Chakaria Health and Demographic Surveillance System Report - 2015

Focusing on the Sustainable Development Goals

Scientific Report No. 134

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 520,988 in 2015. 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.

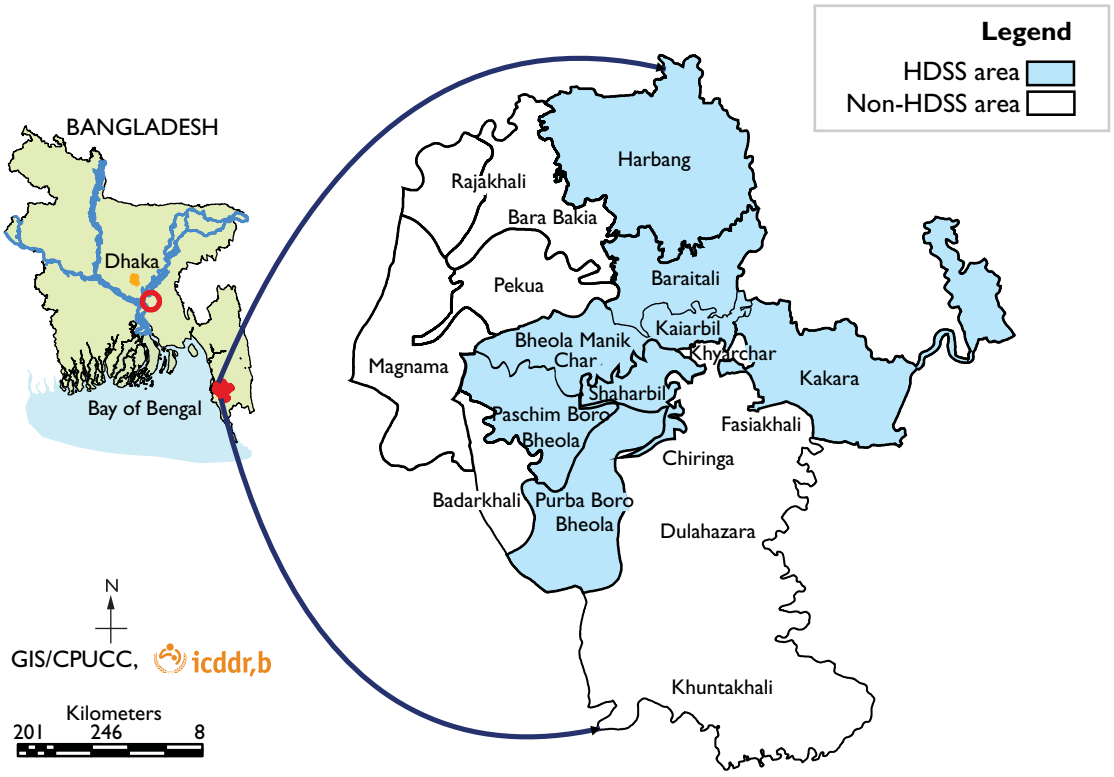
ICDDR,B started its activities in Chakaria in 1994. The focus of the activities has been to facilitate local initiatives for the improvement of health of the villagers in general and of children, women, and the poor in particular. Thus, the activities of the project have been participatory with emphasis 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 2015.

Existing health services in Chakaria HDSS area, 2015

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)	11
EPI outreach centre	264
Qualified physician	8
Family Welfare Visitor (FWV)	11
Sub-Assistant Community Medical Officer (SACMO)/Medical assistant	4
Family Welfare Assistant (skilled birth attendant)	18
Community Clinics	23
Community Healthcare Provider	23
Private	
Village doctor (allopathic)	240
Village doctor (homeopathic)	102
Allopathic pharmacy	177
Homeopathic pharmacy	15
Diagnostic centre	4
NGO	
Health and development activities	5
Paramedic	4
Health worker	30
Outdoor Hospital (Christian Memorial & Hope Foundation)	2

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 83,493 individuals (16,869 households). From beginning of 2015, the data collection process sifted from paper-based to web-based system. A web-based software application has been designed and developed. Fourteen tabs (Smartphone) are connected with internet through mobile operator network. The SWs collect data using these devices and data are stored directly in the central database server.

Two supervisors supervised the data-collection process. To detect any anomalies, a team of four independent re-interviewers re-visited 5% of the households, chosen randomly, within 2 days of data collection by the SWs. Later on, the supervisors and the relevant field workers together sortes 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 asset list of the household is updated annually from the household head or his/her spouse. The list 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 and safe motherhood practices have been tabulated for the various asset quintiles.

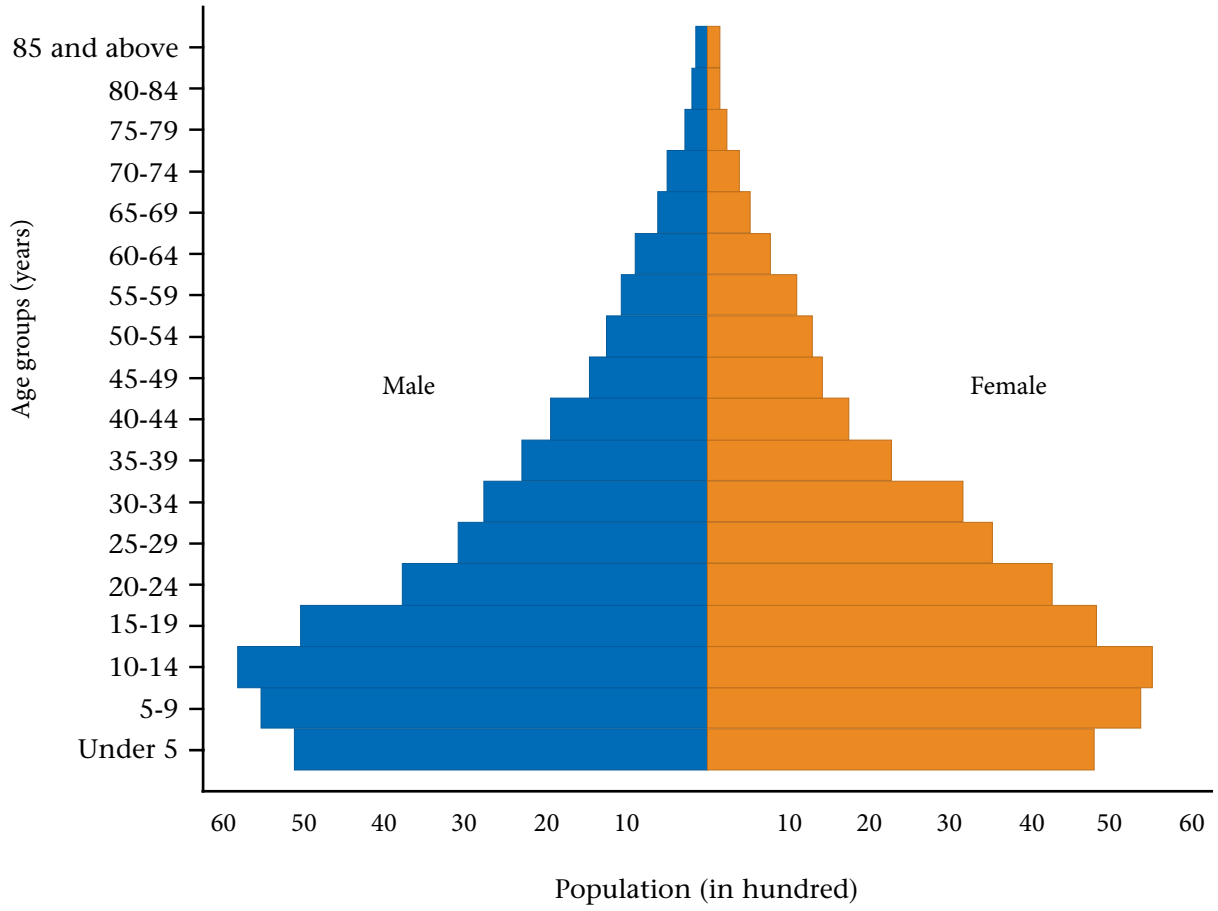
It should be mentioned that the number of observations in the tables presented in this report differ in some instances due to missing information for some variables.

CHAPTER 3

Population and Population Changes

The population pyramid based on the population of Chakaria in 2015 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 100 in 2015. The age dependency ratio[1] was 74 in 2015 (see Appendix A).

Fig. 2. Male and female population by age, Chakaria HDSS, 2015



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 5.9 per 1,000 population in 2015. Infant mortality rate was 48.1 per 1,000 live births. Child mortality rate was 2.9 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 67 years for males and 71 years for females. The rate of mortality of children aged less than 5 years (under-five mortality) was 58.9 per 1,000 live births in Chakaria in 2015 (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, 2015

Age (years)	No. of death			Death rate		
	Male	Female	Both	Male	Female	Both
<1*	56	47	103	52.1	44.0	48.1
<1 month	44	29	73	41.0	27.2	34.1
1-11 month	12	18	30	11.2	16.9	14.0
1-4	14	9	23	3.4	2.4	2.9
5-9	5	2	7	0.9	0.4	0.6
10-14	2	2	4	0.3	0.4	0.4
15-19	6	3	9	1.2	0.6	0.9
20-24	1	6	7	0.3	1.4	0.9
25-29	5	4	9	1.6	1.1	1.4
30-34	3	8	11	1.1	2.5	1.8
35-39	5	7	12	2.2	3.1	2.6
40-44	7	6	13	3.6	3.4	3.5
45-49	10	7	17	6.9	4.9	5.9
50-54	8	12	14	6.4	9.2	7.8
55-59	18	6	29	16.9	5.4	11.0
60-64	23	14	37	25.9	17.8	22.1
65-69	26	6	33	42.2	11.1	27.6
70-74	25	12	37	49.7	30.1	41.0
75-79	18	18	36	65.2	72.9	68.8
80-84	22	15	37	115.8	96.8	107.2
85+	30	24	54	209.8	148.1	177.0
All	284	208	492	6.8	5.0	5.9

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

Table 2. Abridged Life Table, Chakaria HDSS, 2015

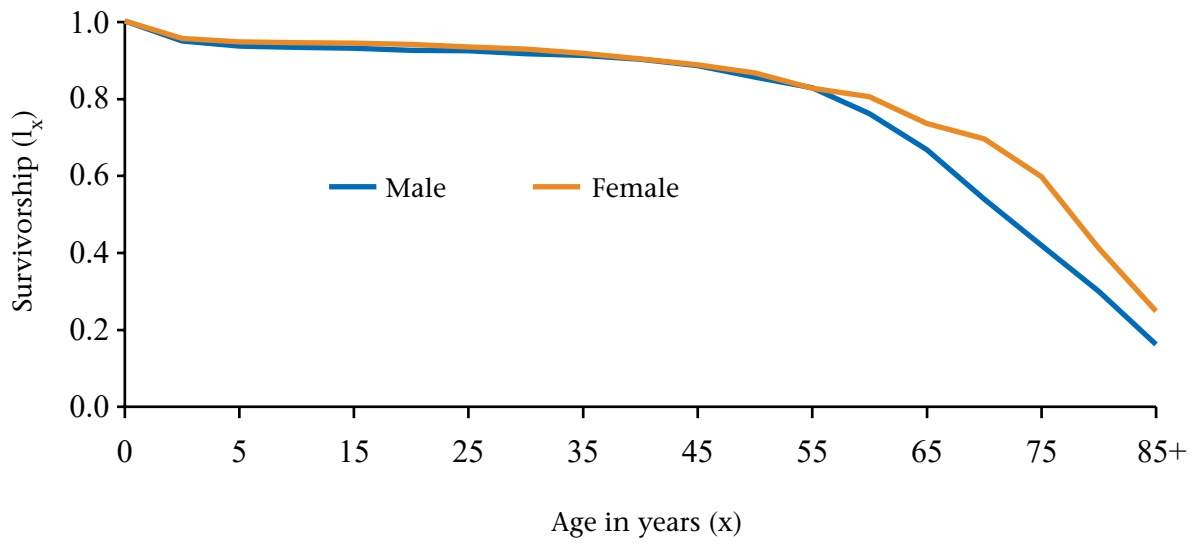
Age (years)	Male					Female				
	$_nm_x$	$_nq_x$	l_x	$_nL_x$	e_x	$_nm_x$	$_nq_x$	l_x	$_nL_x$	e_x
0	0.0534	0.0509	100,000	95,416	66.8	0.0463	0.0445	100,000	95,999	71.2
1	0.0034	0.0137	94,906	377,032	69.4	0.0024	0.0095	95,555	380,408	73.5
5	0.0009	0.0045	93,610	466,992	66.3	0.0004	0.0019	94,649	472,808	70.2
10	0.0003	0.0017	93,187	465,535	61.6	0.0004	0.0018	94,474	471,941	65.3
15	0.0012	0.0059	93,027	463,756	56.7	0.0006	0.0031	94,303	470,781	60.4
20	0.0003	0.0013	92,475	462,070	52.0	0.0014	0.0070	94,010	468,408	55.6
25	0.0016	0.0081	92,353	459,904	47.1	0.0011	0.0056	93,354	465,454	51.0
30	0.0011	0.0054	91,609	456,806	42.5	0.0025	0.0125	92,828	461,235	46.3
35	0.0022	0.0108	91,114	453,103	37.7	0.0031	0.0151	91,666	454,861	41.8
40	0.0036	0.0179	90,127	446,607	33.1	0.0034	0.0169	90,278	447,568	37.4
45	0.0069	0.0337	88,516	435,123	28.6	0.0049	0.0240	88,749	438,413	33.0
50	0.0064	0.0315	85,533	420,921	24.5	0.0092	0.0447	86,616	423,393	28.8
55	0.0169	0.0809	82,835	397,430	20.2	0.0054	0.0266	82,741	408,198	25.0
60	0.0259	0.1215	76,137	357,558	16.8	0.0178	0.0852	80,538	385,545	20.6
65	0.0422	0.1909	66,886	302,511	13.8	0.0111	0.0539	73,680	358,478	17.3
70	0.0497	0.2210	54,118	240,684	11.4	0.0301	0.1399	69,711	324,182	13.1
75	0.0652	0.2804	42,156	181,229	9.0	0.0729	0.3082	59,962	253,605	9.9
80	0.1158	0.4490	30,336	117,630	6.5	0.0968	0.3896	41,480	166,998	8.1
85+	0.2098	1.0000	16,716	79,679	4.8	0.1481	1.0000	25,319	170,904	6.8

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, 2015



HDSS = Health and Demographic Surveillance System.

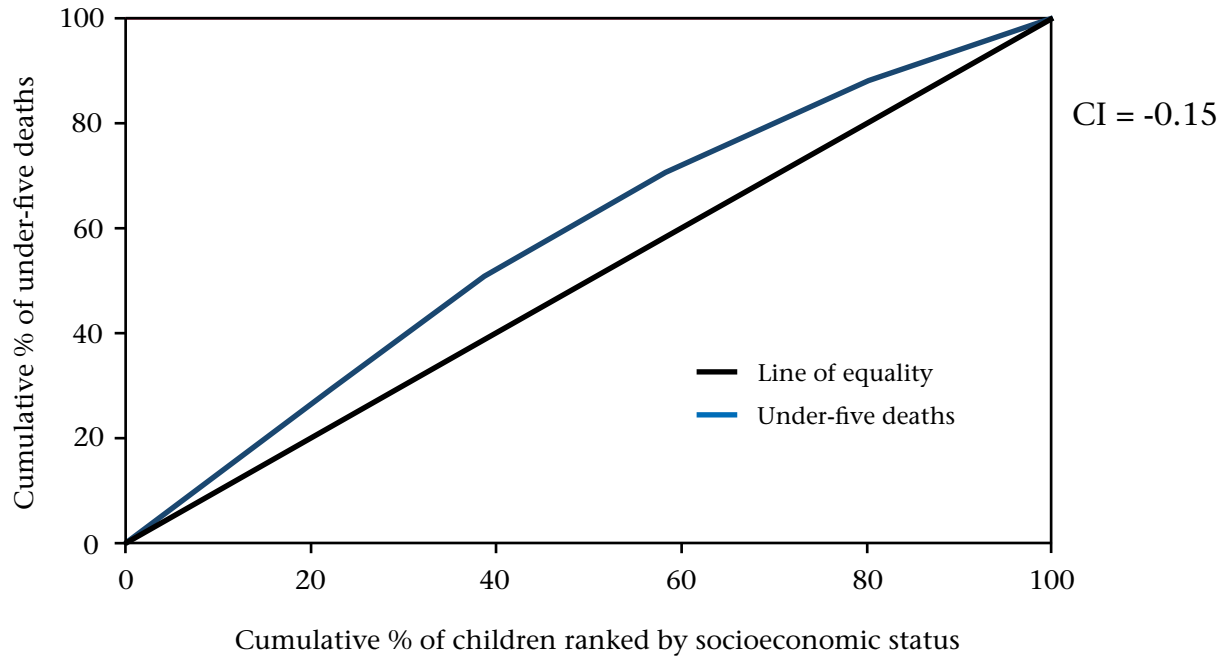
Table 3 presents under-five mortality rate by household asset quintile. Under-five mortality rate was inversely correlated with household asset scores. The mortality rate of children from the lowest quintile was more than 2 times greater than that of the highest quintile. Under-five mortality rate was higher among the boys compared to the girls. The concentration curve for under-five 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-five deaths concentrated among the poorer segment of the population.

Table 3. Under-five mortality rate per 1,000 live births by asset quintile and sex, Chakaria HDSS, 2015

Asset quintile	No. of births			No. of under-five deaths			Under-five mortality rate		
	Boy	Girl	Both	Boy	Girl	Both	Boy	Girl	Both
Lowest	226	250	476	20	17	37	88.5	68.0	77.7
Second	172	181	353	14	13	27	81.4	71.8	76.5
Middle	216	202	418	15	10	25	69.4	49.5	59.8
Fourth	231	237	468	12	10	22	51.9	42.2	47.0
Highest	230	196	426	9	6	15	39.1	30.6	35.2
All	1,075	1,066	2,141	70	56	126	65.1	52.5	58.9

HDSS = Health and Demographic Surveillance System.

Fig. 4. Concentration curve for under-five mortality, Chakaria HDSS, 2015



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

Causes of death

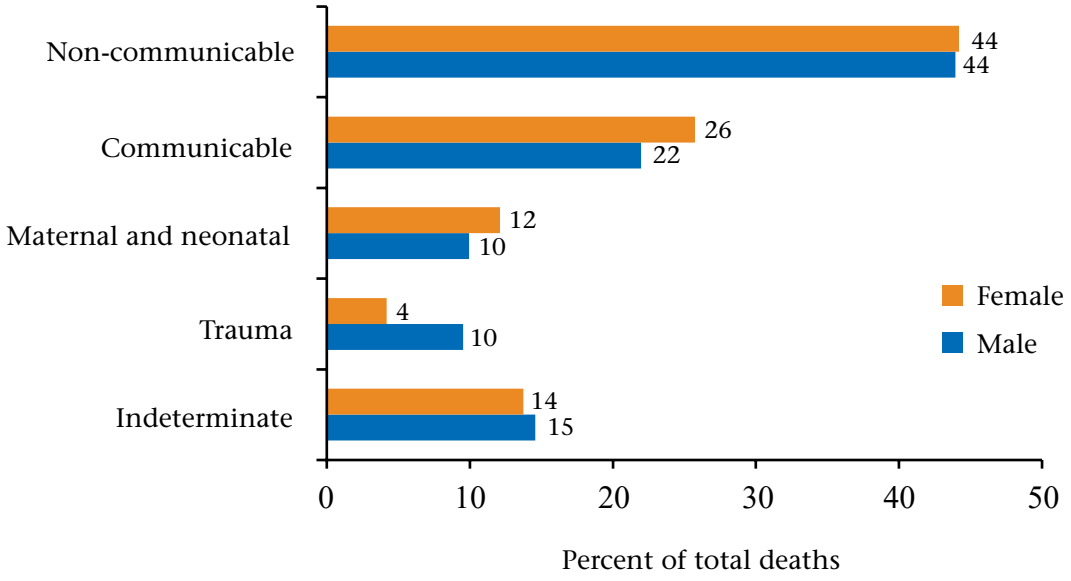
Verbal autopsy data on signs, symptoms and circumstances leading to death, and medical history of the deceased were collected during the quarterly household visits from an informed household member. A total of 492 deaths were registered in 2015. Data were analyzed using "InterVA-4.03" (4) to ascertain 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 (24%), maternal and neonatal condition (11%), and trauma (7%). For non-communicable diseases, the proportion of deaths was similar for males and females. In case of communicable diseases, the proportion of deaths was higher for females than for males (Fig. 5). Neonatal 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, 2015



HDSS = Health and Demographic Surveillance System.

Table 4. Distribution of causes of death, Chakaria HDSS, 2015

Cause group	Children (<15 years) (%)	Adults (15-49 years) (%)	Elderly (50+ years) (%)
Communicable	33.2	12.8	22.3
Non-communicable	5.5	48.4	62.2
Maternal and neonatal	34.2	9.9	0.0
Trauma	13.3	17.6	1.0
Indeterminate	13.8	11.3	14.5
Total	100.0	100.0	100.0

HDSS = Health and Demographic Surveillance System.

Acute respiratory infection (including pneumonia), stroke, chronic obstructive pulmonary diseases, digestive neoplasms, and pulmonary tuberculosis 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, 2015

Causes	Male (n=284)	Female (n=208)	Both (n=492)
01.01 Sepsis (non-obstetric)	0.4	0.8	0.6
01.02 Acute respiratory infection, including pneumonia	7.0	11.7	9.4
01.03 HIV/AIDS related death	1.4	3.7	2.5
01.04 Diarrhoeal diseases	0.7	1.8	1.3
01.05 Malaria	0.0	0.0	0.0
01.06 Measles	0.0	0.0	0.0
01.07 Meningitis and encephalitis	4.4	3.2	3.8
01.09 Pulmonary tuberculosis	5.6	3.9	4.7
01.10 Pertussis	0.0	0.3	0.1
01.11 Haemorrhagic fever	0.0	0.0	0.0
01.99 Other and unspecified infectious diseases	2.6	0.4	1.5
02.01 Oral neoplasms	0.3	0.8	0.5
02.02 Digestive neoplasms	5.1	5.0	5.1
02.03 Respiratory neoplasms	1.7	1.0	1.3
02.04 Breast neoplasms	0.0	0.8	0.4
02.05 & 02.06 Reproductive neoplasms M, F	1.6	3.8	2.7
02.99 Other and unspecified neoplasms	3.7	3.6	3.7
03.01 Severe anaemia	0.0	0.0	0.0
03.02 Severe malnutrition	1.4	1.9	1.7
03.03 Diabetes mellitus	1.7	4.1	2.9
04.01 Acute cardiac disease	3.2	0.9	2.1
04.02 Stroke	9.6	8.5	9.1
04.03 Sickle cell with crisis	0.0	0.0	0.0
04.99 Other and unspecified cardiac diseases	2.2	3.0	2.6
05.01 Chronic obstructive pulmonary disease	7.7	4.3	6.0
05.02 Asthma	0.0	0.4	0.2
06.01 Acute abdomen	1.4	3.2	2.3
06.02 Liver cirrhosis	1.3	1.1	1.2
07.01 Renal failure	1.2	0.3	0.7
08.01 Epilepsy	1.4	1.2	1.3
09.01 Ectopic pregnancy	0.0	0.0	0.0
09.02 Abortion-related death	0.0	0.3	0.2
09.03 Pregnancy-induced hypertension	0.0	1.5	0.8
09.04 Obstetric haemorrhage	0.0	0.4	0.2
09.05 Obstructed labour	0.0	0.0	0.0
09.06 Pregnancy-related sepsis	0.0	0.4	0.2

Table 5. (contd...)

Causes	Male (n=284)	Female (n=208)	Both (n=492)
09.99 Other and unspecified maternal causes of death	0.0	0.3	0.2
10.01 Prematurity	3.1	1.8	2.4
10.02 Birth asphyxia	0.4	0.8	0.6
10.03 Neonatal pneumonia	1.5	2.2	1.9
10.04 Neonatal sepsis	2.1	1.6	1.9
10.06 Congenital malformation	0.4	0.4	0.4
10.99 Other and unspecified neonatal causes of death	2.4	2.4	2.4
12.01 Road traffic accident	2.1	0.8	1.4
12.02 Other transport accident	1.8	0.8	1.3
12.03 Accidental fall	0.0	0.0	0.0
12.04 Accidental drowning and submersion	4.9	1.2	3.1
12.05 Accidental exposure to smoke fire & flame	0.0	0.0	0.0
12.06 Contact with venomous plant/animal	0.0	0.6	0.3
12.07 Accidental poisoning & noxious substances	0.0	0.0	0.0
12.08 Intentional self-harm	0.0	0.4	0.2
12.09 Assault	0.4	0.4	0.4
12.10 Exposure to force of nature	0.4	0.0	0.2
12.99 Other and unspecified external causes of death	0.0	0.0	0.0
98 Other and unspecified non-communicable diseases	0.3	0.4	0.4
99 Indeterminate	14.6	13.8	14.2
All	100.0	100.0	100.0

HDSS = Health and Demographic Surveillance System.

CHAPTER 5

Fertility

The crude birth rate in 2015 was 25.6 per 1,000 population, which was similar in 2014 (25.5 per 1,000 population) (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, 2015

Age (years)	No. of females	No. of births			Birth rate
		Male	Female	Both	
15-19	4,821	142	175	317	65.8
20-24	4,283	385	340	725	169.3
25-29	3,542	295	294	589	166.3
30-34	3,176	179	174	353	111.1
35-39	2,294	64	72	136	59.3
40-44	1,756	7	9	16	9.1
45-49	1,439	2	3	5	3.5
All	21,311	1,074	1,067	2,141	
TFR					2,922

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 and sex, Chakaria HDSS, 2015

Asset quintile	Midyear population			No. of births			Birth rate		
	Male	Female	Both	Boy	Girl	Both	Boy	Girl	Both
Lowest	7,964	8,280	16,244	226	250	476	28.4	30.2	29.3
Second	7,156	7,066	14,222	172	181	353	24.0	25.6	24.8
Middle	8,707	8,540	17,247	216	202	418	24.8	23.7	24.2
Fourth	9,326	9,014	18,340	231	237	468	24.8	26.3	25.5
Highest	8,615	8,821	17,436	230	196	426	26.7	22.2	24.4
All	41,768	41,721	83,489	1,075	1,066	2,141	25.7	25.6	25.6

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 and the rates were almost equal for both male and female children.

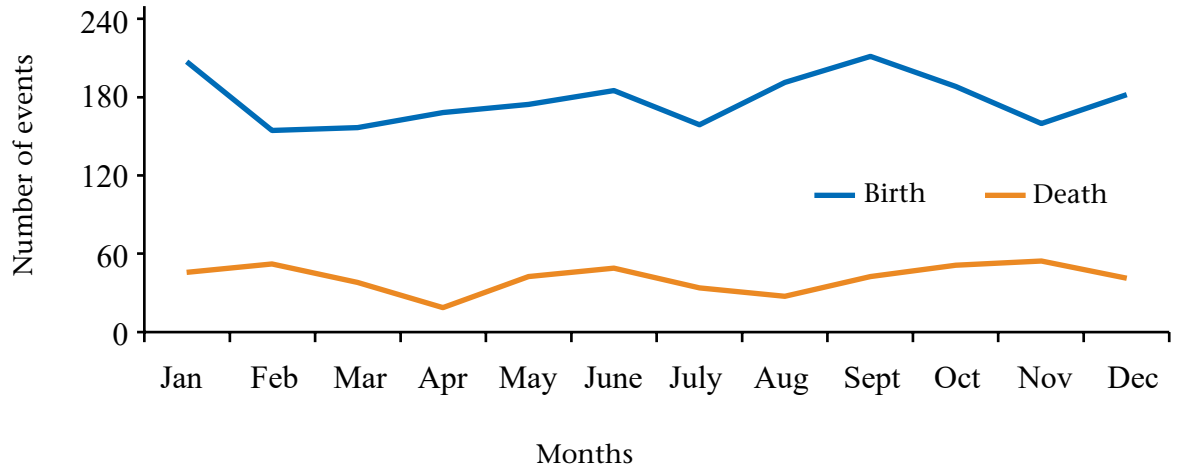
Of the pregnancies in 2015, 9.9% of 2,588 were terminated prematurely and spontaneously, 4.2% were terminated through induction, and 3.1% resulted in stillbirths (Table 8).

Table 8. Pregnancy outcome, Chakaria HDSS, 2015

Pregnancy outcome	No.	%
Spontaneous abortion	257	9.9
Induced abortion	109	4.2
Stillbirth	81	3.1
Live birth*	2,141	82.7
Total number of pregnancies	2,588	100.0

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

Fig. 6. Number of births and deaths by month, Chakaria HDSS, 2015



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 birthrate was observed during the time period January and July to September.

CHAPTER 6

Migration

In 2015, the rate of out-migration was higher at 37.2 per 1,000 population than that of in-migration at 33.2 per 1,000 population (Table 9). The rates were nearly similar in 2014 (Table 20). 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 2015. The sex differential in migration was prominent. The number of in-migration of males and females was highest in January and the out-migration number of males and females was highest in June.

Table 9. Migration rate per 1,000 population by asset quintile and sex, Chakaria HDSS, 2015

Asset quintile	Midyear population			In-migration rate			Out-migration rate		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Lowest	7,964	8,280	16,244	31.1	38.5	34.9	43.8	56.0	50.0
Second	7,156	7,066	14,222	25.0	37.1	31.0	25.2	36.5	30.8
Middle	8,707	8,540	17,247	18.7	38.9	28.7	27.3	40.9	34.0
Fourth	9,326	9,014	18,340	23.5	40.9	32.1	23.8	36.1	29.8
Highest	8,615	8,821	17,436	23.3	54.0	38.8	35.1	47.3	41.2
All	41,768	41,721	83,489	24.2	42.1	33.2	30.9	43.5	37.2

HDSS = Health and Demographic Surveillance System.

Table 10. Number of migrants by sex and month, Chakaria HDSS, 2015

Month	In-migration			Out-migration		
	Male	Female	Both	Male	Female	Both
January	188	263	451	130	160	290
February	57	135	192	97	130	227
March	88	137	225	94	136	230
April	81	143	224	87	145	232
May	114	181	295	121	179	300
June	119	181	300	177	236	413
July	85	119	204	112	136	248
August	73	101	174	127	147	274
September	65	105	170	78	117	195
October	53	134	187	94	161	255
November	54	131	185	78	124	202
December	35	130	165	98	147	245
All	1,012	1,760	2,772	1,293	1,818	3,111

HDSS = Health and Demographic Surveillance System.

Origin and destination of migrants

During 2015, 5.2% of 2,772 in-migrants moved into Chakaria HDSS households from outside of Bangladesh whereas 8.6% of 3,111 out-migrants moved out of Bangladesh from Chakaria HDSS area, and in both cases male migrants were dominant compared to the female migrants. 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, 2015

Origin or destination	In-migration			Out-migration		
	Male (%)	Female (%)	Both (%)	Male (%)	Female (%)	Both (%)
Inside Bangladesh	86.7	99.6	94.8	80.9	98.8	91.4
Outside Bangladesh	13.3	0.5	5.2	19.1	1.2	8.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total number of migrants	1,012	1,760	2,772	1,293	1,818	3,111
Cox's Bazar District						
Inside Chakaria	79.1	78.5	78.7	85.4	82.7	83.7
Outside Chakaria	20.9	21.5	21.4	14.6	17.3	16.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total no. of migrants	588	1,365	1,953	910	1,596	2,506
Chakaria Upazila						
Inside HDSS area	71.4	69.3	69.9	56.9	63.1	60.9
Outside HDSS area	28.6	30.7	30.1	43.1	37.0	39.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total no. of migrants	465	1,071	1,536	554	1,023	1,577

HDSS = Health and Demographic Surveillance System.

Reasons for migration

Table 12 presents the reasons of migration by sex. 40.7% of the migrants moved out due to family-related issues - mostly marriage, followed by work (28.7%), housing (26.0%), and education (3.3%). Reasons for moving out for males were different from those of females. 40.6% of male in-migrants moved due to work related issues whereas only 17.4% of the females moved due to that reason. On the other hand, 63.2% of female in-migrants moved due to family related issues - mostly marriage,

while 29.7% 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, 2015

Reasons for migration	In-migration			Out-migration		
	Male (%)	Female (%)	Both (%)	Male (%)	Female (%)	Both (%)
Family-related	29.7	63.2	51.0	20.4	55.1	40.7
Work-related	40.6	17.4	25.9	45.2	16.9	28.7
Housing-related	24.0	15.1	18.3	29.2	23.7	26.0
Education	4.5	3.2	3.7	4.5	2.5	3.3
Other	1.2	1.0	1.1	0.7	1.8	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total no. of migrants	1,012	1,760	2,772	1,293	1,818	3,111

HDSS = Health and Demographic Surveillance System.

CHAPTER 7

Marriage

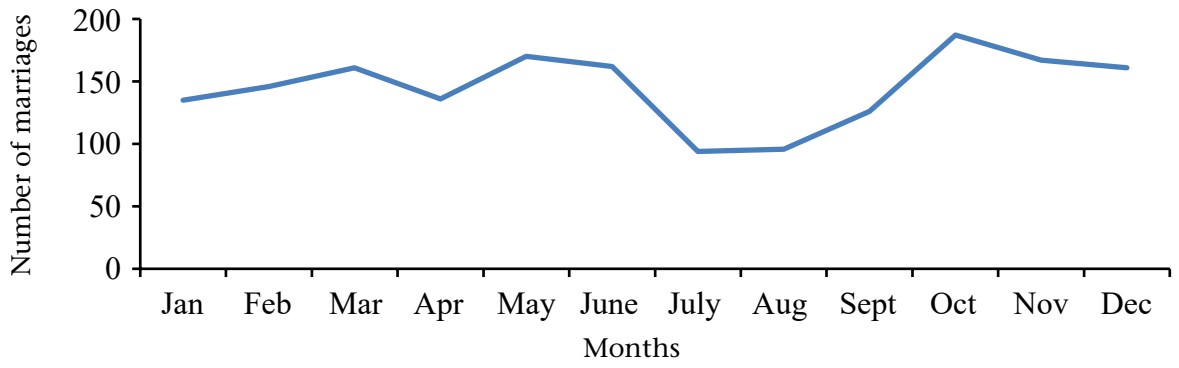
In total 1,741 marriages took place in the surveillance villages in Chakaria during 2015 and the crude marriage rate was 20.9 per 1,000 population, with greater rate among the females than to the males. Among the males, highest marriage rate was found in the age group of 25-29 years and for females in the age group of 15-19 years. Throughout 2015, 103 divorces happened in Chakaria and the crude divorce rate was 1.2 per 1,000 population with nearly similar rates among males and females (Table 13). The highest number of marriages took place in October and the lowest in July (Fig.7).

Table 13. Crude rate of marriage and divorce by age and sex, Chakaria HDSS, 2015

Age (years)	Marriage			Divorce		
	Male	Female	Both	Male	Female	Both
10-14	0.3	8.7	4.4	0.0	0.4	0.2
15-19	16.7	116.8	65.6	0.8	3.1	1.9
20-24	53.0	77.5	66.0	2.4	5.4	4.0
25-29	63.4	24.3	42.5	1.9	4.5	3.3
30-34	44.4	8.2	25.1	3.6	0.6	2.0
35-39	17.0	3.9	10.5	3.5	0.9	2.2
40-44	4.1	3.4	3.8	1.5	0.0	0.8
45-49	4.8	0.7	2.8	0.7	0.0	0.3
50-54	4.0	0.8	2.3	0.8	0.0	0.4
55-59	3.7	0.0	1.8	0.0	0.0	0.0
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	16.0	25.7	20.9	1.0	1.4	1.2

HDSS = Health and Demographic Surveillance System.

Fig. 7. Number of marriages by month, Chakaria HDSS, 2015



HDSS = Health and Demographic Surveillance System.

Table 14 presents singulate mean age at marriage (SMAM), and mean and median ages at first marriage. The SMAM, mean and median ages at first marriage for males were 27 years. For females, both mean and median ages at first marriage were 20 years and the SMAM was 21 years. The SMAM and median age at first marriage remained nearly same as of 2014 for both males and females. All 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, 2015

Asset quintile	Male			Female		
	SMAM*	Mean age at first marriage	Median age at first marriage*	SMAM*	Mean age at first marriage	Median age at first marriage*
Lowest	24.2	24.0	24.0	19.6	19.6	19.5
Second	25.9	25.8	25.8	19.6	19.5	19.5
Middle	26.5	26.4	26.1	20.2	20.2	20.3
Fourth	27.8	27.8	27.9	20.7	20.4	20.3
Highest	29.4	29.3	29.6	21.3	20.7	20.6
All	27.0	26.9	26.9	20.7	20.4	20.3

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 Union Health and Family Welfare Centres (UHFWCs), 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, 2015

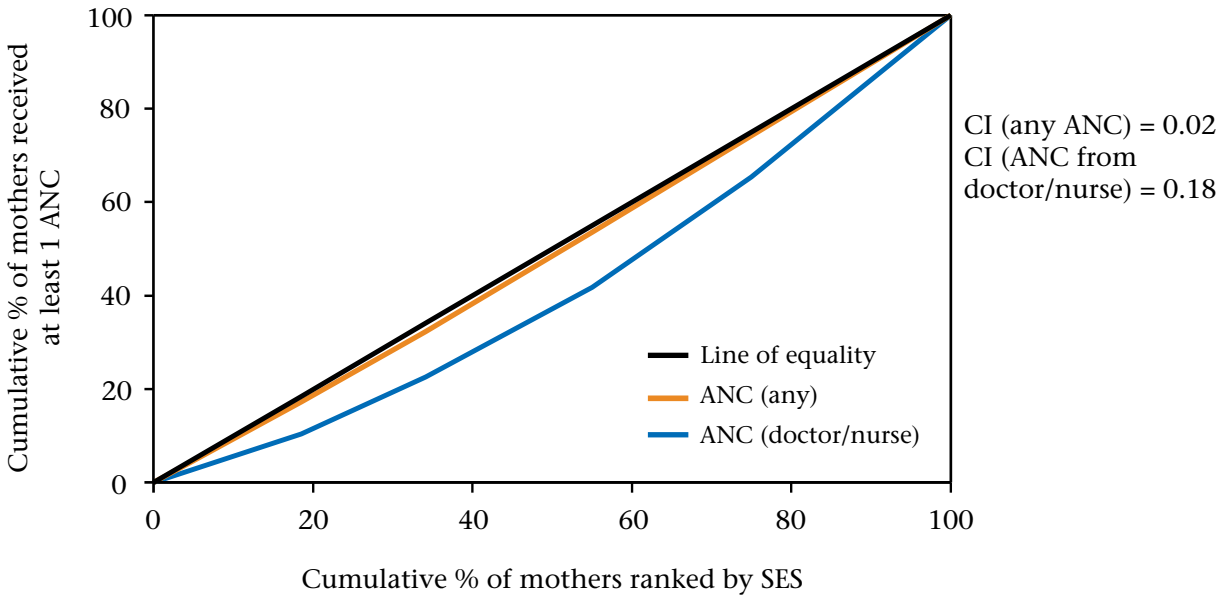
Asset quintile	Received any ANC (%)	Midwife* (%)	FWV* (%)	Nurse/ doctor* (%)	FDSR/ CMH* (%)	None (%)	No. of women
Lowest	71.4	16.2	23.1	29.6	20.0	28.6	476
Second	74.8	18.1	21.8	39.7	19.3	25.2	353
Middle	76.8	16.3	18.9	49.0	18.4	23.2	418
Fourth	79.1	10.0	11.3	53.8	12.8	20.9	468
Highest	81.0	6.6	5.4	77.2	8.5	19.0	426
Total	76.6	13.3	16.0	49.8	15.7	23.4	2,141

* 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 2,141 pregnant women who gave live births, 76.6% received at least one antenatal care (ANC). These women received services from various sources. Among

these sources, the nurses/doctors were dominant, followed by FWV and FDSR/CMH and then midwives (Table 15). Use of at least one ANC during pregnancy was almost equitable during 2015 in Chakaria. Seventy one percent of the pregnant women from the lowest socioeconomic quintile used at least one ANC during pregnancy as oppose to eighty one 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 0.02 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 seventy seven percent for women in highest socioeconomic quintile and only thirty 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, 2015



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

Use of postnatal care services

It was observed that only 43.3% of the pregnant women received at least one postnatal care (PNC) in 2015. 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).

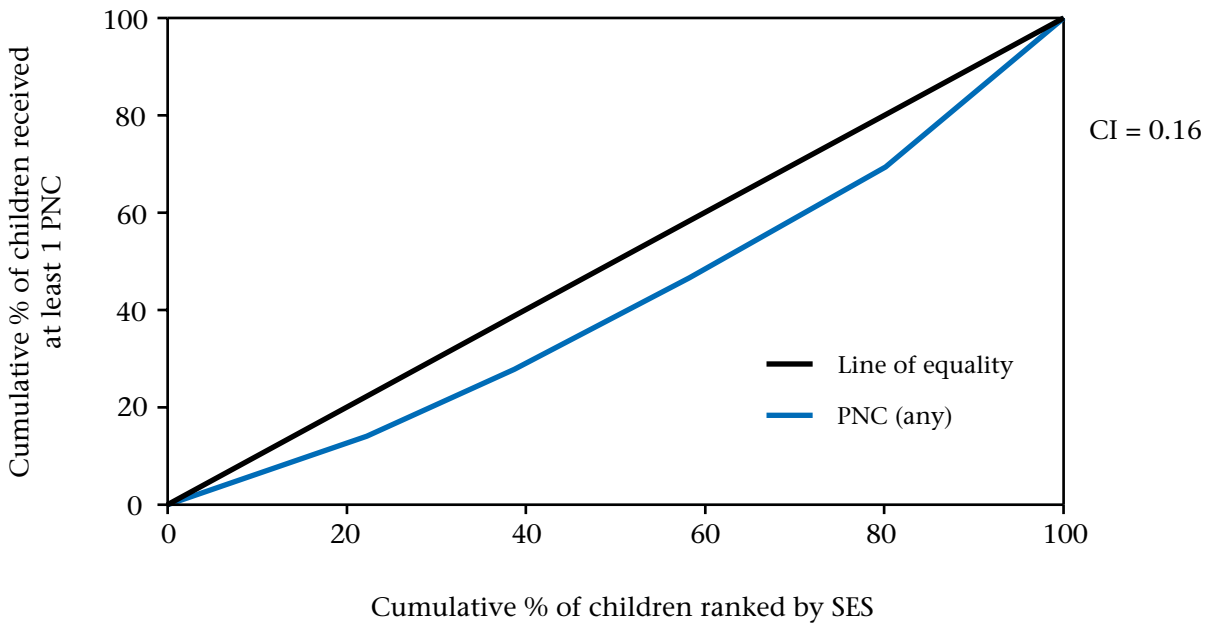
Figure 9 also shows the current inequality of the use of PNC services among different socioeconomic group. The concentration index (0.16) supported that the rich people were more intended to receive the service compared to the poor.

Table 16. Postnatal care by sources and asset quintile, Chakaria HDSS, 2015

Asset quintile	Received any PNC (%)	Midwife* (%)	FWV* (%)	Nurse/ doctor* (%)	FDSR/ CMH* (%)	None (%)	No. of women
Lowest	27.5	5.0	3.2	22.1	1.3	72.5	476
Second	36.0	7.1	2.8	24.6	2.3	64.0	353
Middle	41.9	9.1	3.6	30.1	1.7	58.1	418
Fourth	45.1	7.1	2.6	34.0	1.7	54.9	468
Highest	66.7	5.9	3.8	60.8	1.9	33.3	426
Total	43.3	6.8	3.2	34.4	1.7	56.7	2,141

*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, 2015



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

Assistance during delivery

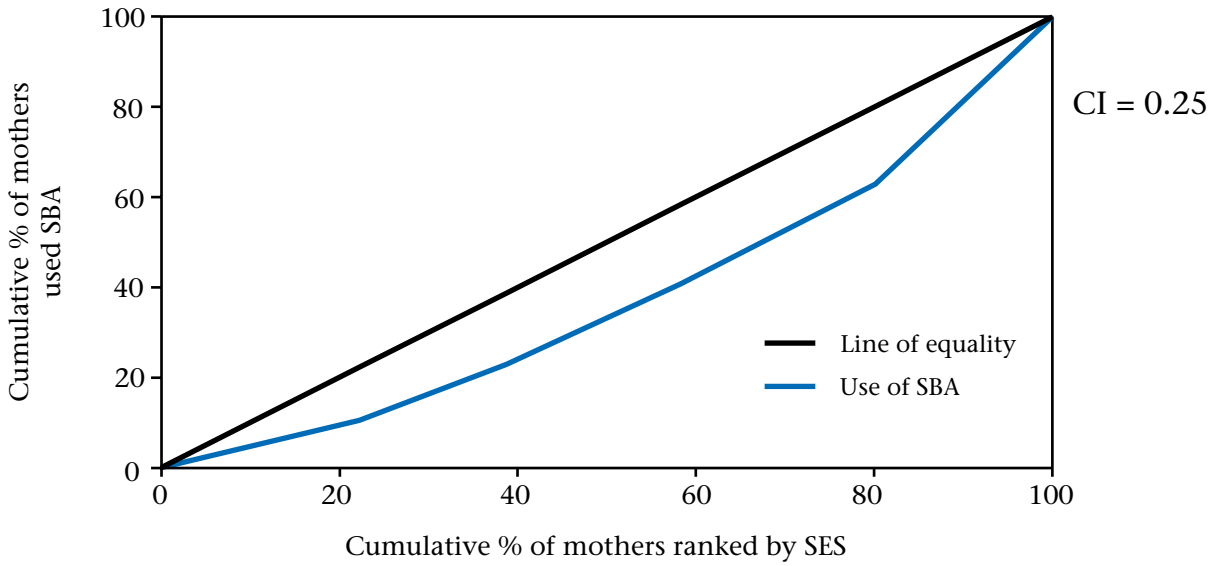
Table 17. Assistance during delivery by asset quintile, Chakaria HDSS, 2015

Asset quintile	Midwife (%)	FWV (%)	Nurse/ doctor (%)	TBA (%)	No. of women
Lowest	4.2	1.3	11.2	83.4	475
Second	7.7	3.4	15.6	73.3	352
Middle	10.5	3.1	18.4	67.9	418
Fourth	10.1	3.4	22.5	64.0	467
Highest	12.5	3.5	49.9	34.1	425
Total	8.9	2.9	23.5	64.7	2,137

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 five percent of 2,137 deliveries in Chakaria were assisted by the TBAs as opposed to thirty five 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, 2015



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

Place of delivery

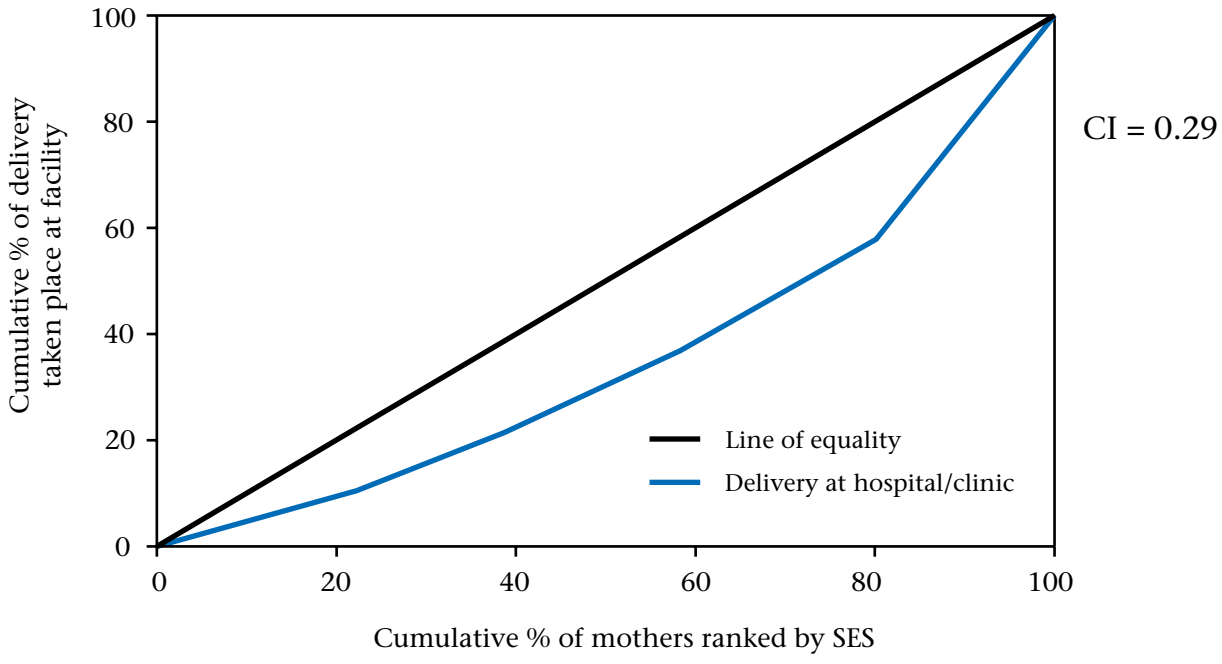
Seventy seven percent of the deliveries took place at home. Only 23.4% of 2,137 deliveries took place either at hospitals or at clinics (Table 18). The women from the households in the highest asset quintile had a much higher rate of facility based delivery than those from the lowest quintile (Table 18 and Fig. 11).

Table 18. Place of delivery by asset quintile, Chakaria HDSS, 2015

Asset quintile	Hospital/Clinic (%)	Home (%)	No. of women
Lowest	10.9	89.1	475
Second	15.6	84.4	352
Middle	18.4	81.6	418
Fourth	22.5	77.5	467
Highest	49.6	50.4	425
Total	23.4	76.6	2,137

HDSS = Health and Demographic Surveillance System.

Fig. 11. Concentration curve for facility-based delivery, Chakaria HDSS, 2015



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

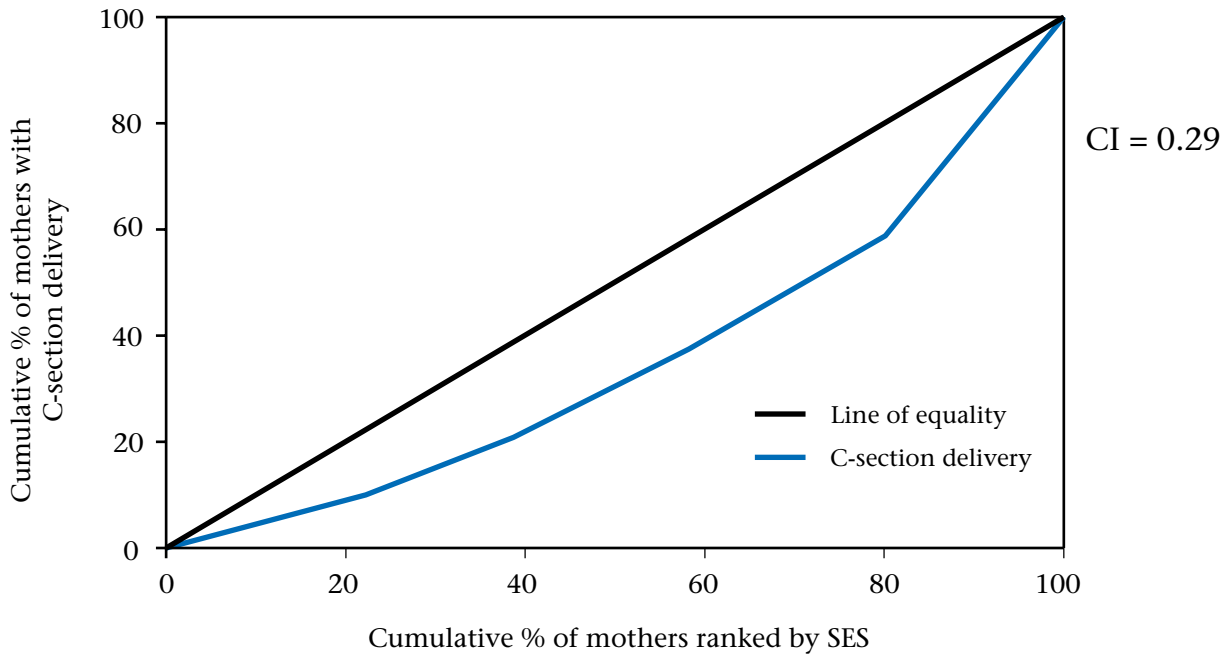
Table 19 shows caesarean-section delivery by household asset quintile in 2015. Caesarean-section delivery accounted for 10.0% of the total deliveries and 42.8% of the facility-based deliveries in the Chakaria HDSS area in 2015. Although the number of deliveries through caesarean sections was small, the number of women giving birth by caesarean sections exhibited discrepancies between highest and lowest quintiles (Table 19 and Fig. 12).

Table 19. Proportion of caesarean-section delivery by asset quintile, Chakaria HDSS, 2015

Asset quintile	No. of caesarean-section delivery	Caesarean-section delivery (%)	Total no. of deliveries
Lowest	21	4.4	476
Second	23	6.5	353
Middle	35	8.4	418
Fourth	48	10.3	468
Highest	87	20.4	426
Total	214	10.0	2,141

HDSS = Health and Demographic Surveillance System.

Fig. 12. Concentration curve for caesarean-section delivery, Chakaria HDSS, 2015



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

CHAPTER 9

SDG and Other Health and Socio-demographic Indicators

Sustainable development goals, popularly known as SDGs, including 17goals with169 associated targets, were announced for UN member States in order to eradicate poverty, inequality and injustice and to deal with climatic changes by 2030. Though Millennium Development Goals (MDGs) attainment in Bangladesh was relatively notable, but the progress for most indicators could not meet with desired target. The SDGs address the origins of poverty and the universal development needs which will work for all people and thus expectantly go much further than the MDGs. 24 indicators among all basic and complementary SDG indicators can be calculated using the data of Chakaria HDSS (7).

The major demographic and health indicators (including the SDGs) during 2011-15 are presented in Table 20. A declining trend in the fertility indicators and natural rate of population increase was observed during 2011-15. 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 (8). In 2015, the rate of natural increase and the annual population growth rate in the surveillance area of Chakaria was 2.1 % and 1.6% respectively (Table 20).

Twenty three percent of births in Chakaria were delivered at facilities (hospital or clinic) in 2015. The percentage of births at facilities in 2015 has increased compared to 2014. About one-third of the births were attended by Skilled Birth Attendants (SBAs) in Chakaria and there has been an increase in deliveries by SBAs from 31.4% in 2014 to 35.3% in 2015 (Table 20).

The legal age of marriage is 18 years for female and 21 years for male in Bangladesh. In 2015, 35.9% of the women married before reaching their 18th birthday. The percentage of underage female marriage remained nearly equal during 2014 to 2015. Twenty four percent of the males were married before the age of 21 years in 2015. The proportion of male marriages before 21 years has stayed nearly same between 2014 and 2015. The percentage of underage marriage for females remained higher than males during 2011 to 2015.

Total fertility rate and death rates in Chakaria during 2015 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 slightly lower than the national rate.

Among the boys, 76% of those enrolled completed the last grade of primary level education and 73% 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, 2011 – 2015

Rate	Chakaria HDSS area					Matlab HDSS Govt. area 2014		National
	2011	2012	2013	2014	2015			
Crude birth rate	27.7	25.4	24.9	25.5	25.6	21.1	-	-
Total fertility rate[a]	3.3	2.9	2.8	2.9	2.9	2.6	SDG	2.3[d]
Neonatal mortality[b]	38.1	28.0	40.6	31.5	34.1	25.1	SDG	28.0[d]
Post-neonatal mortality[b]	14.5	13.7	5.9	15.3	14.0	4.7	-	-
Infant mortality rate[b]	52.6	41.7	46.5	45.3	44.4	29.8	SDG	38.0[d]
Child mortality rate (1-4 yrs)	3.4	3.7	5.0	2.8	2.9	2.5	-	-
Under-five mortality rate[b]	62.6	56.8	65.6	57.4	58.9	39.6	SDG	46.0[d]
Crude death rate	5.7	5.6	5.4	5.3	5.9	6.7	-	-
Rate of natural increase	22.0	19.8	19.4	20.3	20.5	14.4	-	-
In-migration rate	36.8	33.9	37.4	32.7	33.2	47.4	-	-
Out-migration rate	39.7	35.2	44.0	35.9	37.3	54.2	-	-
Growth rate (%)	1.9	1.9	1.3	1.7	1.6	0.8	-	-
Adolescent birth rate	73.1	61.8	56.2	62.0	65.8	63.5	SDG	79.4[e]
Stillbirth rate[c]	31.6	24.9	24.4	33.6	36.5	24.7	SDG	36.0[f]
Facility-based delivery (%)	14.0	16.1	16.7	20.5	23.4	49.1	-	-
Received assistance from SBA during delivery (%)	25.7	29.2	29.7	31.4	35.3	52.5	SDG	42.1[d]
Antenatal care coverage (at least 1 visit) (%)	67.9	68.1	66.6	74.1	76.6	-	SDG	78.6[d]
Antenatal care coverage (at least 4 visit) (%)	-	-	-	37.5	38.3	-	SDG	31.2[d]
Postnatal care coverage (1 visit) (%)	34.9	35.9	36.2	42.2	43.3	-	SDG	38.0[d]
Male marriage at ages under 21 years (%)	22.8	23.4	23.3	23.9	23.5	5.6	-	-
Female marriage at ages under 18 years (%)	33.6	37.1	37.2	35.0	35.9	35.2	-	-
Female aged 20-24 who were married or in a union by age 18 (%)	-	-	-	40.8	39.2	-	SDG	65.0[g]

Table 20. (contd…)

Rate	Chakaria HDSS area					Matlab HDSS Govt. area 2014		National
	2011	2012	2013	2014	2015			
Children receiving full immunization (%)	85.1	-	-	79.0	81.8	79.2	SDG	83.8[d]
1-year old children immunized against measles (%)	85.9	-	-	81.7	84.6	79.3	SDG	86.1[d]
Primary education completion rate for girls (%)	-	-	-	75.3	74.3	-	SDG	79.8[h]
Primary education completion rate for boys (%)	-	-	-	77.7	76.4	-	SDG	69.5[h]
Secondary education completion rate for girls (%)	-	-	-	58.1	66.5	-	SDG	64.9[h]
Secondary education completion rate for boys (%)	-	-	-	72.0	73.4	-	SDG	52.2[h]
Tertiary enrollment rate for women (%)	-	-	-	3.8	4.1	-	SDG	11.0[h]
Tertiary enrollment rate for men (%)	-	-	-	6.4	7.3	-	SDG	15.4[h]
Literacy rate of 15-24 year-old women (%)	-	-	-	93.6	94.1	-	SDG	83.3[h]
Literacy rate of 15-24 year-old men (%)	-	-	-	85.9	88.6	-	SDG	78.9[h]
Employment to population ratio (EPR) for women (15+ years of age) (%)	-	-	-	20.7	20.8	-	SDG	33.9[h]
Employment to population ratio (EPR) for men (15+ years of age) (%)	-	-	-	83.9	83.6	-	SDG	79.2[h]
Women without incomes of their own (%)	-	-	-	6.7	7.0	-	SDG	7.4[h]

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

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APPENDIX A

Midyear population by age and sex, Chakaria HDSS, 2015

Age (years)	Midyear population			Percentage distribution of midyear population		
	Male	Female	Both	Male	Female	Both
<1	1,049	1,015	2,064	2.5	2.4	2.5
1-4	4,071	3,782	7,853	9.7	9.1	9.4
5-9	5,525	5,376	10,901	13.2	12.9	13.1
10-14	5,818	5,525	11,343	13.9	13.2	13.6
15-19	5,042	4,821	9,863	12.1	11.6	11.8
20-24	3,776	4,283	8,059	9.0	10.3	9.7
25-29	3,090	3,542	6,632	7.4	8.5	7.9
30-34	2,770	3,176	5,946	6.6	7.6	7.1
35-39	2,296	2,294	4,590	5.5	5.5	5.5
40-44	1,940	1,756	3,696	4.6	4.2	4.4
45-49	1,459	1,439	2,898	3.5	3.4	3.5
50-54	1,248	1,311	2,559	3.0	3.1	3.1
55-59	1,068	1,112	2,180	2.6	2.7	2.6
60-64	889	787	1,676	2.1	1.9	2.0
65-69	616	542	1,158	1.5	1.3	1.4
70-74	503	399	902	1.2	1.0	1.1
75-79	276	247	523	0.7	0.6	0.6
80-84	190	155	345	0.5	0.4	0.4
85+	143	162	305	0.3	0.4	0.4
All	41,769	41,724	83,493	100.0	100.0	100.0

APPENDIX B

Cause-specific mortality rate per 1,000 population by age and sex, Chakaria HDSS, 2015

Causes	Age groups (years)						
	Neonate	Infant	1-4	5-14	15-49	50-64	65+
Male							
01.01 Sepsis (non-obstetric)	0.0	1.0	0.0	0.0	0.0	0.0	0.0
01.02 Acute respiratory infection including pneumonia	0.0	4.1	0.2	0.2	0.0	1.2	4.0
01.03 HIV/AIDS related death	0.0	0.0	0.0	0.0	0.1	0.0	0.5
01.04 Diarrhoeal diseases	0.0	1.0	0.0	0.0	0.0	0.0	0.4
01.05 Malaria	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01.06 Measles	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01.07 Meningitis and encephalitis	103.4	1.7	0.2	0.0	0.0	0.0	0.0
01.09 Pulmonary tuberculosis	0.0	0.0	0.0	0.0	0.1	0.7	5.5
01.10 Pertussis	0.0	0.0	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	0.3	0.1	0.0	0.3	1.8
02.01 Oral neoplasms	0.0	0.0	0.0	0.0	0.0	0.2	0.0
02.02 Digestive neoplasms	0.0	0.0	0.0	0.0	0.2	0.6	3.9
02.03 Respiratory neoplasms	0.0	0.0	0.0	0.0	0.0	0.6	1.3
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	0.3	1.7
02.99 Other and unspecified neoplasms	0.0	0.0	0.0	0.0	0.1	0.3	3.7
03.01 Severe anaemia	0.0	0.0	0.0	0.0	0.0	0.0	0.0
03.02 Severe malnutrition	0.0	1.0	0.0	0.0	0.0	0.0	1.5
03.03 Diabetes mellitus	0.0	0.0	0.0	0.0	0.0	0.0	2.4
04.01 Acute cardiac disease	0.0	0.0	0.0	0.0	0.1	0.3	2.6
04.02 Stroke	0.0	0.0	0.0	0.0	0.2	1.2	9.6
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	0.0	0.3	2.5
05.01 Chronic obstructive pulmonary diseases	0.0	0.0	0.0	0.0	0.0	1.6	7.5
05.02 Asthma	0.0	0.0	0.0	0.0	0.0	0.0	0.0
06.01 Acute abdomen	0.0	0.0	0.0	0.0	0.1	0.0	0.8
06.02 Liver cirrhosis	0.0	0.0	0.0	0.0	0.1	0.1	0.5

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	0.2	1.0
08.01 Epilepsy	12.0	0.0	0.0	0.0	0.0	0.0	1.1
09.01 Ectopic pregnancy	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09.02 Abortion-related death	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	91.7	0.0	0.0	0.0	0.0	0.0	0.0
10.02 Birth asphyxia	11.3	0.0	0.0	0.0	0.0	0.0	0.0
10.03 Neonatal pneumonia	44.9	0.0	0.0	0.0	0.0	0.0	0.0
10.04 Neonatal sepsis	63.0	0.0	0.0	0.0	0.0	0.0	0.0
10.06 Congenital malformation	0.0	1.0	0.0	0.0	0.0	0.0	0.0
10.99 Other and unspecified neonatal causes of death	72.0	0.0	0.0	0.0	0.0	0.0	0.0
12.01 Road traffic accident	0.0	0.0	0.0	0.0	0.2	0.0	0.0
12.02 Other transport accident	0.0	0.0	0.5	0.1	0.0	0.3	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	1.0	1.7	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	0.0
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	0.0	0.0	0.0	0.0
12.09 Assault	0.0	0.0	0.0	0.0	0.0	0.3	0.0
12.10 Exposure to force of nature	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	0.5
99 Indeterminate	83.5	1.6	0.5	0.1	0.2	1.3	8.4
All causes	481.9	12.4	3.5	0.7	1.7	9.7	61.3

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	1.0	0.1	0.0	0.0	0.0	0.4
01.02 Acute respiratory infection including pneumonia	0.0	9.6	0.6	0.0	0.0	0.9	9.0
01.03 HIV/AIDS related death	0.0	0.0	0.2	0.1	0.0	0.3	3.5
01.04 Diarrhoeal diseases	0.0	2.1	0.0	0.0	0.0	0.0	1.0
01.05 Malaria	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01.06 Measles	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01.07 Meningitis and encephalitis	62.5	1.2	0.0	0.0	0.0	0.0	0.0
01.09 Pulmonary tuberculosis	0.0	0.0	0.0	0.0	0.0	1.2	3.1
01.10 Pertussis	0.0	0.7	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	0.3	0.0
02.01 Oral neoplasms	0.0	0.0	0.0	0.0	0.0	0.3	0.0
02.02 Digestive neoplasms	0.0	0.0	0.0	0.0	0.0	2.0	3.4
02.03 Respiratory neoplasms	0.0	0.0	0.0	0.0	0.0	0.5	0.5
02.04 Breast neoplasms	0.0	0.0	0.0	0.0	0.1	0.0	0.0
02.05 & 02.06 Reproductive neoplasms M, F	0.0	0.0	0.0	0.0	0.2	0.9	1.8
02.99 Other and unspecified neoplasms	0.0	0.0	0.0	0.0	0.1	0.6	2.9
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	0.2	0.0	0.0	0.0	2.8
03.03 Diabetes mellitus	0.0	0.0	0.0	0.0	0.0	0.9	3.6
04.01 Acute cardiac disease	0.0	0.0	0.0	0.0	0.0	0.2	0.7
04.02 Stroke	0.0	0.0	0.0	0.0	0.0	0.8	11.6
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	0.6	2.3
05.01 Chronic obstructive pulmonary diseases	0.0	0.0	0.0	0.0	0.0	0.7	5.6
05.02 Asthma	0.0	0.0	0.0	0.0	0.0	0.3	0.0
06.01 Acute abdomen	0.0	0.0	0.0	0.1	0.1	0.6	2.2
06.02 Liver cirrhosis	0.0	0.0	0.0	0.0	0.1	0.2	0.0
07.01 Renal failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0
08.01 Epilepsy	0.0	2.2	0.3	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
09.02 Abortion-related death	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	0.2	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	44.8	0.0	0.0	0.0	0.0	0.0	0.0
10.02 Birth asphyxia	20.8	0.0	0.0	0.0	0.0	0.0	0.0
10.03 Neonatal pneumonia	56.7	0.0	0.0	0.0	0.0	0.0	0.0
10.04 Neonatal sepsis	39.9	0.0	0.0	0.0	0.0	0.0	0.0
10.06 Congenital malformation	9.9	0.0	0.0	0.0	0.0	0.0	0.0
10.99 Other and unspecified neonatal causes of death	61.0	0.0	0.0	0.0	0.0	0.0	0.0
12.01 Road traffic accident	0.0	0.0	0.0	0.0	0.0	0.0	0.6
12.02 Other transport accident	0.0	0.0	0.3	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	0.3	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	0.5	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	0.0	0.0	0.0	0.0	0.0	0.0
12.10 Exposure to force of nature	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	0.6
99 Indeterminate	48.1	2.2	0.2	0.0	0.2	1.3	11.7
All causes	343.8	19.6	2.1	0.5	1.8	12.8	67.1

APPENDIX C

Migration rate per 1,000 population by age and sex, Chakaria HDSS, 2015

Age (years)	No. of migrants			Migration rate per 1,000 population		
	Male	Female	Both	Male	Female	Both
In-migration						
<1	75	67	142	71.5	66.0	68.8
1-4	143	124	267	35.1	32.8	34.0
5-9	119	142	261	21.5	26.4	23.9
10-14	98	149	247	16.8	27.0	21.8
15-19	64	577	641	12.7	119.7	65.0
20-24	91	304	395	24.1	71.0	49.0
25-29	107	148	255	34.6	41.8	38.4
30-34	117	91	208	42.2	28.7	35.0
35-39	83	38	121	36.1	16.6	26.4
40-44	33	24	57	17.0	13.7	15.4
45-49	26	13	39	17.8	9.0	13.5
50-54	9	9	18	7.2	6.9	7.0
55-59	8	13	21	7.5	11.7	9.6
60-64	8	20	28	9.0	25.4	16.7
65-69	12	7	19	19.5	12.9	16.4
70-74	7	16	23	13.9	40.1	25.5
75-79	8	4	12	29.0	16.2	22.9
80-84	2	4	6	10.5	25.8	17.4
85+	2	10	12	14.0	61.7	39.3
All	1,012	1,760	2,772	24.2	42.2	33.2
Out-migration						
<1	68	53	121	64.8	52.2	58.6
1-4	165	147	312	40.5	38.9	39.7
5-9	141	140	281	25.5	26.0	25.8
10-14	118	150	268	20.3	27.1	23.6
15-19	131	489	620	26.0	101.4	62.9
20-24	182	395	577	48.2	92.2	71.6
25-29	174	182	356	56.3	51.4	53.7
30-34	124	93	217	44.8	29.3	36.5
35-39	77	45	122	33.5	19.6	26.6
40-44	55	27	82	28.4	15.4	22.2
45-49	18	9	27	12.3	6.3	9.3
50-54	11	18	29	8.8	13.7	11.3
55-59	11	11	22	10.3	9.9	10.1
60-64	6	12	18	6.7	15.2	10.7
65-69	4	11	15	6.5	20.3	13.0
70-74	5	16	21	9.9	40.1	23.3
75-79	2	4	6	7.2	16.2	11.5
80-84	0	5	5	0.0	32.3	14.5
85+	1	11	12	7.0	67.9	39.3
All	1,293	1,818	3,111	31.0	43.6	37.3

APPENDIX D

Number of migrants by origin and destination, Chakaria HDSS, 2015

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	877	218	118	97	60	71	78	79	64	28	15	49
Outside Bangladesh	135	0	1	1	3	21	29	38	15	9	11	7
Inside Chakaria	465	109	60	58	40	33	40	41	32	15	6	31
Outside Chakaria	123	28	21	16	7	9	10	8	11	3	4	6
Inside HDSS area	332	77	35	41	32	26	25	29	26	12	3	26
Outside HDSS area	133	32	25	17	8	7	15	12	6	3	3	5
Female												
Inside Bangladesh	1,752	190	142	148	574	304	147	90	36	25	13	83
Outside Bangladesh	8	1	0	1	1	2	1	1	0	1	0	0
Inside Chakaria	1,071	100	89	85	363	195	92	48	19	11	4	65
Outside Chakaria	294	24	21	23	113	52	20	14	9	7	3	8
Inside HDSS area	742	68	66	64	234	135	54	38	15	8	4	56
Outside HDSS area	329	32	23	21	129	60	38	10	4	3	0	9
Out-migration												
Male												
Inside Bangladesh	1,046	232	141	115	100	86	121	98	61	39	16	37
Outside Bangladesh	247	1	0	3	31	96	53	26	16	16	2	3
Inside Chakaria	777	164	109	83	73	64	94	74	49	31	8	28
Outside Chakaria	133	36	21	18	13	14	9	10	5	3	2	2
Inside HDSS area	315	66	38	44	36	29	28	29	13	16	3	13
Outside HDSS area	239	52	46	25	19	16	33	12	15	10	5	6
Female												
Inside Bangladesh	1,797	199	139	150	483	389	181	91	42	27	8	88
Outside Bangladesh	21	1	1	0	6	6	1	2	3	0	1	0
Inside Chakaria	1,320	156	101	109	360	276	131	63	30	20	5	69
Outside Chakaria	276	21	19	22	84	67	29	15	7	2	2	8
Inside HDSS area	645	74	49	46	211	118	59	22	14	11	3	38
Outside HDSS area	378	51	30	38	81	83	37	24	12	6	0	16

APPENDIX E

Number of in-migrants by reasons for migration, Chakaria HDSS, 2015

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	87	0	0	10	9	9	16	14	13	10	4	2
Family friction/ breakdown	200	0	2	30	27	25	25	24	23	18	14	12
Others	13	2	1	1	2	0	2	1	1	0	0	3
Work-related												
New job/job transfer	156	0	0	3	8	25	34	44	17	9	10	6
To look for work/ lost job	203	0	2	24	108	42	23	2	1	0	0	1
Others	26	0	0	1	6	3	2	6	3	1	1	3
Housing-related												
Wanted to own home/new house	230	7	6	30	29	31	39	39	21	10	5	13
Education												
To acquire education	45	2	21	14	4	3	1	0	0	0	0	0
Reasons not reported	52	11	4	3	20	6	1	1	4	0	0	2
All	1,012	22	36	106	204	135	127	117	70	38	30	40
Female												
Family related												
To join spouse	878	0	1	51	486	190	64	43	19	13	7	4
Family friction/ breakdown	210	6	5	26	32	40	44	26	12	8	8	3
Others	25	1	4	5	2	4	0	2	0	1	1	5
Work-related												
New job/job transfer	7	0	0	0	3	2	1	1	0	0	0	0
To look for work/ lost job	251	0	31	55	136	9	6	4	1	2	1	6
Others	18	0	0	1	3	4	4	3	2	0	0	1
Housing-related												
Wanted to own home/new house	251	16	27	26	37	49	43	21	7	7	4	14
Education												
To acquire education	57	2	28	18	6	2	1	0	0	0	0	0
Reasons not reported	63	7	1	2	36	6	3	5	2	1	0	0
All	1,760	32	97	184	741	306	166	105	43	32	21	33

APPENDIX F

Number of out-migrants by reasons for migration, Chakaria HDSS, 2015

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	7	18	16	5	15	5	3	0	3
Family friction/ breakdown	158	23	15	13	14	13	18	21	14	12	6	9
Others	34	3	3	3	6	0	5	2	2	5	1	4
Work-related												
New job/job transfer	287	154	63	40	16	7	2	1	0	0	0	4
To look for work/ lost job	267	0	1	3	33	102	64	26	16	17	2	3
Others	29	0	0	2	2	5	7	4	5	2	0	2
Housing-related												
Wanted to own home/new house	196	6	23	33	30	19	25	22	16	15	4	3
Education												
To acquire education	38	3	8	12	5	7	1	1	0	1	0	0
Reasons not reported	212	20	23	7	19	18	47	32	20	9	5	12
All	1,293	209	136	120	143	187	174	124	78	64	18	40
Female												
Family-related												
To Join spouse	819	0	2	78	337	250	84	30	17	12	7	2
Family friction/ breakdown	144	6	9	11	28	27	26	19	10	3	3	2
Others	38	4	4	3	4	3	7	6	3	2	2	0
Work-related												
New job/job transfer	17	0	0	1	3	6	2	2	2	0	1	0
To look for work/ lost job	271	0	58	36	138	25	8	3	1	1	1	0
Others	17	0	1	1	2	2	6	2	1	1	1	0
Housing-related												
Wanted to own home/new house	210	11	20	36	44	35	26	12	10	11	4	1
Education												
To acquire education	28	2	7	14	3	0	0	2	0	0	0	0
Reasons not reported	274	2	33	14	17	49	65	30	31	9	9	15
All	1,818	25	134	194	576	397	224	106	75	39	28	20

APPENDIX G

Population, births, deaths, in and out-migration by village, Chakaria HDSS, 2015

Village	Population	Birth	Death	In-migration	Out-migration	Birth rate	Death rate	In-migration rare	Out-migration rate
Maizpara	1,669	38	16	57	69	22.8	9.6	34.2	41.3
Daingakata	1,920	41	13	37	94	21.4	6.8	19.3	49.0
Baniachara	3,196	70	15	148	145	21.9	4.7	46.3	45.4
Dakshin Baraitali	2,260	62	19	45	110	27.4	8.4	19.9	48.7
Gobindapur	4,794	132	36	135	134	27.5	7.5	28.2	28.0
Hapaliakata	3,684	115	18	135	136	31.2	4.9	36.6	36.9
Baraitali	**17,523**	**458**	**117**	**557**	**688**	**26.1**	**6.7**	**31.8**	**39.3**
Katakhali	400	8	4	18	8	20.0	10.0	45.0	20.0
Rakhainpara	664	7	8	39	42	10.5	12.0	58.7	63.3
Shantinagar	1,844	38	11	187	90	20.6	6.0	101.4	48.8
Kulalpara	188	2	0	2	8	10.6	0.0	10.6	42.6
Palpara	247	4	0	3	14	16.2	0.0	12.1	56.7
Stationpara	638	19	5	18	22	29.8	7.8	28.2	34.5
Kattoli	432	11	3	14	23	25.5	6.9	32.4	53.2
Harbang	**4,413**	**89**	**31**	**281**	**207**	**20.2**	**7.0**	**63.7**	**46.9**
Purbo Kunakhali	1,735	63	8	28	46	36.3	4.6	16.1	26.5
Maddhya Kunakhali	4,568	144	32	94	146	31.5	7.0	20.6	32.0
Furotia Khali	3,048	85	19	126	79	27.9	6.2	41.3	25.9
Konakhali	**9,351**	**292**	**59**	**248**	**271**	**31.2**	**6.3**	**26.5**	**29.0**

Appendix G. (contd...)

Village	Population	Birth	Death	In-migration	Out-migration	Birth rate	Death rate	In-migration rare	Out-migration rate
Krisnapur	1,511	33	6	57	40	21.8	4.0	37.7	26.5
Chhainama Para	2,755	82	21	94	66	29.8	7.6	34.1	24.0
Dakshin Bahaddarkata	2,411	67	9	50	89	27.8	3.7	20.7	36.9
BM Char	**6,677**	**182**	**36**	**201**	**195**	**27.3**	**5.4**	**30.1**	**29.2**
Chotta Bheola	920	26	5	42	28	28.3	5.4	45.7	30.4
Hasimar Kata	1,006	17	6	20	38	16.9	6.0	19.9	37.8
Hamidullah Sikderpara	785	21	5	47	41	26.8	6.4	59.9	52.2
Dwipkul	982	27	7	26	48	27.5	7.1	26.5	48.9
Baniarkum	1,156	37	4	18	55	32.0	3.5	15.6	47.6
Dakshin Khilsadok	1,771	49	10	51	80	27.7	5.6	28.8	45.2
Kaiarbil	**6,620**	**177**	**37**	**204**	**290**	**26.7**	**5.6**	**30.8**	**43.8**
Kaddachura	1,611	33	6	30	48	20.5	3.7	18.6	29.8
Sikder Para	3,947	104	24	135	149	26.3	6.1	34.2	37.8
Baniarchar	929	27	9	8	30	29.1	9.7	8.6	32.3
Kalagazi Sikderpara	1,372	33	3	37	53	24.1	2.2	27.0	38.6
Mabiar Baper Para	723	14	4	28	25	19.4	5.5	38.7	34.6
Jele Para	631	24	4	8	12	38.0	6.3	12.7	19.0
Purba B. Bheola	**9,213**	**235**	**50**	**246**	**317**	**25.5**	**5.4**	**26.7**	**34.4**
Sharharbil Purba Para	1,201	32	6	44	54	26.6	5.0	36.6	45.0
Shaharbil Paschim Para	1,042	21	7	24	22	20.2	6.7	23.0	21.1
Madrasha Para	484	16	4	25	37	33.1	8.3	51.7	76.4
Maizghona Purba Para	1,441	38	5	64	53	26.4	3.5	44.4	36.8
Shahapura	1,023	30	5	30	24	29.3	4.9	29.3	23.5
Failla Para	342	12	1	3	4	35.1	2.9	8.8	11.7
Shaharbil	**5,533**	**149**	**28**	**190**	**194**	**26.9**	**5.1**	**34.3**	**35.1**

Appendix G. (contd...)

Village	Population	Birth	Death	In-migration	Out-migration	Birth rate	Death rate	In-migration rare	Out-migration rate
Saker Mohammad Char	5,364	118	27	220	187	22.0	5.0	41.0	34.9
Uttar Lotony	1,839	33	4	69	61	17.9	2.2	37.5	33.2
Proper Kakara	2,983	53	22	78	158	17.8	7.4	26.1	53.0
Kakara	**10,186**	**204**	**53**	**367**	**406**	**20.0**	**5.2**	**36.0**	**39.9**
Dakshin Surajpur	1,276	23	9	45	75	18.0	7.1	35.3	58.8
Dakshin Manikpur	2,822	60	21	94	103	21.3	7.4	33.3	36.5
Uttar Manikpur	4,338	117	21	127	132	27.0	4.8	29.3	30.4
Surajpur Manikpur	**8,436**	**200**	**51**	**266**	**310**	**23.7**	**6.0**	**31.5**	**36.7**
Muchar Para	511	16	3	14	25	31.3	5.9	27.4	48.9
Demoshia Bazar Para	1,044	34	4	18	38	32.6	3.8	17.2	36.4
Ammer Dera Para	1,393	35	9	66	82	25.1	6.5	47.4	58.9
Daskhali Para	930	19	5	30	30	20.4	5.4	32.3	32.3
Dhemoshia	**3,878**	**104**	**21**	**128**	**175**	**26.8**	**5.4**	**33.0**	**45.1**
Darbeshkata Manik Para	768	21	1	37	21	27.3	1.3	48.2	27.3
Tekhsira Para	895	30	8	47	37	33.5	8.9	52.5	41.3
Paschim B. Bheola	**1,663**	**51**	**9**	**84**	**58**	**30.7**	**5.4**	**50.5**	**34.9**
All	83,493	2,141	492	2,772	3,111	25.6	5.9	33.2	37.3

APPENDIX H

Percentage of population by age and marital status, Chakaria HDSS, 2015

Age (years)	Married	Divorced	Widower/ Widow	Never married	Population
Male					
10-14	0.0	0.0	0.0	100.0	5,818
15-19	2.8	0.0	0.0	97.2	5,042
20-24	21.4	0.2	0.0	78.4	3,776
25-29	53.3	0.5	0.0	46.2	3,090
30-34	83.2	0.8	0.0	15.9	2,770
35-39	96.1	0.5	0.1	3.3	2,296
40-44	98.8	0.4	0.1	0.8	1,940
45-49	99.0	0.3	0.2	0.6	1,459
50-54	99.1	0.2	0.4	0.3	1,248
55-59	97.8	0.3	1.3	0.6	1,068
60-64	97.2	0.1	2.2	0.4	889
65-69	96.0	0.0	3.7	0.4	616
70-74	91.8	0.4	7.4	0.4	503
75-79	90.0	0.8	9.2	0.0	276
80-84	80.6	0.7	18.7	0.0	190
85+	71.4	1.4	27.1	0.0	143
All	49.1	0.3	0.7	49.9	31,124
Female					
10-14	1.0	0.0	0.0	99.0	5,525
15-19	26.9	0.3	0.0	72.8	4,821
20-24	70.3	1.0	0.3	28.3	4,283
25-29	90.4	1.8	0.5	7.3	3,542
30-34	94.8	1.3	1.7	2.2	3,176
35-39	93.0	1.3	4.6	1.0	2,294
40-44	88.7	2.3	8.1	1.0	1,756
45-49	83.9	1.2	13.3	1.6	1,439
50-54	76.1	1.3	21.5	1.1	1,311
55-59	67.0	1.2	30.7	1.1	1,112
60-64	57.0	1.6	39.9	1.5	787
65-69	44.1	1.0	54.9	0.0	542
70-74	30.8	0.7	68.2	0.2	399
75-79	17.7	0.6	81.7	0.0	247
80-84	13.0	0.5	86.5	0.0	155
85+	3.8	0.0	96.2	0.0	162
All	56.7	1.0	8.4	34.0	31,551

APPENDIX I

Chakaria HDSS project team, Chakaria HDSS, 2015

Name of Staff	Designation
Dhaka	
Abbas Bhuiya	Project Director
Mohammad Iqbal	Deputy Project Coordinator
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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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