	1	2	8
	Aggressive behaviour, including beating	1	2	8
	An unfaithful husband	1	2	8
	Infecund husband	1	2	8
	Infecund wife	1	2	8
	Mother in law intervenes too much	1	2	8

740	RECORD THE TIME	HOUR........................ ☐☐ MINUTES.................... ☐☐	
741	PRESENCE OF OTHERS DURING INTERVIEW : CIRCLE ALL APPROPRIATE ALTERNATIVES.	NO ONE.........................A CHILDREN UNDER 10..............B HUSBAND........................C MOTHER IN LAW..................D RESPONDENTS MOTHER.............E OTHER MEN......................F OTHER WOMEN....................G	
742	WAS THE INTERVIEW INTERRUPTED ? IF YES, FOR HOW LONG, APPROXIMATELY ? (IN MINUTES)	NO.............................000 YES......................1 ☐☐	
743	WHAT IS THE RELIABILITY OF THE RESPONSES, IN YOUR OPINION ?	POOR...........................1 FAIR...........................2 GOOD...........................3 VERY GOOD......................4	
744	WHAT LANGUAGE WAS USED DURING THE INTERVIEW ?	TURKISH........................1 KURDISH........................2 ARABIC.........................3 OTHER____________________________4 (SPECIFY)	→801
745	WAS AN INTERPRETER USED DURING THE INTERVIEW ?	YES............................1 NO.............................2	

INTERVIEWERS 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

____

____

____

SECTION 8. HEIGHT AND WEIGHT

801	CHECK 222 :	
	HAS ONE OR MORE BIRTHS SINCE JANUARY 1988 ☐ ↓	HAS NO BIRTHS SINCE JANUARY 1988 ☐ → END

INTERVIEWER : IN 802 (COLUMNS 2-4) RECORD THE LINE NUMBER OF EACH CHILD BORN SINCE JANUARY 1988 AND STILL ALIVE. IN 803 AND 804 RECORD THE NAME AND BIRTH DATE FOR THE RESPONDENT AND FOR ALL LIVING CHILDREN BORN SINCE JANUARY 1988. IN 806 AND 808 RECORD HEIGHT AND WEIGHT OF THE RESPONDENT AND THE LIVING CHILDREN. IN T809 RECORD THE ARM CIRCUMFERENCE OF THE RESPONDENT.

(NOTE : ALL RESPONDENTS WITH ONE OR MORE BIRTHS SINCE JANUARY 1988 SHOULD BE WEIGHED AND MEASURED EVEN IF ALL THE CHILDREN HAVE DIED. IF THERE ARE MORE THAN 3 LIVING CHILDREN BORN SINCE JANUARY 1988, USE ADDITIONAL FORMS).

	1 RESPONDENT	2 YOUNGEST LIVING CHILD	3 NEXT-TO-YOUNGEST LIVING CHILD	4 SECOND-TO-YOUNGEST LIVING CHILD
802 LINE NO. FROM Q.212		☐☐	☐☐	☐☐
803 NAME FROM Q.212 FOR CHILDREN	(NAME) __________	(NAME) __________	(NAME) __________	(NAME) __________
804 DATE OF BIRTH FROM Q.104 FOR RESPONDENT FROM Q.215 FOR CHILDREN, AND ASK FOR DAY OF BIRTH	MONTH.... ☐☐ YEAR..... ☐☐	DAY...... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY...... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY...... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐
805 BCG SCAR ON TOP OF LEFT SHOULDER (TUBERCULOSIS INJECTION SCAR)		SCAR SEEN......1 NO SCAR........2	SCAR SEEN......1 NO SCAR........2	SCAR SEEN......1 NO SCAR........2
806 HEIGHT (in centimeters)	☐☐☐.☐	☐☐☐.☐	☐☐☐.☐	☐☐☐.☐
807 WAS HEIGHT/LENGTH OF CHILD MEASURED LYING DOWN OR STANDING UP?		LYING..........1 STANDING.......2	LYING..........1 STANDING.......2	LYING..........1 STANDING.......2

	1 RESPONDENT	2 YOUNGEST LIVING CHILD	3 NEXT-TO-YOUNGEST LIVING CHILD	4 SECOND-TO-YOUNGEST LIVING CHILD
808 WEIGHT (in kilograms)	☐☐☐.☐	0☐☐.☐	0☐☐.☐	0☐☐.☐
808A ARM CIRCUMFERENCE (in centimeters)	☐☐.☐			
809 DATE WEIGHED AND MEASURED	DAY...... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY...... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY...... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐	DAY...... ☐☐ MONTH.... ☐☐ YEAR..... ☐☐
810 RESULT	MEASURED.......1 NOT PRESENT....3 REFUSED........4 OTHER..........6 ______________ (SPECIFY)	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.......3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER..........6 ______________ (SPECIFY)	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.......3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER..........6 ______________ (SPECIFY)	CHILD MEASURED.1 CHILD SICK.....2 CHILD NOT PRESENT.......3 CHILD REFUSED..4 MOTHER REFUSED.5 OTHER..........6 ______________ (SPECIFY)

811
NAME OF
MEASURER: ____________________ ☐☐

CALENDAR

INSTRUCTIONS: ONLY ONE CODE SHOULD APPEAR IN ANY BOX. FOR COLUMNS 1, 6 AND 7 ALL MONTHS SHOULD BE FILLED IN.

INFORMATION TO BE CODED FOR EACH COLUMN

COL 1 : BIRTHS, PREGNANCIES, CONTRACEPTIVE USE

D BIRTHS
H PREGNANCIES
K INDUCED ABORTIONS
F MISCARRIAGES
J STILL BIRTHS

0 NO METHOD USED
1 PILL
2 IUD
3 INJECTIONS
4 DIAPHRAGM/FOAM/JELLY
5 CONDOM
6 NORPLANT
7 TUBAL LIGATION
8 MALE STERILIZATION
9 RHYTHM
G WITHDRAWAL
C ABSTINENCE
W OTHER______________________
(SPECIFY)

N MONTHS OUT OF WEDLOCK
(METHOD USE NOT ASKED)

COL 2 : DISCONTINUATION OF CONTR.USE AND PERSON INITIATING ABORTION

1 BECAME PREGNANT WHILE USING
2 WANTED TO GET PREGNANT
3 HUSBAND DISAPPROVED
4 SIDE EFFECTS
5 HEALTH CONCERNS
6 ACCESS/AVAILABILITY
7 WANTED MORE EFFECTIVE METHOD
8 INCONVENIENT TO USE
9 INFREQUENT SEX/HUSBAND AWAY
P COST
Y FATALISTIC
M DIFFICULT TO GET PREGNANT/MENOPAUSE
B DIVORCE/SEPARATION/DEATH OF HUSBAND
W OTHER______________________
(SPECIFY)
O DON'T KNOW

L STARTED IT HERSELF
A RELATIVE/NEIGHBOUR
N TRADITIONAL MIDWIFE
E MIDWIFE/NURSE
T DOCTOR IN HOSPITAL
R DOCTOR IN PRIVATE CLINIC
W OTHER______________________
(SPECIFY)

COL 3 : POSTPARTUM AMENORRHEA

X PERIOD DID NOT RETURN
0 LESS THAN ONE MONTH

COL 4 : POSTPARTUM ABSTINENCE

X NO SEXUAL RELATION
0 LESS THAN ONE MONTH

COL 5 : BREASTFEEDING

X BREASTFEEDING
0 LESS THAN ONE MONTH
N NEVER BREASTFED

COL 6 : MARRIAGE

X MARRIED
0 NOT MARRIED

COL 7 : MOVES AND TYPES OF SETTLEMENTS

X CHANGE OF SETTLEMENT
1 PROVINCE CENTRE
2 DISTRICT CENTRE
3 SUBDISTRICT / VILLAGE
4 ABROAD

				1	2	3	4	5	6	7			
	12	DEC	01								01	DEC	
	11	NOV	02								02	NOV	
	10	OCT	03								03	OCT	
	09	SEP	04								04	SEP	
1	08	AUG	05								05	AUG	1
9	07	JUL	06								06	JUL	9
9	06	JUN	07								07	JUN	9
3	05	MAY	08								08	MAY	3
	04	APR	09								09	APR	
	03	MAR	10								10	MAR	
	02	FEB	11								11	FEB	
	01	JAN	12								12	JAN	
	12	DEC	13								13	DEC	
	11	NOV	14								14	NOV	
	10	OCT	15								15	OCT	
	09	SEP	16								16	SEP	
1	08	AUG	17								17	AUG	1
9	07	JUL	18								18	JUL	9
9	06	JUN	19								19	JUN	9
2	05	MAY	20								20	MAY	2
	04	APR	21								21	APR	
	03	MAR	22								22	MAR	
	02	FEB	23								23	FEB	
	01	JAN	24								24	JAN	
	12	DEC	25								25	DEC	
	11	NOV	26								26	NOV	
	10	OCT	27								27	OCT	
	09	SEP	28								28	SEP	
1	08	AUG	29								29	AUG	1
9	07	JUL	30								30	JUL	9
9	06	JUN	31								31	JUN	9
1	05	MAY	32								32	MAY	1
	04	APR	33								33	APR	
	03	MAR	34								34	MAR	
	02	FEB	35								35	FEB	
	01	JAN	36								36	JAN	
	12	DEC	37								37	DEC	
	11	NOV	38								38	NOV	
	10	OCT	39								39	OCT	
	09	SEP	40								40	SEP	
1	08	AUG	41								41	AUG	1
9	07	JUL	42								42	JUL	9
9	06	JUN	43								43	JUN	9
0	05	MAY	44								44	MAY	0
	04	APR	45								45	APR	
	03	MAR	46								46	MAR	
	02	FEB	47								47	FEB	
	01	JAN	48								48	JAN	
	12	DEC	49								49	DEC	
	11	NOV	50								50	NOV	
	10	OCT	51								51	OCT	
	09	SEP	52								52	SEP	
1	08	AUG	53								53	AUG	1
9	07	JUL	54								54	JUL	9
8	06	JUN	55								55	JUN	8
9	05	MAY	56								56	MAY	9
	04	APR	57								57	APR	
	03	MAR	58								58	MAR	
	02	FEB	59								59	FEB	
	01	JAN	60								60	JAN	
	12	DEC	61								61	DEC	
	11	NOV	62								62	NOV	
	10	OCT	63								63	OCT	
	09	SEP	64								64	SEP	
1	08	AUG	65								65	AUG	1
9	07	JUL	66								66	JUL	9
8	06	JUN	67								67	JUN	8
8	05	MAY	68								68	MAY	8
	04	APR	69								69	APR	
	03	MAR	70								70	MAR	
	02	FEB	71								71	FEB	
	01	JAN	72								72	JAN	

LAST CHILD BORN PRIOR TO JAN. 1988

MONTH.. ☐☐

NAME: ______________________

YEAR... ☐☐

PROVINCE CODES :

01.ADANA
02.ADIYAMAN
03.AFYON
04.AĞRI
05.AMASYA
06.ANKARA
07.ANTALYA
08.ARTVİN
09.AYDIN
10.BALIKESİR
11.BİLECİK
12.BİNGÖL
13.BİTLİS
14.BOLU
15.BURDUR
16.BURSA
17.ÇANAKKALE
18.ÇANKIRI
19.ÇORUM
20.DENİZLİ
21.DİYARBAKIR
22.EDİRNE
23.ELAZIĞ
24.ERZİNCAN
25.ERZURUM
26.ESKİŞEHİR
27.GAZİANTEP
28.GİRESUN
29.GÜMÜŞHANE
30.HAKKARİ
31.HATAY
32.ISPARTA
33.İÇEL
34.İSTANBUL
35.İZMİR
36.KARS
37.KASTAMONU
38.KAYSERİ
39.KIRKLARELİ
40.KIRŞEHİR
41.KOCAELİ
42.KONYA
43.KÜTAHYA
44.MALATYA
45.MANİSA
46.K.MARAŞ
47.MARDİN
48.MUĞLA
49.MUŞ
50.NEVŞEHİR
51.NİĞDE
52.ORDU
53.RİZE
54.SAKARYA
55.SAMSUN
56.SİİRT
57.SİNOP
58.SİVAS
59.TEKİRDAĞ
60.TOKAT
61.TRABZON
62.TUNCELİ
63.Ş.URFA
64.UŞAK
65.VAN
66.YOZGAT
67.ZONGULDAK
68.AKSARAY
69.BAYBURT
70.KARAMAN
71.KIRIKKALE
72.BATMAN
73.ŞIRNAK
74.BARTIN
75.ARDAHAN
76.IĞDIR

CONVERSION OF YEARS OF BIRTH FROM RUMI CALENDAR
TO MILADI CALENDAR YEARS :

RUMI YEAR + 584 = MİLADİ YEAR