HEALTH AND DEMOGRAPHIC SURVEILLANCE SYSTEM MATLAB

VOLUME THIRTY THREE

REGISTRATION OF HEALTH AND DEMOGRAPHIC EVENTS 2000

Scientific Report No. 89 - May 2002

ICDDR,B: Centre for Health and Population Research
Mohakhali, Dhaka-1212, Bangladesh

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), commonly known as Cholera Hospital in Bangladesh, is an international health and population research and training institution located in Dhaka, the capital of Bangladesh. With the changing trend in the world scenario in health and population over the years, ICDDR,B has expanded its activities to address some of the most critical global health needs. Hence, it is now becoming well-known as ICDDR,B: Centre for Health and Population Research (the Centre). In collaboration with partners from academic and research institutions throughout the world, the Centre conducts research, training and extension activities as well as programme-based activities.

The Centre has both national and international staff, including public-health scientists, laboratory scientists, clinicians, nutritionists, epidemiologists, demographers, social and behavioural scientists, IT professionals, and experts in emerging and re-emerging infectious diseases, vaccine sciences, etc. The Centre has a cross-cultural environment with 95% local staff that includes researchers, medical officers, administrators, and health workers, and 5% international staff primarily from academic and research institutions engaged in global health research.

Since 1978, the Centre has shared its knowledge and techniques by training more than 20,000 health professionals from 78 countries around the world. Various courses provide practical training in management of diarrhoeal diseases, epidemiology, biostatistics, family planning, demographic surveillance, child-survival strategies, nutrition, etc. The Centre is governed by a distinguished multinational Board of Trustees comprising 17 members from all regions of the world.

Clinical Sciences Division (CSD) conducts hospital- and community-based clinical research in diarrhoeal diseases, respiratory infections, nutrition, and child development. The Division operates the Dhaka Hospital of the Centre that provides treatment to around 110,000 patients each year (about 60% of them are children aged less than five years) with uncomplicated and complicated diarrhoeal diseases, and associated health problems, including malnutrition and pneumonia. Prevention strategies, such as immunization of children and women, education of mothers on prevention and home management of diarrhoeal diseases and malnutrition, and counselling to lactating mothers on exclusive breast-feeding are also undertaken at the hospital. Provision of theoretical and hands-on training on case management of diarroheal diseases and associated health problems, and research methodology are also important activities of CSD. The Division hosts the nutrition programme.

Public Health Sciences Division (PHSD) is organized into seven units, namely reproductive health, child health, health and demographic surveillance, Matlab health research, epidemic control preparedness, health economics, and social and behavioural sciences. PHSD evaluates and tests community-based interventions to improve the health of population, particularly of the poor. Major current interventions include Integrated Management of Childhood Illness (IMCI), essential services package, safe motherhood, family planning, nutrition and reproductive health interventions. The Division has broadened its agenda by conducting research on low birth-weight, tuberculosis, arsenic contamination in ground water, and interaction of poverty and health. PHSD operates the unique Matlab fieldsite, including a small hospital and clinics and the Health and Demographic Surveillance System (HDSS) that has been running for 36 years covering a population of over 200,000. The other fieldsites include Chakaria, a remote rural area in the southeast coast of Bay of Bengal. The Division hosts the programmes on child health, reproductive health, and population studies.

Laboratory Sciences Division (LSD) conducts laboratory-based research to adopt, develop, and use the best scientific technology to address infectious diseases and related health problems of disadvantaged populations in partnership with other divisions of the Centre and with national, regional and international institutions that share our commitment to maintain healthy populations. It has several state-of-the-art laboratories, including laboratories for Enteric and Respiratory Microbiology, Environmental Microbiology, Immunology, Molecular Genetics, Nutritional Biochemistry, Parasitology, Reproductive Tract Microbiology, Tuberculosis, Virology and Clinical Diagnostics. In addition, LSD has taken up activities on HIV surveillance, voluntary counselling and testing, and other research projects on HIV. The mandate of the Division is to apply high-quality science to alleviate diseases.

Health Systems and Infectious Diseases Division (HSID), in cooperation with the Government of Bangladesh, conducts community-based family health research on maternal and child health, communicable diseases, immunization, nutrition, reproductive health, and health-delivery systems. HSID maintains via the USAID-supported Family Health Research Project an urban health intervention field site in Dhaka and rural field sites in Abhoyanagar and Mirsarai where large-scale effectiveness studies are carried out, and health and demographic surveillance systems are maintained. Current activities include trials of new vaccines, tests of nutritional interventions, studies on the appropriate management of sexually transmitted infections, and epidemiology of dengue fever. The Division hosts the programmes on Infectious Diseases and Vaccine Sciences and the Health and Family Planning Systems.

(see inside of the back cover)

Information Sciences Division (ISD) facilitates the two-way transfer of knowledge in and out of the Centre. The Dissemination and Information Services Centre (DISC) provides library and information services to the Centre staff and outsiders, and is also responsible for the production of the Centre's publications, including the quarterly Journal of Health, Population and Nutrition, two newsletters (Glimpse and Shasthya Sanglap), Annual Report, working papers, scientific reports, and special publications. The Training and Education Unit (TEU) arranges national and international courses on the clinical management and laboratory diagnosis of diarrhoeal diseases, reproductive health and family planning, child health and survival, nutrition, epidemiology, and research methods. The Computer Information Services Unit (CISU) is responsible for maintaining and developing the local computer network and for access to email and the Internet, and for assistance in developing new software and applications, and data storage and manipulation.

Director's Division provides support to the scientific divisions and interfaces with the donor community. It is composed of the Director's Office, External Relations and Institutional Development (ER&ID), Human Resources, Finance, and General Administration.

Scientific Programmes

In the 43 years of its existence, ICDDR,B has evolved into a multidisciplinary research centre whose scientists have wide-ranging expertise. Future research will be directed toward developing cost-effective and sustainable solutions to health and population problems for Bangladesh and for other developing countries. While the divisions will continue to operate as key administrative units, the Centre is emphasizing cross-divisional thematic programmes which include: Child Health, Reproductive Health, Nutrition, Infectious Diseases and Vaccine Sciences, Health and Family Planning Systems, and Population Sciences.

Child Health: The mandate is to contribute to the development of cost-effective child health and survival programmes by enhancing the understanding of the causes of childhood morbidity and mortality and by testing cost-effective public-health interventions. Major emphasis is given to decreasing mortality during the neonatal period, and to implementation of the Integrated Management of Childhood Illness (IMCI).

Reproductive Health: The mandate is to address issues relating to reproductive health research with major emphasis on safe motherhood, family planning, and prevention and treatment of sexually transmitted infections.

Nutrition: The mandate is to improve the overall nutritional status and address other nutritional issues applicable to the population by conducting relevant research and translating the research results into meaningful action. Major emphasis is given to prevention of, and treatment for, severely-malnourished children, evaluation of micronutrients, such as zinc, and reducing the adverse consequences from low birth-weight.

Infectious Diseases and Vaccine Sciences: The mandate is to facilitate and focus on the Centre's expanding role in the prevention and control of infectious diseases relevant to Bangladesh and other impoverished settings globally, with particular emphasis on epidemiology, clinical and laboratory research, and vaccine evaluation. Major emphasis is given to evaluation of vaccines for enteric and respiratory infections and keep off tuberculosis, dengue, leishmaniasis, HIV/AIDS, and malaria.

Health and Family Planning Systems: The mandate is to conduct research relevant to national health and family planning programmes through identification of priority problems; design, implementation, evaluation and replication of cost-effective and sustainable interventions; and provision of technical assistance that will deliver maximum health benefits to the community, making optimal use of available knowledge, solutions, and resources. Major emphasis is given to supporting studies of practical value to improving the Essential Services Package (ESP), evaluation of government and NGO programmes, development of evaluation tools, providing technical assistance, and understanding issues of health equity.

Population Sciences: The mandate is to understand the demographic trends, and factors underlying them, in Bangladesh and other developing countries. In particular to assist with the development of policies and programmes to decrease fertility and mortality, respecting desires and expectations of individuals, and encouraging the fulfillment of aspirations of the young, especially young women. An increasing priority will be the ageing of the population, and its socio-economic and health implications. Finally, a major priority must be rapid urbanization, both caused by, and causing family structures. Increasingly, these issues will be viewed from the perspective of the interrelation between poverty, health and population.

HEALTH AND DEMOGRAPHIC SURVEILLANCE SYSTEM - MATLAB

Volume Thirty-Three

Registration of Health and Demographic Events 2000

ICDDR,B: Centre for Health and Population Research
Mohakhali, Dhaka 1212, Bangladesh

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SUMMARY

This report presents the vital registration data and Maternal and Child Health data of 2000 in Matlab, Bangladesh. These data were collected by the Health and Demographic Surveillance System of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The surveillance area is divided into a Maternal and Child Health and Family Planning (MCH-FP) intervention area and a Comparison area, which receives government services.

In 2000, fertility increased in both areas as compared to 1999. The crude birth rate was 24.9 per 1,000 and the total fertility rate was 2.9 births per woman in the MCH-FP area and 27.7 and 3.5 respectively in the Comparison area. In the MCH-FP area, the crude death rate was 6.8 per 1,000 and in the Comparison area it was 7.2. In the MCH-FP area, infant mortality was 44.0 per 1,000 live births and in the Comparison area it was 58.0.

Child mortality between 1 to 4 years of age showed a slight decrease in the MCH-FP area, from 4.1 in 1999 to 3.9 in 2000, and in the comparison area it also decreased from 7.5 in 1999 to 6.4 in 2000. Under-5 mortality in the MCH-FP area was 58.6 and in the Comparison area it was 81.1. The trends in under-5 mortality are illustrated in chapter 1.

The rate of in-migration for the surveillance area increased to a level of 35.1 per 1,000 in 2000, and out-migration also increased to 48.5 per 1,000. The net out-migration was 13.4 per 1,000, thus offsetting the rate of natural increase, which amounted to 19.3 per 1,000 in 2000. The overall rate of population growth was 0.6 percent per annum. The marriage rate was 14.7 per 1,000 population and the divorce rate was 88.2 per 1,000 marriages.

CHAPTER 1

INTRODUCTION

Since 1963, the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), formerly the Cholera Research Laboratory, has been conducting a health-related research programme at Matlab, in rural Bangladesh. Matlab is located about 55 kilometres southeast of the country's capital, Dhaka (Figure 1.1). The Health and Demographic Surveillance System (HDSS), formerly Demographic Surveillance System (DSS), is one of the major components of this field programme. Since 1966, the HDSS has maintained the registration of births, deaths, and migrations, in addition to carrying out periodical censuses. In 1975 the system was augmented to include marriages and divorces.

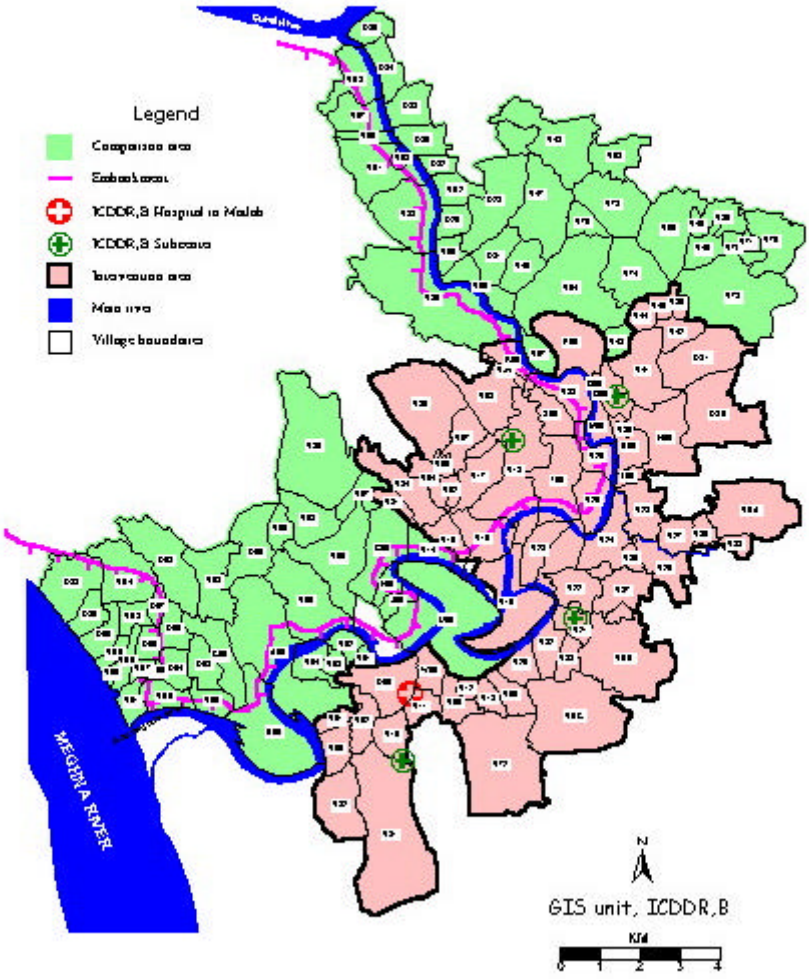
The recording of changes in household headship and household splits started in 1993. This information is gathered by Community Health Research Workers (CHRWs) and Field Research Assistants (FRAs), who visit each household in their assigned areas monthly and fill out the event registration forms. A detailed description of the DSS and its operation appears in CRL Scientific Report No. 9 (1978), ICDDR,B Special Publication No. 35 (1994), and ICDDR,B Special Publication No. 72 (1998).

In October 1977, the surveillance area was reduced from 233 to 149 villages and a Maternal Child Health and Family Planning (MCH-FP) Program was initiated in 70 villages. The remaining 79 villages were treated as a Comparison area (Figure 1.2). Since the introduction of the MCH-FP programme, CHRWs have been collecting data on child and reproductive health. This system is known as the Record Keeping System (RKS). These changes are described in detail in the ICDDR,B Scientific Report No. 47 (1981) and ICDDR,B Special Publication No. 72 (1998). Due to river erosion, 7 villages disappeared from the Comparison area in 1987, leaving 142 villages in the HDSS, Matlab. From 2000, out of 70 villages of MCH-FP area, 3 villages were included in the comparison area.

This is the thirty-third volume of a series of scientific reports of the Health and Demographic Surveillance System produced by ICDDR,B. Presented here are results obtained from the Matlab HDSS in 2000, along with brief notes and explanations of the tables. This report also shows the demographic trends in Matlab from 1966 to 2000.

Figure 1.1: Map of Bangladesh Showing the Study Area

Figure 1.2: Matlab Study Area Showing Villages of Health and Demographic Surveillance System



GRAPHS SHOWING DEMOGRAPHIC TRENDS IN MATLAB

Fertility Trends

The fertility in Matlab has more than halved since 1966, even in the Comparison Area. There have been great fluctuations caused by external factors. The end of the Independence War in 1971 caused a rise in 1973-1974, which is a common phenomenon after a war. The famine of 1975 was responsible for a drop in fertility in that year, followed by a making up rise in the next two years. From 1978 onwards, separate data are available for the MCH-FP Area and the Comparison Area. In that year the total fertility rate (see Figure 1.3) in the first was already almost a live birth less than in the latter, showing the effect of the Mother and Child Health - Family Planning Project, which started in 1978 and of its predecessor, the Contraceptive Distribution Project, which ran from 1975 to 1977. The difference grows in the next years to about one and a half live births, but starts diminishing from 1991 as the total fertility rate in the MCH-FP Area stabilises around or just below three children. The total fertility rate in the Comparison Area stabilised five years later at just below three and a half live births per woman.

The age-specific fertility rates (see Figure 1.4) for both areas in 1980 and 2000 show that the fertility reduction is proportionally the same in all age groups with a slightly stronger fall after age 35. The most striking difference between the two areas in 1980, the highest fertility being found in the 20 to 24 age group in the MCH-FP area and in the 25 to 29 age group in the Comparison area, still exists in 2000. However, the difference between the fertility of the 20 to 24 and that of the 25 to 29 age group in the Comparison area is greatly reduced in the latter year. CPR in Matlab and national level (see Figure 1.5) in contribution of non-reversible method has declined in all areas (see Figure 1.6). In fact, until 1990 fertility declined with the increase in contraceptive prevalence rate but since then increase in contraceptive prevalence rate did not reduce fertility (see Figure 1.7). However, infant mortality continued to decline though the fertility decline stalled (see Figure 1.8).

Mortality Trends

The mortality levels have also fallen considerably. The life expectancy at birth (see Figure 1.9) of men went up from 53 years in 1966 to 66 in 2000, a gain of 13 years. For women the improvement is even more significant, from 51 to 69, a gain of 18 years. Since 1988 the life expectancy of women is higher than that of men. The falls in life expectancies caused by the Independence War in 1972, the famine of 1975 and the Shigellosis epidemic of 1984 are clearly visible in the graphs.

The under-five mortality (see Figure 1.10) has fallen from 188 deaths per 1000 live births in 1966 to 59 in the MCH-FP Area and 81 in the Comparison Area in 2000. The infant mortality (see Figure 1.11) fell in the same period from 110 to 44 and 58 deaths per 1000 live births in both areas respectively. Also here, the effect of the Independence War, the Famine and the Shigellosis epidemic can be seen, although the 1975 famine had the

greatest influence on the infant mortality, while the other two events had a relatively greater effect on the under-five mortality.

The chart of the major causes of death of under-five children between 1974 and 2000 (see Figure 1.12) shows that the measles and tetanus vaccinations have been very successful. These diseases were still important causes of death at the beginning of this period, however, since the late eighties they have completely disappeared. The number of deaths caused by diarrhoea & dysentery and the others category have also fallen considerably, while the deaths caused by acute respiratory infections show a more modest reduction. Drowning has remained more or less constant as cause of death during this period. Therefore, it has become relatively much more important. The pie charts of child mortality (see Figure 1.13), for 1988 to 1990 and for 1998 to 2000 show this clearly. While in the first period drowning caused less than a third of the deaths of children aged between one and four, ten years later this proportion had risen to well over half. On the other hand, diarrhoea & dysentery, responsible for almost half of the child deaths between 1988 and 1990, had fallen to one-fifth ten years later. Also acute respiratory infections fell proportionally by almost half in this period, while nutrition and others showed small relative increases.

Maternal mortality (see Figure 1.14), deaths of women related to pregnancies and deliveries, including miscarriages and abortions, fell from six and a quarter per thousand live births in the Comparison Area in 1983 (three year moving average) to two and a half in 1999, 40 percent of its earlier value. In the MCH-FP Area this figure dropped to a quarter in the same period, from less than six to less than one and a half per thousand.

Trends in Natural Growth and Demographic Transition

As the fertility per woman fell by more than half, also the crude birth rate has dropped (see Figure 1.15). However, this decreased by less than half, from 47 to 26 per thousand from 1966 to 2000. The reason for this is that still very large cohorts of young women are reaching marriage age, compensating for the fewer children born per woman. The stalling of the fertility in recent years has also contributed to a stabilisation of the birth rate (see Figure 1.15). In the longer term, the lower fertility in the past will cause the number of young married women to decrease relatively, resulting in a further fall of the crude birth rate.

The crude death rate did fall by more than half during this period, from 15 to 7 per thousand. Although mortality will continue to decrease, the crude death rate will start rising slightly in the future, when the proportion of elderly people rises as a result of the smaller number of births.

The rate of natural increase (see Figure 1.15) is the difference between the crude birth and death rates. This has fallen from 32 to 19 per thousand over the period. Although it is fluctuating around this level during the last ten years with the expected further drop in the birth rate and the rise of the death rate when the average age of the population rises. Matlab, like the whole of Bangladesh, is in the middle of the Demographic Transition. This is the transition from high fertility and mortality with a low growth rate through a

fall of first mortality and later fertility, causing a high growth rate, ending with a low mortality and fertility, resulting in a low growth rate. As the crude death rate approaches its minimum level while the birth rate will continue to fall, Matlab is entering the last phase of the Demographic Transition.

Migration Trends

The net migration (see Figure 1.16) is the difference between the emigration (out) and the immigration (in). It has a negative value when the emigration is greater than the immigration. This was always the case in Matlab from 1966 to 2000 except during the Independence War when many people fled the cities for the countryside. Bangladesh is typical for a developing country, having a rural exodus causing a strong urbanisation. The migration patterns for women are similar to those of men, except that they are less extreme. The net migration was between -13 and -14 per thousand in 2000 resulting in a modest growth rate of 6 per thousand or 0.6 percent for Matlab. The growth rate is the sum of the natural growth rate and the net migration.

Marriage and Divorce Trends

Mean age at first marriage has increased for both grooms and brides in Matlab over the years (see Figure 1.17). Between 1975 and 2000, the mean age for brides has increased from 16 years in 1975 to 19 years in 2000 while comparable figures for grooms were 25 and 26 years.

Divorce rate was high in 1975; however, it declined gradually during the study period. (see Figure 1.18). In 1975, divorce rate was 240 (per 1000 marriages) and it reduced to 90 in 2000. The high divorce rate in 1975 could be due to delayed marriage as a result of famine that started mid 1974.

Literacy Trends

Children's schooling increased considerably over the period and such increase was more marked for girls than boys (see Figure 1.19). The gender difference in schooling disappeared in recent years.

Immunization Coverage

In 1987, immunization coverage in the treatment area was about 80% but reached 90% by 1990 (see Figure 1.20). In fact, immunization was administered in the treatment area in phases and by 1986 all the blocks of the treatment area were brought under the program. In recent years immunization coverage in the treatment area is over 95% while in the comparison area it is about 50%.

Figure 1.3: Total Fertility Rates by Area, 1966-2000

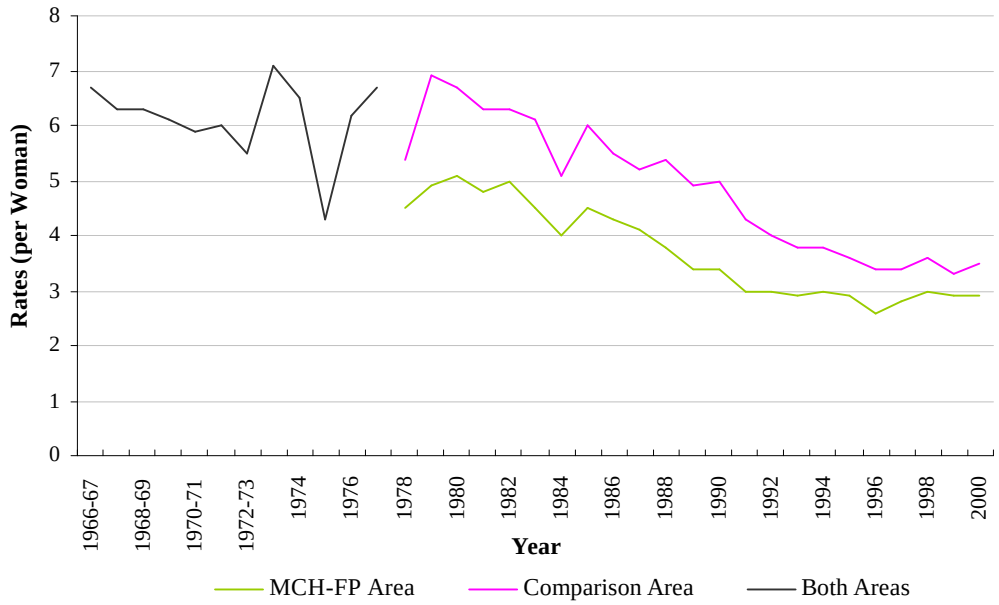


Figure 1.4: Age-specific Fertility Rates by Area, 1980 and 2000

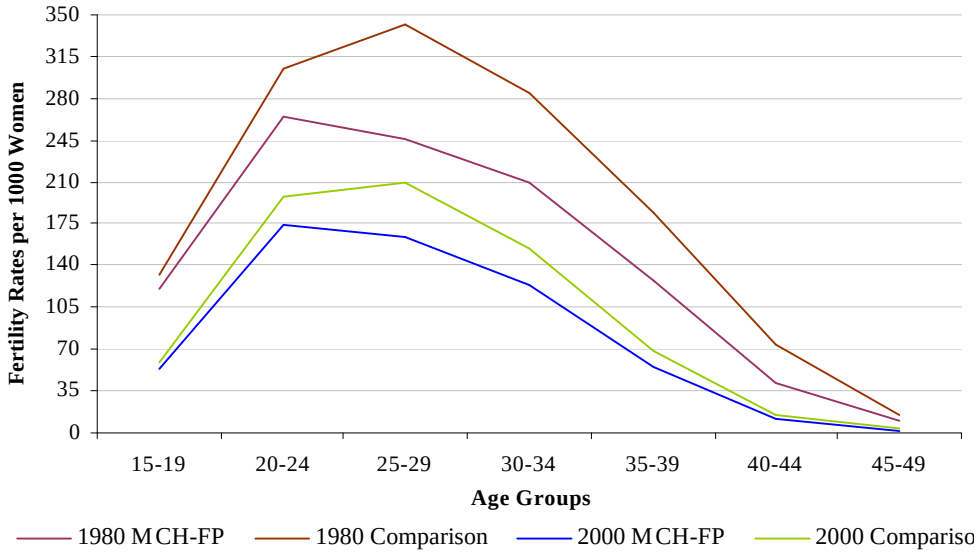


Figure 1.5: Contraceptive Use Rates (%) of Currently Married Women Aged 15-49 Years by Area

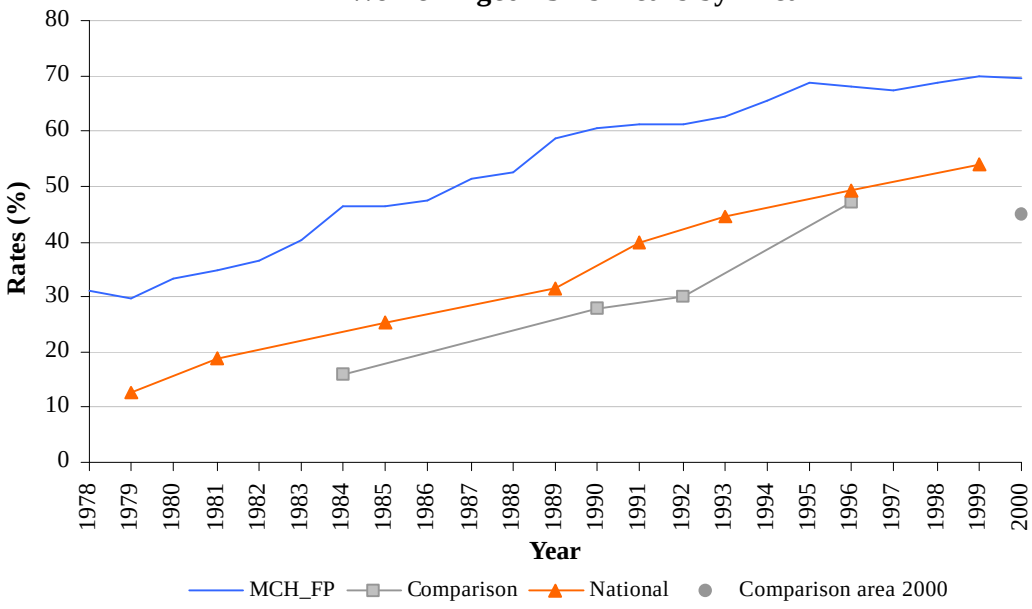
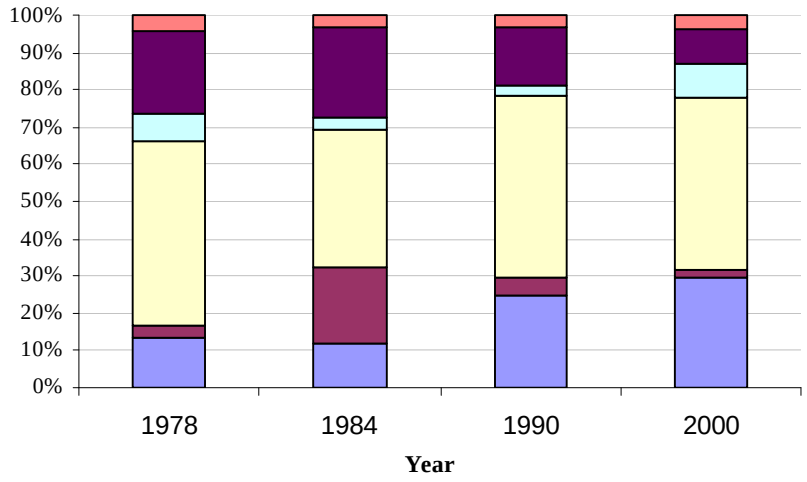


Figure 1.6: Contraceptive Method Mix in Matlab MCH-FP Area, Over Years



Contraceptive Method Mix in Matlab Comparison Area and Bangladesh (BDHS) Over Years

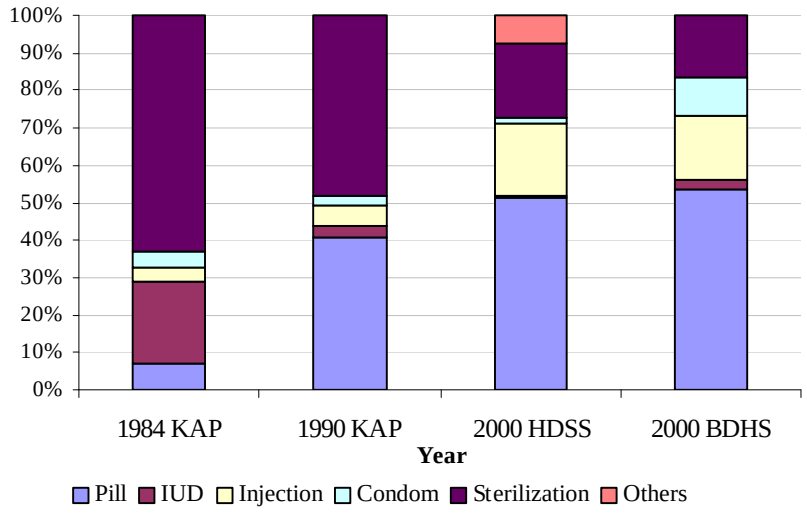


Figure 1.7: Total Fertility Rates and Contraceptive Prevalence Rates in MCH-FP Area, 1978-2000

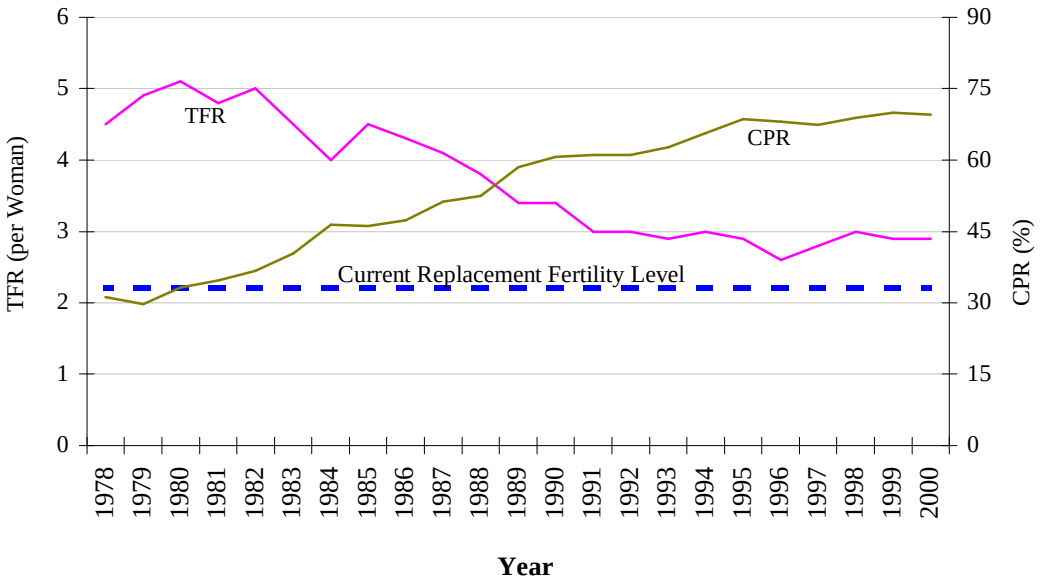


Figure 1.8: Total Fertility Rates (TFR) and Infant Mortality Rates (IMR), 1966-2000

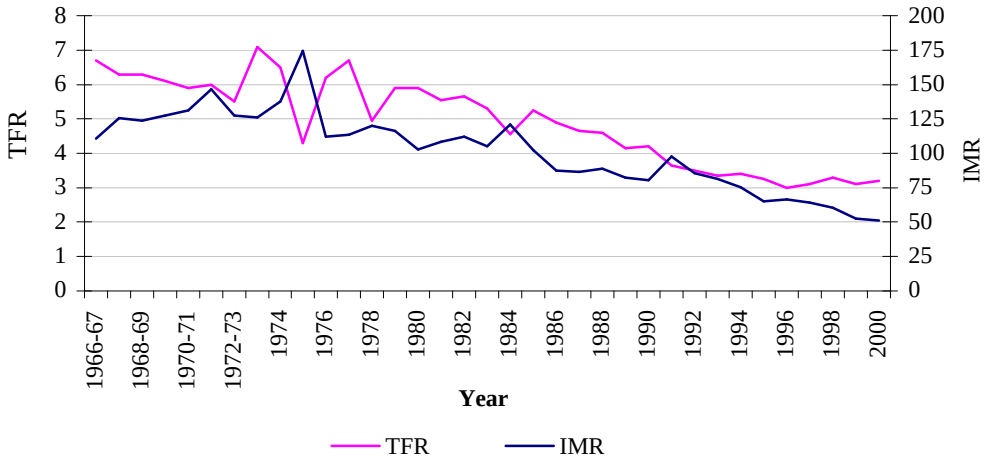


Figure 1.9: Life Expectancy at Birth, 1966-2000

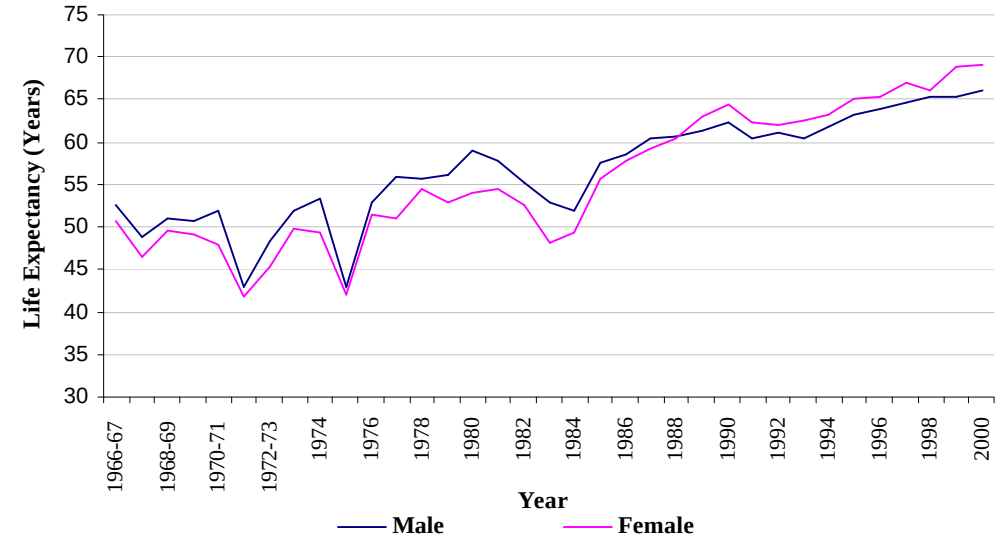


Figure 1.10: Under-Five Mortality Rates by Area, 1966-2000

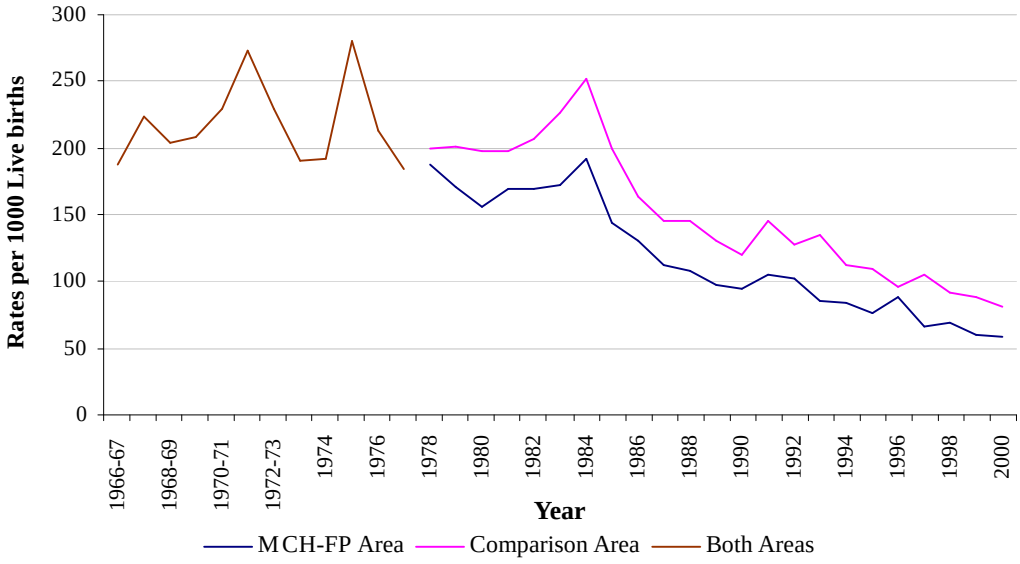


Figure 1.11: Infant Mortality Rates by Area, 1966-2000

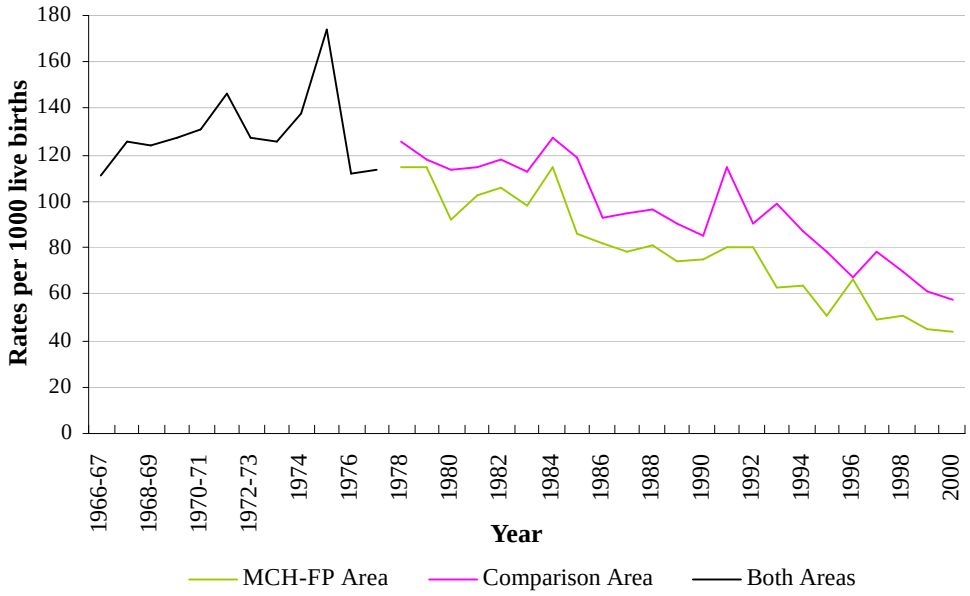


Figure: 1.12: Under-five Mortality Rates by Major Causes (1974-2000)

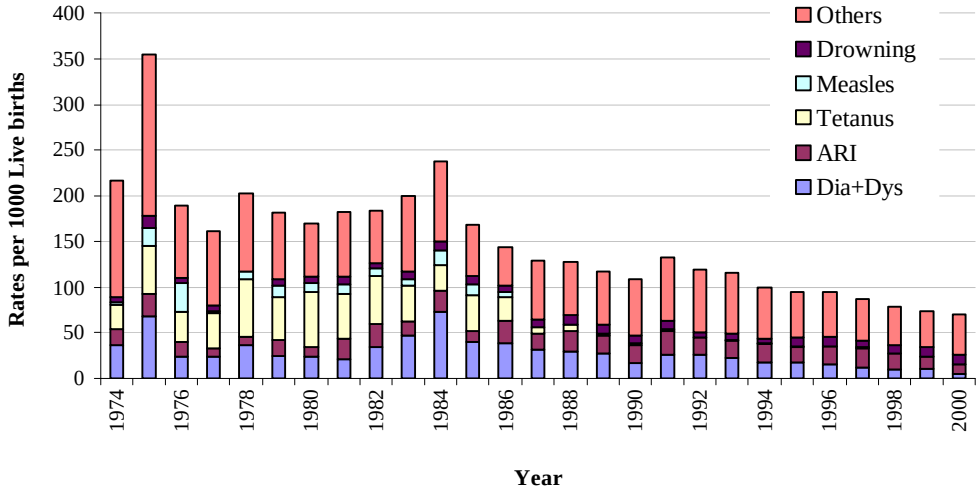


Figure 1.13: Causes of Child (1-4 years) Death in Matlab

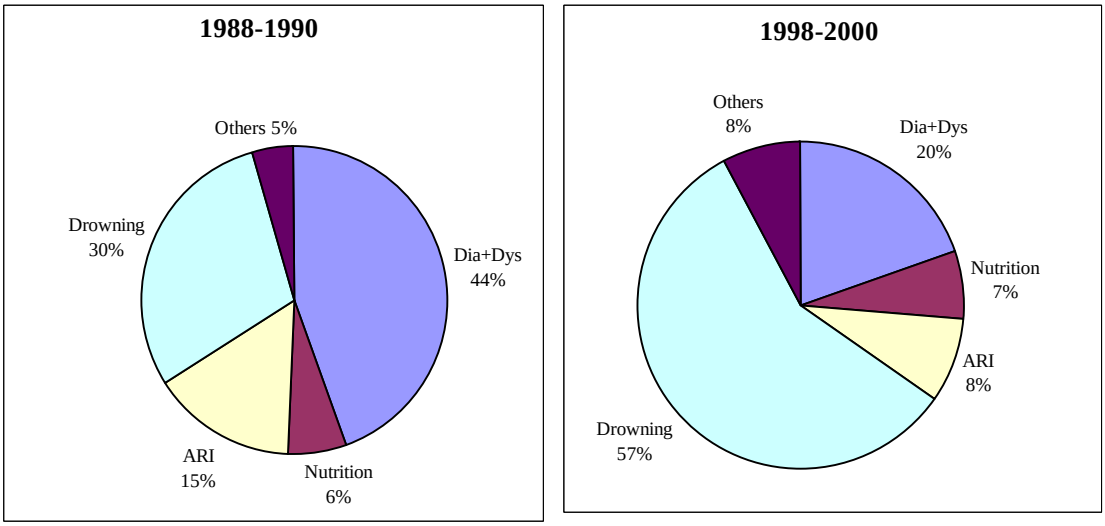


Figure 1.14: Maternal Mortality Ratio (Using 3 Years Moving Average Method) 1983-1999

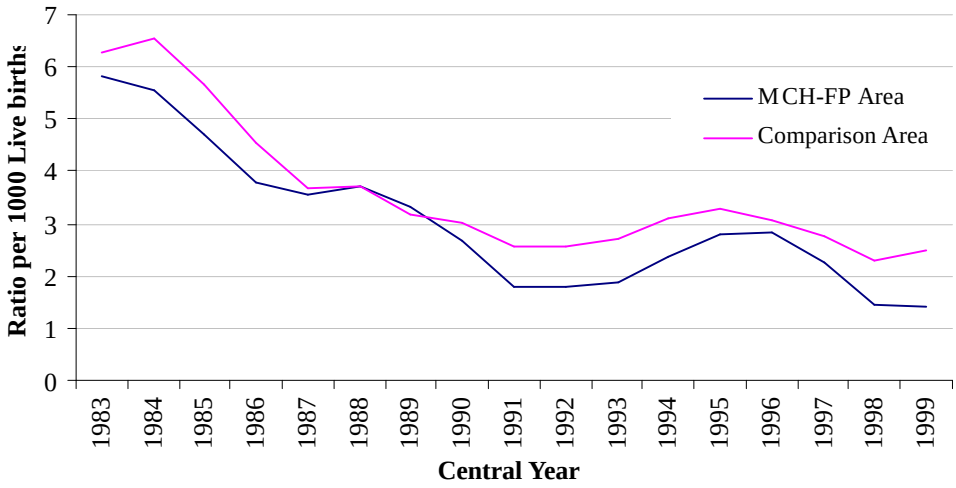


Figure 1.15: Demographic Transition in Matlab, 1966-2000

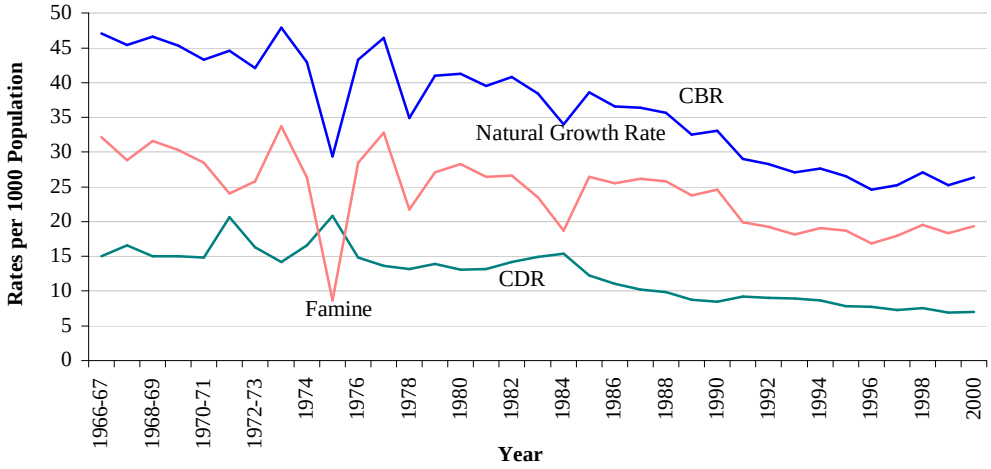


Figure 1.16: Net Migration Rates by Sex, 1966-2000

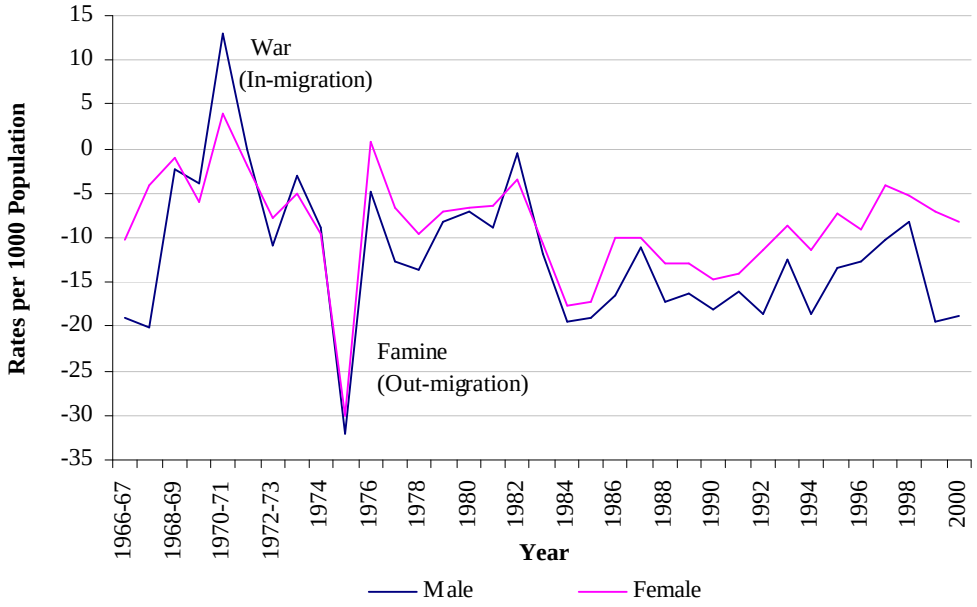


Figure 1.17: Mean Age at First Marriage, 1975-2000

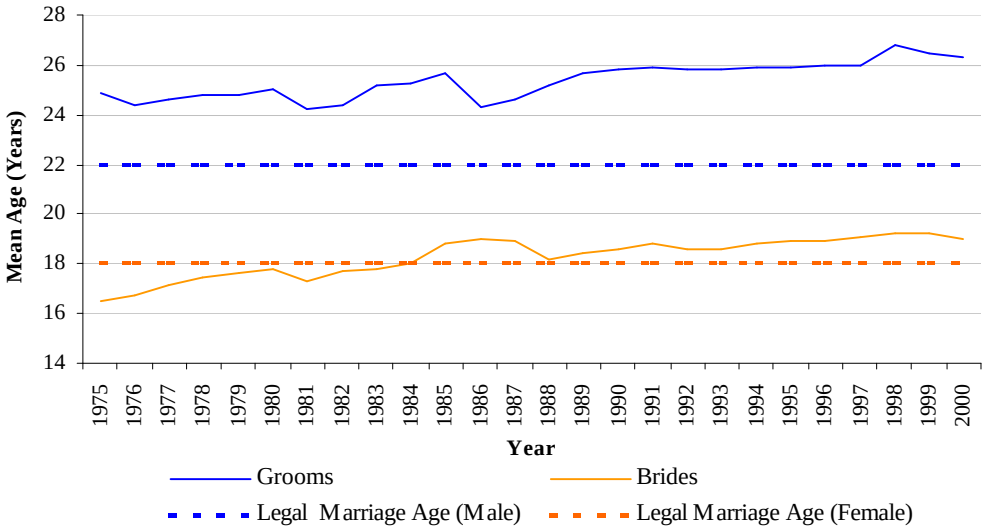


Figure 1.18: Divorce Rates, 1975-2000

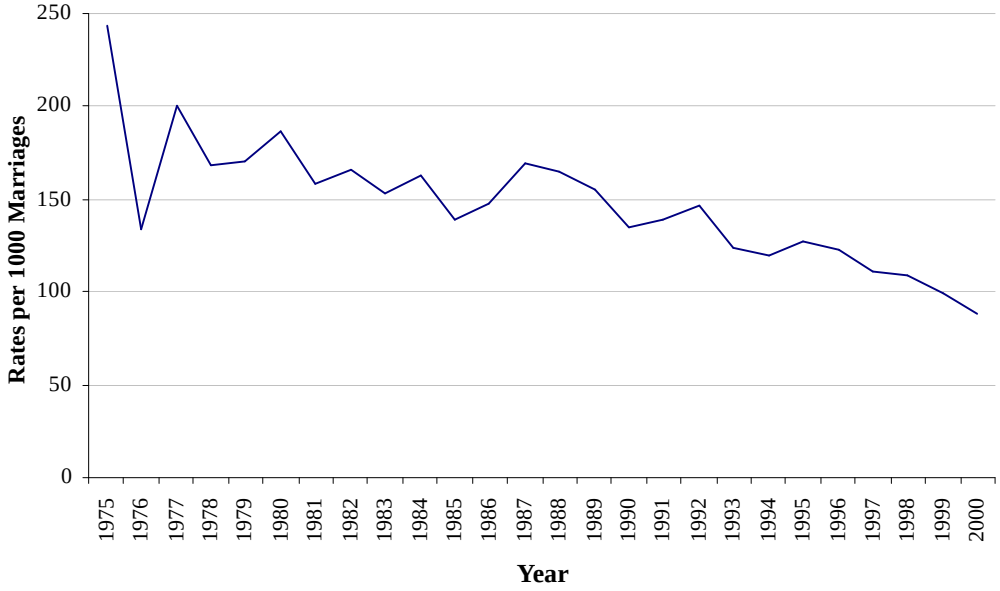


Figure 1.19: Percentage of Schooling of Children of age 10-14 years, 1974, 1982 and 1996

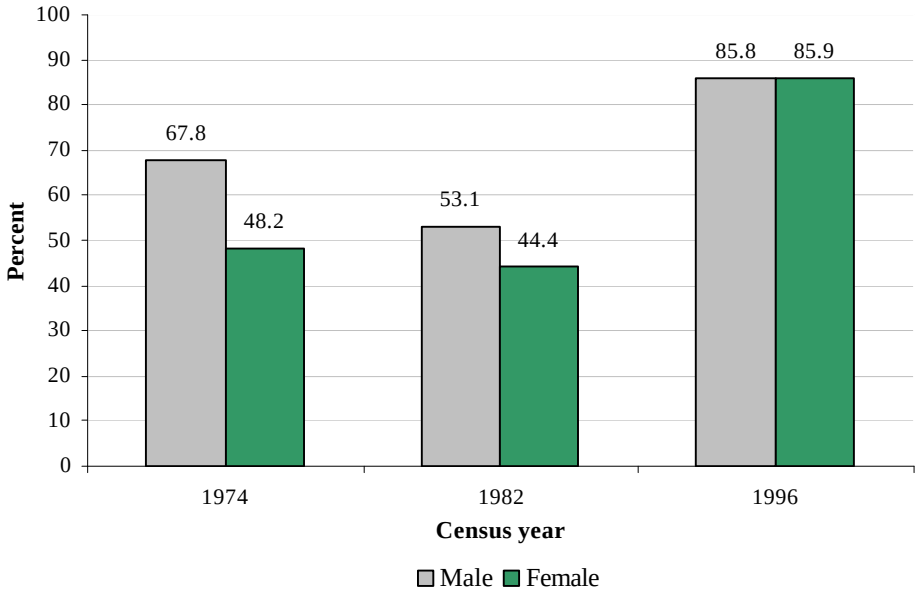
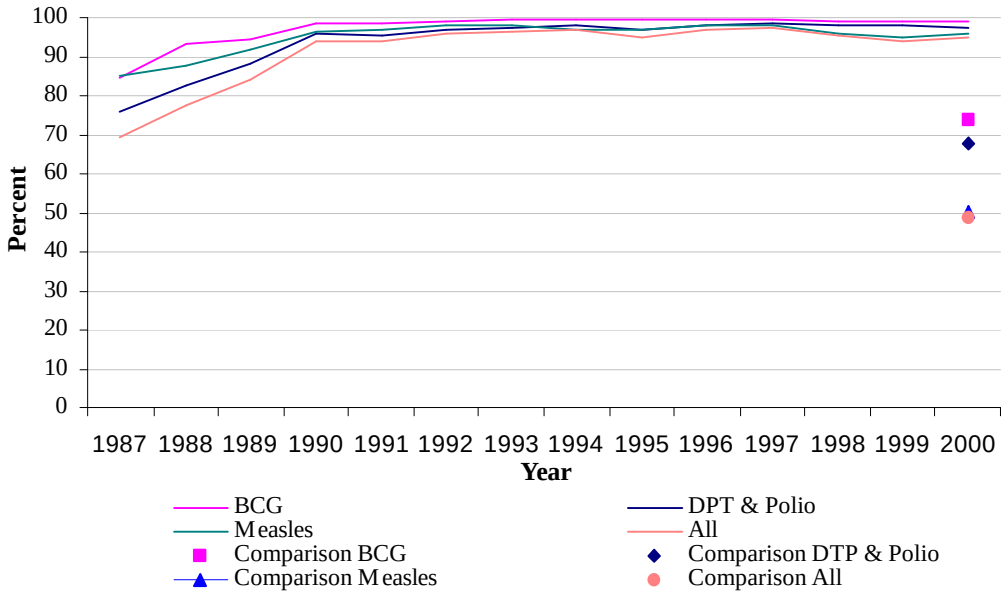


Figure 1.20: Child Immunization Coverage (Children Aged 12-23 Months)



CHAPTER 2

POPULATION CHANGES

The principal vital statistics of the MCH-FP and Comparison areas from 1989 through 2000 are summarized in Table 2.1. Mid-year population, as well as the demographic events registered in 2000 in the MCH-FP and Comparison areas by sex are shown in Table 2.2. Appendix-B shows mid-year population, births, and deaths by village.

The crude birth rate in 2000 increased to 24.9 in the MCH-FP and 27.7 in the Comparison areas from the 1999 level of 24.5 in the MCH-FP and 25.9 in the Comparison areas respectively. In the MCH-FP area, the crude death rate increased to 6.8 in 2000 compared to 6.4 in 1999 while in the comparison area the rate decreased to 7.2 in 2000 from 7.4 in 1999.

In the MCH-FP area, the total fertility rate (TFR) remained constant at 2.9 and in the Comparison area, the TFR rose to 3.5. The trends in the total fertility rate in both areas are illustrated in chapter 1.

Infant mortality at 44 did not change in the MCH-FP area during 1999 and 2000 level, while in the Comparison area infant mortality decreased from 60.8 in 1999 to 58.0 in 2000. This decrease was the result of a decrease in post-neonatal mortality. Child mortality between 1 to 4 years of age slightly decreased in the MCH-FP area and increased in the comparison area. As a result of these changes, the under five mortality decreased both in the MCH-FP and in the Comparison areas. The trends in under-5 mortality are illustrated in chapter 1.

The numbers of in- and out-migrants registered in 2000 were 7679 and 10599 respectively, giving an in-migration rate of 35.1, and out-migration rate of 48.5, and a net migration rate of 13.4 per thousand population leaving the area. The net migration in 2000 was little bit higher than 1999. The overall rate of population growth was reduced to 0.6 per cent per annum.

The age-sex distribution of the mid-year population of the retained villages is shown in Tables 2.3 and 2.4. Block-wise mid-year population in the MCH-FP area is shown in Appendix A-1. The age-sex distribution for the whole study area is illustrated by the population pyramid shown in Figure 2.1. The decline of fertility in the area in the period 1978-2000 has caused a significant change in the age structure of the population. Children under 15 years of age constituted 43.4 percent of the population in the MCH-FP area at the beginning of the MCH-FP project in 1978; by 2000 this proportion had fallen to 35.0 percent. In the Comparison area, the change in age distribution was less than that in the MCH-FP area. Children under 15 years of age in the Comparison area were 43.3 percent of the total population in 1978, falling to 38.1 percent in 2000. This difference in age distribution was due to a difference in fertility decline in the two areas.

Table 2.1: Vital Statistics of Matlab MCH-FP and Comparison Areas, 1989-2000

Vaital rates (per 1000)	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Crude birth rate												
MCH-FP area	28.4	28.3	25.4	25.4	24.7	25.9	25.2	22.4	23.7	25.8	24.5	24.9
Comparison area	36.6	37.8	32.7	31.1	29.4	29.4	27.8	26.7	26.8	28.3	25.9	27.7
Both areas	32.4	32.9	29.0	28.2	27.0	27.6	26.5	24.5	25.2	27.0	25.2	26.3
Total fertility rate**												
MCH-FP area	3.4	3.4	3.0	3.0	2.9	3.0	2.9	2.7	2.8	3.0	2.9	2.9
Comparison area	4.9	5.0	4.3	4.0	3.8	3.8	3.6	3.5	3.4	3.6	3.3	3.5
Both areas	4.1	4.1	3.6	3.5	3.3	3.4	3.2	3.0	3.1	3.3	3.1	3.2
Crude death rate												
MCH-FP area	8.0	7.6	8.1	8.3	7.7	8.0	7.3	7.6	6.6	7.0	6.4	6.8
Comparison area	9.5	9.4	10.2	9.8	10.2	9.2	8.4	7.9	8.0	8.1	7.4	7.2
Both areas	8.7	8.5	9.1	9.0	8.9	8.6	7.9	7.7	7.3	7.5	6.9	7.0
Neonatal mortality*												
MCH-FP area	46.0	47.8	47.7	49.6	42.8	36.4	30.6	39.5	33.1	36.8	25.4	32.3
Comparison area	52.7	53.3	63.2	53.3	64.5	56.4	50.3	42.1	50.0	44.0	38.6	43.6
Both areas	49.7	50.9	56.3	51.6	54.4	46.9	40.8	40.9	41.9	40.5	32.0	38.4
Post-neonatal mortality*												
MCH-FP area	28.3	27.4	32.3	30.8	20.3	27.3	20.6	26.6	16.4	13.8	19.1	11.8
Comparison area	38.0	34.1	51.7	37.0	34.8	30.8	28.3	24.8	28.6	26.0	22.2	14.4
Both areas	33.6	31.2	43.0	34.1	28.0	29.2	24.6	25.7	22.7	20.1	20.6	13.2
Infant mortality*												
MCH-FP area	74.3	75.2	80.0	80.5	63.1	63.7	51.1	66.2	49.5	50.6	44.5	44.0
Comparison area	90.7	87.5	114.9	90.2	99.3	87.2	78.6	67.0	78.6	70.0	60.8	58.0
Both areas	83.3	82.1	99.2	85.7	82.4	76.0	65.3	66.6	64.7	60.6	52.7	51.6
Child mortality (1-4 yrs)#												
MCH-FP area	6.4	5.3	7.0	5.9	5.9	5.3	6.7	6.0	4.5	4.7	4.1	3.9
Comparison area	11.5	9.3	9.1	10.4	10.0	7.0	8.4	8.0	7.0	5.8	7.5	6.4
Both areas	9.0	7.4	8.1	8.3	8.1	6.2	7.6	7.1	5.8	5.2	5.8	5.2
Under five mortality***, *												
MCH-FP area	97.5	94.8	105.7	102.0	86.1	83.6	76.7	87.9	66.7	68.3	60.0	58.6
Comparison area	131.1	120.4	146.2	127.1	135.1	113.1	109.5	96.4	104.4	91.3	88.6	81.1
Both areas	115.7	108.7	128.1	115.7	112.5	99.1	93.8	92.3	86.3	80.1	74.4	70.7
Rate of natural increase												
MCH-FP area	20.4	20.7	17.3	17.1	17.0	17.9	17.9	14.8	17.1	18.8	18.1	18.1
Comparison area	27.1	28.4	22.5	21.2	19.2	20.2	19.4	18.8	18.7	20.2	18.5	20.5
Both areas	23.6	24.4	19.9	19.1	18.1	19.1	18.6	16.8	17.9	19.5	18.3	19.3
In-migration	29.3	26.0	26.9	33.6	25.5	26.5	27.0	25.1	34.6	30.3	34.8	35.1
Out-migration	43.9	42.4	41.9	48.5	36.1	41.4	37.4	35.0	41.7	36.9	48.0	48.5
Growth (%)	0.9	0.8	0.5	0.4	0.8	0.4	0.8	0.7	1.1	1.3	0.5	0.6

*Per 1000 live births.
**Per woman.table
***Calculated from life table. #Per 1,000 children aged 1-4 years.

Table 2.2: Mid-year Population, Events Registered, and Population Changes, 2000

	Number			Rate per 1000		
	Total	Males	Females	Total	Males	Females
Total Population as of 30 June 2000:						
MCH-FP area	105972	51314	54658	-	-	-
Comparison area	112607	55056	57551	-	-	-
Both areas	218579	106370	112209	-	-	-
Events registered (Jan-Dec. 2000)						
Births:						
MCH-FP area	2635	1332	1303	24.9	-	-
Comparison area	3120	1616	1504	27.7	-	-
Both areas	5755	2948	2807	26.3	-	-
Deaths:						
-Infants*						
MCH-FP area	116	58	58	44.0	43.5	44.5
Comparison area	181	96	85	58.0	59.4	56.5
Both areas	297	154	143	51.6	52.2	50.9
-All deaths						
MCH-FP area	720	407	313	6.8	7.9	5.7
Comparison area	810	441	369	7.2	8.0	6.4
Both areas	1530	848	682	7.0	8.0	6.1
In-migration	7679	3548	4131	35.1	33.4	36.8
Out-migration	10599	5551	5048	48.5	52.2	45.0
Marriage	3221	-	-	14.7	-	-
Divorce**	284	-	-	88.2	-	-
Population change (Jan-Dec. 2000)						
Net migration	-2920	-2003	-917	-13.4	-18.8	-8.2
Natural increase						
MCH-FP area	1915	925	990	18.1	18.0	18.1
Comparison area	2310	1175	1135	20.5	21.3	19.7
Both areas	4225	2100	2125	19.3	19.7	18.9
Net increase	1305	97	1208	6.0	0.9	10.8

*Rate per 1000 live births.
**Rate per 1000 marriage.

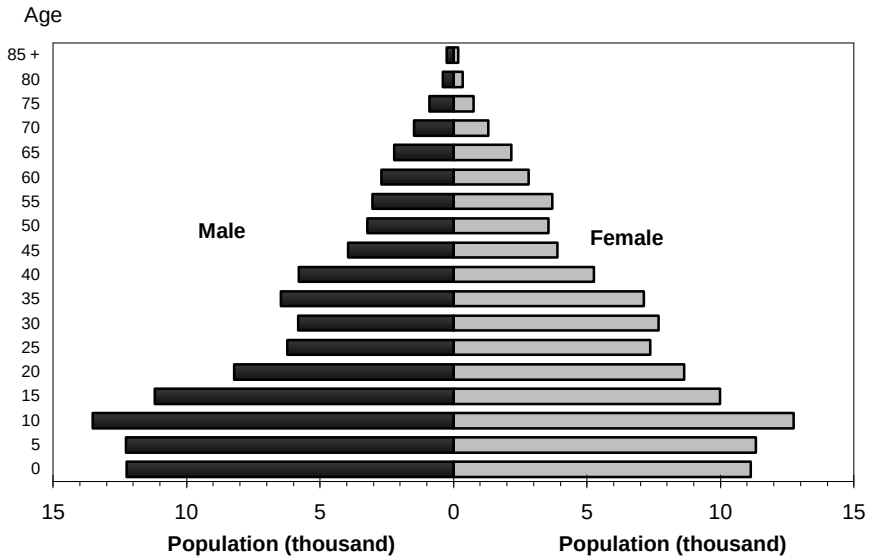
Table 2.3: Mid-year Population by Age and Sex, 2000

Age (years)	Number			Percent		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	218579	106370	112209	100.0	100.0	100.0
Under 1	5276	2750	2526	2.4	2.6	2.3
1 – 4	20268	10289	9979	9.3	9.7	8.9
1	*5375*	*2781*	*2594*	*2.5*	*2.6*	*2.3*
2	*5172*	*2651*	*2521*	*2.4*	*2.5*	*2.2*
3	*4880*	*2425*	*2455*	*2.2*	*2.3*	*2.2*
4	*4841*	*2432*	*2409*	*2.2*	*2.3*	*2.1*
5 - 9	25773	13056	12717	11.8	12.3	11.3
10-14	28673	14375	14298	13.1	13.5	12.7
15-19	23096	11900	11196	10.6	11.2	10.0
20-24	18422	8739	9683	8.4	8.2	8.6
25-29	14911	6638	8273	6.8	6.2	7.4
30-34	14798	6192	8606	6.8	5.8	7.7
35-39	14893	6886	8007	6.8	6.5	7.1
40-44	12068	6168	5900	5.5	5.8	5.3
45-49	8589	4214	4375	3.9	4.0	3.9
50-54	7429	3429	4000	3.4	3.2	3.6
55-59	7395	3231	4164	3.4	3.0	3.7
60-64	6031	2876	3155	2.8	2.7	2.8
65-69	4814	2377	2437	2.2	2.2	2.2
70-74	3032	1571	1461	1.4	1.5	1.3
75-79	1807	958	849	0.8	0.9	0.8
80-84	815	437	378	0.4	0.4	0.3
85+	489	284	205	0.2	0.3	0.2

Table 2.4: Mid-year Population by Age, Sex, and Area, 2000

Age (years)	MCH-FP area			Comparison area		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	105972	51314	54658	112607	55056	57551
Under 1	2509	1285	1224	2767	1465	1302
1 - 4	9590	4828	4762	10678	5461	5217
1	*2541*	*1285*	*1256*	*2834*	*1496*	*1338*
2	*2450*	*1238*	*1212*	*2722*	*1413*	*1309*
3	*2299*	*1159*	*1140*	*2581*	*1266*	*1315*
4	*2300*	*1146*	*1154*	*2541*	*1286*	*1255*
5 - 9	11781	5951	5830	13992	7105	6887
10-14	13189	6626	6563	15484	7749	7735
15-19	10897	5491	5406	12199	6409	5790
20-24	9219	4339	4880	9203	4400	4803
25-29	7612	3400	4212	7299	3238	4061
30-34	7451	3085	4366	7347	3107	4240
35-39	7587	3472	4115	7306	3414	3892
40-44	5996	3088	2908	6072	3080	2992
45-49	4365	2152	2213	4224	2062	2162
50-54	3669	1675	1994	3760	1754	2006
55-59	3676	1624	2052	3719	1607	2112
60-64	2945	1418	1527	3086	1458	1628
65-69	2342	1189	1153	2472	1188	1284
70-74	1550	813	737	1482	758	724
75-79	928	500	428	879	458	421
80-84	399	220	179	416	217	199
85+	267	158	109	222	126	96

Figure 2.1: Age Pyramid of the 2000 Mid-year Population



CHAPTER 3

MORTALITY

The distribution of 1530 deaths by age at death and sex for the whole study area, for the MCH-FP and Comparison areas are shown in Tables 3.1 and 3.2. Of the 1530 registered deaths, 19 percent were infant, 7 percent were of children (1-4 years), and 52 percent were of age 60 and above.

Tables 3.3 and 3.4 show the corresponding age-sex-specific mortality rates for the study area and for the MCH-FP and Comparison areas. Block-wise deaths in MCH-FP area by age and sex is shown in Appendix A-2. In 2000, the male infant mortality rate was 52.2 and female infant mortality rate was 50.9 whereas in 1999, the male infant mortality rate was 58.8 and female infant mortality rate was 46.2. In 2000, the overall death rates for males and females were 8.0 and 6.1 respectively. In most of the age groups death rates were higher in the Comparison area than the MCH-FP area.

Tables 3.5 shows the abridged life tables for males and females derived from these rates and the l_x values are plotted in Figure 3.1. The expectation of life at birth increased as a whole compared to 1999. The expectation of life at birth was 66.0 years for males and 69.1 for females. The difference in the expectation of life between the two areas was more pronounced for females (2.1) than for males (1.2). Expectation of life at each age in each area was higher for females than males (see Appendices A-3 – A-4).

The levels of adult mortality decreased in comparison with 1999. The probability of dying for males between the ages of 15 and 60 ($_{45}q_{15}$) dropped from 190 per thousand in 1999, to 175 in 2000, and for females 103 per thousand in 1999 to 90 per thousand in 2000. In the age groups 60 and above, females were expected to survive more years in 2000 than males compared to 1999.

Table 3.6 and Figure 4.1 show the distribution of deaths by age and month of occurrence. Deaths of those aged five or more tend to peak in the winter months. Neonatal deaths were most frequent in August through December, undoubtedly reflecting the seasonal variation in births as described in Chapter 4. Post-neonatal deaths, on the other hand, tend to have winter and summer peaks. The distributions of deaths by sex, cause and age and by MCH-FP and Comparison area are shown in Appendices A-5 – A-8.

Table 3.7 gives the age-standardized mortality rates by cause of death, using the WHO "World Standard" age distribution shown in Appendix-D (WHO 1992). When compared with the corresponding figures for 1999, there was an upsurge in the female mortality from cardio-vascular and nutritional causes. In the MCH-FP area the standardized rate for cardio-vascular cause increased for both sexes. Comparing the MCH-FP area with the Comparison area, the main reason that the later had higher overall mortality rates for both sexes was due to higher mortality from diarrhoea and respiratory infections. Other differences between the two areas varied by sex.

A striking feature of Table 3.7 and Appendices A-5 – A-8 is the large number of deaths classified in the older age groups under senility, other causes of death (not elsewhere classified), and unknown. This shows that the quality of cause of death data in these age groups is still unsatisfactory. Plans are currently being formulated to change the procedure of classification of causes of death. The percentage of deaths in the age groups below 5 classified as other causes and unknown is in general small, indicating that the quality of data on causes of death in these age groups is better.

Table 3.1: Deaths by Age and Sex, 2000

	Both areas		
Age	Both sexes	Males	Females
All ages	1530	848	682
Under 1 year	297	154	143
Under 1 month	*221*	*120*	*101*
1-5 months	*48*	*23*	*25*
6-11 months	*28*	*11*	*17*
1 – 4 years	105	48	57
1	*52*	*22*	*30*
2	*21*	*10*	*11*
3	*20*	*9*	*11*
4	*12*	*7*	*5*
5 - 9	34	23	11
10-14	19	9	10
15-19	24	15	9
20-24	25	14	11
25-29	24	8	16
30-34	12	4	8
35-39	28	18	10
40-44	30	23	7
45-49	36	20	16
50-54	41	31	10
55-59	67	44	23
60-64	127	71	56
65-69	173	102	71
70-74	168	88	80
75-79	130	72	58
80-84	95	48	47
85+	95	56	39

Table 3.2: Deaths by Area, Age, and Sex, 2000

	MCH-FP area			Comparison area		
Age	Both sexes	Males	Females	Both sexes	Males	Females
All ages	720	407	313	810	441	369
Under 1 year	116	58	58	181	96	85
Under 1 month	*85*	*42*	*43*	*136*	*78*	*58*
1-5 months	*21*	*12*	*9*	*27*	*11*	*16*
6-11 months	*10*	*4*	*6*	*18*	*7*	*11*
1 – 4 years	37	19	18	68	29	39
1	*15*	*6*	*9*	*37*	*16*	*21*
2	*5*	*3*	*2*	*16*	*7*	*9*
3	*12*	*7*	*5*	*8*	*2*	*6*
4	*5*	*3*	*2*	*7*	*4*	*3*
5 - 9	12	8	4	22	15	7
10-14	11	5	6	8	4	4
15-19	8	6	2	16	9	7
20-24	13	8	5	12	6	6
25-29	13	6	7	11	2	9
30-34	6	3	3	6	1	5
35-39	16	12	4	12	6	6
40-44	17	13	4	13	10	3
45-49	17	11	6	19	9	10
50-54	17	12	5	24	19	5
55-59	32	20	12	35	24	11
60-64	64	31	33	63	40	23
65-69	88	48	40	85	54	31
70-74	89	45	44	79	43	36
75-79	68	45	23	62	27	35
80-84	45	26	19	50	22	28
85+	51	31	20	44	25	19

Table 3.3: Death Rates by Age and Sex, 2000
(per 1000 population)

	Both areas		
Age	Both sexes	Males	Females
All ages	7.0	8.0	6.1
Under 1 year*	51.6	52.2	50.9
*Under 1 month**	*38.4*	*40.7*	*36.0*
*1-5 months**	*8.3*	*7.8*	*8.9*
*6-11 months**	*4.9*	*3.7*	*6.1*
1 – 4 years	5.2	4.7	5.7
1	*9.7*	*7.9*	*11.6*
2	*4.1*	*3.8*	*4.4*
3	*4.1*	*3.7*	*4.5*
4	*2.5*	*2.9*	*2.1*
5 - 9	1.3	1.8	0.9
10-14	0.7	0.6	0.7
15-19	1.0	1.3	0.8
20-24	1.4	1.6	1.1
25-29	1.6	1.2	1.9
30-34	0.8	0.6	0.9
35-39	1.9	2.6	1.2
40-44	2.5	3.7	1.2
45-49	4.2	4.7	3.7
50-54	5.5	9.0	2.5
55-59	9.1	13.6	5.5
60-64	21.1	24.7	17.7
65-69	35.9	42.9	29.1
70-74	55.4	56.0	54.8
75-79	71.9	75.2	68.3
80-84	116.6	109.8	124.3
85+	194.3	197.2	190.2

*Rate per 1000 live births.

Table 3.4: Death Rates by Area, Age, and Sex, 2000
(per 1000 population)

	MCH-FP area			Comparison area		
Age	Both sexes	Males	Females	Both sexes	Males	Females
All ages	6.8	7.9	5.7	7.2	8.0	6.4
Under 1 year	44.0	43.5	44.5	58.0	59.4	56.5
Under 1 month[*]	*32.3*	*31.5*	*33.0*	*43.6*	*48.3*	*38.6*
1-5 months[*]	*8.0*	*9.0*	*6.9*	*8.7*	*6.8*	*10.6*
6-11 months[*]	*3.8*	*3.0*	*4.6*	*5.8*	*4.3*	*7.3*
1 – 4 years	3.9	3.9	3.8	6.4	5.3	7.5
1	*5.9*	*4.7*	*7.2*	*13.1*	*10.7*	*15.7*
2	*2.0*	*2.4*	*1.7*	*5.9*	*5.0*	*6.9*
3	*5.2*	*6.0*	*4.4*	*3.1*	*1.6*	*4.6*
4	*2.2*	*2.6*	*1.7*	*2.8*	*3.1*	*2.4*
5 - 9	1.0	1.3	0.7	1.6	2.1	1.0
10-14	0.8	0.8	0.9	0.5	0.5	0.5
15-19	0.7	1.1	0.4	1.3	1.4	1.2
20-24	1.4	1.8	1.0	1.3	1.4	1.2
25-29	1.7	1.8	1.7	1.5	0.6	2.2
30-34	0.8	1.0	0.7	0.8	0.3	1.2
35-39	2.1	3.5	1.0	1.6	1.8	1.5
40-44	2.8	4.2	1.4	2.1	3.2	1.0
45-49	3.9	5.1	2.7	4.5	4.4	4.6
50-54	4.6	7.2	2.5	6.4	10.8	2.5
55-59	8.7	12.3	5.8	9.4	14.9	5.2
60-64	21.7	21.9	21.6	20.4	27.4	14.1
65-69	37.6	40.4	34.7	34.4	45.5	24.1
70-74	57.4	55.4	59.7	53.3	56.7	49.7
75-79	73.3	90.0	53.7	70.5	59.0	83.1
80-84	112.8	118.2	106.1	120.2	101.4	140.7
85+	191.0	196.2	183.5	198.2	198.4	197.9

[*]Rate per 1000 live births.

Table 3.5: Abridged Life Tables by Sex, 2000

Age (years)	Males				Females			
	$_nq_x$	l_x	L_x	e^0_x	$_nq_x$	l_x	L_x	e^0_x
0	52.2	100000	96218	66.0	50.9	100000	96312	69.1
1	7.9	94776	94335	68.6	11.5	94906	94262	71.8
2	3.8	94029	93852	68.1	4.4	93814	93610	71.6
3	3.7	93675	93502	67.4	4.5	93406	93197	70.9
4	2.9	93328	93194	66.6	2.1	92988	92892	70.2
5	8.8	93060	463417	65.8	4.3	92795	463054	69.4
10	3.1	92244	460554	61.4	3.5	92395	461231	64.7
15	6.3	91955	458444	56.6	4.0	92072	459510	59.9
20	8.0	91377	455206	51.9	5.7	91703	457317	55.1
25	6.0	90648	451985	47.3	9.6	91183	453892	50.4
30	3.2	90103	449848	42.6	4.6	90306	450563	45.9
35	13.0	89813	446372	37.7	6.2	89887	448143	41.1
40	18.5	88646	439445	33.2	5.9	89327	445417	36.3
45	23.5	87007	430315	28.7	18.1	88799	440274	31.5
50	44.3	84965	416094	24.4	12.4	87188	433442	27.1
55	66.0	81203	393527	20.4	27.3	86105	425092	22.4
60	116.7	75844	358398	16.6	85.2	83757	402090	17.9
65	194.6	66996	303805	13.5	136.3	76620	358426	14.3
70	246.7	53960	237606	11.1	241.8	66177	292225	11.2
75	317.2	40650	171551	8.9	292.7	50176	214980	8.9
80	1429.7	27757	108596	6.8	1471.5	35489	134588	6.6
85+	1000.0	15829	80275	5.1	1000.0	18755	98584	5.3

Fgure 3.1: Probability of Survival from Birth to Age (x) by Sex, 2000

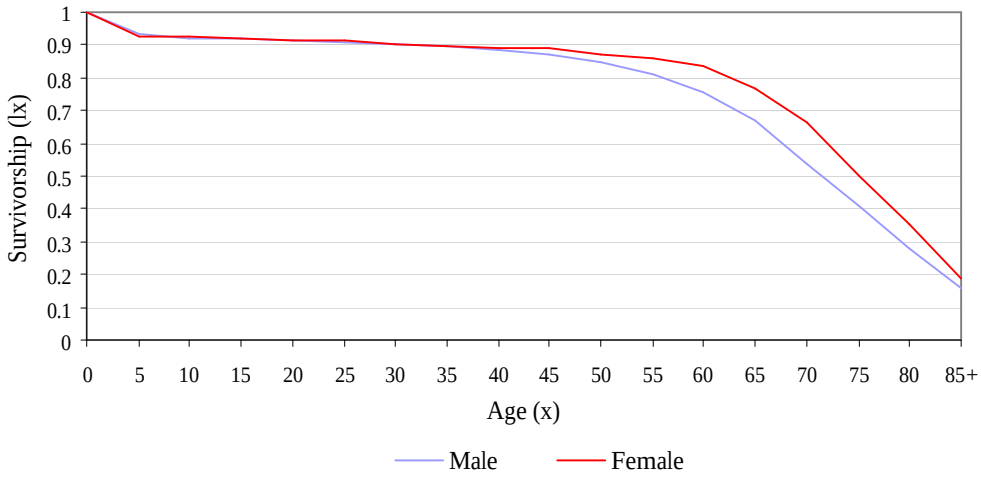


Table 3.6: Deaths by Age and Month, 2000

Month	All ages	Age at death			
		Under 1 month	1-11 months	1-4 years	5 years & above
January	147	15	8	4	120
February	142	17	8	11	106
March	114	13	1	10	90
April	120	11	8	12	89
May	103	13	6	8	76
June	104	13	2	11	78
July	120	16	8	5	91
August	107	22	6	13	66
September	132	26	10	9	87
October	125	20	7	8	90
November	145	20	6	8	111
December	171	35	6	6	124
Total	1530	221	76	105	1128

Table 3.7: Age-standardized Mortality Rates by Cause of Death, 2000 (per 100,000 population)*

	Males		Females	
Cause of death	MCH-FP area	Comparison area	MCH-FP area	Comparison area
Diarrhoea	31.02	35.65	43.36	36.24
Dysentery	(8.05)	(4.07)	15.28	(1.90)
Tuberculosis	29.48	42.78	8.24	18.01
Tetanus (non-neonatal)	(0)	(1.28)	(0)	(0)
Other infectious	11.89	11.31	13.55	25.84
Malignant neoplasms	102.53	58.33	26.56	25.79
Nutritional	7.83	18.75	22.35	37.10
Cardio-vascular	95.50	84.71	118.62	127.55
ARI,pneumonia,influenza	41.23	50.26	12.03	50.29
COPD**	62.01	60.03	62.62	48.68
Gastro-intestinal	47.04	51.62	23.36	17.89
Maternal death	-	-	10.44	21.39
Neonatal tetanus	(0)	(1.75)	(0)	(0)
Other neonatal	71.66	110.00	78.73	87.30
Suicide	(0)	(4.14)	(1.78)	8.91
Homicide	(6.52)	(5.01)	(3.97)	(0)
Drowning	36.40	48.49	27.61	37.10
Other accidents	19.60	17.84	11.67	23.47
Senility	69.70	67.13	115.93	134.57
Other cause n.e.c.***	97.04	106.04	138.35	137.35
Unknown	38.88	53.37	46.78	53.20
Total	780.27	832.56	781.24	892.58

*Age distribution of standard population is given in Appendix D.
**Chronic obstructive pulmonary disease.
***Not elsewhere classified.
()Less than 5 deaths.

CHAPTER 4

FERTILITY

In 2000, there were 5,755 live births in the HDSS as the outcome of 6,610 pregnancies recorded. Table 4.1 shows the number of pregnancies and their outcomes in 2000. Compared with 1999, the number of live births rose overall by 287 or 5.3 percent. In the MCH-FP area, the number of live births was 86 less than in 2000, and in the Comparison area was 373 more than in 2000. In the study area as a whole, 86.0 percent of pregnancies resulted in a live birth, a proportion that remains remarkably constant from year to year. Among the pregnancies resulting live births, 66 were multiple confinements.

Table 4.2 and Figure 4.1 show the distribution of pregnancies by outcome, and live births by sex and month of occurrence. The data show the usual marked seasonal variation of births, peaking in October-December. The sex ratio of the live births was 105 males per 100 females.

Table 4.3 shows the age-specific fertility rates for the study area, together with the total fertility rate, general fertility rate, and gross and net reproduction rates. Figure 4.2 shows the age-specific fertility rates for the MCH-FP area and Comparison area. In all age groups, fertility rates were higher in the Comparison area compared to MCH-FP area. Age-specific fertility rates and indices for MCH-FP area by block are shown in Appendix A-9.

The totals of the order-specific rates represent the components by birth order of the total fertility rates. Just as the TFR represents the average number of children borne by a woman who has children at the current rates, the total for birth order N represents the proportion of women who would have at least N children.

Thus the tables (see Appendices A-10 and A-11) highlight the differences between the MCH-FP and Comparison areas. There is comparatively little difference between the two areas for birth orders 1 to 3, but thereafter they widen dramatically.

Table 4.1: Number and Rates of Pregnancy Outcomes by Type and Area, 2000

Type of area pregnancy outcome	Both areas		MCH-FP area		Comparison	
	Number	Rate	Number	Rate	Number	Rate
Total pregnancies*	6610	118.0	2944	104.8	3666	131.2
Live birth preg.**	5693	861.3	2608	885.9	3085	841.5
Foetal wastage**	917	138.7	336	114.1	581	158.5
*Early (miscarriage)****	*737*	*111.5*	*245*	*83.2*	*492*	*134.2*
Late (still births)	*180*	*27.2*	*91*	*30.9*	*89*	*24.3*
Multiple birth preg.	70		32		38	
Multiple live birth preg.	66		30		36	
Three live births	*1*		*0*		*1*	
Two live births	*60*		*27*		*33*	
One live birth	*5*		*3*		*2*	
Still birth pregnancies	3		2		1	
Two still births	*3*		*2*		*1*	
Miscarriage pregnancies	1		0		1	

*Rate per 1000 women of age 15-49 years (GFR).
**Ratio per 1000 total pregnancies.
***Less than 28 weeks.

Table 4.2: Pregnancy Outcomes by Month, 2000

		Pregnancy outcome				No. of live born children			
		Miscarriage		Still	Live	Both			
Months	All	Induced	Spon.	Birth	birth*	sexes	Males	Females	Ratio
All months	6610	348	389	180	5693	5755	2948	2807	1.05
January	512	32	17	10	453	454	264	190	1.39
February	489	25	30	13	421	424	220	204	1.08
March	505	29	35	15	426	431	209	222	0.94
April	479	42	38	7	392	396	207	189	1.10
May	444	39	43	15	346	349	184	165	1.12
June	437	40	65	8	324	329	157	172	0.91
July	425	25	32	15	353	358	197	161	1.22
August	547	35	23	17	472	483	243	240	1.01
September	596	21	26	26	523	532	251	281	0.89
October	727	27	31	22	647	651	353	298	1.18
November	726	26	28	20	652	656	313	343	0.91
December	723	7	20	12	684	692	350	342	1.02

*For any multiple birth pregnancy, the outcome is recorded as live birth, if at least one of the issues is live born.

Figure 4.1: Number of Births and Deaths by Month, 2000

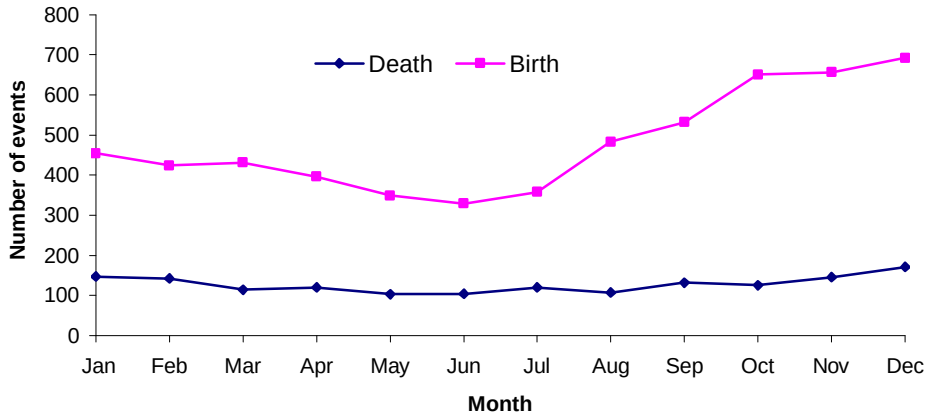
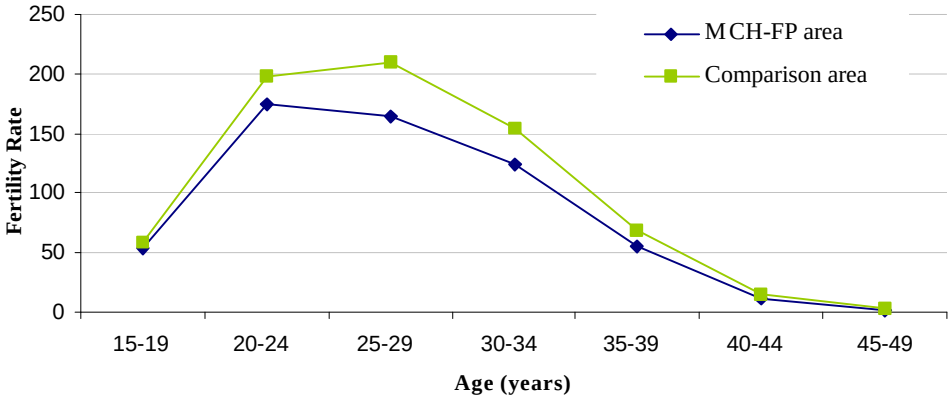


Table 4.3: Age-specific Fertility Rates and Indices by Area, 2000

Age (years)	Both areas		MCH-FP area		Comparison area	
	Births	Rate	Births	Rate	Births	Rate
All ages	5755	102.7	2635	93.8	3120	111.7
15-19*	636	56.8	292	54.0	344	59.4
20-24	1796	185.5	848	173.8	948	197.4
25-29	1541	186.3	689	163.6	852	209.8
30-34	1197	139.1	544	124.6	653	154.0
35-39	494	61.7	225	54.7	269	69.1
40-44	80	13.6	33	11.3	47	15.7
45-49**	11	2.5	4	1.8	7	3.2
Total Fertility Rate	= 3227		2919		3543	
General Fertility Rate	= 103		94		112	
Gross Reproductive Rate	= 1574		1443		1708	
Net Reproductive Rate	= 1429		1334		1525	

*Births to mothers under age 15 were included in this group.
**Births to mothers age 50 and above were included in this group.

Figure 4.2: Age-specific Fertility Rates by Area, 2000



CHAPTER 5

MARRIAGE AND DIVORCE

The number of marriages registered in 2000 was 3,221, giving a crude marriage rate of 14.7 per thousand population. These figures show an increase over those of 1999.

Tables 5.1 and 5.2 show the distribution of grooms and brides by age at marriage and previous marital status. The mean ages at marriage -- 27.5 and 19.8 for all grooms and brides respectively; 26.3 and 19.0 for those marrying for the first time -- is almost similar to those of 1999. In general there appears to be a rise in age at marriage of females in Matlab. The mean age has been over 18 for every year since 1984, while prior to that date it was consistently below that age.

Table 5.3 shows marriage rates by age and sex. Among males, the marriage rate was 49 per 1,000 persons aged 15 years and above. For females the rate was 37 per 1,000 aged 10 years and above. For females, the highest rate is 153 per 1,000 in the 15-19 age groups, while for males the peak occurs in age group 25-29.

Divorces numbered 284 in 2000, which constituted a decrease from the 1999 figure of 294 (see Appendix A-12). In general, the incidence of divorce in Matlab has fallen. The number of divorces was more than 500 each year during 1978-81. Since 1981 this figure has been less than 500. Table 5.4 shows the mean and median duration in month by marriage at divorce by age and sex. Average duration of marriage of all divorcing husbands at the time of divorce was 39 months.

Figure 5.1 shows the distribution of marriages and divorces by month. There has been no strong seasonal pattern for marriages or divorces in 2000.

It may be noted that the HDSS definitions specify that if either partner in a marriage has been resident in the study area, the marriage should be registered. Thus if a bride from the study area marries a groom from outside the area, the marriage will be included in the marriage statistics but because of her move out of the area, all her subsequent childbearing goes unrecorded by the DSS. This leads to an imbalance between the numbers of marriages and the numbers of births, and caution is needed if, for any reason, the two data sets have to be related.

Table 5.1: Groom's Age at Marriage by Previous Marital Status, 2000

Age (years)	All grooms	Previous marital status (%)			
		Single	Married	Divorce	Widowed
All ages	100.0 (N=3221)	100.0 (N=2791)	100.0 (N=108)	100.0 (N=224)	100.0 (N=98)
10-14	0.0	0.0	0.0	0.0	0.0
15-19	5.4	6.1	1.9	0.9	0.0
20-24	28.7	31.1	12.0	17.4	4.1
25-29	35.8	37.9	20.4	25.4	15.3
30-34	20.4	19.7	23.1	32.1	10.2
35-39	6.2	4.7	19.4	13.8	18.4
40-44	1.7	0.4	13.9	6.7	14.3
45-49	0.4	0.0	6.5	1.8	3.1
50-54	0.3	0.0	1.9	0.9	6.1
55-59	0.2	0.0	0.0	0.9	4.1
60-64	0.1	0.0	0.0	0.0	4.1
65+	0.7	0.0	0.9	0.0	20.4
Median age*	26.0	26.0	33.5	30.6	38.0
Mean age*	27.5	26.3	33.2	30.6	41.1
Standard dev.*	7.8	4.8	8.4	6.5	13.9

*Mean, median, and standard deviation were calculated from ungrouped age data.

Table 5.2: Bride's Age at Marriage by Previous Marital Status, 2000

Age (years)	All brides	Previous marital status (%)		
		Single	Divorced	Widowed
All ages	100.0 (N=3221)	100.0 (N=2928)	100.0 (N=261)	100.0 (N=32)
10-14	3.4	3.8	0.0	0.0
15-19	53.0	56.5	20.3	3.1
20-24	32.6	32.7	34.1	15.6
25-29	7.5	6.1	21.1	18.8
30-34	2.0	0.8	13.0	25.0
35-39	0.8	0.1	8.0	6.3
40-44	0.3	0.0	2.3	9.4
45-49	0.1	0.0	1.1	0.0
50-54	0.2	0.0	0.0	21.9
55-59	0.0	0.0	0.0	0.0
60-64	0.0	0.0	0.0	0.0
65+	0.0	0.0	0.0	0.0
Median age*	19.0	19.2	23.0	31.0
Mean age*	19.8	19.0	25.3	35.7
Standard dev*	4.6	3.4	6.8	13.1

*Mean, median, and standard deviation were calculated from ungrouped age data.

Table 5.3: Marriage Rates by Age and Sex, 2000

Age (years)	Males			Females		
	Marriages	Population	Rate*	Marriages	Population	Rate*
10-14	-	-	-	111	14298	7.8
15-19	175	11900	14.7	1708	11196	152.6
20-24	923	8739	105.6	1051	9683	108.5
25-29	1152	6638	173.5	240	8273	29.0
30-34	658	6192	106.3	66	8606	7.7
35-39	201	6886	29.2	25	8007	3.1
40-44	56	6168	9.1	9	5900	1.5
45+	56	19377	2.9	11	21024	0.5
All ages(10+)	3221	65900	48.8	3221	86987	37.0

*Rates per 1000 population irrespective of previous marital status.

Figure 5.1: Marriages and Divorces by Month, 2000

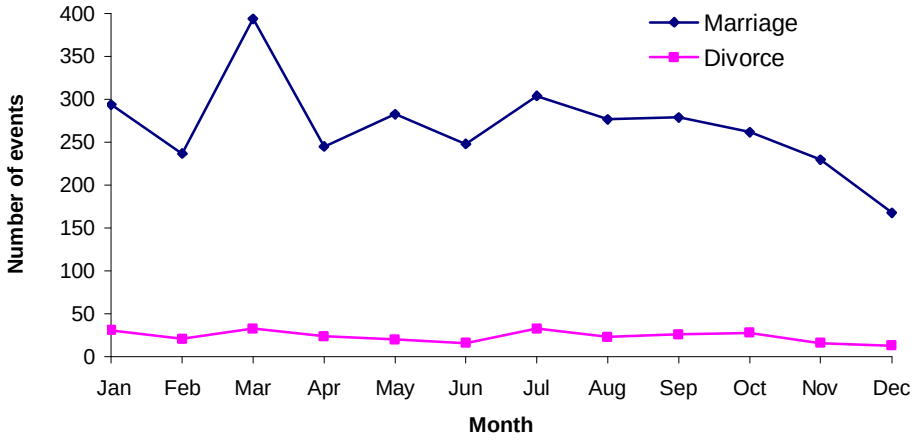


Table 5.4: Mean and Median Duration (months) of All Marriages at Divorce by Age and Sex, 2000

Age at Divorce	Males				Females			
	No.	Mean	Median	SD	No.	Mean	Median	SD
Under 20	4	9.8	7.5	10.3	99	21.7	12.0	32.5
20-24	55	20.1	12.0	17.6	100	30.9	18.5	33.8
25-29	87	27.5	14.0	33.7	44	63.4	48.0	69.2
30-34	69	45.7	24.5	59.4	20	48.3	36.0	42.2
35-39	36	63.6	23.0	70.9	10	81.3	48.0	86.9
40-49	16	38.7	34.0	34.5	3	167.0	135.0	179.2
50+	17	96.8	48.0	123.2	8	106.8	40.5	137.4
All ages	284	39.4	19.0	56.3	284	39.4	19.0	56.3

CHAPTER 6

MIGRATION

An "out-migrant" is defined as a person originally listed on a DSS census as a resident, or a person who became a resident after the census by birth or immigration, who subsequently moved out of the surveillance (HDSS) area permanently. Likewise, an "in-migrant" is an individual not recorded in the last census nor born or lived in the HDSS area after the census who has permanently moved into the surveillance area. Those who stay in the area continuously for at least six months in a year, or come home at least once a month to stay overnight, are treated as permanent residents. It may be noted that these definitions refer to the surveillance area as a whole. People who move from the Comparison area into the MCH-FP area, or vice versa, do not feature in the tables, which show the numbers of migrants in the two areas.

The number of in-migrants in 2000 was 7,679 giving a crude rate of in-migration of 35.1 per thousand and Out-migrants numbered 10,599 and the out-migration rate was 48.5 per thousand (see appendix). Both in-migration and out-migration rates increased over those of 1999. The net loss of migrants was 13.4 per 1,000 in 2000, which is much higher than in 1999.

Table 6.1 presents the age-specific migration rates, which are illustrated in Figure 6.1. They show the bi-modal age distribution commonly found for migrant populations, with a primary peak of young adults and a secondary peak of young children moving with their parents. For males the ages of the out-migrants tended to be rather younger than those of the in-migrants, while for females the shapes of the distributions were more similar. Figure 6.2 show the numbers moving in and out by month. January seems to be the preferred month for migration. Number of in- and out-migration by age, sex, and by cause of movement are shown in Appendices A-13 through A-19.

Roughly equal numbers of men and women move into and out of rural areas, probably due to marriage. There is a net loss of both men and women to urban Dhaka, primarily of young adults. There is also a net loss to India more evenly distributed across age groups. Migration to the Middle East and other Asian locations is heavily concentrated among out-migrating males age 15-44 (see Appendices A-20 and A-21).

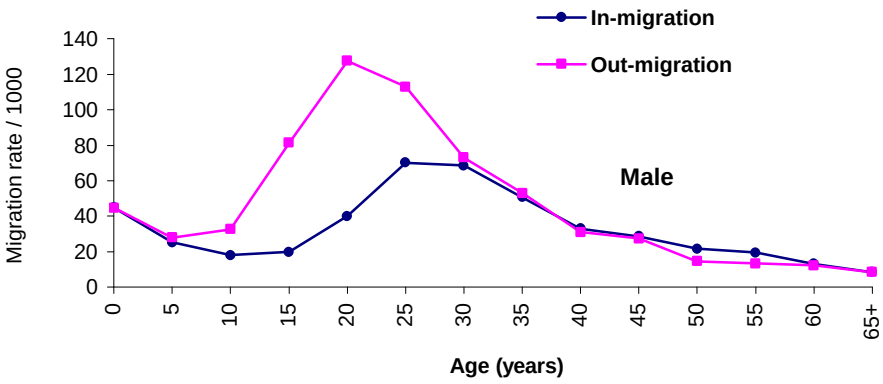
Table 6.1: Age and Sex-specific Migration Rates by Direction, 2000 (per 1000 population)

Age (years)	Both Sexes		Males		Females	
	In	Out	In	Out	In	Out
All ages	35.1	48.5	33.4	52.2	36.8	45.0
Under 5	43.0	45.1	44.9	44.7	41.0	45.6
5 - 9	26.4	28.5	25.3	28.0	27.5	29.0
10-14	20.5	32.4	18.0	32.6	22.9	32.1
15-19	52.1	93.9	19.8	81.4	86.4	107.2
20-24	65.1	117.7	40.1	127.6	87.7	108.9
25-29	60.8	88.7	70.2	113.0	53.2	69.3
30-34	46.4	51.2	68.6	73.0	30.3	35.6
35-39	32.4	34.5	50.7	53.0	16.7	18.6
40-44	23.9	22.8	33.1	31.0	14.4	14.2
45-49	19.7	19.1	28.7	27.5	11.0	11.0
50-54	14.1	12.8	21.6	14.6	7.8	11.3
55-59	13.1	13.1	19.5	13.3	8.2	13.0
60-64	10.3	13.9	13.2	12.2	7.6	15.5
65+	10.4	12.4	8.4	8.5	12.6	16.5

Table 6.2: In- and Out-migration by Sex and Month, 2000

	In-migration			Out-migration		
Month	Both sexes	Males	Females	Both sexes	Males	Females
January	1263	637	626	1520	785	735
February	773	367	406	921	487	434
March	772	356	416	1079	541	538
April	737	339	398	816	411	405
May	549	247	302	860	419	441
June	661	319	342	1097	574	523
July	690	305	385	995	517	478
August	704	313	391	1076	600	476
September	514	248	266	764	413	351
October	514	221	293	713	396	317
November	289	114	175	484	270	214
December	213	82	131	274	138	136
All months	7679	3548	4131	10599	5551	5048

Figure 6.1: Rates of In-and Out-migration by Sex and Age, 2000



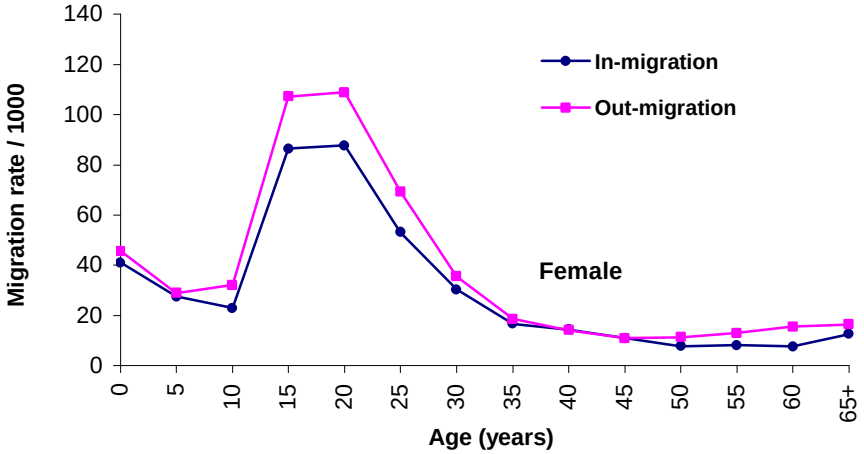
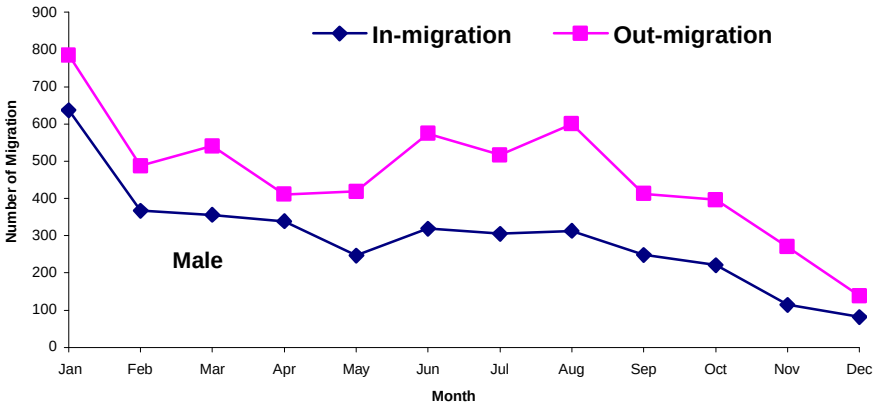
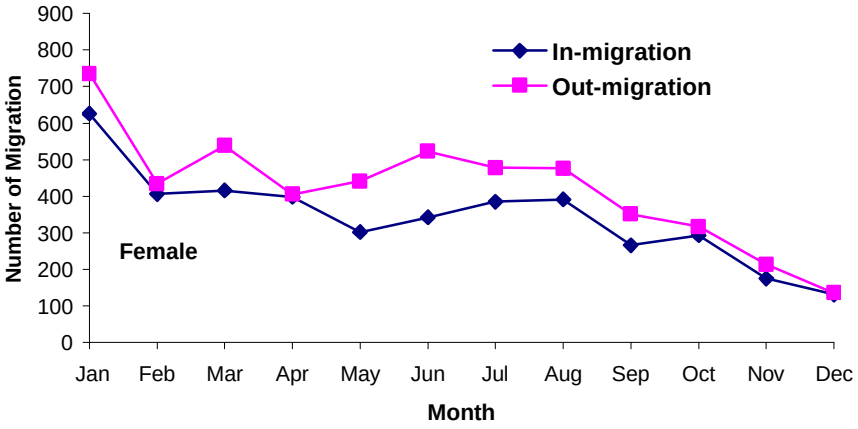


Figure 6.2: Number of In and Out-migration by Sex and Month, 2000





CHAPTER 7

FERTILITY REGULATION IN MCH-FP AND COMPARISON AREAS

The female community health research workers (CHRWs, previously called CHWs who visited every household fortnightly since 1977) visit every household monthly in the MCH-FP area since 1999, and in the comparison area since February 2000. During their home visits, they record FP methods used by the couples in the previous month, inquire about prevalence of major childhood morbidity and health services used to manage morbidity. They motivate couples for adopting family planning, and advise pregnant women for antenatal care, safe delivery and use of safe-delivery kit. They also advise parents for immunization of children in time, make them aware of symptoms of common childhood morbidity and advise them to treat sick children by formally trained providers. The motivation activities are more intensive and extensive in the MCH-FP area than in the comparison area. CHRWs have been motivating for uptake of maternal and child health (MCH) services and recording use of MCH services in the MCH-FP area since 1986 and in the comparison area since February 2000.

Table 7.1 shows that contraceptive use rate is increasing in the MCH-FP and the comparison areas and at the national level. However, the rate of increase is faster in areas that have had low contraceptive use rates in early 80s, resulting in reduced spatial difference. Table 7.2 shows the difference in contraceptive method-mix between the MCH-FP and the comparison areas and at the national-level estimates for selected years. At the national level and the comparison area, pill is the most widely used method, followed by female sterilization, injectable and condom while in the MCH-FP area, injectable is the most widely used method, followed by pill, female sterilization and IUD. The difference in the method-mix may be the impact of the MCH-FP services project in the MCH-FP area. Changes in the method-mix in the MCH-FP area during 1986-2000 is shown in Table 7.3. Use of pill, injectable and condom has increased at the expense of sterilization and IUD over the years. Contraceptive use rate increases with increase in women's age (Table 7.4). Women aged 25-44 tend to use injectable, undergo tubectomy and adopt traditional methods more than women aged less than 25.

Table 7.1: Contraceptive Use Rate (%) of Currently Married Women Aged 15-49 by Area, 1982-2000

Year	Matlab MCH-FP area	Matlab Comparison area	National[a]
1982	36.7	-	-
1983	40.3	-	19.1
1984	46.4	15.8	-
1985	46.2	-	-
1986	47.4	-	25.3
1987	51.3	-	-
1988	52.5	-	-
1989	58.8	-	31.4
1990	60.6	27.9	-
1991	61.1	-	39.9
1992	61.1	30.2	-
1993	62.7	-	44.6
1994	65.6	-	-
1995	68.6	-	-
1996	68.1	46.9	49.2
1997	67.4	-	-
1998	68.8	-	-
1999	69.9	-	53.8
2000	69.5	45.0[b]	-

[a]Sources: CPS (Contraceptive Prevalence Survey), BFS (Bangladesh Fertility Survey) and BDHS (Bangladesh Demographic and Health Survey).
[b]Contraceptive use rate in the comparison area is estimated on the basis of the results of re-interview of 200 currently married women eligible for contraceptive use. The rate is under estimated because CHRWs in this area, have been recording vital events since 1966, are not yet used to recording maternal and child health (MCH-FP) information. They are trained for recording MCH-FP information since February 2000.

Table 7.2: Contraceptive Method Mix[a] (%) in Different Surveys

	BFS (Rural) 1989	BDHS 1999/2000	Matlab MCH-FP area 1989	Matlab MCH-FP area 2000	Matlab Comparison area 2000
Pill	35.4	53.0	23.3	30.6	55.1
Condom	5.4	9.9	2.5	9.5	2.2
Injectable	4.5	16.6	50.2	47.8	20.7
IUD	6.7	2.8	6.3	2.2	0.8
Tubectomy	40.4	15.4	16.5	9.1	20.7
Vasectomy	7.2	1.2	0.6	0.6	0.5
Others[b]	0.4	1.2	0.6	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0

[a]Currently married women using any modern method.
[b]Others include Implant/Norplant, Foam, Jelly.

Table 7.3: Contraceptive Method Mix[a] (%) in MCH-FP Area, 1986-2000

Method	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pill	18.9	20.6	21.3	23.3	25.4	26.1	27.3	28.1	25.7	25.8	25.4	26.0	29.7	28.7	30.6
Condom	2.8	2.9	2.6	2.5	2.3	2.4	2.7	3.2	3.9	4.7	6.2	7.7	7.1	7.7	9.5
Injectable	40.5	43.1	47.4	50.2	50.8	51.3	51.4	50.2	52.9	54.2	54.4	53.0	50.0	50.4	47.8
IUD	12.9	11.7	8.8	6.3	5.2	4.2	3.6	3.6	3.1	2.7	2.2	1.8	2.3	3.3	2.4
Tubectomy	23.0	20.4	18.4	16.5	15.3	15.1	14.5	14.5	14.0	12.2	11.6	11.1	10.6	9.8	9.1
Vasectomy	1.0	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.1	0.6
Foam	0.9	0.6	0.8	0.6	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All (%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

[a]Currently married women using any modern method.

[b] others include Implant/Norplant, Foam, Jelly

Table 7.4: Method Specific Contraceptive Use Rate Among Currently Married Women by Age in MCH-FP Area, 2000

Age (years)	Not using	Any method used	Methods Used								No.of eligible women
			Pill	IUD	Injec-table	Condom	Tubec-tomy	Vasec-tomy	Others[a]	Total	
Less 20	58.5	41.5	18.6	1.8	15.8	5.0	0.0	0.0	0.3	100	892
20-24	44.5	55.5	21.0	2.1	27.6	4.4	0.0	0.0	0.4	100	3177
25-29	38.2	61.8	20.8	2.1	31.8	6.0	0.5	0.1	0.5	100	3690
30-34	31.2	68.8	21.3	1.5	35.6	6.5	2.4	0.5	1.0	100	3991
35-39	21.8	78.2	21.6	1.6	35.9	7.7	8.1	0.9	2.4	100	3790
40-44	15.5	84.5	18.9	1.0	33.5	8.1	16.4	0.6	6.0	100	2569
45+	13.5	86.5	18.3	0.5	28.8	6.4	22.2	0.7	9.6	100	1674
Total	30.5	69.5	20.5	1.6	32.1	6.4	6.1	0.4	2.4	100	19783

[a]Others include periodic abstinence, withdrawal and other traditional methods.

CHAPTER 8

USE OF MATERNAL AND CHILD HEALTH SERVICES IN MCH-FP AND COMPARISON AREAS

Immunization Services in MCH-FP and Comparison Areas

CHRWs have been responsible to provide immunization services to both pregnant women and children at the door-step and to maintain vaccination records in the MCH-FP area during 1986-2000. In contrast, CHRWs in the comparison area, maintain only vaccination records by checking the vaccination card or by asking mothers about vaccination of children if the vaccination card is missing. Neonatal tetanus is a fatal disease caused by a pathogen transmitted under unhygienic conditions at childbirth. For full protection against tetanus among newborns, it is recommended that pregnant women receive two doses of the tetanus toxoid (TT). However, if a woman has been vaccinated during her previous pregnancy, she may require only one booster dose during a subsequent pregnancy. A woman requires 5 doses of TT for life-long protection. TT coverage rate is presented for women whose latest pregnancies terminated into live births.

WHO recommends that all children receive a BCG vaccination against tuberculosis; three doses of DPT vaccine for the prevention of diphtheria, pertussis (whooping cough), and tetanus; three doses of polio vaccine; and a vaccination against measles before their first birthday. Therefore, vaccination of children aged 12-23 months is presented to allow comparison of the results with other surveys.

Table 8.1 shows the trends in coverage rates of different vaccines among women who produced a live birth and children aged 12-23 months by area. Coverage of TT with at least two doses has increased from 86% in 1987 to more than 98% in 1992 and since then it has been stable in the MCH-FP area. The 1999/2000 BDHS (Bangladesh Demographic and Health Survey) estimated national coverage of TT with two or more doses is 64%. Immunization of children with BCG, DPT and Polio with three doses and measles in the MCH-FP area is almost universal; 99% have received BCG and 96% have received measles vaccines and three doses of DPT and Polio in 1990. These rates are much higher than the estimates of 74% for BCG, 68% for DPT and Polio and 50% for measles in the comparison area. The BDHS estimates of immunization coverage are 91% for BCG, 72% for DPT and Polio and 71% for measles in 1999/2000.

Table 8.2 shows DPT and Polio coverage among children aged 12-23 months by number of doses in the MCH-FP and the comparison areas in 2000. The coverage of full (three) doses has been 98% in the MCH-FP area as opposed to 68% in the comparison area.

Child Morbidity and Service Use

Diarrhoea and pneumonia are the two leading causes of infant and child mortality in Bangladesh. While CHRWs have been recording prevalence of diarrhoea and pneumonia along with other child health information visiting households monthly in the MCH-FP area since 1986, the CHRWs in the comparison area, are trained to record the same child health information since February 2000. They ask mothers about presence of symptoms of diarrhoea: three or more

loose stools per 24 hours with or without mucus or blood in children in 24 hours preceding the visit date. An episode is termed bloody diarrhoea if blood was present in stool, otherwise it is termed watery diarrhoea. For recording pneumonia, they ask mothers about symptoms suggesting pneumonia such as fever, cough, rapid breathing or breathing difficulty and chest indrawing (or inability to suck the breast if child is aged less than 2 months) were present in children in the precedingone month. A pneumonia episode is termed severe if chest indrawing is present in addition to other symptoms; otherwise it is termed simply pneumonia. The estimate of the prevalence may be upward biased in longitudinal monthly surveys; for example, episodes that lasted more than 30 days are counted in subsequent visits as child-months with pneumonia.

Diarrhoea causes dehydration and ORS (oral rehydration solution) is the most simple and inexpensive tool to combat dehydration. CHRWs during their home visits, provide ORS packets free of charge if they encounter any diarrhoea patients, provide treatment for minor illnesses of women and children and refer severe illnesses to ICDDR,B sub-centres or hospital in Matlab. If a child has diarrhoea in the preceding 24 hours, mother is asked about ORS (either packets or home-made sugar, salt and water solution) or IV fluids administered to prevent dehydration. It may be mentioned that ORS or IV use stands for a mix-group of diarrhoea episodes – both terminated and still continuing on the visit date. For still continuing episodes, CHRWs may have made home visits before ORS or IV use has occurred (i.e. right-censoring) and thus, ORS or IV use may be underestimated. They, however, did not record additional fluids given from a green coconut or rice water to combat dehydration.

Similarly, if a child has pneumonia in the past month, CHRWs ask mothers about health actions taken to combat pneumonia. They record most recent health actions taken, particularly type of medicine used and type of health providers consulted. As mentioned before, health actions taken against pneumonia may also be underestimated because of right-censoring (home visit before health service use).

Prevalence of Diarrhoea and Use of ORS and Health Providers

Table 8.3 shows the prevalence of diarrhoea in past 24 hours per 100 children in the MCH-FP and the comparison areas in November-December, 2000. While the prevalence of bloody diarrhoea is comparable between the two areas, the prevalence of watery diarrhoea is higher in the MCH-FP area than in the comparison area (2.8% as opposed to 2.0%). The prevalence of watery diarrhoea is highest in the age group 6-11 months and slightly higher for boys than for girls in either area. In contrast, the prevalence of bloody diarrhoea does not vary by age and sex of the children. Mothers' education is not related to the prevalence of watery or bloody diarrhoea in any area. Table 8.4 shows that overall use of ORS for children having watery or bloody diarrhoea in the preceding 24 hours is higher in the MCH-FP area than in the comparison area. While ORS use is similar for watery and bloody diarrhoea in the MCH-FP area, its use is higher for watery diarrhoea than for bloody diarrhoea (31% as opposed to 23%) in thecomparison area. The longer the duration of episodes, the higher is use of ORS.

There is a marked difference in use of health providers for treating diarrhoea between the MCH-FP and the comparison areas (Table 8.5). In both areas, parents adopt home-treatment at a higher rate for watery diarrhoea than for bloody diarrhoea, and consult untrained village doctors more often for bloody diarrhoea than for watery diarrhoea for treatment. They consult traditional healers and untrained village doctors, who are available in most villages around the clock, less frequently for both watery and bloody diarrhoea in the MCH-FP area than in the comparison area. They consult ICDDR,B field workers more frequently for watery diarrhoea than for bloody diarrhoea and they do so even more frequently in the MCH-FP area than in the Comparison area. Young children are taken to health providers at a higher rate than older children in the Comparison area, but not in the MCH-FP area. Boys with bloody diarrhoea are treated more often by health providers outside home than girls with bloody diarrhoea in the comparison area. The difference in management of diarrhoea may be impact of the provision of the better quality health services in the MCH-FP area compared with the comparison area

Prevalence of Pneumonia and Service Uptake

Table 8.6 shows the monthly prevalence of pneumonia per 100 children by illness and child's characteristics in November-December 2000 in the MCH-FP and the comparison areas. The prevalence is 3.9% in the MCH-FP area and 1.3% in the comparison area. Severe pneumonia accounts for 20% of the overall prevalence in the MCH-FP area and 33% in the comparison area. These area-level differences suggest that CHRWs have missed a significant proportion of pneumonia episodes, particularly non-severe ones in monthly surveillance in the comparison area. The possible reasons for missing pneumonia could be either short exposure in recording child morbidity data in the comparison area, or mothers in this area are less aware of symptoms of pneumonia, or both.

The prevalence of pneumonia does not show any age pattern, which is not expected. The prevalence is little higher for boys than for girls. Mother's education is not related to the prevalence of pneumonia in their children.

Table 8.7 shows the type of medicine used to combat pneumonia in the MCH-FP and the comparison areas by illness and child's characteristics. Antibiotics are more frequently used in the MCH-FP area than in the comparison area, and they are more frequently used for younger children than older children in the MCH-FP area only. Boys with pneumonia are treated by antibiotics at a higher rate than girls with pneumonia. Educational differential in use of medicine does not exist in either area.

Table 8.8 shows the treatment pattern of pneumonia by illness and child's characteristics in the MCH-FP and the comparison areas. The provision of high quality services and severity of illness trigger choice of health providers. In the MCH-FP area, pneumonia episodes are treated more often by field workers (mostly ICDDR,B CHRWs) themselves and in hospitals or health centres (mostly ICDDR,B treatment sub-centres or hospital in Matlab) at the expense of untrained village doctors and traditional healers in the Comparison area. Severe pneumonia episodes are particularly treated in hospitals and by untrained village doctors in either area. The results suggest that parents bypassed field workers for well trained providers for severe pneumonia.

Age of the child also influences choice of treatment provider to combat pneumonia, but not for severe pneumonia. Infants with pneumonia are more likely to be taken to hospitals or health centres than their older counterparts. Sex of the child and mothers' education are not related to choice of treatment providers for children with simple pneumonia or severe pneumonia.

Table 8.1: Immunization Coverage (%) in MCH-FP Area, 1987-2000 and Comparison Area*, 2000

Year	TT[a] Coverage during last pregnancy of women giving live birth	Vaccination coverage rate of children aged 12-23 months							
		BCG (1 dose)		DPT and Polio (3 doses)		Measles (1 dose)		All[b]	
		MCH-FP	Comp.	MCH-FP	Comp.	MCH-FP	Comp.	MCH-FP	Comp.
1987	86.1	88.4	-	76.1	-	85.2	-	69.3	-
1988	89.7	93.3	-	82.8	-	87.9	-	77.2	-
1989	91.3	94.6	-	88.4	-	92.0	-	84.0	-
1990	95.3	98.7	-	95.7	-	96.4	-	93.8	-
1991	97.1	98.6	-	95.6	-	97.0	-	94.1	-
1992	98.6	99.1	-	96.9	-	97.8	-	96.0	-
1993	98.8	99.5	-	97.6	-	98.1	-	96.6	-
1994	99.3	99.5	-	97.7	-	97.0	-	95.7	-
1995	98.8	99.3	-	96.8	-	97.0	-	95.0	-
1996	99.3	99.5	-	98.0	-	97.9	-	96.7	-
1997	98.6	99.3	-	98.5	-	98.0	-	97.3	-
1998	98.3	99.2	-	97.7	-	96.1	-	95.4	-
1999	97.7	99.0	-	97.7	-	94.8	-	94.1	-
2000	97.0	99.2	73.6	97.7	67.8	95.9	50.2	95.1	48.5

At least two doses received during latest pregnancy that terminated in a live birth.
Children fully vaccinated (i.e those who received BCG, measles and three doses of PT and Polio.
Immunization coverage rate is about 20% under reported in the Comparison area due to not checking of vaccination cards during the initial months.

Table 8.2: DPT and Polio Coverage (%) Among Children Aged 12-23 Months by Number of Doses Received in MCH-FP and Comparison Areas, 2000

Number of doses	MCH-FP area	Comparison area
None	0.6	9.1
1 dose	0.5	6.9
2 doses	1.2	16.2
3 doses	97.7	67.8
No.of children	2435	2705

Table 8.3: Prevalence[a] (%) of Childhood Diarrhoea in Past 24 Hours by Child's characteristics in MCH-FP and Comparison Areas in November-December, 2000

Child's characteristics	Watery diarrhoea		Bloody diarrhoea		Either		BDHS[b]
	MCH-FP	Comp.	MCH-FP	Comp.	MCH-FP	Comp.	1999/2000
Child's age (in month)							
<6	1.6	1.1	0.1	0.2	1.7	1.3	3.4
6-11	6.2	3.5	0.3	0.5	6.5	4.0	11.9
12-23	3.8	3.3	0.5	0.5	4.2	3.7	11.8
24-35	2.7	2.0	0.5	0.6	3.1	2.6	5.6
36-47	2.2	1.3	0.4	0.3	2.5	1.5	3.8
48-59	0.6	1.2	0.2	0.1	1.5	1.3	2.3
Sex							
Male	2.9	2.4	0.3	0.4	3.2	2.9	6.4
Female	2.6	2.1	0.3	0.4	3.0	2.5	5.8
Mother's education							
No education	2.9	1.8	0.3	0.3	3.2	2.1	6.2
Primary incomplete	2.6	2.5	0.5	0.4	3.1	2.9	5.9
Primary complete	2.5	4.8	0.4	1.1	2.9	5.9	6.6
Secondary+	2.5	1.7	0.2	0.4	2.8	2.1	6.1
All (%)	2.8	2.0	0.3	0.4	3.1	2.4	6.1
No.of diarr. episodes[c]	658	535	79	100	737	635	392

[a]Whether or not diarrhoea episodes started or ended within 24 hours.
[b]Percent of children experiencing diarrhoea in past two-weeks irrespective of date of onset.
[c]Equivalent to number of 24-hour periods of observation in which children had had diarrhoea.

Table 8.4: Percent Distribution of Diarrhoea Episodes Occurred in Under Five Children by ORS [a] Use to Manage Diarrhoea by Illness and Child's Characteristics in MCH-FP and Comparison Areas, 2000

Illness and child's characteristics	ORS used			
	MCH-FP area		Comparison area	
	No	Yes	No	Yes
Type of diarrhoea				
Watery	58.4	41.6	69.5	30.5
Bloody	58.2	41.8	77.0	23.0
Duration of diarrhoea in day)				
1- 3	65.2	34.8	72.7	27.3
4 – 6	56.0	44.0	68.5	31.5
7+	42.8	57.2	64.9	35.1
Child's age (in month)				
<6	71.7	28.3	87.8	12.2
6-11	51.4	48.6	65.3	34.7
12-23	60.0	40.0	65.7	34.3
24-35	64.4	35.6	73.0	27.0
36-47	55.1	44.9	75.9	24.1
48-59	50.0	50.0	72.3	27.7
Sex				
Male	56.7	43.3	69.9	30.1
Female	60.2	39.8	71.6	28.4
Mother's education				
No education	59.2	40.8	73.4	26.6
Primary incomplete	59.1	40.9	70.1	29.9
Primary complete	54.7	45.3	68.6	31.4
Secondary+	57.5	42.5	67.6	32.4
All (%)	58.3	41.7	70.7	29.3
No.of diarrhoea episodes[b]	430	307	449	186

[a]Oral rehydration solution.
[b]Equivalent to number of 24-hour periods of observation in which children had had diarrhoea.

Table 8.5: Percent Distribution of Diarrhoea Episodes Occurred in Under Five Children by Type of Treatment Providers Used and Illness and Child's Characteristics in MCH-FP and Comparison Areas, 2000

Illness and child's characteristics	MCH-FP area					Comparison area				
	Home treat.	Tradi. healer	Village doctor	Hos-pital	Field worker	Home treat.	Tradi. healer	Village doctor	Hos-pital	Field worker
Type of diarrhoea										
Watery	50.0	5.2	10.8	2.9	31.2	55.7	8.8	17	3.9	14.6
Bloody	38.0	5.1	31.6	7.6	17.7	41.0	9.0	42.0	4.0	4.0
Child's age (in month)										
<6	54.3	15.2	10.9	4.3	15.2	48.8	24.4	19.5	4.9	2.4
6-11	40.4	6.8	15.1	4.1	33.6	40.6	15.8	25.7	9.9	7.9
12-23	50.2	5.4	14.6	4.9	24.9	47.3	8.0	24.9	3.5	16.4
24-35	52.5	3.1	14.4	2.5	27.5	56.1	6.1	18.2	4.1	15.5
36-47	50.0	2.5	7.6	1.7	38.1	67.1	3.8	19.0	0.0	10.1
48-59	46.8	3.2	11.3	1.6	37.1	72.3	3.1	10.8	0.0	13.8
Sex										
Male	47.9	4.1	12.1	2.3	33.5	52.3	7.8	22.0	4.6	13.3
Female	49.6	6.3	14.0	4.6	25.5	54.7	10.0	19.7	3.1	12.5
Mother's education										
No education	50.0	5.9	11.1	2.6	30.4	58.0	5.5	18.6	2.2	15.7
Primary incompl.	45.2	3.2	22.6	6.5	22.6	47.1	11.5	21.8	6.9	12.6
Primary complete	45.3	3.5	16.3	1.2	33.7	48.8	12.8	25.0	2.9	10.5
Secondary+	49.3	5.2	10.4	5.2	29.9	53.9	8.8	19.6	7.8	9.8
All (%)	48.7	5.2	13.0	3.4	29.7	53.4	8.9	20.9	3.9	12.9
No.of diarrhoea episodes[a]	359	38	96	25	219	339	56	133	25	82

[a]Equivalent to number of 24-hour periods of observation in which children had had diarrhoea.

Table 8.6: Monthly Prevalence[a] (%) of Pneumonia in Under Five Children by Child's Characteristics in MCH-FP and Comparison Areas in November-December, 2000

Child's characteristics	Pneumonia		Severe pneumonia		Either		BDHS[b] 1999/2000
	MCH-FP	Comp.	MCH-FP	Comp.	MCH-FP	Comp.	
Child's age (in month)							
<6	1.7	1.7	1.0	1.9	2.7	3.6	23.4
6-11	4.6	1.7	0.6	0.8	5.2	2.4	22.6
12-23	4.8	1.5	1.2	0.4	6.0	1.8	23.5
24-35	3.7	0.7	0.9	0.2	4.6	0.8	17.1
36-47	2.3	0.4	0.5	0.0	2.8	0.5	14.7
48-59	1.8	0.2	0.3	0.0	2.1	0.2	12.9
Sex							
Male	3.4	1.0	0.9	0.5	4.3	1.5	19.0
Female	2.9	0.9	0.7	0.3	3.6	1.2	17.7
Mother's education							
No education	2.3	0.5	0.5	0.2	2.8	0.7	19.3
Primary incomplete	3.5	5.2	1.3	2.5	4.8	7.7	18.8
Primary complete	7.8	3.5	1.9	1.7	9.7	5.2	18.1
Secondary+	2.5	2.9	0.6	1.4	3.0	4.2	16.3
All(%)	3.2	0.9	0.8	0.4	3.9	1.3	18.3
No.of pneum. episodes[c]	755	248	181	115	936	363	1176

[a]Percent of child-months with reported pneumonia irrespective of date of onset.
[b]Prevalence in previous two-weeks
[c]Equivalent to number of months of observation in which children had experienced pneumonia.

Table 8.7: Percentage Distribution of Childhood Pneumonia by Type of Medicine Used by Illness and Child's Characteristics in MCH-FP and Comparison Areas, 2000

Illness and child characteristics	MCH-FP area			Comparison area		
	Antibiotics	Other drug	No drug	Antibiotics	Other drug	No drug
Type of pneumonia						
Mild	74.7	8.9	16.4	50.8	20.2	29.0
Severe	64.6	14.4	21.0	71.3	15.7	13.0
Child's age (in month)						
<6	91.8	4.1	4.1	59.6	20.2	20.2
6-11	85.4	6.0	8.6	58.1	12.9	29.0
12-23	77.3	10.7	12.0	55.6	22.2	22.2
24-35	69.4	8.9	21.7	51.1	17.0	31.9
36-47	56.9	13.8	29.2	50.0	25.0	25.0
48-59	58.2	14.3	27.5	83.3	0.0	16.7
Sex						
Male	75.4	9.9	14.7	61.8	16.7	21.6
Female	69.5	10.0	20.5	51.6	21.4	27.0
Mother's education						
No education	74.3	8.5	17.2	51.9	20.2	27.9
Primary incomplete	75.2	9.2	15.6	63.8	22.4	13.8
Primary complete	72.2	9.2	18.7	65.6	13.1	21.3
Secondary+	67.6	15.9	16.6	56.7	17.8	25.6
All (%)	72.8	9.9	17.3	57.3	18.7	24.0
No.of pneum. episodes[a]	681	93	162	208	68	87

[a]Equivalent to number of months of observation in which children had experienced pneumonia.

Table 8.8: Percentage Distribution of Pneumonia Episodes Occurred in Under-Five Children by Type of Treatment Providers Used and Illness and Child's Characteristics in MCH-FP and Comparison Areas, 2000

Illness and child characteristics	MCH-FP area					Comparison area				
	Home treat.	Trad. healer	Village doctor	Hos-pital	Field worker	Home treat.	Trad. healer	Village doctor	Hos-pital	Field Worker
Type of pneumonia										
Mild	14.3	5.0	18.8	28.2	33.6	21.0	14.1	58.5	6.0	0.4
Severe	16.6	6.1	35.9	36.5	5.0	4.3	20.9	40.9	33.9	0.0
Child's age (in month)										
<6	2.7	2.7	21.9	52.1	20.5	10.9	26.9	44.5	17.6	0.0
6-11	6.0	3.4	18.1	40.5	31.9	17.7	11.3	56.5	12.9	1.6
12-23	10.3	4.8	23.0	32.6	29.2	19.2	9.1	57.6	14.1	0.0
24-35	16.6	6.8	23.8	23.4	29.4	23.4	10.6	44.7	21.3	0.0
36-47	28.5	6.9	23.1	16.2	25.4	8.3	20.8	70.9	0.0	0.0
48-59	25.3	4.4	18.7	25.3	26.4	8.3	8.3	75.1	8.3	0.0
Sex										
Male	12.4	5.8	23.1	32.0	26.7	15.7	12.7	52.0	19.1	0.5
Female	17.6	4.5	21.0	27.1	29.8	15.7	20.8	54.1	9.4	0.0
Mother's education										
No education	15.6	4.9	19.4	27.0	33.1	18.2	18.8	49.4	13.0	0.6
Primary incomplete	12.8	5.0	22.7	35.5	24.1	13.8	15.5	55.2	15.5	0.0
Primary complete	14.8	5.6	22.5	28.9	28.2	13.1	9.8	60.7	16.4	0.0
Secondary+	14.5	5.5	27.6	33.1	19.3	14.4	16.7	52.2	16.7	0.0
All (%)	14.7	5.2	22.1	29.8	28.2	15.7	16.3	52.9	14.9	0.3
No.of pneum.episodes [a]	138	49	207	279	263	57	59	192	54	1

[a]Equivalent to number of months of observation in which children had experienced pneumonia.

Appendices

Appendix A-1: Mid-year Population in MCH-FP Area by Age, Sex, and Block, 2000

Age (years)	Block A			Block B		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	31257	14935	16322	29407	14139	15268
Under 1	718	359	359	740	382	358
1 - 4	2921	1477	1444	2768	1368	1400
1	*778*	*388*	*390*	*728*	*363*	*365*
2	*755*	*379*	*376*	*705*	*355*	*350*
3	*696*	*358*	*338*	*652*	*324*	*328*
4	*692*	*352*	*340*	*683*	*326*	*357*
5 - 9	3547	1787	1760	3386	1700	1686
10-14	4056	2010	2046	3738	1915	1823
15-19	3182	1568	1614	3078	1580	1498
20-24	2654	1147	1507	2477	1144	1333
25-29	2197	943	1254	2077	918	1159
30-34	2278	913	1365	1998	808	1190
35-39	2260	996	1264	2005	896	1109
40-44	1797	914	883	1541	790	751
45-49	1239	635	604	1174	554	620
50-54	1103	513	590	997	425	572
55-59	1046	476	570	971	409	562
60-64	781	421	360	841	392	449
65-69	620	321	299	663	344	319
70-74	415	224	191	489	249	240
75-79	245	130	115	265	143	122
80-84	118	57	61	107	64	43
85+	80	44	36	92	58	34

(continued)

Appendix A-1(cont.): Mid-year Population in MCH-FP Area by Age, Sex, and Block, 2000

Age (years)	Block C			Block D		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	23489	11565	11924	21819	10675	11144
Under 1	522	262	260	529	282	247
1 - 4	2038	1026	1012	1863	957	906
1	*538*	*276*	*262*	*497*	*258*	*239*
2	*518*	*253*	*265*	*472*	*251*	*221*
3	*512*	*257*	*255*	*439*	*220*	*219*
4	*470*	*240*	*230*	*455*	*228*	*227*
5 - 9	2487	1266	1221	2361	1198	1163
10-14	2758	1382	1376	2637	1319	1318
15-19	2544	1329	1215	2093	1014	1079
20-24	2205	1081	1124	1883	967	916
25-29	1735	802	933	1603	737	866
30-34	1669	728	941	1506	636	870
35-39	1711	820	891	1611	760	851
40-44	1367	703	664	1291	681	610
45-49	998	480	518	954	483	471
50-54	800	396	404	769	341	428
55-59	857	384	473	802	355	447
60-64	640	301	339	683	304	379
65-69	527	261	266	532	263	269
70-74	281	157	124	365	183	182
75-79	210	102	108	208	125	83
80-84	95	59	36	79	40	39
85+	45	26	19	50	30	20

Appendix A-2: Deaths in MCH-FP Area by Age, Sex, and Block, 2000

	Block A			Block B		
Age	Both sexes	Males	Females	Both sexes	Males	Females
All ages	184	103	81	192	111	81
Under 1 year	38	15	23	21	11	10
Under 1 month	*25*	*8*	*17*	*17*	*9*	*8*
1-5 months	*9*	*6*	*3*	*3*	*1*	*2*
6-11 months	*4*	*1*	*3*	*1*	*1*	*0*
1 - 4 years	8	4	4	10	5	5
1	*4*	*2*	*2*	*4*	*1*	*3*
2	*0*	*0*	*0*	*2*	*2*	*0*
3	*3*	*2*	*1*	*3*	*1*	*2*
4	*1*	*0*	*1*	*1*	*1*	*0*
5 - 9	5	4	1	3	1	2
10-14	2	1	1	2	1	1
15-19	1	1	0	2	1	1
20-24	4	1	3	5	4	1
25-29	2	0	2	3	1	2
30-34	1	1	0	3	1	2
35-39	7	6	1	3	2	1
40-44	4	2	2	2	1	1
45-49	3	1	2	5	4	1
50-54	7	5	2	2	2	0
55-59	8	4	4	8	4	4
60-64	13	8	5	20	12	8
65-69	19	13	6	22	9	13
70-74	16	10	6	31	15	16
75-79	14	9	5	22	16	6
80-84	16	7	9	16	13	3
85+	16	11	5	12	8	4

(continued)

Appendix A-2(cont.): Deaths in MCH-FP Area by Age, Sex, and Block, 2000

	Block C			Block D		
Age	Both sexes	Males	Females	Both sexes	Males	Females
All ages	173	97	76	171	96	75
Under 1 year	27	15	12	30	17	13
Under 1 month	*19*	*10*	*9*	*24*	*15*	*9*
1-5 months	*7*	*4*	*3*	*2*	*1*	*1*
6-11 months	*1*	*1*	*0*	*4*	*1*	*3*
1 – 4 years	10	5	5	9	5	4
1	*4*	*2*	*2*	*3*	*1*	*2*
2	*2*	*0*	*2*	*1*	*1*	*0*
3	*2*	*2*	*0*	*4*	*2*	*2*
4	*2*	*1*	*1*	*1*	*1*	*0*
5 - 9	1	1	0	3	2	1
10-14	5	3	2	2	0	2
15-19	1	1	0	4	3	1
20-24	2	2	0	2	1	1
25-29	5	4	1	3	1	2
30-34	1	1	0	1	0	1
35-39	3	1	2	3	3	0
40-44	4	4	0	7	6	1
45-49	4	2	2	5	4	1
50-54	2	2	0	6	3	3
55-59	9	6	3	7	6	1
60-64	13	4	9	18	7	11
65-69	28	18	10	19	8	11
70-74	23	11	12	19	9	10
75-79	17	8	9	15	12	3
80-84	7	3	4	6	3	3
85+	11	6	5	12	6	6

Appendix A-3: Abridged Life Tables for MCH-FP Area by Sex, 2000

Age (years)	Males				Females			
	$_nq_x$	l_x	L_x	e^o_x	$_nq_x$	l_x	L_x	e^o_x
0	43.5	100000	96847	66.7	44.5	100000	96777	70.2
1	4.7	95646	95383	68.7	7.1	95549	95146	72.5
2	2.4	95200	95085	68.0	1.6	94866	94788	72.0
3	6.0	94970	94684	67.2	4.4	94710	94503	71.1
4	2.6	94398	94274	66.6	1.7	94296	94214	70.4
5	6.7	94151	469301	65.8	3.4	94132	469919	69.5
10	3.8	93520	466789	61.2	4.6	93810	468063	64.8
15	5.4	93168	464669	56.4	1.8	93382	466512	60.1
20	9.2	92660	461339	51.7	5.1	93209	464949	55.2
25	8.8	91810	457187	47.2	8.3	92733	461895	50.4
30	4.9	91003	453996	42.6	3.4	91965	459100	45.8
35	17.1	90561	449221	37.8	4.8	91650	457225	41.0
40	20.8	89009	440755	33.4	6.9	91205	454586	36.2
45	25.3	87153	430674	29.0	13.5	90580	450085	31.4
50	35.2	84952	417823	24.7	12.5	89360	444229	26.8
55	59.9	81958	398372	20.5	28.8	88246	435338	22.1
60	104.0	77052	366454	16.6	102.8	85700	407815	17.7
65	184.1	69041	314873	13.3	160.3	76887	355178	14.4
70	244.1	56330	248409	10.7	260.7	64565	281977	11.6
75	367.6	42580	173929	8.3	237.8	47731	211248	9.8
80	1454.1	26926	103470	6.6	1418.6	36378	143467	7.1
85+	1000.0	14698	74913	5.1	1000.0	21150	115268	5.5

Appendix A-4: Abridged Life Tables for Comparison Area by Sex, 2000

Age (years)	Males				Females			
	$_nq_x$	l_x	L_x	e^o_x	$_nq_x$	l_x	L_x	e^o_x
0	59.4	100000	95699	65.5	56.5	100000	95908	68.1
1	10.6	94059	93469	68.6	15.6	94348	93481	71.1
2	4.9	93059	92829	68.3	6.9	92879	92561	71.2
3	1.6	92599	92526	67.6	4.6	92243	92033	70.7
4	3.1	92453	92309	66.7	2.4	91823	91713	70.1
5	10.5	92166	458594	66.0	5.1	91603	456947	69.2
10	2.6	91197	455445	61.6	2.6	91139	455153	64.6
15	7.0	90962	453344	56.8	6.0	90904	453255	59.7
20	6.8	90326	450213	52.2	6.2	90356	450481	55.1
25	3.1	89712	447921	47.5	11.0	89793	446681	50.4
30	1.6	89435	446844	42.6	5.9	88803	442811	45.9
35	8.8	89291	444654	37.7	7.7	88281	439840	41.2
40	16.1	88510	439256	33.0	5.0	87603	437004	36.5
45	21.6	87084	431069	28.5	22.9	87164	431212	31.7
50	52.8	85202	415546	24.1	12.4	85170	423415	27.3
55	72.2	80701	389917	20.3	25.7	84115	415567	22.6
60	128.8	74877	351628	16.6	68.4	81950	396685	18.2
65	204.9	65231	294111	13.7	114.2	76346	361215	14.3
70	249.4	51862	228005	11.6	222.1	67625	302000	10.8
75	257.9	38928	170294	9.6	344.7	52608	218150	8.2
80	1404.0	28888	115111	7.0	1515.3	34472	126258	6.1
85+	1000.0	17218	86780	5.0	1000.0	16707	84417	5.1

Appendix A-5: Male Deaths by Cause and Age, 2000

Cause	All ages	Age at death (years)																		
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
DIARRHOEAL																				
Diarrhoea	36	5	4	1	1	0	0	0	0	0	0	0	0	1	3	4	3	3	4	7
Dysentery	6	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0
INFECTIOUS																				
Tuberculosis	36	0	0	0	0	0	1	0	0	0	3	2	3	7	7	6	2	5	0	0
Tetanus(non-neonatal)	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other infectious	13	5	0	1	2	1	1	0	0	0	0	0	0	0	0	1	0	1	0	1
MALIGNANT	81	0	0	2	0	1	0	3	1	1	5	7	9	5	13	13	13	4	3	1
NUTRITIONAL	14	3	1	0	0	1	0	0	0	0	0	0	0	0	2	0	2	1	2	2
CARDIO-VASCULAR	95	1	0	0	0	0	0	1	0	0	4	3	4	4	13	24	15	10	7	9
RESPIRATORY																				
ARI,pneum,influenza	49	31	5	0	0	1	0	0	0	0	0	1	0	2	3	2	3	0	1	0
COPD*	64	0	2	0	1	0	0	0	0	1	2	1	2	6	6	15	14	7	3	4
GASTRO-INTESTINAL	50	1	0	0	0	1	2	2	0	4	3	2	1	6	7	10	2	5	3	1
Maternal death	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEONATAL																				
Tetanus (neonatal)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other neonatal	99	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ACCIDENTS, INJURIES																				
Suicide	4	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0
Homicide	6	1	0	1	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0
Drowning	47	2	29	9	0	0	0	0	0	0	0	1	0	0	1	3	1	1	0	0
Other accidents, etc.	20	0	0	2	2	1	6	0	0	4	2	0	0	1	0	1	0	1	0	0
OTHER AND UNSPECIFIED																				
Senility	73	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	11	16	17	24
Other causes n.e.c.**	105	3	4	4	2	5	2	1	3	4	2	2	7	8	6	12	15	11	7	7
Unknown	48	2	1	2	0	3	1	0	0	3	1	1	4	3	5	9	7	6	0	0
Total	848	154	48	23	9	15	14	8	4	18	23	20	31	44	71	102	88	72	48	56

*Chronic obstructive pulmonary disease.
**Not elsewhere classified.

Appendix A-6: Female Deaths by Cause and Age, 2000

Cause	All ages	Age at death (years)																		
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
DIARRHOEAL																				
Diarrhoea	32	8	6	0	1	0	0	0	0	1	0	0	0	0	3	3	2	4	1	3
Dysentery	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
INFECTIOUS																				
Tuberculosis	12	0	0	0	0	0	0	2	1	0	0	3	0	1	2	1	1	0	1	0
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (neonatal)	16	1	5	0	0	0	0	0	0	0	0	1	1	0	0	0	4	3	1	0
MALIGNANT NEOPLASM	26	0	0	0	0	0	0	1	0	1	2	3	3	4	4	4	4	0	0	0
NUTRITIONAL	28	7	9	0	0	0	0	0	1	1	0	0	1	3	1	1	1	1	1	1
CARDIO-VASCULAR	91	0	0	0	0	0	0	0	0	1	0	2	1	2	16	23	19	16	5	6
RESPIRATORY																				
ARI, pneum,influenza	32	22	5	0	0	0	1	0	0	0	0	0	0	0	1	1	2	0	0	0
COPD*	43	0	0	1	1	0	1	1	0	1	0	1	0	3	4	8	10	7	5	0
GASTRO-INTESTINAL	16	1	0	0	1	0	1	1	0	0	0	0	1	1	4	1	1	1	1	2
Maternal death	18	0	0	0	1	2	4	3	4	2	2	0	0	0	0	0	0	0	0	0
NEONATAL																				
Tetanus (neonatal)	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other neonatal	85	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ACCIDENTS, INJURIES																				
Suicide	6	0	0	0	0	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Homicide	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Drowning	35	4	27	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Other accidents,etc.	15	1	1	0	1	0	0	2	1	0	0	1	1	0	2	1	0	3	1	0
OTHER AND UNSPECIFIED																				
Senility	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	17	10	20	16
Other causes n.e.c. **	104	3	2	4	2	1	2	3	1	2	2	5	1	5	11	17	15	9	10	9
Unknown	49	9	2	4	3	2	1	1	0	1	1	0	1	4	7	6	3	3	1	0
Total	682	143	57	11	10	9	11	16	8	10	7	16	10	23	56	71	80	58	47	39

*Chronic obstructive pulmonary disease.
**Not elsewhere classified.

Appendix A-7: Male Deaths by Cause, Age and Area, 2000

			Age at deaths (years)													
	All ages		<1		1-4		5-14		15-44		45-64		65-84		85+	
Cause	M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C
DIARRHOEAL																
Diarrhoea	17	19	3	2	0	4	1	1	0	0	1	3	8	6	4	3
Dysentery	4	2	0	0	2	0	0	0	0	0	2	0	0	2	0	0
INFECTIOUS																
Tuberculosis	15	21	0	0	0	0	0	0	2	2	8	11	5	8	0	0
Tetanus (non-neonatal)	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Other infectious	7	6	2	3	0	0	3	0	1	1	0	0	0	2	1	0
MALIGNANT ENOPLASM	52	29	0	0	0	0	1	1	9	2	19	15	23	10	0	1
NUTRITONAL	4	10	1	2	1	0	0	0	0	1	0	2	2	3	0	2
CARDIO-VASCULAR	51	44	0	1	0	0	0	0	2	3	11	13	31	25	7	2
RESPIRATORY																
ARI, pneumonia, influenza	21	28	12	19	2	3	0	0	1	0	3	3	3	3	0	0
COPD*	33	31	0	0	1	1	1	0	2	1	8	7	18	21	3	1
GASTRO-INTESTINAL	24	26	1	0	0	0	0	0	5	7	6	10	11	9	1	0
Maternal death	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEONATAL																
Tetanus (neonatal)	0	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-
Other neonatal	36	63	36	63	-	-	-	-	-	-	-	-	-	-	-	-
ACCIDENTS, INJURIES																
Suicide	2	2	0	0	0	0	0	1	2	1	0	0	0	0	0	0
Homicide	3	3	1	0	0	0	0	1	0	2	2	0	0	0	0	0
Drowning	19	28	0	2	11	18	4	5	0	0	1	1	3	2	0	0
Other accidents, etc.	10	10	0	0	0	0	1	3	8	5	0	1	1	1	0	0
OTHER AND UNSPECIFIED																
Senility	39	34	0	0	0	0	0	0	0	0	0	3	26	20	13	11
Other causes n.e.c.**	50	55	1	2	2	2	2	4	11	6	8	15	24	21	2	5
Unknown	20	28	1	1	0	1	0	2	5	3	5	8	9	13	0	0
Total	407	441	58	96	19	29	13	19	48	34	74	92	164	146	31	25

*Chronic obstructive pulmonary disease.
**Not elsewhere classified. M: MCH-FP area, C: Comparison area.

Appendix A-8: Female Deaths by Cause, Age and Area, 2000

Cause	All ages		Age at deaths (years) <1		1-4		5-14		15-44		45-64		65-84		85+	
	M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C
DIARRHOEAL																
Diarrhoea	15	17	3	5	0	6	0	1	0	1	2	1	8	2	2	1
Dysentery	4	1	0	1	0	0	0	0	0	0	0	0	2	0	2	0
INSFECTIOUS																
Tuberculosis	4	8	0	0	0	0	0	0	1	2	2	4	1	2	0	0
Tetanus (non-neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other infectious	6	10	0	1	3	2	0	0	0	0	1	1	2	6	0	0
MALIGNANT NEOPLASM	13	13	0	0	0	0	0	0	3	1	7	7	3	5	0	0
NUTRITIONAL	10	18	4	3	2	7	0	0	1	1	1	4	1	3	1	0
CARDIO-VASCULAR	46	45	0	0	0	0	0	0	1	0	10	11	33	30	2	4
RESPIRATORY																
ARI, pneumonia, influenza	6	26	5	17	1	4	0	0	0	1	0	1	0	3	0	0
COPD*	24	19	0	0	0	0	1	1	1	2	6	2	16	14	0	0
GASTRO-INTESTINAL	10	6	0	1	0	0	1	0	2	0	5	1	1	3	1	1
Maternal death	6	12	0	0	0	0	1	0	5	12	0	0	0	0	0	0
NEONATAL																
Tetanus (neonatal)	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-
Other neonatal	39	46	39	46	-	-	-	-	-	-	-	-	-	-	-	-
ACCIDENTS,INJURIES																
Suicide	1	5	0	0	0	0	0	0	1	5	0	0	0	0	0	0
Homicide	2	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
Drowning	14	21	2	2	11	16	0	2	0	0	0	1	1	0	0	0
Other accidents, etc.	5	10	1	0	0	1	0	1	0	3	2	2	2	3	0	0
OTHER AND UNSPECIFIED																
Senility	31	36	0	0	0	0	0	0	0	0	0	0	22	29	9	7
Other causes n.e.c.*	54	50	2	1	0	2	3	3	5	6	14	8	27	24	3	6
Unknown	23	26	1	8	1	1	4	3	4	2	6	6	7	6	0	0
Total	313	369	58	85	18	39	10	11	25	36	56	49	126	130	20	19

*Chronic obstructive pulmonary disease.
**Not elsewhere classified. M: MCH-FP area, C: Comparison area.

Appendix A-9: Age-specific Fertility Rates and Indices for MCH-FP Area by Block, 2000

Age (years)	Block A		Block B		Block C		Block D	
	Births	Rate	Births	Rate	Births	Rate	Births	Rate
All ages	770	90.7	753	98. 3	563	89.6	549	96.9
15-19*	82	50.8	89	59.4	68	56.0	53	49.1
20-24	268	177.8	221	165.8	207	184.2	152	165.9
25-29	182	145.1	194	167.4	150	160.8	163	188.2
30-34	157	115.0	167	140.3	91	96.7	129	148.3
35-39	68	53.8	2	64.9	39	43.8	46	54.1
40-44	12	13.6	9	10.0	8	12.0	4	6.6
45-49**	1	1.7	1	1.6	0	0.0	2	4.2
TFR =	2789		3047		2767		3082	
GFR =	91		98		90		97	
GRR =	1398		1509		1391		1465	

*Births to mothers under age 15 were included in this group.
**Births to mothers age 50 and above were included in this group.

Appendix A-10: Births by Mothers Age, Live Birth Order and Area, 2000

Age (years)	Total women	Total births	Live-birth order									
			1	2	3	4	5	6	7	8	9	10+
Both areas												
<15	14298	9	9	0	0	0	0	0	0	0	0	0
15-19	11196	627	563	59	5	0	0	0	0	0	0	0
20-24	9683	1796	919	684	168	19	4	0	0	1	0	1
25-29	8273	1541	211	529	501	226	64	7	3	0	0	0
30-34	8606	1197	52	132	317	352	211	86	34	10	2	1
35-39	8007	494	6	16	63	97	116	82	59	32	20	3
40-44	5900	80	1	3	7	7	11	8	10	11	11	11
45-49	4375	11	0	1	0	0	3	3	3	1	0	0
MCH-FP area												
<15	6563	6	6	0	0	0	0	0	0	0	0	0
15-19	5406	286	265	20	1	0	0	0	0	0	0	0
20-24	4880	848	466	313	61	4	2	0	0	1	0	1
25-29	4212	689	105	282	210	74	17	1	0	0	0	0
30-34	4366	544	21	68	181	164	77	22	8	3	0	0
35-39	4115	225	1	11	44	59	55	27	20	6	2	0
40-44	2908	33	1	2	4	2	6	5	3	2	4	4
45-49	2213	4	0	0	0	0	1	2	1	0	0	0
Comparison area												
<15	7735	3	3	0	0	0	0	0	0	0	0	0
15-19	5790	341	298	39	4	0	0	0	0	0	0	0
20-24	4803	948	453	371	107	15	2	0	0	0	0	0
25-29	4061	852	106	247	291	152	47	6	3	0	0	0
30-34	4240	653	31	64	136	188	134	64	26	7	2	1
35-39	3892	269	5	5	19	38	61	55	39	26	18	3
40-44	2992	47	0	1	3	5	5	3	7	9	7	7
45-49	2162	7	0	1	0	0	2	1	2	1	0	0

Appendix A-11: Age-order-specific Fertility Rates by Area, 2000

Age (years)	Total	Live-birth order									
		1	2	3	4	5	6	7	8	9	10+
Both areas											
<15	0.0006	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0560	0.0503	0.0053	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1855	0.0949	0.0706	0.0173	0.0020	0.0004	0.0000	0.0000	0.0001	0.0000	0.0001
25-29	0.1863	0.0255	0.0639	0.0606	0.0273	0.0077	0.0008	0.0004	0.0000	0.0000	0.0000
30-34	0.1391	0.0060	0.0153	0.0368	0.0409	0.0245	0.0100	0.0040	0.0012	0.0002	0.0001
35-39	0.0617	0.0007	0.0020	0.0079	0.0121	0.0145	0.0102	0.0074	0.0040	0.0025	0.0004
40-44	0.0136	0.0002	0.0005	0.0012	0.0012	0.0019	0.0014	0.0017	0.0019	0.0019	0.0019
45-49	0.0025	0.0000	0.0002	0.0000	0.0000	0.0007	0.0007	0.0007	0.0002	0.0000	0.0000
Total	3.2262	0.8914	0.7896	0.6212	0.4174	0.2485	0.1156	0.0703	0.0368	0.0230	0.0123
MCH-FP area											
<15	0.0009	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0529	0.0490	0.0037	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1738	0.0955	0.0641	0.0125	0.0008	0.0004	0.0000	0.0000	0.0002	0.0000	0.0002
25-29	0.1636	0.0249	0.0670	0.0499	0.0176	0.0040	0.0002	0.0000	0.0000	0.0000	0.0000
30-34	0.1246	0.0048	0.0156	0.0415	0.0376	0.0176	0.0050	0.0018	0.0007	0.0000	0.0000
35-39	0.0547	0.0002	0.0027	0.0107	0.0143	0.0134	0.0066	0.0049	0.0015	0.0005	0.0000
40-44	0.0113	0.0003	0.0007	0.0014	0.0007	0.0021	0.0017	0.0010	0.0007	0.0014	0.0014
45-49	0.0018	0.0000	0.0000	0.0000	0.0000	0.0005	0.0009	0.0005	0.0000	0.0000	0.0000
Total	2.9180	0.8788	0.7686	0.5803	0.3549	0.1898	0.0723	0.0409	0.0152	0.0093	0.0079
Comparison area											
<15	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0589	0.0515	0.0067	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1974	0.0943	0.0772	0.0223	0.0031	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
25-29	0.2098	0.0261	0.0608	0.0717	0.0374	0.0116	0.0015	0.0007	0.0000	0.0000	0.0000
30-34	0.1540	0.0073	0.0151	0.0321	0.0443	0.0316	0.0151	0.0061	0.0017	0.0005	0.0002
35-39	0.0691	0.0013	0.0013	0.0049	0.0098	0.0157	0.0141	0.0100	0.0067	0.0046	0.0008
40-44	0.0157	0.0000	0.0003	0.0010	0.0017	0.0017	0.0010	0.0023	0.0030	0.0023	0.0023
45-49	0.0032	0.0000	0.0005	0.0000	0.0000	0.0009	0.0005	0.0009	0.0005	0.0000	0.0000
Total	3.5427	0.9043	0.8099	0.6629	0.4816	0.3093	0.1608	0.1008	0.0590	0.0372	0.0167

Appendix A-12: Marriages and Divorces by Month, 2000

	Marriage		Divorce	
Month	Number	Percent	Number	Percent
January	294	9.1	31	10.9
February	237	7.4	21	7.4
March	394	12.2	33	11.6
April	245	7.6	24	8.5
May	283	8.8	20	7.0
June	248	7.7	16	5.6
July	304	9.4	33	11.6
August	277	8.6	23	8.1
September	279	8.7	26	9.2
October	262	8.1	28	9.9
November	230	7.1	16	5.6
December	168	5.2	13	4.6
Total	3221	100.0	284	100.0

Appendix A-13: In- and Out-migration by Age and Sex, 2000

Age (years)	In-migration			Out-migration		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	7679	3548	4131	10599	5551	5048
Under 5	1099	586	513	1153	583	570
5 - 9	680	330	350	734	365	369
10-14	587	259	328	928	469	459
15-19	1203	236	967	2169	969	1200
20-24	1199	350	849	2169	1115	1054
25-29	906	466	440	1323	750	573
30-34	686	425	261	758	452	306
35-39	483	349	134	514	365	149
40-44	289	204	85	275	191	84
45-49	169	121	48	164	116	48
50-54	105	74	31	95	50	45
55-59	97	63	34	97	43	54
60-64	62	38	24	84	35	49
65+	114	47	67	136	48	88

Appendix A-14: In-migration by Age, Sex, and Area, 2000

Age (years)	MCH-FP area			Comparison area		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	4272	1960	2312	3407	1588	1819
Under 5	615	332	283	484	254	230
5 - 9	389	197	192	291	133	158
10-14	343	146	197	244	113	131
15-19	678	110	568	525	126	399
20-24	617	181	436	582	169	413
25-29	512	252	260	394	214	180
30-34	360	224	136	326	201	125
35-39	272	197	75	211	152	59
40-44	167	121	46	122	83	39
45-49	102	71	31	67	50	17
50-54	70	49	21	35	25	10
55-59	55	36	19	42	27	15
60-64	37	24	13	25	14	11
65+	55	20	35	59	27	32

Appendix A-15: Out-migration by Age, Sex, and Area, 2000

Age (years)	MCH-FP area			Comparison area		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	5219	2770	2449	5380	2781	2599
Under 5	517	255	262	636	328	308
5 - 9	335	167	168	399	198	201
10-14	469	234	235	459	235	224
15-19	1059	489	570	1110	480	630
20-24	1116	595	521	1053	520	533
25-29	687	398	289	636	352	284
30-34	378	220	158	380	232	148
35-39	264	181	83	250	184	66
40-44	124	92	32	151	99	52
45-49	70	55	15	94	61	33
50-54	48	20	28	47	30	17
55-59	39	16	23	58	27	31
60-64	45	20	25	39	15	24
65+	68	28	40	68	20	48

Appendix A-16: Male Out-migration by Cause of Movement and Age, 2000

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	5551	583	365	469	969	1115	750	452	365	191	116	50	43	35	48
Work/Economic/Educational															
-acquired/seeking job	3291	0	3	137	656	875	615	383	300	149	88	28	26	19	12
-job completion/retirement	33	0	0	4	8	8	1	4	2	1	1	1	1	1	1
-to acquire education	378	1	30	76	123	100	43	2	2	1	0	0	0	0	0
-educ. completed/interrupt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student	5	0	0	0	0	1	3	0	0	0	0	1	0	0	0
Housing/Environmental															
-acquired/seeking new land/house	172	0	2	2	3	12	24	24	37	17	12	9	9	7	14
-river erosion	4	0	0	0	0	0	1	1	1	0	0	0	1	0	0
Marriage/Familial															
-marriage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-separation/divorce/widow	3	0	0	0	0	1	0	1	0	1	0	0	0	0	0
-move with or join spouse/parents	1564	581	329	248	168	99	46	23	18	14	10	5	3	6	14
-adoption	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	44	0	0	1	5	9	7	9	3	2	2	2	2	1	1
-health or old age care	6	0	0	0	1	0	0	0	0	0	0	0	0	0	5
Legal problems	23	0	0	0	0	5	6	3	1	2	2	3	0	1	0
Other and Not Stated															
-other n.e.c.*	26	0	1	1	4	5	4	2	1	4	1	1	1	0	1
-unknown or not stated	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0

*Not elsewhere classified.

Appendix A-17: Female Out-migration by Cause of Movement and Age, 2000

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	5048	570	369	459	1200	1054	573	306	149	84	48	45	54	49	88
Work/Economic/Educational															
-acquired/seeking job	657	0	7	110	259	142	59	44	16	12	2	4	0	0	2
-job completion/retirement	5	0	0	0	2	1	0	1	0	0	0	0	0	0	1
-to acquire education	131	1	18	35	33	28	13	2	1	0	0	0	0	0	0
-educ. completed/interrupt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/Environmental															
-acquired/seeking new land/house	146	0	2	2	10	26	25	13	8	11	5	9	9	6	20
-river erosion	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Marriage/Familial															
-marriage	740	0	0	18	383	256	68	10	2	1	0	0	1	1	0
-separation/divorce/widow	53	0	0	1	12	15	11	6	4	0	0	1	1	0	2
-move with or join spouse/parents	3229	557	340	291	493	567	380	218	118	60	39	29	39	40	58
-adoption	13	12	1	0	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	48	0	0	1	6	16	13	8	0	0	1	1	1	0	1
-health or old age care	11	0	0	0	0	3	0	1	0	0	0	0	3	0	4
Legal problems	2	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Other and Not Stated															
-other n.e.c.*	12	0	1	0	2	0	4	2	0	0	0	1	0	2	0
-unknown or not stated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Not elsewhere classified

Appendix A-18: Male In-migration by Cause of Movement and Age, 2000

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	3548	586	330	259	236	350	466	425	349	204	121	74	63	38	47
Work/Economic/Educational															
-acquired/seeking job	360	0	0	10	13	54	67	71	48	33	29	12	11	6	6
-job completion/retirement	561	0	0	1	8	53	117	139	104	55	37	18	15	10	4
-to acquire education	156	6	50	48	34	11	6	0	0	0	0	0	1	0	0
-educ. completed/interrupt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	11	0	0	1	6	4	0	0	0	0	0	0	0	0	0
-student	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/Environmental															
-acquired/seeking new land/house	343	0	0	1	10	28	71	65	55	40	23	10	11	11	18
-river erosion	29	2	0	0	0	3	0	5	8	5	2	2	1	0	1
Marriage/Familial															
-marriage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-separation/divorce/widow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-move with or join spouse/parents	2015	572	280	197	163	188	193	139	125	61	26	27	22	5	17
-adoption	7	6	0	1	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	18	0	0	0	0	5	4	2	1	2	0	1	1	2	0
-health or old age care	35	0	0	0	1	3	7	3	6	6	3	2	0	3	1
Legal problems	5	0	0	0	0	1	1	1	0	0	0	1	1	0	0
Other and Not Stated															
-other n.e.c.*	8	0	0	0	1	0	0	0	2	2	1	1	0	1	0
-unknown or not stated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Not elsewhere classified

Appendix A-19: Female In-migration by Cause of Movement and Age, 2000

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	4131	513	350	328	967	849	440	261	134	85	48	31	34	24	67
Work/Economic/Educational															
-acquired/seeking job	84	0	0	14	10	15	17	14	5	6	1	1	1	0	0
-job completion/retirement	31	0	0	0	9	10	5	2	3	2	0	0	0	0	0
-to acquire education	151	1	26	67	40	12	2	2	1	0	0	0	0	0	0
-educ. completed/interrupt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/Environmental															
-acquired/seeking new land/house	71	0	0	2	4	15	15	7	5	7	2	2	3	5	4
-river erosion	8	2	0	0	1	0	1	1	1	0	0	1	0	1	0
Marriage/Familial															
-marriage	844	0	0	13	459	282	62	14	9	3	1	0	0	1	0
-separation/divorce/widow	77	0	0	0	25	17	16	9	5	0	3	0	0	1	1
-move with or join spouse/parents	2774	491	321	231	412	482	308	201	102	66	40	26	26	16	52
-adoption	23	19	3	1	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	39	0	0	0	3	15	10	6	2	1	1	0	1	0	0
-health or old age care	18	0	0	0	2	1	1	0	0	0	0	1	3	0	10
Legal problems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other and Not Stated															
-other n.e.c.*	11	0	0	0	2	0	3	5	1	0	0	0	0	0	0
-unknown or not stated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Not elsewhere classified

Appendix A-20: Male Migration by Destination of Origin, 2000

Destination Division	Rural/ Urban	Out-migration Age (years) 0-14	15-24	25-34	35-44	45+	Total	In-migration Age (years) 0-14	15-24	25-34	35-44	45+	Total
Dhaka	Rural	4	2	1	1	1	9	18	9	12	4	4	47
	Urban	807	1276	553	232	150	3018	477	274	339	202	122	1414
Chittagong	Rural	400	176	109	88	65	838	453	144	179	111	98	985
	Urban	108	191	82	29	15	425	92	53	56	38	37	276
Sylhet	Rural	0	0	0	0	1	1	2	2	0	2	0	6
	Urban	47	60	25	17	8	157	58	34	23	18	12	145
Khulna	Rural	0	0	0	0	0	0	8	1	2	1	3	15
	Urban	14	25	15	4	4	62	31	12	12	10	8	73
Rajshahi	Rural	0	1	0	0	0	1	3	0	1	0	1	5
	Urban	9	10	6	4	7	36	7	2	3	1	1	14
India		23	10	4	5	8	50	16	6	5	5	3	35
Asia		1	91	107	43	5	247	0	26	158	90	16	290
Middle-east		2	237	296	132	27	694	2	16	97	66	35	216
Unknown		2	5	4	1	1	13	8	7	4	5	3	27
Total		1417	2084	1202	556	292	5551	1175	586	891	553	343	3548

Appendix A-21: Female Migration by Destination of Origin, 2000

Destination Division	Rural/ Urban	Out-migration Age(years) 0-14	15-24	25-34	35-44	45+	Total	In-migration Age(years) 0-14	15-24	25-34	35-44	45+	Total
Dhaka	Rural	6	9	3	2	0	20	18	28	11	4	4	65
	Urban	783	967	446	134	163	2493	453	469	274	86	79	1361
Chittagong	Rural	407	936	313	57	67	1780	484	1125	284	80	78	2051
	Urban	123	229	79	21	26	478	108	100	70	17	13	308
Sylhet	Rural	0	0	0	0	0	0	0	5	0	1	1	2
	Urban	29	44	9	6	7	95	70	34	26	12	17	159
Khulna	Rural	0	0	0	0	0	0	4	3	3	3	0	13
	Urban	17	24	6	3	4	54	27	23	14	6	5	75
Rajshahi	Rural	0	2	1	0	0	3	3	0	3	0	0	6
	Urban	12	12	7	0	3	34	9	5	5	2	1	22
India		17	17	6	7	8	55	5	3	4	3	3	18
Asia		1	1	2	1	3	8	1	4	3	1	1	10
Middle-east		2	9	5	2	2	20	1	4	1	3	0	9
Unknown		1	4	2	0	1	8	8	13	3	1	2	27
Total		1398	2254	879	233	284	5048	1191	1816	701	219	204	4131

Appendix B

Mid-year Population, Births, and Deaths by Village, 2000

Village code*	Population	Live births	Deaths	Birth rate	Death Rate
MCH-FP area:					
D	2111	34	15	16.1	7.1
W	4854	118	15	24.3	3.1
V10	1760	45	7	25.6	4.0
V11	2132	61	14	28.6	6.6
V31	8775	202	56	23.0	6.4
V32	2921	86	23	29.4	7.9
V60	930	25	3	26.9	3.2
V61	657	14	4	21.3	6.1
V62	899	21	5	23.4	5.6
V72	6218	164	42	26.4	6.8
Block A	31257	770	184	24.6	5.9
H	1369	26	12	19.0	8.8
V12	585	11	4	18.8	6.8
V13	709	14	6	19.7	8.5
V19	2831	68	17	24.0	6.0
V20	1280	34	10	26.6	7.8
V21	518	15	2	29.0	3.9
V22	593	12	3	20.2	5.1
V23	548	10	3	18.2	5.5
V24	2859	83	16	29.0	5.6
V26	2750	66	14	24.0	5.1
V56	1542	42	9	27.2	5.8
V59	1382	46	4	33.3	2.9
V82	1558	39	15	25.0	9.6
V83	551	19	4	34.5	7.3
V85	475	9	7	18.9	14.7
V87	683	18	8	26.4	11.7
VB12	4386	122	24	27.8	5.5
VB13	4788	119	34	24.9	7.1
Block B	29407	753	192	25.6	6.5

Village code*	Population	Live births	Deaths	Birth rate	Death Rate
K	906	22	4	24.3	4.4
L	539	11	6	20.4	11.1
M	179	2	2	11.2	11.2
N	2059	55	12	26.7	5.8
O	1635	40	13	24.5	8.0
P	2050	46	15	22.4	7.3
Q	347	12	3	34.6	8.6
V27	915	21	9	23.0	9.8
V28	1504	48	16	31.9	10.6
V30	584	17	5	29.1	8.6
V39	349	8	5	22.9	14.3
V40	743	14	3	18.8	4.0
V41	1735	42	12	24.2	6.9
V42	743	15	5	20.2	6.7
V44	601	16	5	26.6	8.3
V86	867	18	3	20.8	3.5
V88	518	12	4	23.2	7.7
VB11	2508	51	21	20.3	8.4
D100	3365	79	22	23.5	6.5
D101	1342	34	8	25.3	6.0
Block C	23489	563	173	24.0	7.4
R	1479	37	7	25.0	4.7
S	937	21	9	22.4	9.6
T	1591	45	15	28.3	9.4
V15	686	20	9	29.2	13.1
V16	796	17	2	21.4	2.5
V17	1129	36	6	31.9	5.3
V18	3802	102	23	26.8	6.0
V25	1222	22	9	18.0	7.4
V29	485	7	8	14.4	16.5
V33	459	6	5	13.1	10.9
V34	772	15	4	19.4	5.2
V52	205	9	4	43.9	19.5
V54	637	12	12	18.8	18.8
V55	534	16	7	30.0	13.1

Village code*	Population	Live births	Deaths	Birth rate	Death Rate
V63	2056	48	17	23.3	8.3
V67	633	20	5	31.6	7.9
V81	690	22	8	31.9	11.6
V84	2275	44	14	19.3	6.2
V89	1431	50	7	34.9	4.9
Block D	21819	549	171	25.2	7.8
MCH-FP area Total	105972	2635	720	24.9	6.8
Comparison area:					
A	3152	88	24	27.9	7.6
B	2119	59	18	27.8	8.5
C	3904	108	36	27.7	9.2
F	1478	40	5	27.1	3.4
G	2798	90	14	32.2	5.0
J	694	21	2	30.3	2.9
U	8647	246	54	28.4	6.2
V01	473	9	2	19.0	4.2
V02	521	11	1	21.1	1.9
V03	637	20	5	31.4	7.8
V04	335	5	3	14.9	9.0
V05	3350	98	34	29.3	10.1
V06	2361	74	18	31.3	7.6
V07	336	9	2	26.8	6.0
V08	1202	21	5	17.5	4.2
V09	1199	40	9	33.4	7.5
V14	792	18	8	22.7	10.1
V35	3902	91	24	23.3	6.2
V36	5526	150	29	27.1	5.2
V38	1655	37	12	22.4	7.3
V43	919	42	4	45.7	4.4
V45	1112	26	4	23.4	3.6
V46	397	11	5	27.7	12.6
V47	1919	59	15	30.7	7.8
V48	619	12	3	19.4	4.8
V49	1327	41	10	30.9	7.5
V50	84	3	1	35.7	11.9
V51	674	14	4	20.8	5.9

Village code*	Population	Live births	Deaths	Birth rate	Death Rate
V53	3139	81	23	25.8	7.3
V57	1057	34	8	32.2	7.6
V64	4499	155	33	34.5	7.3
V65	817	20	5	24.5	6.1
V66	893	36	4	40.3	4.5
V68	994	21	3	21.1	3.0
V71	494	16	3	32.4	6.1
V73	850	19	10	22.4	11.8
V74	1406	40	20	28.4	14.2
V75	368	6	1	16.3	2.7
V76	1779	73	19	41.0	10.7
V78	270	8	2	29.6	7.4
V79	332	10	2	30.1	6.0
V80	1206	30	5	24.9	4.1
V90	1255	28	13	22.3	10.4
V95	2039	56	16	27.5	7.8
V96	770	20	4	26.0	5.2
V97	422	11	4	26.1	9.5
V98	170	2	1	11.8	5.9
V99	580	15	3	25.9	5.2
VB1	1140	34	5	29.8	4.4
VB2	1017	20	6	19.7	5.9
VB3	3111	77	17	24.8	5.5
VB4	3843	93	30	24.2	7.8
VB5	987	28	8	28.4	8.1
VB6	564	11	4	19.5	7.1
VB7	339	13	2	38.3	5.9
VB8	1429	42	9	29.4	6.3
VB10	2882	85	26	29.5	9.0
D28	1138	27	8	23.7	7.0
D29	223	3	1	13.5	4.5
D30	772	24	4	31.1	5.2
D31	1123	26	9	23.2	8.0
D32	753	32	6	42.5	8.0
D33	1131	25	14	22.1	12.4
D34	1417	38	8	26.8	5.6
D35	626	10	5	16.0	8.0

Village code*	Population	Live births	Deaths	Birth rate	Death Rate
D88	1486	37	9	24.9	6.1
D89	1292	43	9	33.3	7.0
D90	957	27	8	28.2	8.4
D93	1303	44	16	33.8	12.3
D94	1506	50	22	33.2	14.6
D95	560	22	4	39.3	7.1
D96	1039	26	2	25.0	1.9
D97	824	12	6	14.6	7.3
D98	3514	90	24	25.6	6.8
D99	2159	57	18	26.4	8.3
Comparison area Total	112607	3120	810	27.7	7.2

*See village name in Appendix E.

Appendix C

Life Table Equations

1. $$ {}_nq_x = \frac{{}_nm_x}{{}^1/_n + {}_nm_x \left[{}^1/_2 + {}^n/_{12} ({}_nm_x - \ln C) \right]} $$

2. $l_0 = 100{,}000$

   $l_x = (1 - {}_nq_{x-n})\, l_{x-n}$

3. $L_0 = 0.276\, l_0 + 0.724\, l_1$

   $L_1 = 0.410\, l_1 + 0.590\, l_2$

   $L_i = {}^1/_2 (l_i + l_{i+1}),\quad i = 2, 3, 4$

   $$ {}_nL_x = \frac{{}_nd_x}{{}_nm_x} \text{ for } 5 \text{ ? } x \text{ ? } 80 $$

   $$ {}_?L_{85} = \frac{l_{85}}{{}_?m_{85}} \text{ for the last age group 85+} $$

4. $$ e_x = \frac{T_x}{l_x} \text{ where } T_x = \text{ ? } \sum_{y=x}^{\text{?}} L_y $$

Note: Greville's method, as suggested in Shryock, H.S., Seigel, J.S., and Associates, The Methods and Materials of Demography (revised), U.S. Dept. of Commerce, Bureau of the Census, 1975, Vol. II p.414 and pp. 444-5.

(ln C assumed to be 0.095; separation factors in Equation 3 correspond to an infant mortality rate of 100.)

Appendix D

WHO “World Standard” Populations by Age and Sex

Age group (years)	Males	Females	Both sexes Combined
0	2,558	2,471	2,396
1 - 4	9,513	9,231	9,490
5 - 9	10,824	10,472	10,649
10-14	9,954	9,609	9,783
15-19	9,989	9,627	9,809
20-24	9,477	9,137	9,308
25-29	8,458	8,204	8,332
30-34	7,355	7,175	7,266
35-39	6,585	6,476	6,531
40-44	5,326	5,253	5,290
45-49	4,341	4,335	4,338
50-54	3,994	4,061	4,027
55-59	3,486	3,604	3,544
60-64	2,912	3,179	3,045
65-69	2,167	2,591	2,378
70-74	1,424	1,837	1,629
75-79	958	1,406	1,181
80-84	429	814	602
85+	250	518	402
Total	100,000	100,000	100,000

Appendix E

Names and Codes of Villages in the DSS Area, 2000

Village code	Village name	Village code	Village name
MCH-FP area:			
	Block A		
D	Charmukundi	V32	Mobarakdi
W	Kaladi	V60	Suvankardi
V10	Dhakirgaon	V61	Munsabdi
V11	Nabakalash	V62	Shilmondi
V31	Dighaldi	V72	Upadi
	Block B		
H	Lamchari	V26	Narayanpur
V12	Bhangerpar	V56	Palipara
V13	Baburpara	V59	Doshpara
V19	Lakshmipur	V82	Dhanarpar
V20	Dagorpur	V83	Padmapal
V21	Khadergaon	V85	Bhanurpara
V22	Beloti	V87	Hurmaisha
V23	Baluchar	VB12	Nagda
V24	Machuakhal	VB13	Naogaon
	Block C		
K	Shahpur	V39	Gobindapur
L	Tatkhana	V40	Masunda
M	Char Nayergaon	V41	Paton
N	Aswinpur	V42	Adhara (South)
O	Nayergaon	V44	Panchdona
P	Titerkandi	V86	Adhara
Q	Char Shibpur	V88	Datikara
V27	Panchghoria	VB11	Mehron
V28	Khidirpur	D100	Barogaon
V30	Harion	D101	Naojan
	Block D		
R	Nandalalpur	V34	Satparia
S	Tatua	V52	Nayakandi
T	Amuakanda	V54	Balakandi
V15	Bhati Rasulpur	V55	Induria
V16	Binandapur	V63	Islamabad (East)
V17	Hatighata	V67	Majlishpur
V18	Torkey	V81	Sonaterkandi
V25	Char Pathalia	V84	Shanbajkandi
V29	Shibpur(South)	V89	Islamabad (Middle)
V33	Shibpur(North)		

Village code	Village name	Village code	Village name
Comparison area:			
A	Uddamdi	V75	Mukundia
B	Charmasua	V76	Chosoi
C	Sarderkandi	V78	Soladana
F	Sepoykandi	V79	Pitambordi
G	Thatalia	V80	Daribond
J	Char Harigope	V90	Narinda
U	Baispur	V95	Baluchar
V01	Kadamtali	V96	Rampur
V02	Nilokhi	V97	Dhanagoda
V03	Char Nilokhi	V98	Santoshpur
V04	Char Pathalia	V99	Baluakandi
V05	Gazipur	VB1	Taltoli
V06	Fatepur	VB2	Sree Rayerchar
V07	Nayakandi	VB3	Rayerkandi
V08	Goalbhar	VB4	Ramdaspur
V09	Naburkandi	VB5	Thakurpara
V14	Enayetnagar	VB6	Sarkerpara
V35	Durgapur	VB7	Mirpur
V36	Ludhua	VB8	Farazikandi
V37**	Charputia	VB9**	Ramanathgonj
V38	Galimkha	VB10	South Rampur
V43	Kanachak	D28	Bazarkhola
V45	Bakchar	D29	Kirtonkhola
V46	Silinda	D30	Banuakandi
V47	Tulatali	D31	Harina Bazarkhola
V48	Gangkandi	D32	Khalisha
V49	Harina Bhabanipara	D33	Nayanagar
V50	Bakharpur	D34	Saidkharkandi
V51	Induriakandi	D35	Mollah Kandi
V53	Chhoto Haldia	D88	Sankibhanga
V57	Baluchar	D89	Sankibhanga Namapara
V58**	Mohishmari	D90	Zahirabaj
V64	Kawadi	D91**	North Joypur
V65	Nayachar	D92**	West Joypur
V66	Thatalia	D93	Maizkandi
V68	Sobahan	D94	Hazipur
V69**	Naobangha	D95	Tapaderpara
V70**	South Joypur	D96	Sakharipara
V71	Khamarpara	D97	Nayakandi
V73	Sadardia	D98	Bara Haldia
V74	Ketundia	D99	Mandertoli

*Division by block applies only to the MCH-FP area.
**Lost due to river erosion in 1987.

Appendix F

Staff of HDSS, 2000

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Matlab Field Station

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Note: Besides these, 91 Community Health Research Workers (CHRWs) contributed to the HDSS data collection.

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