

53

DEMOGRAPHIC STUDIES IN RURAL BANGLADESH
MAY 1972–APRIL 1973

A. I. Chowdhury

K. M. A. Aziz



INTERNATIONAL CENTRE FOR
DIARRHOEAL DISEASE RESEARCH, BANGLADESH

Dhaka, Bangladesh

November 1982

Working Paper No. 29

DEMOGRAPHIC STUDIES IN RURAL BANGLADESH
MAY 1972 - APRIL 1973

A.I. Chowdhury¹

K.M.A. Aziz²

INTERNATIONAL CENTRE FOR
DIARRHOEAL DISEASE RESEARCH, BANGLADESH
G.P.O. Box 128, Dhaka 2
Bangladesh

1 Statistical Officer

2 Associate Scientist

RECEIVED JUNE 10 1964
U.S. AIR FORCE - WASHINGTON

1. The following information is being furnished to you for your information and use:

1. The following information is being furnished to you for your information and use:

2. The following information is being furnished to you for your information and use:

PREFACE

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an autonomous, international, philanthropic and non-profit centre for research, education and training as well as clinical service. The Centre is derived from the Cholera Research Laboratory (CRL). The activities of the institution are to undertake and promote study, research and dissemination of knowledge in diarrhoeal diseases and directly related subjects of nutrition and fertility with a view to develop improved methods of health care and for the prevention and control of diarrhoeal diseases and improvement of public health programmes with special relevance to developing countries. ICDDR,B issues annual report, working paper, scientific report, special publication, monograph, thesis and dissertation, and newsletter which demonstrate the type of research activity currently in progress at ICDDR,B. The views expressed in these papers are those of authors and do not necessarily represent views of International Centre for Diarrhoeal Disease Research, Bangladesh. They should not be quoted without the permission of the authors.

ABSTRACT

Children under 14 and adults over 60 comprise 46.9 and 5 percent respectively of the total population. The CBR was 42.1 per 1000 population. The CDR was 16.3 per 1000 population. These rates resulted into a crude rate of natural increase of 2.6 percent. The in-and out-migration rates were 25.2 and 34.6 per 1000 population respectively. The net balance of migration was 9.4 per 1000 population.

Overall, 126.8 per 1000 of infants died before reaching the age of one year. Female mortality rate exceed that for males from childhood through age 29. During ages 1-4 the female mortality rate exceeded the rate for males by 53 percent. Excluding 60-64 age group, male mortality exceeded female mortality from age 30 onward. Overall, there was relatively little seasonality of deaths. One-fourth of all deaths were attributed to *tākuriā* (i.e. cause 'unknown'). Gastrointestinal diseases other than cholera and fever were important causes of death. For both sexes the life expectancy at birth was 46.9 years. This life expectancy was substantially higher for males (48.3 vs. 45.4). Through age 5 there were markedly higher female mortality rates.

The sex ratio at birth was 104 males per 100 females. One stillbirth occurred for every 25.9 live births and 14.4 pregnancies for every miscarriage. The gross reproduction rate was 3.0, the net reproduction rate was 2.1 and the mean length of generation was 26.8 years.

INTRODUCTION

Since 1963, the International Centre for Diarrhoeal Disease Research, Bangladesh (former the Cholera Research Laboratory) has been maintaining a continuous registration of births, deaths and migrations in Matlab thana, Comilla district as part of a cholera vaccine trial surveillance. In 1966, this demographic surveillance system was enlarged and a census was conducted covering 132 villages with a population of 111,748 called "old trial area (OTA)". In 1968, the vaccine trial surveillance area was further expanded to include an additional 101 villages with a population of 109,055 people, called "new trial area (NTA)". Both OTA and NTA villages are included in the following analysis. Annual data for the period covering May 1966 to April 1972 were presented in earlier publications (Mosley *et al.* 1968; Chowdhury *et al.* 1969 and 1970; Chowdhury *et al.* 1981a and 1981b; and Chowdhury and aziz, 1982). In this paper, a descriptive analysis of the demographic data is provided for the period May 1972 to April 1973. A general description of the study area and the surveillance system have been provided in the initial annual report (Mosley *et al.* 1968).

RESULTS

There were 111,748 persons in the 132 villages at the time of the census in April 1966 and 109,055 persons in 101 villages at the time of the census in April-May 1968, these two study areas were combined and it is for this expanded study area of 233 villages that the mid-year estimates of the 1972-73 population are obtained. Table 1 shows that the mid-year population was obtained by adding the livebirths and in-migrants and subtracting deaths and out-migrants with an adjustment for age (see Appendix A). The sex ratio was 103.9 males for 100 females. Children aged 14 and under and adults aged 60 and over comprised 47 percent and 5 percent of the population respectively.

Table 2 summarizes the total number of live births, deaths and migrations for this twelve-month period. The crude birth rate was 42.1 per thousand as compared to 44.6 per thousand in the previous year. The crude death rate was 16.3, substantially lower than the rate of 20.6 per thousand during the previous year which made the height of the war of liberation in Bangladesh. Table 2 shows that during the post-liberation period of 1972-73 the overall net out-migration rate was 9.4 per 1000 population compared to 1.1 in the preceding year of liberation. The key difference here seems to be due to both an increase in out-migration and a drop in in-migration, producing a considerable net loss due to migration.

TABLE 1

ADJUSTED MID-YEAR POPULATION BY AGE AND SEX, MAY 1972 - APRIL 1973

Age	Male	Female	Total	Sex ratio	Cumulative percent		
					Male	Female	Total
0	4799	4604	9403	104.2	3.8	3.8	3.8
1-4	16678	15686	32364	106.3	16.8	16.5	16.7
5-9	19057	18138	37195	105.1	31.7	31.3	31.5
10-14	19927	18540	38467	107.5	47.4	46.4	46.9
15-19	15090	12833	27923	117.6	59.2	56.8	58.0
20-24	7724	7776	15500	99.3	65.2	63.1	64.2
25-29	5547	8365	13912	66.3	69.6	69.9	69.8
30-34	6215	8627	14842	72.0	74.4	77.0	75.7
35-39	6510	6807	13317	95.6	79.5	82.5	81.0
40-44	6450	5539	11989	116.5	84.6	87.2	85.8
45-49	4764	4019	8783	118.6	88.3	90.3	89.3
50-54	4326	3496	7822	123.7	91.7	93.1	92.4
55-59	3407	3178	6585	116.5	94.4	95.7	95.0
60-64	2252	1742	3994	129.3	96.2	97.1	96.6
65 & above	4915	3516	8431	139.8	100.0	100.0	100.0
Total	127661	122866	250527	103.9			

APPENDIX A

The method of estimation of 1972-73 mid-year population by age and sex.

The estimation of the total population for each sex was based on the balancing equation (Shryock and Seigel, 1973: 736-738).

$$P_1 (1972-73) = P_0 (1971-72) + B - D + I - O$$

Where P_1 is mid-year population of all ages.

B is all births.

D is all deaths.

I is all in-migrants.

O is all out-migrants.

Population sizes for different ages:

$$\text{Age under 1 year : } P_0 (1972-73) = B - 0.8D_0 - 0.5M_0$$

$$\text{Age one year: } P_1 (1972-73) = P_0 (1971-72) - \{0.2D_0 + 0.5D_1 - 0.5M_0 - 0.5M_1\}$$

D_0 is all deaths of age under one year.

M_0 is all net migrants of age under one year.

D_1 is all deaths of aged one year.

M_1 is all net migrants of aged one year.

$$\begin{aligned} \text{Age 2 years and above: } P_t (1972-73) = & P_{t-1} (1971-72) - \{ P_a^t - \frac{1}{2}(D_a - M_a) \\ & + \frac{1}{2}(D_{a+1} - M_{a+1}) \} \end{aligned}$$

P_t is the original population at the beginning of the year.

a refers to age.

TABLE 2

SUMMARY OF BIRTHS, DEATHS AND MIGRATIONS 1972-73 and 1971-72

	Number	Rate per 1000 population	
		1972-73	1971-72
Live births	10550	42.1	44.6
Deaths	4089	16.3	20.6
Migration in	6317	25.2	29.5
Migration out	8675	34.6	30.6
*Net balance of migration	2358	9.4	1.1

* (out-migration) - (in-migration)

MORTALITY

The distribution of total infant deaths by age at death for the period under study is shown in Table 3. Overall, 44.6 per thousand of the new borns died within the first week of birth, 70.9 per thousand died within the first month, and 126.8 per thousand died before reaching the age of one year. In the neonatal period, male deaths exceeded female deaths, but the pattern was reversed in the post-neonatal period.

Table 4 and Figure 1 show the age-and sex-specific death rates. Overall, the female mortality rate was slightly higher than the male mortality rate. Although mortality rates for infants showed little variation by sex, the mortality rate for females exceed that for males from childhood through age 29 and was especially pronounced during ages 1-4, with the rate for females exceeding the rate for males by 53 percent. With the exception of the 60-64 age group, male mortality exceeded female mortality from age 30 onward.

Table 5 and Figure 2 show that overall there was relatively little seasonality of deaths during this period. Figure 2 shows that deaths among people 40 years and over were relatively considerably low in the month of April when compared with deaths in other age groups.

Table 6 shows the distribution of deaths by age and cause of death. The death reports were collected by the field workers and the causes of death were obtained from a reliable source within the household at the time of interview. One-fourth of all deaths were attributed to unknown causes or *tākarīā* (evil spirits). Most of these deaths involved infants aged one year or less. The category of 'other' diseases such as dropsy, rheumatism and asthma was the leading cause of death among those aged 40 and over with almost one-half of all deaths so classified in the age group. Gastrointestinal diseases other than cholera was also an important cause of death, and was the leading cause of death among children aged 1-4, 5-14 and 40+. Fever was an important cause of death in the age groups 1-4, 5-14 and 15-39. Fever was the cause of almost one-sixth of the total deaths in all ages. Only 1.9 deaths were attributed to diarrhoeal illnesses. The services of the ICDDR,B field hospital might have contributed to this low incidence of diarrhoeal deaths.

The abridged life table was used to calculate the average life expectancy of males and females separately and jointly, using conventional methods of calculation. The death rates were converted to life table death rates by following the Reed and Merrell Standard table (see Appendix B). Table 7 shows life expectancy at birth is 46.9 years for both males and females combined and substantially higher for males than females (48.3 vs. 45.4 years). This difference is maintained through age 5, reflecting the markedly higher mortality rates among female children.

TABLE 3

INFANT AND NEONATAL DEATH BY SEX, MAY 1972 - APRIL 1973

Age	Male	Female	Both	Rate per 1000 population		
				Male	Female	Both
All infants	686	652	1338	127.6	126.1	126.8
<u>Neonatal</u>						
0-7 days	252	219	471	46.9	42.3	44.6
8-29 days	148	126	274	27.5	24.4	26.3
<u>Post Neonatal</u>						
1-11 months	286	307	593	53.2	59.4	56.2

TABLE 4

AGE SPECIFIC DEATH RATES BY SEX, MAY 1972 - APRIL 1973

Age	Male	Female	Both	Rate/1000		
				Male	Female	Both
0	686	652	1338	127.6*	126.1*	126.8*
1-4	422	605	1027	25.3	38.6	31.7
5-9	106	122	228	5.6	6.7	6.1
10-14	29	39	68	1.5	2.1	1.8
15-19	22	38	60	1.5	3.0	2.1
20-24	17	45	62	2.2	5.8	4.0
25-29	13	27	40	2.3	3.2	2.9
30-34	26	32	58	4.2	3.7	3.9
35-39	33	32	65	5.1	4.7	4.9
40-44	29	20	49	4.5	3.6	4.1
45-49	57	24	81	12.0	6.0	9.2
50-54	61	39	100	14.1	11.2	12.8
55-59	66	49	115	19.4	15.4	17.5
60-64	75	82	157	33.3	47.1	39.3
65 & above	379	262	641	77.1	74.5	76.0
Total	2021	2068	4089	15.8	16.8	16.3

* Rate per 1000 live births. Other rates based on per 1000 population.

Fig.1
AGE SPECIFIC DEATH RATE BY SEX
1972-73

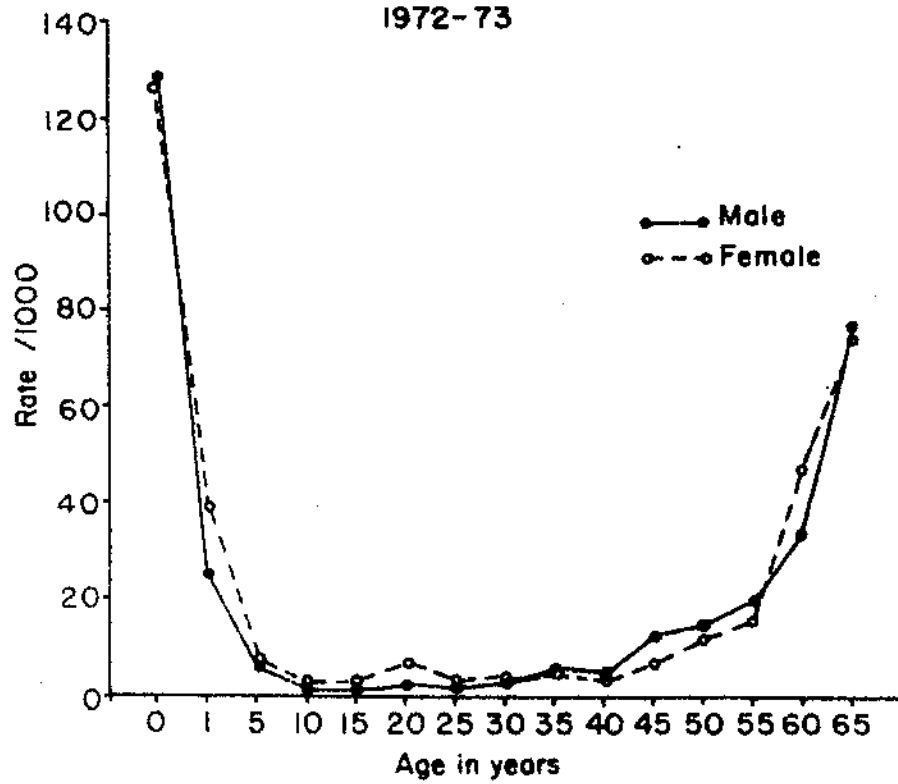


TABLE 5

AGE DISTRIBUTION OF PERSONS WHO DIED DURING MAY 1972 - APRIL 1973 BY MONTHS

Months	0	%	1-4	%	5-39	%	40 & above	%	Total	%
May	109	8.1	80	7.8	49	8.4	87	7.6	325	7.9
June	94	7.0	97	9.4	43	7.4	93	8.1	327	8.0
July	89	6.7	96	9.3	33	5.7	91	8.0	309	7.6
August	100	7.5	51	5.0	31	5.3	92	8.0	274	6.7
September	119	8.9	51	5.0	52	9.0	91	8.0	313	7.7
October	116	8.7	79	7.7	58	10.0	106	9.3	359	8.8
November	116	8.7	72	7.0	57	9.8	109	9.5	354	8.7
December	137	10.2	85	8.3	49	8.4	135	11.8	406	9.9
January	129	9.6	95	9.3	57	9.8	98	8.6	379	9.3
February	110	8.2	85	8.3	44	7.6	90	7.9	329	8.0
March	100	7.5	105	10.2	44	7.6	91	8.0	340	8.3
April	119	8.9	131	12.7	64	11.0	60	5.2	374	9.1
Total	1338		1027		581		1143		4089	100

FIG.2: SEASONAL PATTERN OF DEATHS BY DIFFERENT AGE GROUPS AND ALL AGES
(MAY 1972-APRIL 1973)

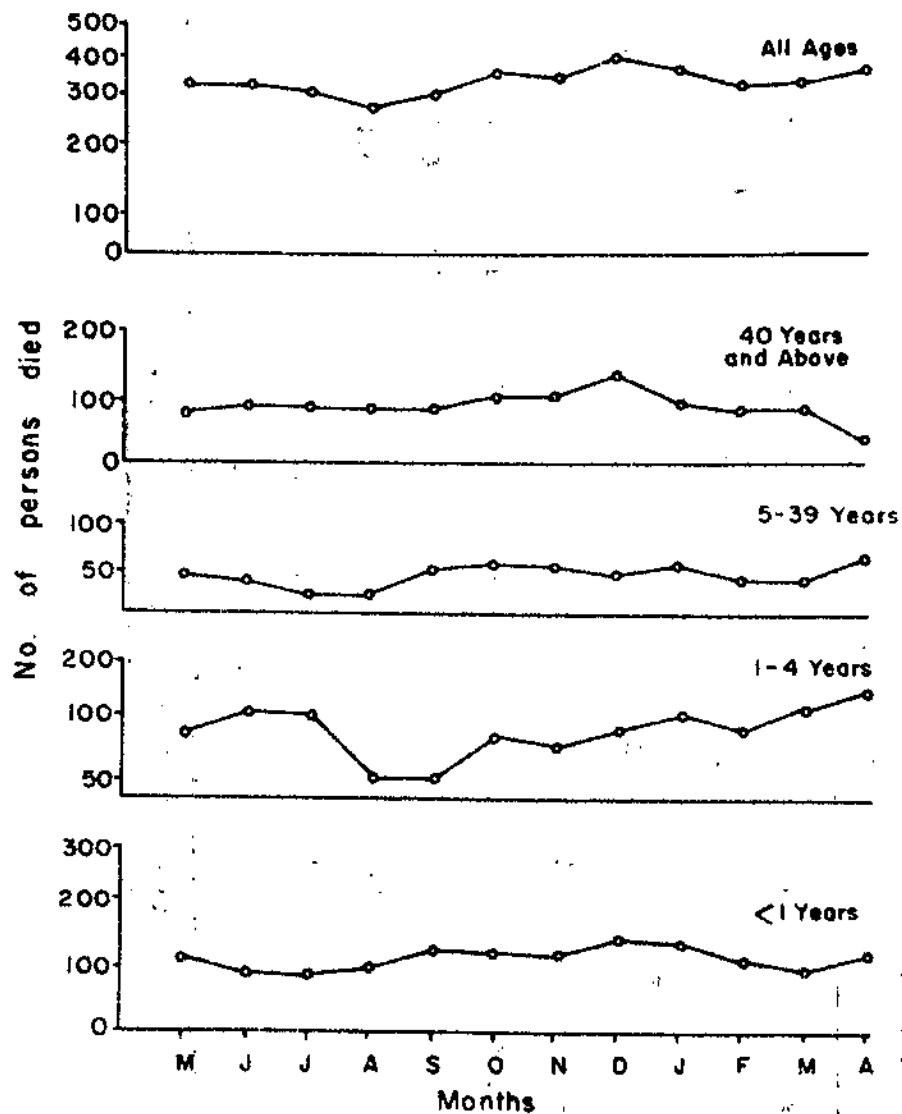


TABLE 6

DISTRIBUTION OF PERSONS WHO DIED FROM MAY 1972 - APRIL 1973 ACCORDING TO
THEIR AGE AT DEATH AND CAUSE AT DEATH

Causes of death	0	%	1-4	%	5-14	%	15-39	%	40+	%	Total	%
Fever (all forms)	157	11.8	192	18.7	73	24.6	56	19.6	176	15.4	654	16.0
Acute diarrhoea	18	1.3	22	2.2	10	3.4	6	2.1	20	1.8	76	1.9
Gastrointestinal disease (other than cholera)	77	5.8	343	33.4	60	20.3	34	11.9	264	23.1	778	19.0
Respiratory disease	51	3.8	33	3.2	15	5.1	23	8.1	74	6.5	196	4.8
Measles and smallpox	34	2.5	194	18.9	49	16.5	14	4.9	9	0.8	300	7.3
Accident	7	0.5	60	5.8	34	11.5	19	6.7	11	1.0	131	3.2
Unknown (<i>tākumā</i>)	963	72.0	62	6.0	7	2.4	9	3.2	10	0.9	1051	25.7
Other	31	2.3	121	11.8	46	15.5	82	28.8	577	50.5	857	21.0
Child birth	-		-		2	0.7	42	14.7	2	0.2	46	1.1
Total	1338	100.0	1027	100.0	296	100.0	285	100.0	1143	100.0	4089	100.0

APPENDIX B

Notation for abridged life table: (Barclay 1958, page 286-297)

$${}_nq_x = \frac{2n \cdot {}_nM_x}{2+n \cdot {}_nM_x}$$

$${}_np_x = 1 - {}_nq_x$$

$${}_nd_x = l_x \cdot {}_nq_x$$

$$l_{x+n} = l_x - {}_nd_x$$

$${}_nL_x = \frac{n(l_x + l_{x+n})}{2}$$

$$L_0 = 0.3l_0 + 0.7l_1$$

$$L_{65+} = l_{65+} \cdot \text{Log } l_{65+}$$

Assumed

$$T_x = \sum_{65+}^x {}_nL_x$$

$$e_{0x} = \frac{T_x}{l_x}$$

TABLE 7

AVERAGE LIFE EXPECTANCY e_{ox} AT SPECIFIED AGES BY SEX
(BASED ON 1972 - 73 DEATH REPORTS)

Ages	Males	Females	Both
0	48.3	45.4	46.9
1	54.4	50.9	52.7
5	55.5	54.6	55.0
10	51.9	51.4	51.7
15	47.4	46.9	47.1
20	42.7	42.4	42.6
25	38.1	38.7	38.4
30	33.5	34.3	33.9
35	29.2	29.9	29.5
40	24.9	25.5	25.2
45	20.4	20.9	20.3
50	16.5	16.5	16.5
55	12.5	12.3	12.5
60	8.6	8.1	8.4
65 +	4.7	4.6	4.6

See Appendix B for equation used.

FERTILITY

Table 8 shows the outcome of pregnancy according to the age of mother. Among the live births, 51 percent were males, yielding a sex ratio of 104 males per 100 females. One hundred twenty-one multiple births occurred during the period 1972-73, with a ratio of 96 pregnancies for every multiple birth. The children who were born dead after a gestation period of seven months or more occurred at a rate of 28.5 per thousand pregnancies. This resulted in a ratio of one stillbirth for every 25.9 live birth. The actual number of miscarriages could not be ascertained, since early pregnancies very often could not be identified. Eight hundred and ten miscarriages took place during this one year period, yielding a ratio of 14.4 pregnancies for every miscarriage.

Table 9 and Figure 3 show the monthly distribution of pregnancy outcomes. It can be seen that the peak period of pregnancy termination occurred during the October to January period. High percentage of first pregnancy outcomes occurred during the August to December period. Subsequently high percentage of second and third pregnancy terminations occurred during the month of October thru January. In the case of termination during 4-7 pregnancies there followed a constant seasonality pattern with a peak in October thru January. Finally, the pregnancy terminations of 8th and higher order showed an above average occurrence during October thru January. Overall, most of the conceptions occurred during the spring and early summer (February-April). On the timing of conceptions in Matlab thana, (Aziz 1980:183) notes, "During most of the spring, people were almost free from farm activities. In early summer, although people began to work on the farm, some of the atmosphere and behaviour of spring remained. The villagers commonly said that during spring, a gay mood prevailed in human beings and as a result, there was a congenial atmosphere marital coitus. It was also said that because of the influence of the spring season, conjugal partners developed a feeling of mutual admiration for each other". The author similarly observed that a mass programme of population education and contraceptive distribution conducted during this period of high conception is likely to be the most efficacious approach to reducing fertility.

Table 10 shows the age-specific fertility rates for this population. The general fertility rate was 162.9 births per thousand women aged 10-49 years. The age specific fertility rates followed a U-shaped pattern, with the highest rates occurring among women aged 20-24.

Table 11 indicates that the gross reproduction rate during this period was 3.02 and that the net reproduction rate was 2.09, reflecting the presence of considerable mortality. The mean length of generation was 26.8 years and the intrinsic rate of natural increase was 2.8 percent per year.

TABLE 8

DISTRIBUTION OF WOMEN WITH PREGNANCY OUTCOME DURING MAY 1972 - APRIL 1973
ACCORDING TO THEIR AGE AND OUTCOME OF PREGNANCY

Age	Miscar- riage	Still birth	Twin still birth	Live birth male	Live birth female	Twin live birth male	Twin live birth female	Twin L.P. male & female	Twin male L.B. & still birth	Twin female L.B. & still birth	Triplet male twin & female single L.B.	Triplet female twin & male sin- gle L.B.	Triplet male twin L.B. & still birth	Total
10-14	16	9	-	60	67	-	1	-	-	-	-	-	-	153
15-19	158	75	-	894	893	6	4	4	-	-	-	-	-	2034
20-24	200	90	2	1481	1508	10	6	7	3	1	-	-	-	3308
25-29	151	93	1	1294	1216	10	8	9	2	1	-	-	1	2786
30-34	155	69	-	985	902	5	12	12	3	-	-	1	-	2144
35-39	88	40	1	411	352	1	3	1	-	-	1	-	-	898
40-44	37	10	-	112	111	3	1	1	-	-	-	-	-	275
45-49	5	3	-	21	14	-	-	-	-	-	-	-	-	43
Unknown	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Total	810	389	4	5261	5063	35	35	34	8	2	1	1	1	11644

Male live birth 5378

Female live birth 5172

Total live birth 10550

Sex ratio at birth 104.0

TABLE 9

DISTRIBUTION OF WOMEN WHO EXPERIENCED PREGNANCY DURING MAY 1972 - APRIL 1973
ACCORDING TO THEIR MONTH OF OUTCOME

Months of pregnancy outcome	Distribution of pregnancies (Number)				All pregnancies	Distribution of pregnancies (Percent)				All pregnancies
	1	2-3	4-7	8+		1	2-3	4-7	8+	
1972 May	118	163	269	132	682	6.3	5.2	5.9	6.4	5.9
June	100	127	241	109	577	5.4	4.2	5.2	5.3	5.0
July	133	144	182	82	541	7.1	4.6	4.0	4.0	4.6
August	189	187	264	122	762	10.1	6.0	5.7	5.9	6.5
September	187	261	378	143	969	10.0	8.4	8.2	6.9	8.3
October	204	348	493	229	1274	10.9	11.2	10.7	11.0	10.9
November	238	418	514	238	1408	12.8	13.4	11.2	11.5	12.1
December	205	423	561	217	1406	11.0	13.6	12.2	10.5	12.1
1973 January	136	318	494	231	1179	7.3	10.2	10.8	11.1	10.1
February	121	259	401	180	961	6.5	8.3	8.7	8.7	8.3
March	123	249	422	196	990	6.6	8.0	9.2	9.4	8.5
April	112	214	373	196	895	6.0	6.9	8.1	9.4	7.7
Total	1866	3111	4592	2075	11644	100.0	100.0	100.0	100.0	100.0

FIG. 3: SEASONAL PATTERN OF PREGNANCY TERMINATION BY
DIFFERENT NUMBER OF PREGNANCY AND ALL PREGNANCIES
(MAY 1972-APRIL 1973)

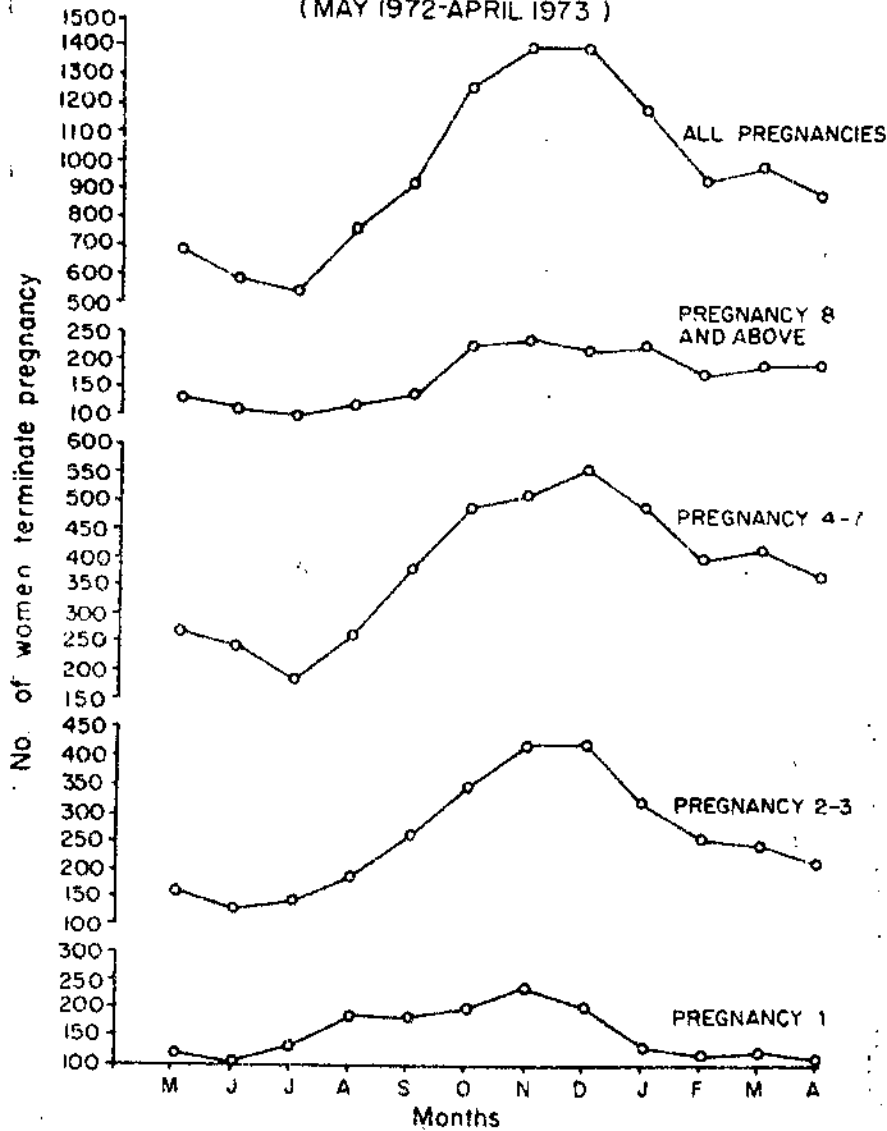


TABLE 10

DISTRIBUTION OF AGE SPECIFIC FERTILITY RATES PER 1,000 WOMEN
(MAY 1972 - APRIL 1973)

Age of mother (corrected)	Number of women	Male live birth	Female live brith	Total live birth	Rate per 1,000
10-14	18540	60	69	129	6.96
15-19	12833	910	905	1815	141.43
20-24	7776	1511	1528	3039	390.82
25-29	8365	1327	1242	2569	307.11
30-34	8627	1011	940	1951	226.15
35-39	6807	416	360	776	114.00
40-44	5539	119	114	233	42.07
45-49	4019	21	14	35	8.71
All child bearing ages	64730	5375	5172	10547	162.94

TABLE 11

CALCULATION OF GROSS AND NET REPRODUCTION RATES AND INTRINSIC RATE OF
NATURAL INCREASE (MAY 1972 - APRIL 1973)

Age	Female population	Live birth female	Daughters per 1000	Pivotal age	Proportion surviving the pivotal age	Women surviving at given age	Person years
10-14	18540	69	3.72	12.5	.72404	2.69	33.62
15-19	12833	905	70.52	17.5	.71651	50.53	884.27
20-24	7776	1528	196.50	22.5	.70583	138.70	3120.75
25-29	8365	1242	148.48	27.5	.68565	101.81	2799.77
30-34	8627	940	108.96	32.5	.67474	73.52	2389.40
35-39	6807	360	52.89	37.5	.66239	35.03	1313.62
40-44	5539	114	20.58	42.5	.64703	13.32	566.10
45-49	4019	14	3.48	47.5	.63551	2.21	104.97
Total			605.13			417.81	11212.50
5 X Total			3025.65			2089.05	56062.50

Gross reproduction rate 3.0
 Net reproduction rate 2.1
 Mean length of generation 26.8
 Intrinsic rate of
 natural increase 2.8% per year.

MIGRATION

Table 12 shows the rates of in-migration and out-migration separately by age and sex. A comparison of the in-and out-migration data indicates that the rate of out-migration exceeded the rate of in-migration through all but the oldest age groups. Two patterns of migration are most discernible.

For the 10-14 and particularly the 15-19 age groups, females were considerably more mobile than males (both in-and out-migration). The usual pattern is that following marriage, frequently the female conjugal partner moves to the residence of her husband, usually located in another village. From ages 25-49 this pattern is reversed, with the rates of in-and out-migration of males exceeding those for females by as much as a factor of three or four. This differential can be largely attributed to the factor of migration due to employment, which would affect males but very few females. Overall, the rate of out-migration was significantly higher than the rate of in-migration, which likely reflects the mass flow of people into urban areas following the end of the war of liberation in Bangladesh.

TABLE 12

MIGRATION RATE FOR THE YEAR MAY 1972 - APRIL 1973 BY AGE AND SEX

Age	Male (%)		Female (%)		Total (%)		Net (%)		Total
	In	Out	In	Out	In	Out	Male	Female	
0-4	1.54	2.20	1.49	2.48	1.51	2.34	-0.66	-0.99	-0.83
5-9	1.60	2.40	1.44	2.46	1.52	2.43	-0.80	-1.02	-0.91
10-14	1.64	3.38	2.39	4.39	2.00	3.87	-1.74	-2.00	-1.87
15-19	2.25	4.86	9.57	8.45	5.62	6.51	-2.61	+1.12	-0.89
20-24	5.23	8.31	5.58	7.36	5.41	7.84	-3.08	-1.78	-2.43
25-29	8.17	7.90	2.31	3.31	4.62	5.14	+0.27	-1.00	-0.52
30-34	4.26	5.45	1.23	1.88	2.50	3.38	-1.19	-0.65	-0.88
35-39	3.39	3.66	0.94	1.47	2.14	2.54	-0.27	-0.53	-0.40
40-44	1.97	2.36	0.70	1.30	1.38	1.87	-0.39	-0.60	-0.49
45-49	1.68	2.20	1.09	0.87	1.41	1.59	-0.52	+0.22	-0.18
50-54	1.50	1.71	1.20	1.49	1.37	1.61	-0.21	-0.29	-0.24
55-59	1.29	1.06	0.94	0.88	1.12	0.97	+0.23	+0.06	+0.15
60-64	1.64	1.20	1.66	1.84	1.65	1.48	+0.44	-0.18	+0.17
65 +	0.87	1.04	1.73	1.62	1.23	1.28	-0.17	+0.11	-0.05
Total	2.38	3.48	2.67	3.45	2.52	3.46	-1.10	-0.78	-0.94

Negative sign indicates net out-migration from the area and conversely positive sign indicates net in-migration.

ACKNOWLEDGEMENTS

We wish to acknowledge the contribution of the staff members of the Cholera Research Laboratory (now International Centre for Diarrhoeal Disease Research, Bangladesh) both in Dacca and Matlab, without whose able efforts and cooperation this work would not have been possible. We are especially grateful to Dr. Michael A. Koenig of the Johns Hopkins University for reviewing the manuscript and making valuable comments. We are thankful to Drs. Stan D'Souza, and A.K.M. Alauddin Chowdhury for their valuable comments and suggestions in the different stages of the preparation of this work. We are also thankful to Mr. A. Razzaque of the Data Management Branch for his cooperation in preparing this work. The study for this working paper was supported by funds from the IRC (The International Rescue Committee) and the publication of it by funds from the UNFPA and the ICDDR,B.

REFERENCES

1. Aziz KMA. Sex socialization and philosophies of life in relation to fertility behaviour: an anthropological approach. Rajshahi, Bangladesh: University of Rajshahi, 1980. (Unpublished Ph.D. Thesis).
2. Chowdhury AKMA, Aziz KMA, Mosley WH. Demographic studies in rural East Pakistan: May 1967 - April 1968. Dhaka: Pakistan-SEATO Cholera Research Laboratory, 1969.
3. Chowdhury AKMA, Aziz KMA, Mosley WH. Demographic studies in rural East Pakistan: May 1968 - April 1969. Dhaka: Pakistan-SEATO Cholera Research Laboratory, 1970.
4. Chowdhury AI, Aziz KMA, Shaikh K. Demographic studies in rural Bangladesh: May 1969 - April 1970. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1981. 21 p. (Working paper no. 16).
5. Chowdhury AI, Aziz KMA, Shaikh K. Demographic studies in rural Bangladesh: May 1970 - April 1971. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1981. 23 p. (Working paper no. 17).
6. Chowdhury AI, Aziz KMA. Demographic studies in rural Bangladesh: May 1971 - April 1972. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1982. 23 p. (Working paper no. 28).
7. Mosley WH, Chowdhury AKMA, Aziz KMA, Islam S, Fahimuddin M. Demographic studies in rural East Pakistan: preliminary analysis of the results of daily registration of births, deaths and migrations in 132 villages in the cholera vaccine field trial area in Comilla district, East Pakistan: May 1966 - April 1967. Dhaka: Pakistan-SEATO Cholera Research Laboratory, 1968. 30 p.

ICDDR,B PUBLICATIONS*

A. Annual Report:

6. ICDDR,B Annual Report 1981. May 1982. 63 p.

B. Working Paper:

28. Chowdhury AI, Aziz KMA. Demographic studies in rural Bangladesh - May 1971 - April 1972. Dec 1982. 24 p.

C. Scientific Report:

58. Chowdhury MK, Razzaque A, Mostafa G, Sarder AM, D'Souza S. Demographic Surveillance System - Matlab, Volume Ten, Vital Events and Migration - Tables, 1980. Nov 1982. 61 p.

D. Special Publication:

19. Samadi AR, Islam MR, Aziz KMS. ICDDR,B model for treatment of diarrhoeal diseases. Jul 1982. 12 p.

E. Thesis and Dissertation:

3. Shahid NS. Complications of measles in rural Bangladesh (Long-term complications in the under-two). June 1981. 38 p.

F. Monograph:

2. Maloney C, Aziz KMA, Sarker PC. Beliefs and fertility in Bangladesh. Dec 1981. 385 p. (Price US\$ 30.00/E 15.00).

G. Newsletter:

Glimpse: ICDDR,B Newsletter. Vol. 1, Jan 1979-

* List of previous publications, such as, annual reports, working papers, scientific reports, special publications and thesis and dissertations, can be obtained on request. For further information, write to Head, Library and Publication Branch, International Centre for Diarrhoeal Disease Research, Bangladesh, G.P.O. Box 128, Dhaka 2, Bangladesh.