Chakaria Health and Demographic Surveillance System Report - 2014

Focusing on the Sustainable Development Goals

Scientific Report No. 131

icddr,b

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Focusing on the Sustainable Development Goals

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CHAPTER 1

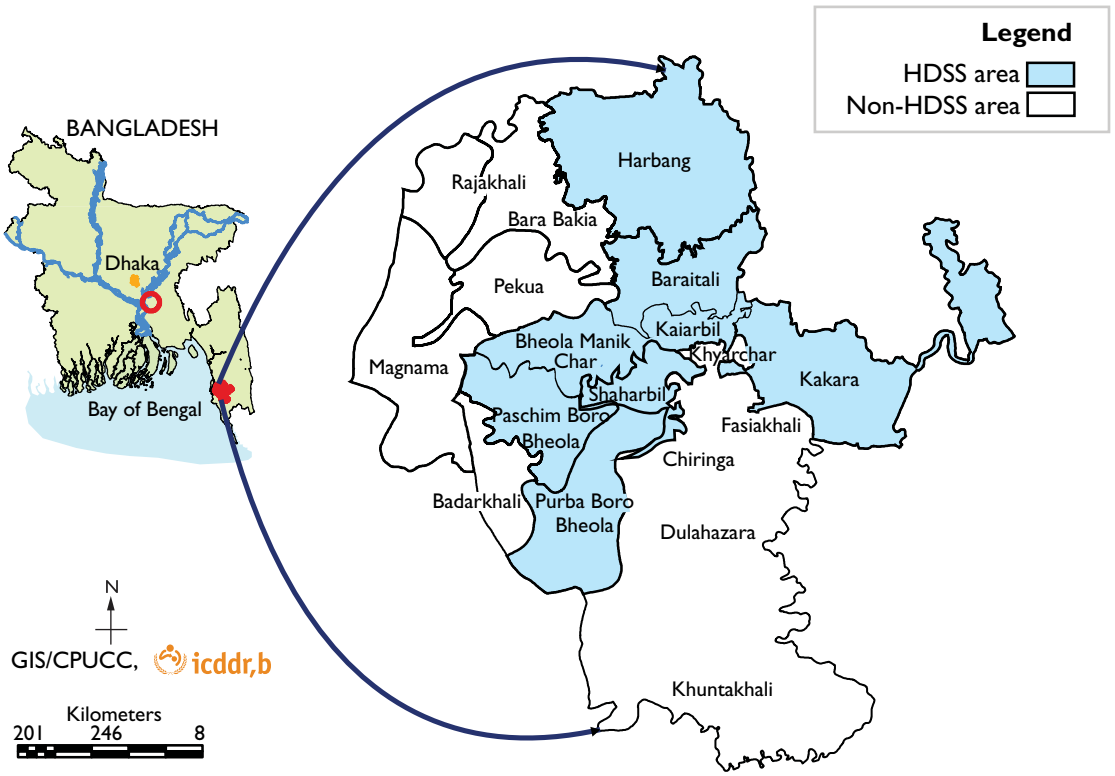
Introduction

Chakaria is one of the 500 upazilas (sub-districts) in Bangladesh. It is located between latitudes 21°34′ and 21°55′ North and longitudes 91°54′ and 92°13′ East in the southeastern coast of the Bay of Bengal. Administratively, it is under Cox's Bazar district with an estimated population of 512,678 in 2014. The highway from Chittagong to Cox's Bazar passes through Chakaria. The east side of Chakaria is hilly, while on the west side towards the Bay of Bengal is lowland. A map showing the location of Chakaria is presented in Figure 1.

ICDDR,B started its activities in Chakaria in 1994. The focus of the activities has been to facilitate local initiatives for the improvement of health of the villagers in general and of children, women, and the poor in particular. Thus, the activities of the project have been participatory with emphasis on empowering the people by raising awareness about health, inducing positive preventive behaviour through health education, and providing technical assistance to any health initiatives taken by the village-based indigenous self-help organizations. Some major initiatives taken by the villagers included assessment of health needs, defining actions for health, implementing them, and monitoring their implementation and outputs. Among the health-related activities, identification of volunteers for health education, mobilizing local resources for the establishment of village health posts and their management, introduction of a pre-paid family health card, and establishment of health cooperatives have been the major ones. Details of the activities of the project and the outcomes have been reported elsewhere (1, 2). Health services that are currently available in surveillance area are presented in the box below. Collection of data from households on a quarterly basis, referred hitherto as Chakaria Health and Demographic Surveillance System (Chakaria HDSS), has been initiated in this area since 1999. The primary purpose of this surveillance system is to monitor the impact of interventions with equity focus and generate relevant health, demographic and socioeconomic information for policies and programmes, and further research. This report presents data collected through the Chakaria HDSS during 2014.

Existing health services in Chakaria HDSS area, 2014	
Healthcare facility/provider	No.
ICDDR,B facilitated and Community initiated	
Village health post	5
Trained midwife	12
Qualified physician	1
Male paramedic	10
Medical assistant	4
Government	
Union Health and Family Welfare Centre (UHFWC)	10
EPI centre	264
RD upgraded to UHFWC	1
Qualified physician	10
Family Welfare Visitor (FWV)	10
Sub-Assistant Community Medical Officer (SACMO)/Medical assistant	4
Family Welfare Assistant (skilled birth attendant)	18
Community Clinics	23
Community Healthcare Provider	24
Private	
Village doctor (allopathic)	240
Village doctor (homeopathic)	102
Allopathic pharmacy	177
Homeopathic pharmacy	15
Diagnostic centre	3
NGO	
Health and development activities	5
Paramedic	4
Health worker	30
HDSS = Health and Demographic Surveillance System.	

Fig. 1. Map of Chakaria showing Chakaria HDSS area



HDSS = Health and Demographic Surveillance System.

CHAPTER 2

Methods and Materials

The Chakaria HDSS covered 11 unions, namely Baraitali, Kaiarbil, Bheola Manik Char, Paschim Boro Bheola, Shaharbil, Kakara, Harbang, Purba Boro Bheola, Surajpur Manikpur, Konakhali, and Dhemoshia. In 1999, 166,405 people were living in 26,979 households. A household is defined as blood or otherwise related group of members and unrelated individuals living in the same compound at least once a month and sharing the food from the same kitchen. A household member is considered to have migrated out if s/he has left the household and does not intend to come back within six months of the time s/he left. A person is considered to have migrated in if s/he was not previously included in the list of household members and intends to live in the household for at least once in a month for the next six months.

Although Chakaria HDSS started in 1999, covering 183 villages of 166,405 individuals living in 26,979 households, data collection was interrupted during 2001–03. Since 2004, quarterly data collection has resumed, and data have been systematically collected from 7,042 households, randomly chosen from the total of 26,979 households. Data have been collected through quarterly visits by a team of surveillance workers (SWs) with supervision from a team of two supervisors. On a typical day, prior to 2011 a SW would come to the office and take a list of households assigned by the supervisors, travel to respondents' households, update the events and return the collected data sheets to the office. Using this system, data collection and data management took a significant amount of time and money, involving daily travel to the households by SWs. The above system of data collection was modified in 2011. The modification involved choosing 49 villages randomly from a total of 183. The 49 villages were divided into 14 work areas and 14 SWs were recruited from the 14 work areas where they resided. Most of the households included in the system prior to this modification were also included in the new system. The modification of the system has resulted in the SWs visiting almost double the number of households in comparison with the previous system, saving time spent on travel in the earlier system. In addition, the modification allowed the possibility of estimating migration as the system includes complete villages. Currently, surveillance covers 82,160 individuals (16,272 households).

Two supervisors supervised the data-collection process. To detect any anomalies, the supervisors re-visited 5% of the households, chosen randomly, within 2 days of data collection by the field workers. Later on, the supervisors and the relevant field workers together sorted out any inconsistencies in the collected data. All the filled-up questionnaires were manually checked for completeness and for any inconsistencies. Subsequently, computer-based data-editing procedures were applied to ensure the quality of data.

Asset quintiles based on ownership of various assets by any member of the households were used to examine differences in various demographic and health indicators. The list of assets included *almirah*, table/chair, *choki/khat*, television, cycle, motorcycle, fridge, sofa, electric fan, sewing machine, telephone, electricity, showcase, and watch/clock. The principal component analytical technique was used for calculating household asset index scores (3). The major demographic indicators, safe motherhood practices and rate of hospitalization have been tabulated for the various asset quintiles.

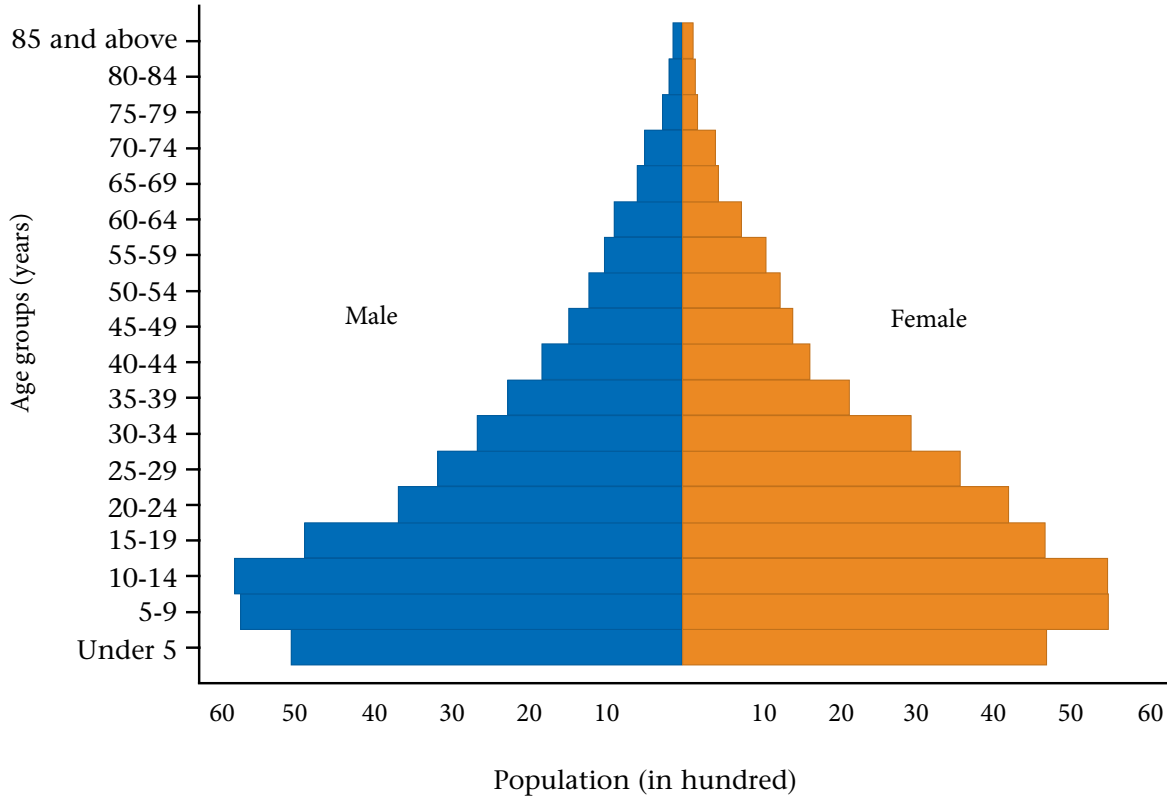
It should be mentioned that the number of observations in the tables presented in this report differ in some instances due to missing information for some variables.

CHAPTER 3

Population and Population Changes

The population pyramid based on the population of Chakaria in 2014 is presented in Figure 2. The shape of the pyramid is typical of a developing country with declining rates of mortality and fertility. The sex ratio (male per 100 females) was 101 in 2014. The age dependency ratio[1] was 75 in 2014 (see Appendix A).

Fig. 2. Male and female population by age, Chakaria HDSS, 2014



HDSS = Health and Demographic Surveillance System.

[1] The age dependency ratio represents the ratio of the combined child population (under 15) and aged population (65 and over) to the population of intermediate age (15 to 64).

CHAPTER 4

Mortality

Age-specific mortality rate by sex are presented in Table 1. The crude death rate was 5.3 per 1,000 population in 2014. Infant mortality rate was 46.6 per 1,000 live births. Child mortality rate was 2.8 per 1,000 children aged 1-4 years (Table 1).

Abridged Life Table for males and females are presented in Table 2. Life expectancy at birth was 69 years for males and 72 years for females. The rate of mortality of children aged less than 5 years (under-five mortality) was 57.4 per 1,000 live births in Chakaria in 2014 (Table 3). Figure 3 shows the probability of survival by sex during various age groups. The probability of survival of females remained almost same as males up to the age of 55 years, but after the age 55 probability of survival increased for females.

Table 1. Age-specific death rate per 1,000 population by sex, Chakaria HDSS, 2014

Age (years)	No. of death			Death rate		
	Male	Female	Both	Male	Female	Both
<1*	50	48	98	46.7	46.5	46.6
<1 month	37	29	66	34.5	28.1	31.4
1-11 month	13	19	32	12.1	18.4	15.2
1-4	16	6	22	4.0	1.6	2.8
5-9	7	4	11	1.2	0.7	1.0
10-14	5	5	10	0.9	0.9	0.9
15-19	2	6	8	0.4	1.3	0.8
20-24	7	4	11	1.9	0.9	1.4
25-29	3	6	9	0.9	1.7	1.3
30-34	3	4	7	1.1	1.4	1.2
35-39	4	4	8	1.8	1.8	1.8
40-44	0	4	4	0.0	2.4	1.2
45-49	9	6	15	6.1	4.2	5.2
50-54	18	7	25	14.9	5.6	10.1
55-59	8	10	18	7.9	9.2	8.6
60-64	20	9	29	22.6	11.7	17.6
65-69	24	7	31	40.9	14.7	29.2
70-74	23	27	50	46.9	64.0	54.8
75-79	14	8	22	55.3	38.5	47.7
80-84	15	11	26	86.7	65.1	76.0
85+	15	13	28	121.0	93.5	106.5
All	243	189	432	5.9	4.6	5.3

*Per 1,000 live births; HDSS = Health and Demographic Surveillance System.

Table 2. Abridged Life Table, Chakaria HDSS, 2014

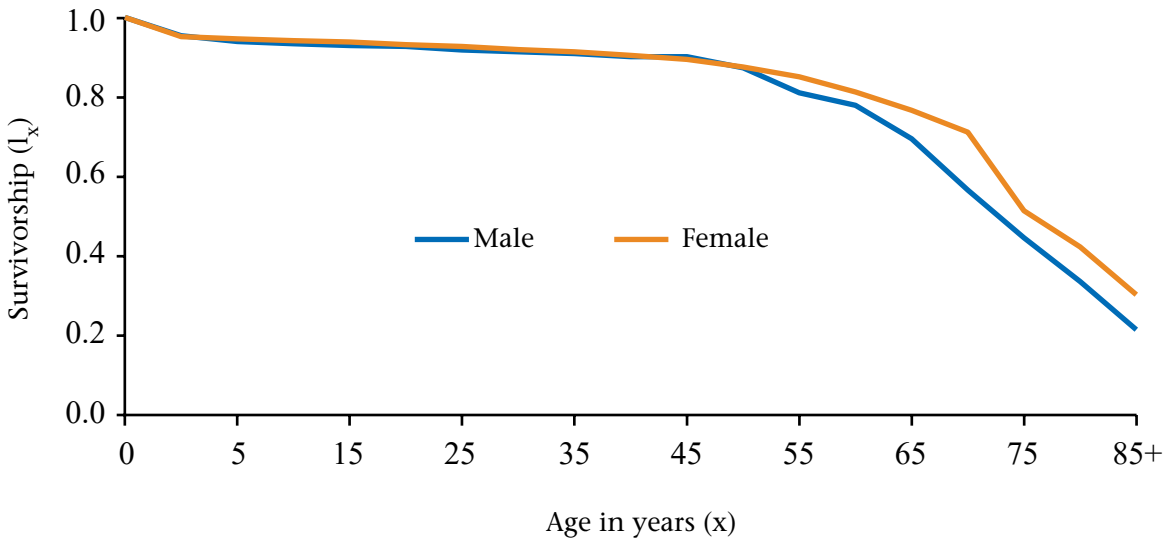
Age (years)	Male					Female				
	$_nm_x$	$_nq_x$	l_x	$_nL_x$	e_x	$_nm_x$	$_nq_x$	l_x	$_nL_x$	e_x
0	0.0478	0.0458	100,000	95,875	68.7	0.0505	0.0483	100,000	95,650	72.4
1	0.0040	0.0158	95,417	378,647	71.0	0.0016	0.0064	95,167	379,460	73.5
5	0.0012	0.0061	93,907	468,099	68.1	0.0007	0.0036	94,563	471,957	72.0
10	0.0009	0.0043	93,333	465,661	63.5	0.0009	0.0045	94,220	470,032	67.2
15	0.0004	0.0020	92,931	464,180	58.8	0.0013	0.0064	93,793	467,470	62.5
20	0.0019	0.0095	92,741	461,505	53.9	0.0009	0.0047	93,195	464,872	57.9
25	0.0009	0.0047	91,861	458,217	49.4	0.0017	0.0083	92,754	461,838	53.2
30	0.0011	0.0056	91,426	455,842	44.6	0.0014	0.0067	91,981	458,357	48.6
35	0.0018	0.0088	90,911	452,553	39.8	0.0018	0.0092	91,362	454,708	43.9
40	0.0000	0.0000	90,110	450,551	35.2	0.0024	0.0120	90,521	449,895	39.3
45	0.0061	0.0301	90,110	443,763	30.2	0.0042	0.0209	89,437	442,519	34.8
50	0.0149	0.0718	87,395	421,295	26.0	0.0056	0.0274	87,571	431,856	30.4
55	0.0079	0.0387	81,123	397,761	22.8	0.0092	0.0449	85,172	416,293	26.2
60	0.0226	0.1068	77,982	369,079	18.7	0.0117	0.0571	81,345	395,121	22.4
65	0.0409	0.1855	69,650	315,956	15.6	0.0147	0.0711	76,703	369,888	18.6
70	0.0469	0.2100	56,732	253,869	13.6	0.0640	0.2758	71,252	307,133	14.8
75	0.0553	0.2431	44,816	196,847	11.5	0.0385	0.1754	51,601	235,375	14.5
80	0.0867	0.3563	33,923	139,399	9.4	0.0651	0.2799	42,548	182,969	12.0
85+	0.1210	1.0000	21,836	180,514	8.3	0.0935	1.0000	30,639	327,604	10.7

HDSS = Health and Demographic Surveillance System.

The Abridged life table is constructed applying the Greville's method illustrated in "The Methods and Materials of Demography", edited by Jacob S. Siegel and David A. Swanson, Second edition; Elsevier Academic Press, 2004: 301-40.

$_nm_x$ = Central mortality rate
$_nq_x$ = Probability of dying between the ages x and x+n;
$_nq_x$ = $_nm_x/[(1/n) + {}_nm_x\{1/2+n/12(_nm_x-\log_e c)\}]$;
$\log_e c=.095$
l_x = Survivors to exact age x
$_nL_x$ = Numbers of years lived by the total of the cohort of 100,000 births in the interval;
$L_0=.20l_0 +.80l_1$, $L_{85+}=l_{85+}/m_{85+}$
e_x = Life expectancy at age x

Fig. 3. Probability of survival by age and sex, Chakaria HDSS, 2014



HDSS = Health and Demographic Surveillance System.

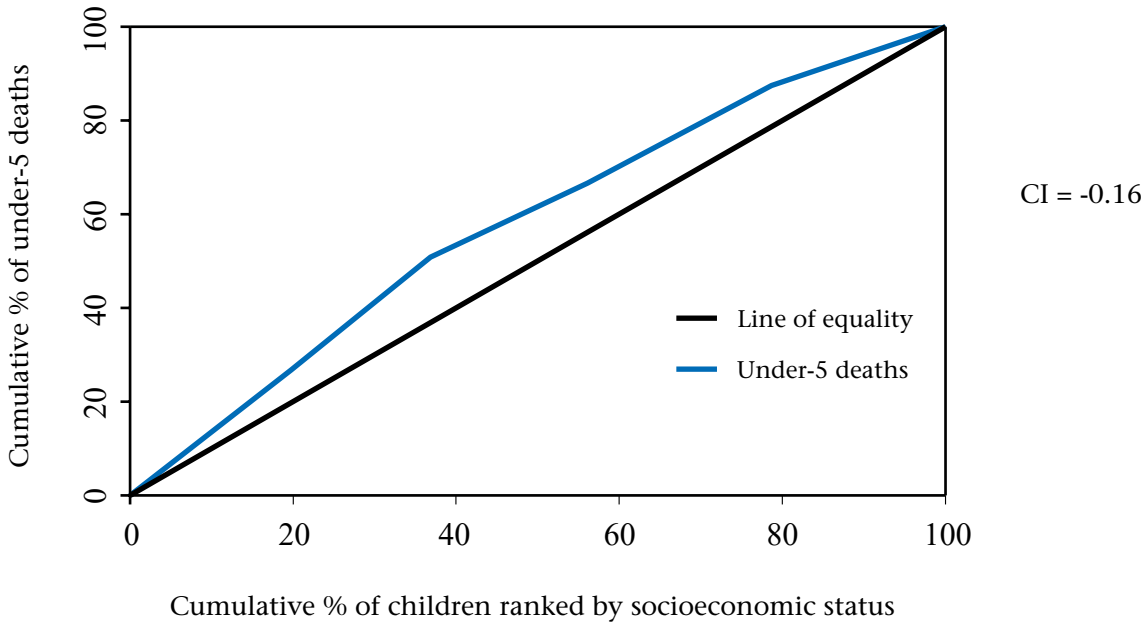
Table 3 presents under-5 mortality rate by household asset quintile. Under-5 mortality rate was inversely correlated with household asset scores. The mortality rate of children from the lowest quintile was 2 times greater than that of the highest quintile. The concentration curve for under-5 mortality is presented in Figure 4. The curve lies above the line of equality and the concentration index for the area came out to be negative. These indicate that under-5 deaths concentrated among the poorer segment of the population.

Table 3. Under-5 mortality rate per 1,000 live births by asset quintile, Chakaria HDSS, 2014

Asset quintile	No. of births	No. of under-5 deaths	Under-5 mortality rate
Lowest	413	32	77.5
Second	358	29	81.0
Middle	401	19	47.4
Fourth	472	25	53.0
Highest	446	15	33.6
All	2,090	120	57.4

HDSS = Health and Demographic Surveillance System.

Fig. 4. Concentration curve for under-5 mortality, Chakaria HDSS, 2014



CI = Concentration Index[2]; HDSS = Health and Demographic Surveillance System.

Causes of death

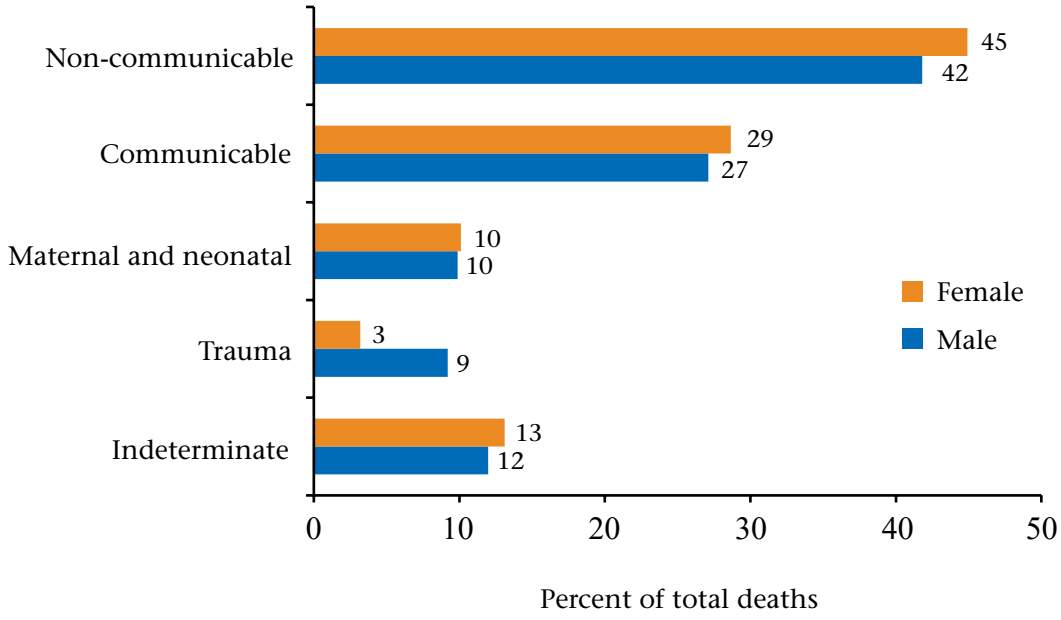
Verbal autopsy data on signs, symptoms and circumstances leading to death, and medical history of the deceased were collected during the quarterly household visits from an informed household member. A total of 432 deaths were registered in 2014. Data were analyzed using "InterVA-4.01" (4) to ascertain causes of death.

Broad pattern of cause of death

Non-communicable conditions (44%) were the leading cause of death for both men and women. This was followed by communicable diseases (28%), maternal and neonatal condition (10%), and trauma (6%). For both communicable and non-communicable diseases, proportion of deaths was higher for females than for males (Fig. 5). Communicable conditions were the leading cause of death in children and accounted for one-third of child deaths. Non-communicable diseases were the leading cause of death for adults and elderly people (Table 4).

[2] Concentration Index (CI) is a measure of the socioeconomic inequality of health based upon information on the socioeconomic ranks and the health levels of all individuals in the population. A positive value of CI indicates that health is distributed in favour of the rich, and a negative one that it is distributed in favour of the poor (5). A value of zero indicates no relation between health and socioeconomic status (6).

Fig. 5. Distribution of deaths by leading causes for males and females, Chakaria HDSS, 2014



HDSS = Health and Demographic Surveillance System.

Table 4. Distribution of causes of death, Chakaria HDSS, 2014

Cause group	Children (%)	Adults (%)	Elderly (%)
Communicable	32.2	27.6	25.2
Non-communicable	8.4	44.8	63.6
Maternal and neonatal	28.3	6.1	0.0
Trauma	12.6	15.2	0.9
Indeterminate	18.5	6.4	10.4
Total	100.0	100.0	100.0

HDSS = Health and Demographic Surveillance System.

Pulmonary tuberculosis, stroke, chronic obstructive pulmonary diseases, unspecified neoplasms, and acute respiratory infection (including pneumonia) are the leading five causes of death for all ages. Table 5 presents the distribution of cause of death for males and females.

Table 5. Distribution of causes of death among males and females, Chakaria HDSS, 2014

Causes	Male	Female	Both
01.01 Sepsis (non-obstetric)	0.3	0.0	0.2
01.02 Acute respiratory infection, including pneumonia	10.2	12.6	11.2
01.03 HIV/AIDS related death	3.9	3.1	3.5
01.04 Diarrhoeal diseases	0.4	0.9	0.6
01.05 Malaria	1.2	2.1	1.6
01.06 Measles	0.6	0.0	0.3
01.07 Meningitis and encephalitis	1.4	2.1	1.7
01.09 Pulmonary tuberculosis	8.6	7.4	8.1
01.10 Pertussis	0.4	0.5	0.5
01.11 Haemorrhagic fever	0.0	0.0	0.0
01.99 Other and unspecified infectious diseases	0.3	0.0	0.2
02.01 Oral neoplasms	0.4	0.0	0.2
02.02 Digestive neoplasms	4.5	4.0	4.2
02.03 Respiratory neoplasms	3.8	0.9	2.5
02.04 Breast neoplasms	0.0	1.0	0.4
02.05 & 02.06 Reproductive neoplasms M, F	1.0	2.7	1.7
02.99 Other and unspecified neoplasms	6.6	2.4	4.8
03.01 Severe anaemia	0.2	0.5	0.3
03.02 Severe malnutrition	0.5	1.7	1.0
03.03 Diabetes mellitus	3.3	1.6	2.5
04.01 Acute cardiac disease	0.7	1.3	0.9
04.02 Stroke	7.3	6.9	7.1
04.03 Sickle cell with crisis	0.4	0.0	0.2
04.99 Other and unspecified cardiac diseases	4.2	8.3	5.9
05.01 Chronic obstructive pulmonary disease	3.7	6.3	4.8
05.02 Asthma	0.2	1.0	0.5
06.01 Acute abdomen	0.8	3.0	1.7
06.02 Liver cirrhosis	1.2	1.3	1.2
07.01 Renal failure	0.8	1.7	1.2
08.01 Epilepsy	1.2	0.5	0.9
09.01 Ectopic pregnancy	0.0	0.3	0.1
09.03 Pregnancy-induced hypertension	0.0	0.0	0.0
09.04 Obstetric haemorrhage	0.0	0.3	0.1
09.05 Obstructed labour	0.0	0.0	0.0
09.06 Pregnancy-related sepsis	0.0	0.5	0.2

Table 5. (contd...)

Causes	Male	Female	Both
09.99 Other and unspecified maternal causes of death	0.0	0.7	0.3
10.01 Prematurity	3.3	3.1	3.2
10.02 Birth asphyxia	1.7	2.4	2.0
10.03 Neonatal pneumonia	2.0	0.0	1.2
10.04 Neonatal sepsis	0.6	1.0	0.8
10.06 Congenital malformation	0.0	0.0	0.0
10.99 Other and unspecified neonatal causes of death	2.2	1.7	2.0
12.01 Road traffic accident	3.0	0.5	1.9
12.02 Other transport accident	1.1	0.0	0.6
12.03 Accidental fall	0.0	0.0	0.0
12.04 Accidental drowning and submersion	3.3	1.6	2.5
12.05 Accidental exposure to smoke fire & flame	0.1	0.0	0.1
12.06 Contact with venomous plant/animal	0.0	0.0	0.0
12.07 Accidental poisoning & noxious substances	0.0	0.0	0.0
12.08 Intentional self-harm	0.0	1.1	0.5
12.09 Assault	1.2	0.0	0.7
12.99 Other and unspecified external causes of death	0.6	0.0	0.3
98 Other and unspecified non-communicable diseases	1.2	0.0	0.7
99 Indeterminate	12.0	13.1	12.5
All	100.0	100.0	100.0

HDSS = Health and Demographic Surveillance System.

CHAPTER 5

Fertility

The crude birth rate in 2014 was 25.5 per 1,000 population, which was higher than the rate in 2013 (24.9 per 1,000 population). Total birth rate remained almost same with slight rise from previous year (Table 20). The fertility rate was highest among women of age-group of 20-24 years (Table 6).

Table 6. Age-specific fertility rate per 1,000 women aged 15-49 years, Chakaria HDSS, 2014

Age (years)	No. of females	No. of births			Birth rate
		Male	Female	Both	
15-19	4,696	131	160	291	62.0
20-24	4,211	431	414	845	200.7
25-29	3,588	288	261	549	153.0
30-34	2,958	161	148	309	104.5
35-39	2,165	44	37	81	37.4
40-44	1,659	10	10	20	12.1
45-49	1,423	2	1	3	2.1
All	20,700	1,067	1,031	2,098	
TFR					2,858

TFR = Total fertility rate per 1,000 women; HDSS=Health and Demographic Surveillance System.

Table 7. Crude birth rate per 1,000 population by asset quintile, Chakaria HDSS, 2014

Asset quintile	Mid-year population	No. of births	Birth rate
Lowest	14,804	413	27.9
Second	15,364	380	24.7
Middle	16,294	390	23.9
Fourth	17,870	461	25.8
Highest	17,496	446	25.5
All	81,828	2,090	25.5

HDSS = Health and Demographic Surveillance System.

Table 7 presents the crude birth rate by household asset quintiles. The crude birth rate was highest in the lowest quintile.

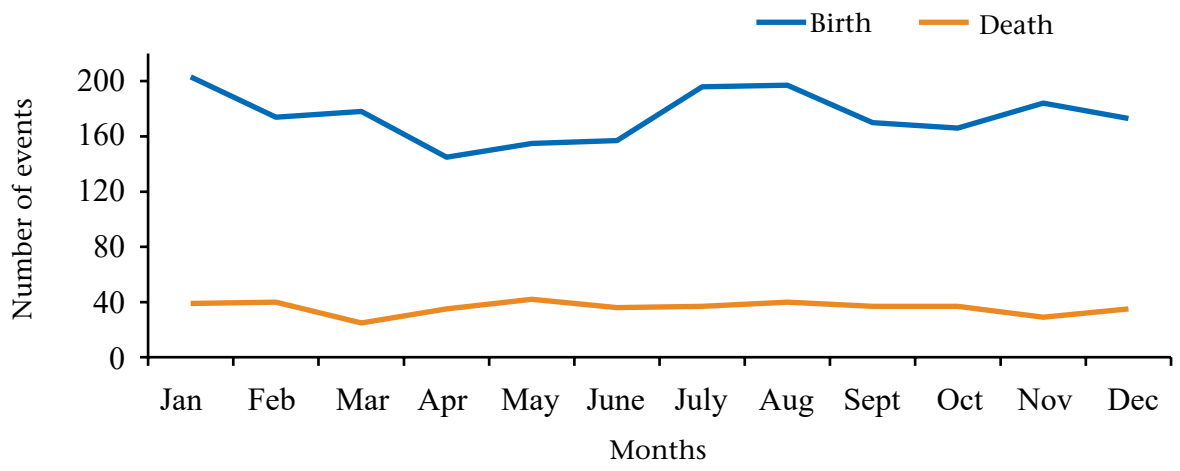
Of the pregnancies in 2014, 11.4% of 2,561 were terminated prematurely and spontaneously, 3.8% were terminated through induction, and 2.9% resulted in stillbirths (Table 8).

Table 8. Pregnancy outcome, Chakaria HDSS, 2014

Pregnancy outcome	No.	%
Spontaneous abortion	293	11.4
Induced abortion	97	3.8
Stillbirth	73	2.9
Live birth*	2,098	81.9
Total number of pregnancies	2,561	100.0

*Multiple live births included; HDSS = Health and Demographic Surveillance System.

Fig. 6. Number of births and deaths by month, Chakaria HDSS, 2014



HDSS = Health and Demographic Surveillance System.

Distribution of births and deaths by month are shown in Figure 6. There is no apparent seasonality in the death pattern but in case of birth some seasonality was observed where a rise in birth rate was observed during the time period January and July to August.

CHAPTER 6

Migration

In 2014, the rate of out-migration was higher at 35.9 per 1,000 population than that of in-migration at 32.6 per 1,000 population (Table 9). Monthly data on migration are presented in Table 10. Data showed that the number of in-migrants was lower than that of out-migrants during 2014. The sex differential in migration was prominent. The rate of in and out-migration of males and females were highest in January.

Table 9. Migration rate per 1,000 population by asset quintile, Chakaria HDSS, 2014

Asset quintile	Midyear population	In-migration rate	Out-migration rate
Lowest	14,804	35.9	39.9
Second	15,364	31.6	36.0
Middle	16,294	29.3	29.7
Fourth	17,870	30.4	32.5
Highest	17,496	36.2	41.7
All	81,828	32.6	35.9

HDSS = Health and Demographic Surveillance System.

Table 10. Number of migrants by sex and month, Chakaria HDSS, 2014

Month	In-migration			Out-migration		
	Male	Female	Both	Male	Female	Both
January	142	213	355	179	222	401
February	103	173	276	93	154	247
March	117	166	283	81	133	214
April	102	167	269	123	157	280
May	73	165	238	115	154	269
June	85	198	283	99	206	305
July	67	103	170	71	91	162
August	69	130	199	87	146	233
September	42	82	124	57	84	141
October	64	156	220	114	183	297
November	39	103	142	83	128	211
December	25	103	128	68	121	189
All	928	1,759	2,687	1,170	1,779	2,949

HDSS = Health and Demographic Surveillance System.

Origin and destination of migrants

During 2014, 4.8% of 2,687 in-migrants moved into Chakaria HDSS households from outside of Bangladesh whereas 8.5% of 2,949 out-migrants moved out of Bangladesh from Chakaria HDSS area. The proportion of migrants that moved out of Bangladesh was higher than the proportion of migrants that moved into Bangladesh. Overall, the rates of movement of people to and from Chakaria were similar (Table 11).

Table 11. Origin and destination of migrants by sex, Chakaria HDSS, 2014

Origin or destination	In-migration			Out-migration		
	Male (%)	Female (%)	Both (%)	Male (%)	Female (%)	Both (%)
Inside Bangladesh	86.3	99.9	95.2	81.4	98.2	91.5
Outside Bangladesh	13.7	0.1	4.8	18.6	1.8	8.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total number of migrants	928	1,759	2,687	1,170	1,779	2,949
Cox's Bazar District						
Inside Chakaria	78.8	80.2	79.8	86.3	84.6	85.2
Outside Chakaria	21.2	19.8	20.2	13.7	15.4	14.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total no. of migrants	581	1,415	1,996	840	1,581	2,421
Chakaria Upazila						
Inside HDSS area	77.3	74.6	75.4	65.0	67.6	66.7
Outside HDSS area	22.7	25.4	24.6	35.0	32.4	33.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total no. of migrants	458	1,135	1,593	566	1,066	1,632

HDSS = Health and Demographic Surveillance System.

Reasons for migration

Table 12 presents the reasons of migration by sex. 45.9% of the migrants moved out due to family-related issues - mostly marriage, followed by work (26.5%), housing (22.2%), and education (3.3%). Reasons for moving out for males were different from those of females. 44.8% of male in-migrants moved due to work related issues whereas only 13.0% of the females moved due to that reason. On the other hand, 69.5% of female in-migrants moved due to family related issues - mostly marriage, while 26.5% of males moved due to family related reasons (Table 12). The reasons of movement for out-migration were mostly similar to the reasons for in-migration.

Table 12. Reasons for migration, Chakaria HDSS, 2014

Reasons for migration	In-migration			Out-migration		
	Male (%)	Female (%)	Both (%)	Male (%)	Female (%)	Both (%)
Family-related	26.5	69.5	54.7	22.8	61.1	45.9
Work-related	44.8	13.0	24.0	43.8	15.1	26.5
Housing-related	20.2	12.1	14.9	28.0	18.3	22.2
Education	7.5	4.3	5.4	3.9	3.0	3.3
Other	1.0	1.2	1.1	1.5	2.5	2.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total no. of migrants	928	1,759	2,687	1,170	1,779	2,949

HDSS = Health and Demographic Surveillance System.

CHAPTER 7

Marriage

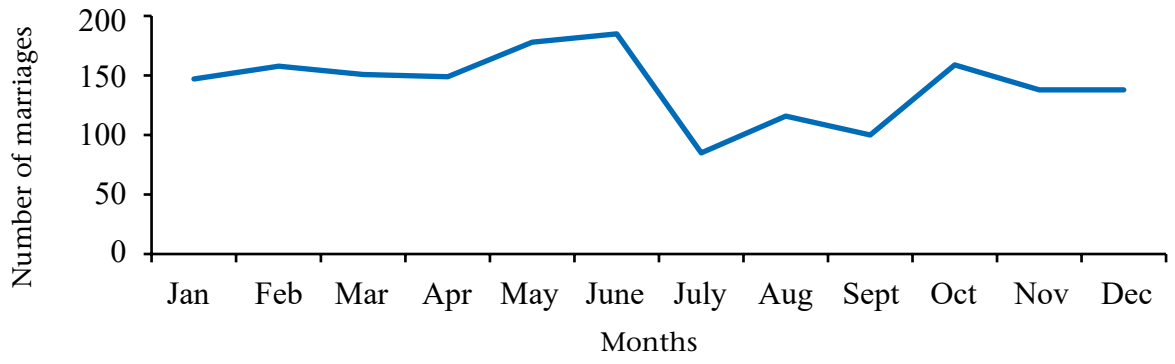
In total 1,704 marriages took place in the surveillance villages in Chakaria during 2014 and the crude marriage rate was 20.7 per 1,000 population, with greater rate among the females than to the males. Among the males, highest marriage rate was found in the age group of 20-24 years and for females in the age group of 15-19 years. The crude divorce rate was 1.2 per 1,000 population in 2014 and the rate was nearly similar among males and females (Table 13). The highest number of marriages took place in June and the lowest in July (Fig.7).

Table 13. Crude rate of marriage and divorce by age and sex, Chakaria HDSS, 2014

Age (years)	Marriage			Divorce		
	Male	Female	Both	Male	Female	Both
10-14	0.2	8.0	4.0	0.0	0.2	0.1
15-19	20.9	109.9	64.5	0.4	1.9	1.1
20-24	63.7	78.1	71.4	1.9	4.5	3.3
25-29	57.6	25.4	40.5	3.8	4.7	4.3
30-34	44.4	6.1	24.2	3.4	3.0	3.2
35-39	17.2	2.8	10.2	1.3	0.5	0.9
40-44	5.0	0.6	2.9	0.0	0.6	0.3
45-49	5.4	0.7	3.1	1.4	0.0	0.7
50-54	2.5	0.0	1.2	0.0	0.0	0.0
55-59	1.0	0.0	0.5	3.0	0.0	1.4
60-64	1.1	0.0	0.6	0.0	0.0	0.0
65+	0.0	0.0	0.0	0.6	0.0	0.3
All	16.9	24.6	20.7	0.9	1.4	1.2

HDSS = Health and Demographic Surveillance System.

Fig. 7. Number of marriages by month, Chakaria HDSS, 2014



HDSS = Health and Demographic Surveillance System.

Table 14 presents singulate mean age at marriage (SMAM) and median age at first marriage. The SMAM was 26.6 years for males and 20.6 years for females. The SMAM remained nearly same for both males and females between 2013 and 2014. The median age at first marriage for males and females were 26.5 and 20.2 years. Both the indicators for males and females were almost positively associated with household socioeconomic status (Table 14).

Table 14. Age at marriage by sex and asset quintile, Chakaria HDSS, 2014

Asset quintile	Male		Female	
	SMAM*	Median age at first marriage*	SMAM*	Median age at first marriage*
Lowest	23.7	23.6	19.9	19.8
Second	24.7	24.4	19.9	19.8
Middle	26.0	25.9	20.2	19.9
Fourth	27.6	27.2	20.9	20.3
Highest	29.4	29.6	21.2	20.4
All	26.6	26.5	20.6	20.2

HDSS = Health and Demographic Surveillance System.
SMAM = Singulate mean age at marriage
* The SMAM and median age at first marriage are calculated by applying indirect methods illustrated in "The Methods and Materials of Demography", edited by Jacob S. Siegel and David A. Swanson, Second edition; Elsevier Academic Press, 2004: 196-202.

CHAPTER 8

Safe Motherhood Practices

The health-related activities of ICDDR,B in Chakaria included facilitation of provision of safe motherhood services (e.g. antenatal care, postnatal care, and delivery services) by the trained midwives who has been providing service from village health posts (VHP), established and managed by the villagers since the late nineties. Apart from this, the physicians and the paramedics employed by ICDDR,B also provide healthcare services to the villagers from these VHPs. Government trained Skilled Birth Attendants (SBAs) are providing safe motherhood services at Family Welfare Centres (FWC), community clinics and at domiciliary level.

At present, the Upazila Health Complex of the government and four private hospitals provide healthcare services at the headquarters of Chakaria. At the union level, 11 Union Health and Family Welfare Centres (UHFWCs) of the government, and 5 village health posts which were initiated by the community members provide healthcare services. The Family Development Services and Research (FDSR), an NGO also provides healthcare services in Chakaria surveillance area.

Use of antenatal care services

Table 15. Antenatal care by sources and asset quintile, Chakaria HDSS, 2014

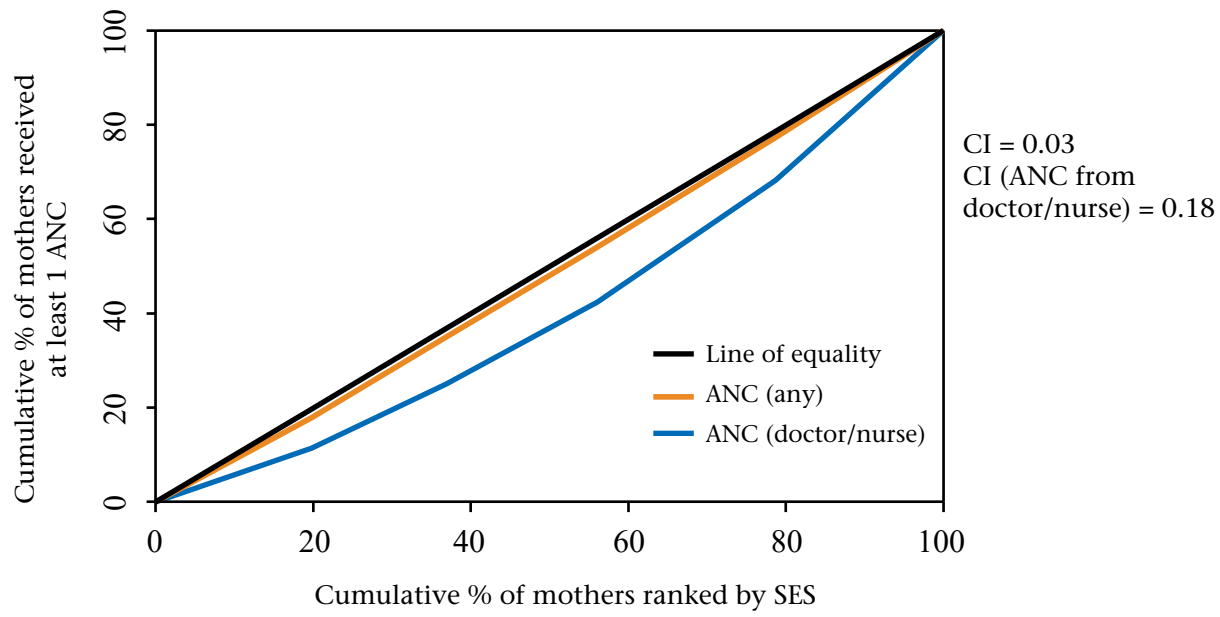
Asset quintile	Received any ANC (%)	Midwife* (%)	FWV* (%)	Nurse/ doctor* (%)	FDSR/ CMH* (%)	None (%)	No. of women
Lowest	67.3	18.9	23.5	25.7	20.3	32.7	413
Second	73.7	18.4	19.3	35.5	19.0	26.3	358
Middle	73.8	16.5	17.0	40.4	19.2	26.2	401
Fourth	76.3	10.6	13.1	50.8	14.6	23.7	472
Highest	78.7	7.0	6.1	66.1	8.5	21.3	446
Total	74.1	13.9	15.5	44.5	16.1	25.9	2,090

*Multiple responses recorded
ANC = Antenatal care
FWV = Family welfare visitor
FDSR = Family Development Services and Research
CMH = Christian Memorial Hospital
HDSS = Health and Demographic Surveillance System.

Among 2,090 pregnant women who gave live births, 74.1% received at least one antenatal check-up (ANC). These women received services from various sources.

Among these sources, the nurses/doctors were dominant, followed by FDSR/CMH and FWV and the midwives (Table 15). Use of at least one ANC during pregnancy was almost equitable during 2014 in Chakaria. Sixty seven percent of the pregnant women from the lowest socioeconomic quintile used at least one ANC during pregnancy as oppose to seventy nine percent of the women in the highest socioeconomic quintile (Table 15). The concentration curve and the concentration index of at least one ANC use also depicts similar picture where the curve lies below the line of equality indicating a comparatively higher rate among the highest socioeconomic quintile. However, the index of 0.03 indicates the level of disparity to be very low (Fig. 8). On the contrary, use of ANC service from doctors or nurses indicated a higher level of inequity where the rate was sixty six percent for women in highest socioeconomic quintile and only twenty six percent for women in the lowest socioeconomic quintile (Table 15). This is visible in Figure 8 where the concentration curve for ANC use from doctors or nurses lies further away from the line of equality. Thus the ANC service was more unequal for doctor/nurse.

Fig. 8. Concentration curve for receiving at least one ANC, Chakaria HDSS, 2014



CI = Concentration Index; HDSS = Health and Demographic Surveillance System.

Use of postnatal care services

It was observed that only 42.2% of the pregnant women received at least one postnatal care (PNC) in 2014. The nurses, doctors and midwives were the dominant sources for PNC. The utilization of services was characterized by large inequities and the services concentrated among the richest segment of the society (Table 16).

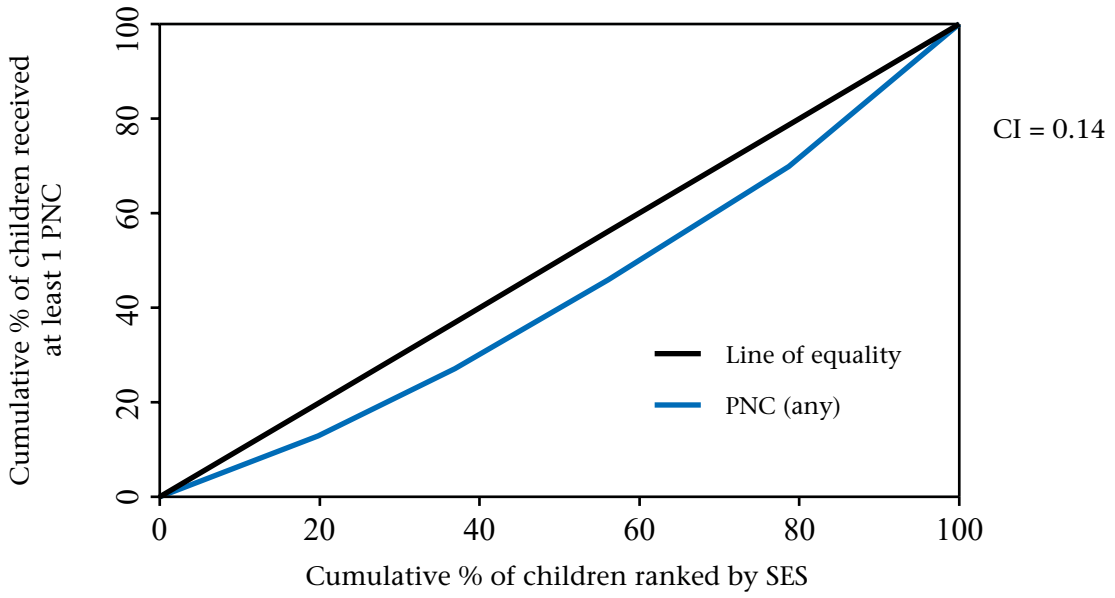
Figure 9 also shows the current inequality of the use of PNC services among different socioeconomic group. The concentration index (0.14) supported that the rich people were more intended to receive the service compared to the poor.

Table 16. Postnatal care by sources and asset quintile, Chakaria HDSS, 2014

Asset quintile	Received any PNC (%)	Midwife* (%)	FWV* (%)	Nurse/ doctor* (%)	FDSR/ CMH* (%)	None (%)	No. of women
Lowest	27.4	3.1	3.1	20.6	1.0	72.6	413
Second	35.2	7.3	3.4	25.4	0.8	64.8	358
Middle	41.1	9.0	4.2	28.7	1.2	58.9	401
Fourth	44.9	7.2	4.7	34.7	1.1	55.1	472
Highest	59.4	7.6	1.6	51.3	1.3	40.6	446
Total	42.2	6.8	3.4	32.7	1.1	57.8	2,090

*Multiple responses recorded
PNC = Postnatal care
FWV = Family welfare visitor
FDSR = Family Development Services and Research
CMH = Christian Memorial Hospital
HDSS = Health and Demographic Surveillance System.

Fig. 9. Concentration curve for receiving at least one PNC, Chakaria HDSS, 2014



CI = Concentration Index; HDSS = Health and Demographic Surveillance System.

Assistance during delivery

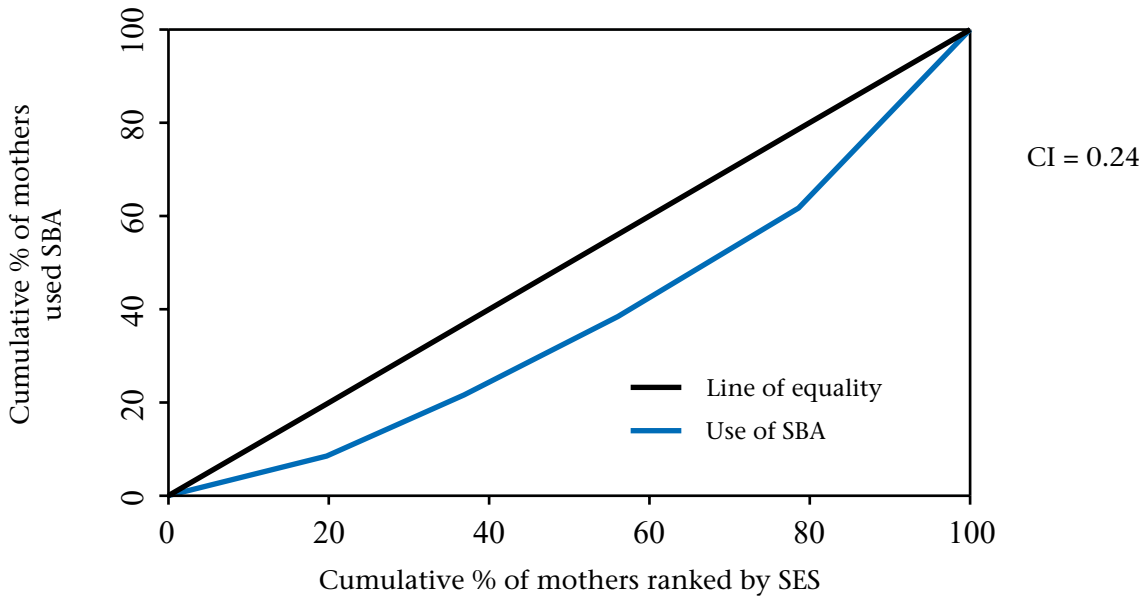
Table 17. Assistance during delivery by asset quintile, Chakaria HDSS, 2014

Asset quintile	Midwife (%)	FWV (%)	Nurse/ doctor (%)	TBA (%)	No. of women
Lowest	3.9	1.2	8.5	86.4	412
Second	8.4	2.0	13.7	76.0	358
Middle	10.5	2.2	14.7	72.6	401
Fourth	9.3	3.6	19.5	67.6	472
Highest	10.3	3.1	42.8	43.7	446
Total	8.5	2.5	20.4	68.6	2,089

FWV = Family Welfare Visitor
HDSS = Health and Demographic Surveillance System.

In Chakaria, the traditional birth attendants (TBAs) were used more than the skilled birth attendants (SBAs) (e.g. nurses/doctors, FWVs, midwives) for assisting deliveries. Sixty nine percent of 2,089 deliveries in Chakaria were assisted by the TBAs as opposed to thirty one percent of the deliveries assisted by the SBAs. The use rate of nurses/ doctors by the women from the highest quintile was much higher than those by women from the lowest quintiles (Table 17). Overall, the services of SBAs were more concentrated towards the richer segment of the population as the concentration curve lies below the line of equality.

Fig. 10. Concentration curve for use of SBA services, Chakaria HDSS, 2014



CI = Concentration Index; HDSS = Health and Demographic Surveillance System.

Place of delivery

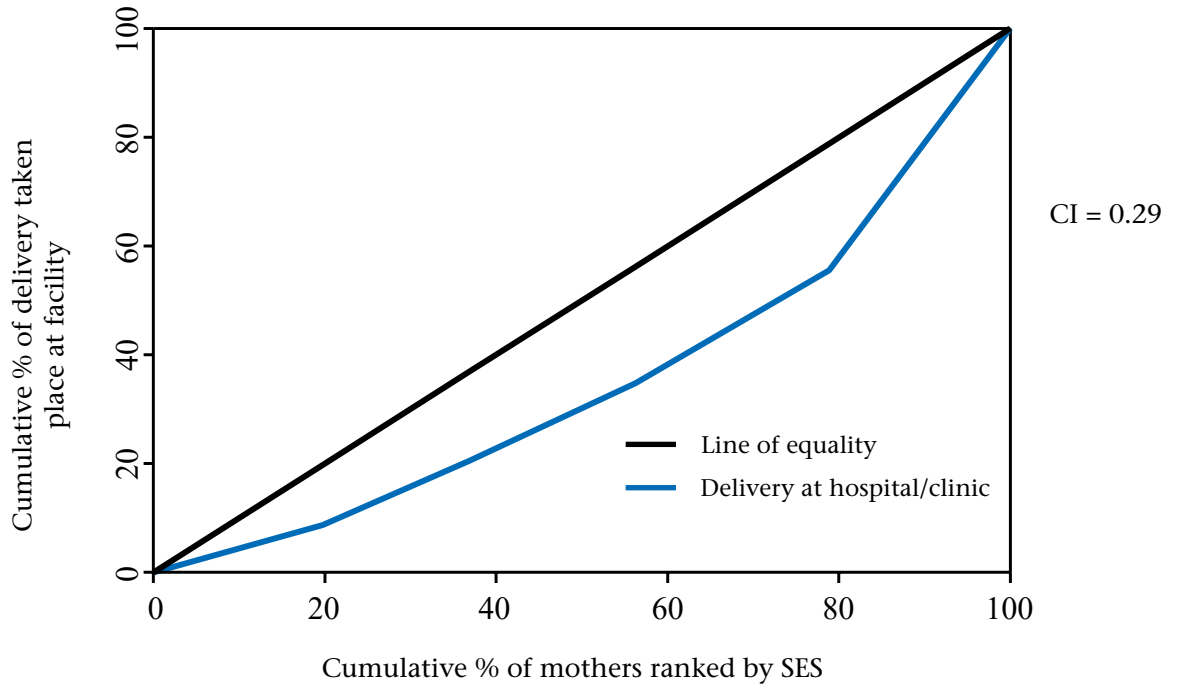
Eighty percent of the deliveries took place at home. Only 20.5% of 2,089 deliveries took place either at hospitals or at clinics (Table 18). The women from the households in the highest asset quintile had a much higher rate of facility based delivery than those from the lowest quintile (Table 18 and Fig. 11).

Table 18. Place of delivery by asset quintile, Chakaria HDSS, 2014

Asset quintile	Hospital/Clinic (%)	Home (%)	No. of women
Lowest	9.0	91.0	412
Second	14.2	85.8	358
Middle	15.2	84.8	401
Fourth	18.9	81.1	472
Highest	42.8	57.2	446
Total	20.5	79.5	2,089

HDSS = Health and Demographic Surveillance System.

Fig. 11. Concentration curve for facility-based delivery, Chakaria HDSS, 2014



CI = Concentration Index; HDSS = Health and Demographic Surveillance System.

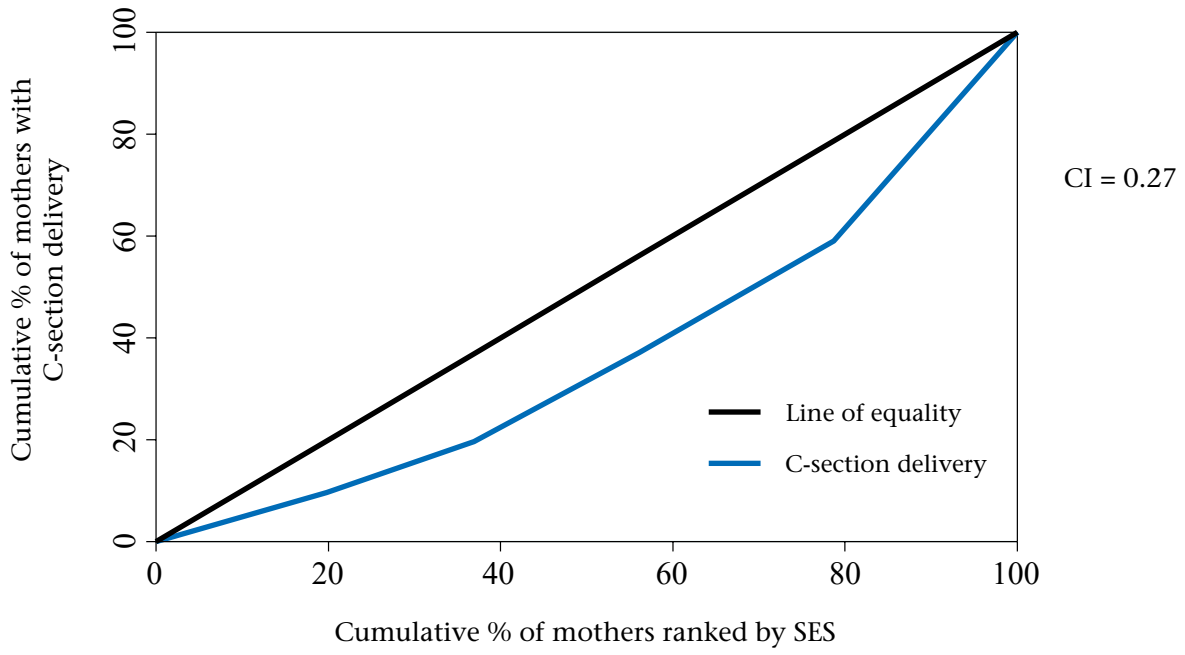
Table 19 shows caesarean-section delivery by household asset quintile in 2014. Caesarean-section delivery accounted for 8.5% of the total deliveries in the Chakaria HDSS area in 2014. Although the number of deliveries through caesarean sections was small, the number of women giving birth by caesarean sections exhibited discrepancies between highest and lowest quintile (Table 19 and Fig. 12).

Table 19. Proportion of caesarean-section delivery by asset quintile, Chakaria HDSS, 2014

Asset quintile	No. of caesarean-section delivery	Caesarean-section delivery (%)	Total no. of deliveries
Lowest	17	4.1	413
Second	18	5.0	358
Middle	31	7.7	401
Fourth	39	8.3	472
Highest	73	16.4	446
Total	178	8.5	2,090

HDSS = Health and Demographic Surveillance System.

Fig. 12. Concentration curve for caesarean-section delivery, Chakaria HDSS, 2014



CI = Concentration Index; HDSS = Health and Demographic Surveillance System.

CHAPTER 9

SDG and other Health and Socio-demographic Indicators

The major demographic and health indicators during 2010-14 are presented in Table 20. A declining trend in the fertility indicators and natural rate of population increase was observed during 2010-14. Most of the rates in Chakaria HDSS area are much higher than those in the Matlab government service area, another rural field site of ICDDR,B (7). In 2014, the rate of natural increase and the annual population growth rate in the surveillance area of Chakaria was 2.0 % and 1.7% respectively (Table 20).

Twenty one percent of births in Chakaria were delivered at facilities (hospital or clinic) in 2014. The percentage of births at facilities in 2014 has increased compared to 2013. About one-third of the births were attended by Skilled Birth Attendants (SBAs) in Chakaria and there has been a small increase in deliveries by SBAs from 29.7% in 2013 to 31.4% in 2014 (Table 20).

The legal age of marriage is 18 years for female and 21 years for male in Bangladesh. In 2014, 35.0% of the women married before reaching their 18th birthday. The percentage of underage female marriage decreased in 2014 compared to 2013. Twenty four percent of the males were married before the age of 21 years in 2014. The proportion of male marriages before 21 years has stayed nearly same between 2013 and 2014. The percentage of underage marriage for females remained higher than males during 2010 to 2014.

Total fertility rate and death rates in Chakaria during 2014 were higher than those of the national figures of Bangladesh. Facility-based deliveries, receiving service from Skilled Birth Attendants (SBAs) and antenatal care (at least one visit) coverage were lower, and postnatal care coverage was comparatively higher than the national rates. Immunization rate was lower than the national rate.

Among the boys, 78% of those enrolled completed the last grade of primary level education and 72% completed last grade of secondary level education. The rates were, however, lower for girls and were higher for boys than the national level. Literacy rate of 15-24 year olds was significantly higher than the national rate in Bangladesh. Compared to the national level, a higher percentage of active age group population was engaged in economic activities in Chakaria.

Table 20. SDG and other health and socio-demographic indicators, Chakaria HDSS, 2010 – 2014

Rate	Chakaria HDSS area					Matlab HDSS Govt. area 2013	National	
	2010	2011	2012	2013	2014			
Crude birth rate	22.7	27.7	25.4	24.9	25.5	20.2	-	-
Total fertility rate[a]	2.7	3.3	2.9	2.8	2.9	2.5	SDG	2.3[d]
Neonatal mortality[b]	32.1	38.1	28.0	40.6	31.5	21.2	SDG	28.0[d]
Post-neonatal mortality[b]	17.5	14.5	13.7	5.9	15.3	5.4	-	-
Infant mortality rate[b]	49.6	52.6	41.7	46.5	45.3	26.6	SDG	38.0[d]
Child mortality rate (1-4 yrs)	4.5	3.4	3.7	5.0	2.8	3.1	-	-
Under-5 mortality rate[b]	67.1	62.6	56.8	65.6	57.4	38.3	SDG	46.0[d]
Crude death rate	6.0	5.7	5.6	5.4	5.3	6.7	-	-
Rate of natural increase	16.8	22.0	19.8	19.4	20.3	13.5	-	-
In-migration rate	28.7	36.8	33.9	37.4	32.7	45.0	-	-
Out-migration rate	42.2	39.7	35.2	44.0	35.9	47.3	-	-
Growth rate (%)	0.3	1.9	1.9	1.3	1.7	1.2	-	-
Adolescent birth rate	86.8	73.1	61.8	56.2	62.0	60.1	SDG	79.4[e]
Stillbirth rate[c]	35.6	31.6	24.9	24.4	33.6	22.6	SDG	36.0[f]
Facility-based delivery (%)	14.1	14.0	16.1	16.7	20.5	42.9	-	-
Received assistance from SBA during delivery (%)	28.1	25.7	29.2	29.7	31.4	46.0	SDG	42.1[d]
Antenatal care coverage (at least 1 visit) (%)	62.2	67.9	68.1	66.6	74.1	-	SDG	78.6[d]
Antenatal care coverage (at least 4 visits) (%)	-	-	-	-	37.5	-	SDG	31.2[d]
Postnatal care coverage (1 visit) (%)	31.5	34.9	35.9	36.2	42.2	-	SDG	38.0[d]
Male marriage at ages under 21 years (%)	25.0	22.8	23.4	23.3	23.9	7.2	-	-
Female marriage at ages under 18 years (%)	36.4	33.6	37.1	37.2	35.0	34.1	-	-
Female aged 20-24 who were married or in a union by age 18 (%)	-	-	-	-	40.8	-	SDG	65.0[g]

Table 20. (contd...)

Rate	Chakaria HDSS area					Matlab HDSS Govt. area 2013		National
	2010	2011	2012	2013	2014			
Children receiving full immunization (%)	-	85.1	-	-	79.0	81.7	SDG	83.8[d]
1-year old children immunized against measles (%)	-	85.9	-	-	81.7	81.8	SDG	86.1[d]
Current use of any tobacco product (%)	-	-	-	-	36.9	-	SDG	43.3[h]
Primary education completion rate for girls (%)	-	-	-	-	75.3	-	SDG	79.8[i]
Primary education completion rate for boys (%)	-	-	-	-	77.7	-	SDG	69.5[i]
Secondary education completion rate for girls (%)	-	-	-	-	58.1	-	SDG	64.9[i]
Secondary education completion rate for boys (%)	-	-	-	-	72.0	-	SDG	52.2[i]
Tertiary enrollment rate for women (%)	-	-	-	-	3.8	-	SDG	11.0[i]
Tertiary enrollment rate for men (%)	-	-	-	-	6.4	-	SDG	15.4[i]
Literacy rate of 15-24 year-old women (%)	-	-	-	-	93.6	-	SDG	83.3[i]
Literacy rate of 15-24 year-old men (%)	-	-	-	-	85.9	-	SDG	78.9[i]
Employment to population ratio (EPR) for women (15+ years of age) (%)	-	-	-	-	20.7	-	SDG	33.9[i]
Employment to population ratio (EPR) for men (15+ years of age) (%)	-	-	-	-	83.9	-	SDG	79.2[i]
Women without incomes of their own (%)	-	-	-	-	6.7	-	SDG	7.4[i]

[a]Per woman; [b]Per 1,000 live births; [c]Per 1,000 total births;

Sources:

[d] National Institute of Population Research and Training (NIPORT), Mitra and Associates, and ICF International. 2015. *Bangladesh Demographic and Health Survey 2014: Key Indicators*. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT, Mitra and Associates, and ICF International;

[e] Bangladesh: Adolescent Fertility Rate. United Nations Population Division, World Population Prospects. 2013;

[f] Cousens, S., H. Blencowe, C. Stanton, and others. National, regional, and worldwide estimates of stillbirth rates in 2009 with trends since 1995: a systematic analysis." *Lancet*. 2011:377(9774):1319–1330;

[g] National Institute of Population Research and Training (NIPORT), Mitra and Associates, and ICF International. 2013. *Bangladesh Demographic and Health Survey 2011*. Dhaka, Bangladesh and Calverton, Maryland, USA: NIPORT, Mitra and Associates, and ICF International;

[h] World Health Organization, Country Office for Bangladesh. Global adult tobacco survey: Bangladesh report 2009;

[i] The World Bank. Available at: http://data.worldbank.org;

'-'Data not available; SDG = Sustainable development goals; HDSS = Health and Demographic Surveillance System.

CHAPTER 10

Hospitalization

Age-specific annual hospitalization rate in Chakaria by sex in 2014 are presented in Table 21. The calculation was based on data collected from 14,785 households in Chakaria HDSS area (households that were available in the area during the data collection period of August, 2014 to November, 2014). The annual hospitalization rate was 3.8%. The rate was higher for females (4.2%) than for males (3.3%). Diarrhoea, pneumonia, accidents, and abdominal pain were the leading five causes of hospitalization for males. In case of females, delivery related complications, diarrhoea, pneumonia, abdominal pain, and accident and injury were the leading five causes of hospitalization. The hospitalization rate was highest for under-5 children (9%) and lowest in age-group 5-14 years (1.2%) (Table 21). The annual hospitalization rate was positively associated with household socioeconomic status in case of females, and no socioeconomic variation was found in case of males (Table 22).

Table 21. Hospitalization rate by age and sex, Chakaria HDSS, 2014

Age (years)	Person-years			No. of individuals hospitalized			Rate of hospitalization per 1,000 person-years		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
<1	459	424	883	134	80	214	292.1	188.6	242.4
1-4	1,786	1,702	3,488	111	71	182	62.2	41.7	52.2
5-9	2,480	2,424	4,904	41	26	67	16.5	10.7	13.7
10-14	2,607	2,534	5,141	31	26	57	11.9	10.3	11.1
15-19	2,244	2,576	4,820	51	60	111	22.7	23.3	23.0
20-24	1,892	2,432	4,324	26	125	151	13.7	51.4	34.9
25-29	1,592	1,891	3,483	20	107	127	12.6	56.6	36.5
30-34	1,314	1,367	2,680	19	80	99	14.5	58.5	36.9
35-39	1,086	975	2,062	31	53	84	28.5	54.4	40.7
40-44	848	736	1,584	36	45	81	42.5	61.1	51.2
45-49	678	616	1,293	26	39	65	38.4	63.4	50.3
50-54	552	543	1,095	19	31	50	34.4	57.0	45.7
55-59	454	469	923	18	21	39	39.6	44.8	42.2
60-64	405	327	732	25	29	54	61.7	88.7	73.7
65-69	270	216	486	18	16	34	66.7	74.1	70.0
70-74	239	212	451	11	17	28	46.0	80.2	62.1
75-79	133	107	240	13	6	19	97.8	56.1	79.2
80-84	105	99	204	5	3	8	47.6	30.3	39.2
85+	100	106	206	5	2	7	50.1	18.8	34.0
All	19,242	19,756	38,998	640	837	1477	33.3	42.4	37.9

HDSS = Health and Demographic Surveillance System.

Table 22. Annual hospitalization rate by asset quintile and sex, Chakaria HDSS, 2014

Asset quintile	Person-years			No. of individuals hospitalized			Rate of hospitalization per 1,000 person-years		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Lowest	3,253	3,460	6,713	107	127	234	32.9	36.7	34.9
Second	3,480	3,669	7,149	106	117	223	30.5	31.9	31.2
Middle	3,795	3,886	7,681	140	159	299	36.9	40.9	38.9
Fourth	4,305	4,272	8,577	142	208	350	33.0	48.7	40.8
Highest	4,320	4,401	8,720	146	227	373	33.8	51.6	42.8
All	19,153	19,687	38,840	641	838	1,479	33.5	42.6	38.1

HDSS = Health and Demographic Surveillance System.

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APPENDIX A

Midyear population by age and sex, Chakaria HDSS, 2014

Age (years)	Midyear population			Percentage distribution of midyear population		
	Male	Female	Both	Male	Female	Both
<1	1,046	950	1,996	2.5	2.3	2.4
1-4	4,011	3,767	7,778	9.7	9.2	9.5
5-9	5,714	5,512	11,226	13.9	13.5	13.7
10-14	5,791	5,495	11,286	14.1	13.4	13.7
15-19	4,882	4,696	9,578	11.8	11.5	11.7
20-24	3,671	4,211	7,882	8.9	10.3	9.6
25-29	3,160	3,588	6,748	7.7	8.8	8.2
30-34	2,655	2,958	5,613	6.4	7.2	6.8
35-39	2,261	2,165	4,426	5.5	5.3	5.4
40-44	1,812	1,659	3,471	4.4	4.1	4.2
45-49	1,471	1,423	2,894	3.6	3.5	3.5
50-54	1,209	1,260	2,469	2.9	3.1	3.0
55-59	1,013	1,088	2,101	2.5	2.7	2.6
60-64	886	766	1,652	2.2	1.9	2.0
65-69	587	475	1,062	1.4	1.2	1.3
70-74	490	422	912	1.2	1.0	1.1
75-79	253	208	461	0.6	0.5	0.6
80-84	173	169	342	0.4	0.4	0.4
85+	124	139	263	0.3	0.3	0.3
All	41,209	40,951	82,160	100.0	100.0	100.0

APPENDIX B

Cause-specific mortality rate per 1,000 population by age and sex, Chakaria HDSS, 2014

Causes	Age groups (years)						
	Neonate	Infant	1-4	5-14	15-49	50-64	65+
Male							
01.01 Sepsis (non-obstetric)	0.0	0.0	0.0	0.0	0.0	0.0	0.4
01.02 Acute respiratory infection including pneumonia	0.0	4.9	0.9	0.0	0.1	1.0	7.4
01.03 HIV/AIDS related death	0.0	1.0	0.5	0.2	0.1	0.6	0.7
01.04 Diarrhoeal diseases	0.0	0.0	0.2	0.0	0.0	0.0	0.0
01.05 Malaria	0.0	0.5	0.3	0.0	0.0	0.0	0.6
01.06 Measles	0.0	1.4	0.0	0.0	0.0	0.0	0.0
01.07 Meningitis and encephalitis	22.5	1.6	0.0	0.0	0.0	0.0	0.0
01.09 Pulmonary tuberculosis	0.0	0.0	0.0	0.0	0.2	1.0	9.2
01.10 Pertussis	0.0	1.0	0.0	0.0	0.0	0.0	0.0
01.11 Haemorrhagic fever	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01.99 Other and unspecified infectious diseases	0.0	0.0	0.0	0.0	0.0	0.0	0.5
02.01 Oral neoplasms	0.0	0.0	0.0	0.0	0.0	0.0	0.6
02.02 Digestive neoplasms	0.0	0.0	0.0	0.0	0.1	2.4	1.0
02.03 Respiratory neoplasms	0.0	0.0	0.0	0.0	0.0	0.9	4.0
02.04 Breast neoplasms	0.0	0.0	0.0	0.0	0.0	0.0	0.0
02.05 & 02.06 Reproductive neoplasms M, F	0.0	0.0	0.0	0.0	0.0	0.0	1.1
02.99 Other and unspecified neoplasms	0.0	0.0	0.2	0.1	0.1	1.0	5.7
03.01 Severe anaemia	0.0	0.0	0.0	0.0	0.0	0.0	0.0
03.02 Severe malnutrition	0.0	0.0	0.0	0.0	0.1	0.0	0.0
03.03 Diabetes mellitus	0.0	0.0	0.0	0.0	0.0	0.9	2.7
04.01 Acute cardiac disease	0.0	0.0	0.0	0.0	0.0	0.2	0.4
04.02 Stroke	0.0	0.0	0.0	0.0	0.1	2.1	5.3
04.03 Sickle cell with crisis	0.0	0.0	0.0	0.1	0.0	0.0	0.0
04.99 Other and unspecified cardiac diseases	0.0	0.0	0.0	0.0	0.1	0.9	3.3
05.01 Chronic obstructive pulmonary diseases	0.0	0.0	0.0	0.0	0.0	0.6	4.4
05.02 Asthma	0.0	0.0	0.0	0.0	0.0	0.0	0.3
06.01 Acute abdomen	0.0	0.0	0.0	0.0	0.0	0.3	0.6
06.02 Liver cirrhosis	0.0	0.0	0.0	0.0	0.0	0.9	0.0

Appendix B. (contd...)

Causes	Age groups (years)						
	Neonate	Infant	1-4	5-14	15-49	50-64	65+
07.01 Renal failure	0.0	0.0	0.0	0.0	0.0	0.0	1.2
08.01 Epilepsy	0.0	1.0	0.2	0.0	0.1	0.0	0.0
09.01 Ectopic pregnancy	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.03 Pregnancy-induced hypertension	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.04 Obstetric haemorrhage	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.05 Obstructed labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.06 Pregnancy-related sepsis	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.99 Other and unspecified maternal causes of death	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.01 Prematurity	105.5	0.0	0.0	0.0	0.0	0.0	0.0
10.02 Birth asphyxia	55.5	0.0	0.0	0.0	0.0	0.0	0.0
10.03 Neonatal pneumonia	64.5	0.0	0.0	0.0	0.0	0.0	0.0
10.04 Neonatal sepsis	17.9	0.0	0.0	0.0	0.0	0.0	0.0
10.06 Congenital malformation	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.99 Other and unspecified neonatal causes of death	70.9	0.0	0.0	0.0	0.0	0.0	0.0
12.01 Road traffic accident	0.0	0.0	0.0	0.2	0.1	0.2	0.6
12.02 Other transport accident	0.0	0.5	0.0	0.1	0.0	0.0	0.0
12.03 Accidental fall	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.04 Accidental drowning and submersion	0.0	0.0	1.0	0.3	0.0	0.0	0.0
12.05 Accidental exposure to smoke fire & flame	0.0	0.0	0.0	0.0	0.0	0.0	0.2
12.06 Contact with venomous plant/animal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.07 Accidental poisoning & noxious substances	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.08 Intentional self-harm	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.09 Assault	0.0	0.5	0.0	0.0	0.1	0.0	0.0
12.99 Other and unspecified external causes of death	0.0	0.0	0.2	0.0	0.0	0.0	0.0
98 Other and unspecified non-communicable diseases	0.0	0.0	0.0	0.0	0.0	0.3	1.2
99 Indeterminate	169.7	1.0	0.0	0.0	0.1	1.4	5.2
All causes	506.5	13.4	3.7	1.0	1.5	14.8	56.5

Appendix B. (contd...)

Causes	Age groups (years)						
	Neonate	Infant	1-4	5-14	15-49	50-64	65+
Female							
01.01 Sepsis (non-obstetric)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01.02 Acute respiratory infection including pneumonia	0.0	13.5	0.3	0.0	0.1	1.3	3.1
01.03 HIV/AIDS related death	0.0	1.1	0.0	0.1	0.1	0.3	0.0
01.04 Diarrhoeal diseases	0.0	0.0	0.3	0.0	0.0	0.2	0.0
01.05 Malaria	0.0	0.0	0.3	0.0	0.1	0.0	0.9
01.06 Measles	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01.07 Meningitis and encephalitis	42.1	0.0	0.0	0.0	0.0	0.0	0.6
01.09 Pulmonary tuberculosis	0.0	0.0	0.0	0.2	0.2	0.0	5.9
01.10 Pertussis	0.0	1.1	0.0	0.0	0.0	0.0	0.0
01.11 Haemorrhagic fever	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01.99 Other and unspecified infectious diseases	0.0	0.0	0.0	0.0	0.0	0.0	0.0
02.01 Oral neoplasms	0.0	0.0	0.0	0.0	0.0	0.0	0.0
02.02 Digestive neoplasms	0.0	0.0	0.0	0.0	0.1	1.0	1.0
02.03 Respiratory neoplasms	0.0	0.0	0.0	0.0	0.0	0.3	0.4
02.04 Breast neoplasms	0.0	0.0	0.0	0.0	0.0	0.0	1.4
02.05 & 02.06 Reproductive neoplasms M, F	0.0	0.0	0.0	0.0	0.0	0.3	2.3
02.99 Other and unspecified neoplasms	0.0	0.0	0.0	0.0	0.0	0.7	1.6
03.01 Severe anaemia	0.0	0.0	0.0	0.0	0.0	0.0	0.6
03.02 Severe malnutrition	0.0	0.0	0.0	0.0	0.0	0.3	0.8
03.03 Diabetes mellitus	0.0	0.0	0.0	0.0	0.0	0.0	2.1
04.01 Acute cardiac disease	0.0	0.0	0.0	0.0	0.0	0.2	1.2
04.02 Stroke	0.0	0.0	0.0	0.0	0.1	1.1	5.6
04.03 Sickle cell with crisis	0.0	0.0	0.0	0.0	0.0	0.0	0.0
04.99 Other and unspecified cardiac diseases	0.0	0.0	0.0	0.0	0.1	0.8	7.0
05.01 Chronic obstructive pulmonary diseases	0.0	0.0	0.0	0.0	0.0	1.7	3.7
05.02 Asthma	0.0	0.0	0.0	0.0	0.0	0.3	0.7
06.01 Acute abdomen	0.0	2.2	0.3	0.1	0.0	0.3	0.4
06.02 Liver cirrhosis	0.0	0.0	0.0	0.2	0.0	0.0	0.0
07.01 Renal failure	0.0	0.0	0.0	0.0	0.1	0.3	0.0
08.01 Epilepsy	0.0	1.1	0.0	0.0	0.0	0.0	0.0

Appendix B. (contd...)

Causes	Age groups (years)						
	Neonate	Infant	1-4	5-14	15-49	50-64	65+
09.01 Ectopic pregnancy	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.03 Pregnancy-induced hypertension	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.04 Obstetric haemorrhage	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.05 Obstructed labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.06 Pregnancy-related sepsis	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.99 Other and unspecified maternal causes of death	0.0	0.0	0.0	0.0	0.1	0.0	0.0
10.01 Prematurity	81.0	0.0	0.0	0.0	0.0	0.0	0.0
10.02 Birth asphyxia	63.2	0.0	0.0	0.0	0.0	0.0	0.0
10.03 Neonatal pneumonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.04 Neonatal sepsis	26.9	0.0	0.0	0.0	0.0	0.0	0.0
10.06 Congenital malformation	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.99 Other and unspecified neonatal causes of death	45.4	0.0	0.0	0.0	0.0	0.0	0.0
12.01 Road traffic accident	0.0	0.0	0.0	0.1	0.0	0.0	0.0
12.02 Other transport accident	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.03 Accidental fall	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.04 Accidental drowning and submersion	0.0	0.0	0.5	0.1	0.0	0.0	0.0
12.05 Accidental exposure to smoke fire & flame	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.06 Contact with venomous plant/animal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.07 Accidental poisoning & noxious substances	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.08 Intentional self-harm	0.0	0.0	0.0	0.1	0.0	0.0	0.0
12.09 Assault	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.99 Other and unspecified external causes of death	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98 Other and unspecified non-communicable diseases	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99 Indeterminate	121.7	2.5	0.0	0.1	0.1	0.4	7.2
All causes	380.3	21.6	1.6	0.9	1.4	9.6	46.7

APPENDIX C

Migration rate per 1,000 population by age and sex, Chakaria HDSS, 2014

Age (years)	No. of migrants			Migration rate per 1,000 population		
	Male	Female	Both	Male	Female	Both
In-migration						
<1	59	41	100	56.4	43.2	50.1
1-4	129	100	229	32.2	26.5	29.4
5-9	103	126	229	18.0	22.9	20.4
10-14	101	148	249	17.4	26.9	22.1
15-19	64	646	710	13.1	137.6	74.1
20-24	111	340	489	30.2	80.7	62.0
25-29	109	148	257	34.5	41.2	38.1
30-34	82	64	146	30.9	21.6	26.0
35-39	68	17	85	30.1	7.9	19.2
40-44	31	14	45	17.1	8.4	13.0
45-49	16	9	25	10.9	6.3	8.6
50-54	11	11	22	9.1	8.7	8.9
55-59	7	17	24	6.9	15.6	11.4
60-64	6	19	25	6.8	24.8	15.1
65-69	9	14	23	15.3	29.5	21.7
70-74	11	22	33	22.4	52.1	36.2
75-79	4	7	11	15.8	33.7	23.9
80-84	5	10	15	28.9	59.2	43.9
85+	2	6	8	16.1	43.2	30.4
All	928	1,759	2,687	22.5	43.0	32.7
Out-migration						
<1	60	49	109	57.4	51.6	54.6
1-4	131	120	251	32.7	31.9	32.3
5-9	129	130	259	22.6	23.6	23.1
10-14	120	157	277	20.7	28.6	24.5
15-19	132	508	640	27.0	108.2	66.8
20-24	145	400	545	39.5	95.0	69.1
25-29	125	177	302	39.6	49.3	44.8
30-34	119	74	193	44.8	25.0	34.4
35-39	79	39	118	34.9	18.0	26.7
40-44	43	28	71	23.7	16.9	20.5
45-49	23	11	34	15.6	7.7	11.7
50-54	17	15	32	14.1	11.9	13.0
55-59	9	19	28	8.9	17.5	13.3
60-64	7	12	19	7.9	15.7	11.5
65-69	9	6	15	15.3	12.6	14.1
70-74	10	17	27	20.4	40.3	29.6
75-79	5	4	9	19.8	19.2	19.5
80-84	5	7	12	28.9	41.4	35.1
85+	2	6	8	16.1	43.2	30.4
All	1,170	1,779	2,949	28.4	43.4	35.9

APPENDIX D

Number of migrants by origin and destination, Chakaria HDSS, 2014

Origin/ Destination	All age	Age (years)										
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+
In-migration												
Male												
Inside Bangladesh	801	188	103	101	60	87	82	57	44	22	10	47
Outside Bangladesh	127	0	0	0	3	25	27	25	24	9	6	8
Inside Chakaria	458	113	57	55	39	56	43	30	17	9	3	36
Outside Chakaria	123	26	19	15	10	10	13	11	9	2	4	4
Inside HDSS area	354	74	45	43	33	44	33	25	15	8	1	33
Outside HDSS area	104	39	12	12	6	12	10	5	2	1	2	3
Female												
Inside Bangladesh	1,757	141	126	148	644	341	148	64	17	13	9	106
Outside Bangladesh	2	0	0	0	0	1	0	0	0	1	0	0
Inside Chakaria	1,135	73	71	105	440	226	79	30	9	8	6	88
Outside Chakaria	280	24	26	13	111	53	26	18	1	2	1	5
Inside HDSS area	847	51	55	80	312	164	62	23	7	8	5	80
Outside HDSS area	288	22	16	25	128	62	17	7	2	0	1	8
Out-migration												
Male												
Inside Bangladesh	952	189	129	117	102	75	93	89	52	28	17	61
Outside Bangladesh	218	2	0	3	29	71	32	30	27	15	6	3
Inside Chakaria	725	142	97	98	72	49	81	64	41	24	12	45
Outside Chakaria	115	24	21	11	18	14	6	9	4	1	1	6
Inside HDSS area	368	71	45	60	44	26	36	20	16	14	4	32
Outside HDSS area	198	42	36	22	16	11	20	22	11	6	8	4
Female												
Inside Bangladesh	1,747	169	127	156	495	397	171	73	37	27	11	84
Outside Bangladesh	32	0	3	1	12	4	6	1	2	1	0	2
Inside Chakaria	1,338	139	99	122	363	303	130	57	30	18	9	68
Outside Chakaria	243	14	14	16	87	64	23	10	4	6	2	3
Inside HDSS area	721	56	48	72	220	156	58	22	20	6	7	56
Outside HDSS area	345	44	29	31	86	78	41	19	5	8	0	4

APPENDIX E

Number of in-migrants by reasons for migration, Chakaria HDSS, 2014

Reason for migration	All age	Age (years)										
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+
Male												
Family-related												
To join spouse	64	0	0	11	6	6	0	19	10	9	1	2
Family friction/ breakdown	136	0	1	15	29	30	24	15	10	6	4	2
Others	25	13	3	1	0	0	1	4	0	2	0	1
Work-related												
New job/job transfer	175	0	0	4	15	34	37	33	28	9	6	9
To look for work/ lost job	232	0	4	24	110	47	40	2	1	3	0	1
Others	9	0	1	0	0	0	1	2	3	1	0	1
Housing-related												
Wanted to own home/new house	175	8	6	25	11	30	34	24	14	12	5	6
Education												
To acquire education	91	8	37	18	10	9	6	1	1	1	0	0
Reasons not reported	21	6	0	3	3	3	2	0	4	0	0	0
All	928	35	52	101	184	159	145	100	71	43	16	22
Female												
Family related												
To join spouse	911	0	2	48	533	226	56	22	10	5	5	4
Family friction/ breakdown	247	4	4	30	33	52	39	23	53	4	2	3
Others	65	9	15	6	4	1	4	2	23	0	1	0
Work-related												
New job/job transfer	15	0	0	14	0	0	0	0	0	1	0	0
To look for work/ lost job	225	0	32	87	54	14	12	14	2	1	2	7
Others	2	0	0	0	0	1	0	1	0	0	0	0
Housing-related												
Wanted to own home/new house	201	9	14	23	37	54	30	11	7	4	0	12
Education												
To acquire education	61	5	25	12	14	2	3	0	0	0	0	0
Reasons not reported	32	9	1	1	9	5	2	3	1	0	0	1
All	1,759	36	93	221	684	355	146	76	96	15	10	27

APPENDIX F

Number of out-migrants by reasons for migration, Chakaria HDSS, 2014

Reason for migration	All age	Age (years)										
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+
Male												
Family-related												
To Join spouse	72	0	0	5	8	10	8	7	20	6	6	2
Family friction/ breakdown	161	2	10	41	25	11	20	19	9	14	8	2
Others	34	2	4	4	2	2	4	4	4	2	2	4
Work-related												
New job/job transfer	243	0	4	6	41	74	35	32	27	15	6	3
To look for work/ lost job	240	0	2	129	63	24	13	6	3	2	0	0
Others	24	0	0	0	5	4	2	2	2	0	1	8
Housing-related												
Wanted to own home/new house	205	7	21	42	29	21	33	29	11	6	1	5
Education												
To acquire education	31	1	5	9	10	3	2	1	0	0	0	0
Reasons not reported	158	19	13	16	11	15	18	23	17	6	7	13
All	1,170	31	59	252	194	164	135	123	93	51	31	37
Female												
Family-related												
To Join spouse	855	0	3	97	378	258	85	20	14	13	6	2
Family friction/ breakdown	148	6	6	12	24	33	21	14	32	2	4	4
Others	45	5	3	6	2	6	4	1	18	8	0	0
Work-related												
New job/job transfer	14	0	1	0	3	1	5	1	2	1	0	0
To look for work/ lost job	218	1	51	104	17	15	14	7	3	1	2	4
Others	17	0	0	0	2	3	1	3	2	0	1	5
Housing-related												
Wanted to own home/new house	177	6	24	46	30	29	22	8	3	5	4	0
Education												
To acquire education	58	8	23	14	5	4	0	3	0	1	0	0
Reasons not reported	207	0	11	10	51	53	32	21	8	10	2	9
All	1,779	26	122	289	512	402	184	78	82	41	19	24

APPENDIX G

Population, births, deaths, in and out-migration by village, Chakaria HDSS, 2014

Village	Population	Birth	Death	In-migration	Out-migration	Birth rate	Death rate	In-migration rate	Out-migration rate
Maizpara	1,666	35	4	55	71	21.0	2.4	33.0	42.6
Daingakata	1,929	49	12	43	60	25.4	6.2	22.3	31.1
Baniachara	3,182	72	14	144	149	22.6	4.4	45.3	46.8
Dakshin Baraitali	2,280	48	13	42	87	21.1	5.7	18.4	38.2
Gobindapur	4,669	124	24	133	126	26.6	5.1	28.5	27.0
Hapaliakata	3,615	108	24	126	120	29.9	6.6	34.9	33.2
Baraitali	**17,341**	**436**	**91**	**543**	**613**	**25.1**	**5.2**	**31.3**	**35.3**
Katakhali	379	9	3	15	2	23.7	7.9	39.6	5.3
Rakhainpara	654	8	9	35	41	12.2	13.8	53.5	62.7
Shantinagar	1,756	48	12	79	94	27.3	6.8	45.0	53.5
Kulalpara	192	4	2	10	4	20.8	10.4	52.1	20.8
Palpara	246	4	2	8	5	16.3	8.1	32.5	20.3
Stationpara	623	15	3	31	23	24.1	4.8	49.8	36.9
Kattoli	427	16	5	19	25	37.5	11.7	44.5	58.5
Harbang	**4,277**	**104**	**36**	**197**	**194**	**24.3**	**8.4**	**46.1**	**45.4**
Purbo Kunakhali	1,675	36	11	61	52	21.5	6.6	36.4	31.0
Maddhya Kunakhali	4,516	122	24	97	134	27.0	5.3	21.5	29.7
Furotia Khali	3,015	76	15	86	124	25.2	5.0	28.5	41.1
Konakhali	**9,206**	**234**	**50**	**244**	**310**	**25.4**	**5.4**	**26.5**	**33.7**

Appendix G. (contd...)

Village	Population	Birth	Death	In-migration	Out-migration	Birth rate	Death rate	In-migration rate	Out-migration rate
Krisnapur	1,500	38	10	45	50	25.3	6.7	30.0	33.3
Chhainama Para	2,665	75	16	99	78	28.1	6.0	37.1	29.3
Dakshin Bahaddarkata	2,399	56	9	64	62	23.3	3.8	26.7	25.8
BM Char	**6,564**	**169**	**35**	**208**	**190**	**25.7**	**5.3**	**31.7**	**28.9**
Chotta Bheola	883	26	4	22	35	29.4	4.5	24.9	39.6
Hasimar Kata	1,012	24	2	36	52	23.7	2.0	35.6	51.4
Hamidullah Sikderpara	782	21	5	29	55	26.9	6.4	37.1	70.3
Dwipkul	995	25	6	31	45	25.1	6.0	31.2	45.2
Baniarkum	1,133	29	5	45	25	25.6	4.4	39.7	22.1
Dakshin Khilsadok	1,775	38	8	44	81	21.4	4.5	24.8	45.6
Kaiarbil	**6,580**	**163**	**30**	**207**	**293**	**24.8**	**4.6**	**31.5**	**44.5**
Kaddachura	1,599	51	7	28	45	31.9	4.4	17.5	28.1
Sikder Para	3,865	120	27	122	132	31.0	7.0	31.6	34.2
Baniarchar	907	26	9	31	28	28.7	9.9	34.2	30.9
Kalagazi Sikderpara	1,335	30	3	66	49	22.5	2.2	49.4	36.7
Mabiar Baper Para	714	18	2	20	22	25.2	2.8	28.0	30.8
Jele Para	612	18	9	16	9	29.4	14.7	26.1	14.7
Purba B. Bheola	**9,032**	**263**	**57**	**283**	**285**	**29.1**	**6.3**	**31.3**	**31.6**
Sharharbil Purba Para	1,176	33	9	33	38	28.1	7.7	28.1	32.3
Shaharbil Paschim Para	1,032	30	5	29	44	29.1	4.8	28.1	42.6
Madrasha Para	488	10	3	19	13	20.5	6.1	38.9	26.6
Maizghona Purba Para	1,410	42	6	59	51	29.8	4.3	41.8	36.2
Shahapura	995	26	6	36	33	26.1	6.0	36.2	33.2
Failla Para	336	6	1	13	16	17.9	3.0	38.7	47.6
Shaharbil	**5,437**	**147**	**30**	**189**	**195**	**27.0**	**5.5**	**34.8**	**35.9**

Appendix G. (contd...)

Village	Population	Birth	Death	In-migration	Out-migration	Birth rate	Death rate	In-migration rate	Out-migration rate
Saker Mohammad Char	5,223	112	19	236	248	21.4	3.6	45.2	47.5
Uttar Lotony	1,816	48	5	53	75	26.4	2.8	29.2	41.3
Proper Kakara	2,984	68	17	119	115	22.8	5.7	39.9	38.5
Kakara	**10,023**	**228**	**41**	**408**	**438**	**22.7**	**4.1**	**40.7**	**43.7**
Dakshin Surajpur	1,291	41	6	24	34	31.8	4.6	18.6	26.3
Dakshin Manikpur	2,780	69	13	82	88	24.8	4.7	29.5	31.7
Uttar Manikpur	4,202	120	19	111	112	28.6	4.5	26.4	26.7
Surajpur Manikpur	**8,273**	**230**	**38**	**217**	**234**	**27.8**	**4.6**	**26.2**	**28.3**
Muchar Para	497	15	4	22	21	30.2	8.0	44.3	42.3
Demoshia Bazar Para	1,023	25	4	31	30	24.4	3.9	30.3	29.3
Ammer Dera Para	1,390	26	6	33	64	18.7	4.3	23.7	46.0
Daskhali Para	919	23	3	57	24	25.0	3.3	62.0	26.1
Dhemoshia	**3,829**	**89**	**17**	**143**	**139**	**23.2**	**4.4**	**37.3**	**36.3**
Darbeshkata Manik Para	741	18	2	29	36	24.3	2.7	39.1	48.6
Tekhsira Para	857	17	5	19	22	19.8	5.8	22.2	25.7
Paschim B. Bheola	**1,598**	**35**	**7**	**48**	**58**	**21.9**	**4.4**	**30.0**	**36.3**
All	82,160	2,098	432	2,687	2,949	25.5	5.3	32.7	35.9

APPENDIX H

Percentage of population by age and marital status, Chakaria HDSS, 2014

Age (years)	Married	Divorced	Widower/ Widow	Never married	Population
Male					
10-14	0.0	0.0	0.0	100.0	5,791
15-19	3.2	0.0	0.0	96.8	4,882
20-24	22.6	0.4	0.0	77.0	3,671
25-29	56.4	0.4	0.1	43.1	3,160
30-34	84.7	0.6	0.1	14.6	2,655
35-39	96.1	0.4	0.1	3.4	2,261
40-44	98.3	0.3	0.2	1.3	1,812
45-49	98.5	0.3	0.2	1.1	1,471
50-54	97.8	0.5	1.1	0.6	1,209
55-59	97.9	0.1	1.4	0.7	1,013
60-64	97.6	0.1	1.9	0.3	886
65-69	95.2	0.2	4.0	0.7	587
70-74	90.2	0.6	8.3	0.9	490
75-79	89.4	0.8	9.9	0.0	253
80-84	80.9	0.5	18.6	0.0	173
85+	68.4	2.3	29.3	0.0	124
All	49.0	0.3	0.7	50.0	30,438
Female					
10-14	0.9	0.0	0.0	99.1	5,495
15-19	24.6	0.3	0.1	75.0	4,696
20-24	71.3	0.7	0.2	27.8	4,211
25-29	89.1	1.7	0.7	8.6	3,588
30-34	93.2	1.4	2.2	3.2	2,957
35-39	91.1	1.6	5.4	1.9	2,165
40-44	88.3	1.8	8.7	1.1	1,659
45-49	82.0	1.3	15.3	1.4	1,424
50-54	74.8	1.1	23.1	1.0	1,260
55-59	66.0	1.3	31.6	1.0	1,088
60-64	52.6	1.7	44.4	1.2	766
65-69	40.1	0.4	59.3	0.2	476
70-74	25.2	0.7	74.1	0.0	422
75-79	16.2	1.4	82.4	0.0	208
80-84	8.9	0.0	91.1	0.0	169
85+	4.0	0.0	96.0	0.0	139
All	55.7	0.9	8.3	35.1	30,723

APPENDIX I

Chakaria HDSS project team, Chakaria HDSS, 2014

Name of Staff	Designation
Dhaka	
Abbas Bhuiya	Project Director
Mohammad Iqbal	Deputy Project Coordinator
SM Manzoor Ahmed Hanifi	Associate Scientist
Sabrina Rasheed	Associate Scientist
Shehrin Shaila Mahmood	Assistant Scientist
Amena Sultana	Research Officer
Mohammad Nahid Mia	Research Officer
Md. Kashem Iqbal	Office Manager
Chakaria	
Shahidul Hoque	Field Research Manager
Mijanur Rahaman	Senior Field Research Officer
Ashish Paul	Data Management Officer
Md. Sharif-Al Hasan	Field Research Officer
Mohammad Raeedur Rahaman	Field Research Assistant
Md. Rehmat Ali	Senior Field Assistant
Asia Zannat	Surveillance Worker
Dezi Akter	Surveillance Worker
Fatema Johura Surma	Surveillance Worker
Fatema Zannat	Surveillance Worker
Ismat Jahan Khuki	Surveillance Worker
Jannatul Bakea Rima	Surveillance Worker
Jannatul Mowa	Surveillance Worker
Jesmin Akter Rano	Surveillance Worker
Jesmin Jannat	Surveillance Worker
Kawkaba Zannat	Surveillance Worker
Kawsar Jannat	Surveillance Worker
Kulsuma Akter	Surveillance Worker
Masuma Hayat Komoro	Surveillance Worker
Merina Jannat Resmi	Surveillance Worker
Miftahul Zannat Tamanna	Surveillance Worker
Monuara Begum	Surveillance Worker
Nasima Janna	Surveillance Worker
Nazma Akter	Surveillance Worker
Nusrat Jannat Sadia	Surveillance Worker
Papi Prova Das	Surveillance Worker
Resma Akter	Surveillance Worker
Riasmin Zannat	Surveillance Worker
Segupta Jahan	Surveillance Worker
Sharmin Akter	Surveillance Worker
Tanjina Zannat Ara	Surveillance Worker
Tumpa Rani Nath	Surveillance Worker
Tunajjina Alam	Surveillance Worker
Umme Habiba	Surveillance Worker
Yasmin Sultana Beauty	Surveillance Worker
Zosna Begum	Surveillance Worker

HDSS = Health and Demographic Surveillance System.

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