URBAN HEALTH AND DEMOGRAPHIC SURVEILLANCE SYSTEM

Registration of Health and Demographic Events, 2021

icddr,b

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Slums in and around Dhaka City Corporations

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List of Abbreviations

ANC	Antenatal Care
BCG	Bacillus Calmette-Guerin
COPD	Chronic Obstructive Pulmonary Disease
COVID-19	Coronavirus 2019
C-section	Caesarean section
DGFP	Directorate General of Family Planning
DGHS	Directorate General of Health Services
GIS	Geographic Information System
Govt.	Government
GPS	Global Positioning System
HDSS	Health and Demographic Surveillance System
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
IUD	Intra-Uterine Device
LGD	Local Government Division
MBBS	Bachelor of Medicine and Bachelor of Surgery
MICS	Multiple Indicator Cluster Survey
MOHFW	Ministry of Health and Family Welfare
MR	Measles-Rubella
NGO	Non-Government Organization
NIPORT	National Institute of Population Research and Training
OPV	Oral Polio Vaccine
PCV	Pneumococcal Conjugated Vaccine
PNC	Postnatal Care
SQL	Structured Query Language
Std.	Standardized
TBA	Traditional Birth Attendant
TTBA	Traditional Trained Birth Attendant
UHS	Urban Health Survey
UNICEF	United Nations Children's Fund
UPHCSDP	Urban Primary Health Care Service Delivery Project

SUMMARY

The Urban Health and Demographic Surveillance System (Urban HDSS) operates in the selected slums in and around Dhaka City Corporations covering nearly 159,000 population approximately living in 40,000 households. This report provides the Urban HDSS updates of vital events, migrations and selected maternal, neonatal and child health service indicators. The table below summarizes key demographic, social, and health service indicators for 2021 comparing with the Matlab HDSS 2021, Multiple Indicator Cluster Survey (MICS) 2019, and Urban Health Survey 2021.

Indicators/parameters	Urban HDSS 2021	Matlab HDSS 2021*	MICS 2019	Urban Health Survey 2021
Demographic				
Crude birth rate [a]	19.4	19.0	19.4	20.9
Total fertility rate	1.7	2.3	2.3	2.1
General fertility rate [b]	61.7	71.0	76.6	82.0
Adolescent fertility rate [b]	87.2	65.7	83.0	96.0
Neonatal mortality [c]	27.2	23.1	26.0	27.1
Post-neonatal mortality [c]	9.7	4.0	8.0	7.8
Infant mortality rate [c]	37.3	27.1	34.0	34.9
Child mortality rate (1-4 yrs.) [a]	1.2	2.3	6.0	6.1
Under-five mortality rate [c]	41.8	37.3	40.0	40.8
Crude death rate [a]	4.5	9.1	-	-
Standardized death rate [d]	8.7	-	-	-
Rate of natural increase	14.9	9.9	-	-
Life expectancy at birth for males	68.4	68.7**	-	-
Life expectancy at birth for females	71.3	72.2**	-	-
In-migration rate [a]	142.9	47.1**	-	-
Out-migration rate [a]	174.9	58.2**	-	-
Internal movement rate [a]	103.7	-	-	-
Net migration rate	-32.0	-10.8**	-	-
Population growth (%)	22.4	1.1**	1.1	-
Social				
Dependency ratio	46.8	61.3	-	-
Mean age at marriage for males	23.5	28.3**	-	-
Mean age at first marriage for males	22.6	26.9**	-	-
Early marriage for males (%)	32.3	8.4**	-	-
Mean age at marriage for females	18.1	19.8**	-	-
Mean age at first marriage for females	17.5	18.8**	-	-
Early marriage for females (%)	55.8	12.3**	-	-
Maternal and child health				
Stillbirth (%)	2.7	1.5	-	-
Facility-based delivery (%)	53.3	73.3	53.4	54.1
SBA assisted delivery (%)	71.5	85.0	59	67.6
Caesarean delivery (%)	34.9	59.1	36	31.3
Antenatal care (at least 1 visit) (%)	81.9	94.2	82.8	88.3
Antenatal care (at least 4 visits) (%)	35.4	26.7	36.9	39.8
Postnatal care for mother (at least 1 visit) (%)	47.3	-	65.3	67.0
Postnatal care for child (at least 1 visit) (%)	50.5	-	66.7	66.3
Contraceptive prevalence rate (%)	73.4	-	62.7	71.6
Basic immunization (12-23 months) (%)	71.8	-	-	-

* Matlab HDSS government service areas; ** Matlab HDSS all areas.
[a] Per 1,000 population; [b] Per 1,000 women; [c] Per 1,000 livebirths; [d] Standardized with Matlab HDSS government service areas.

Chapter 1 : Introduction

According to United Nations' estimates, the population of Bangladesh will increase from 158 million in 2014 to roughly 185 million by 2030, while the urban population will increase from 50 million to roughly 83 million. It is also estimated that Bangladesh will be more urban than rural by the middle of this century (United Nations, 2015).

The high growth of the urban population in Bangladesh has occurred in recent decades, mainly through mass migration of the rural poor. Such rapid urban growth has created a heavy demand on urban utilities and services, making it difficult for the government to provide basic services, employment, and social benefits to citizens. Although Bangladesh has witnessed a remarkable progress over the last few decades in health and population indicators, significant disparities exist within urban areas between slum and non-slum dwellers with respect to health, nutrition, housing, water, and sanitation (NIPORT, 2015; Roy et al. 2014). In fact, the pluralistic health systems in urban areas are less coordinated and more fragmented than those in rural areas.

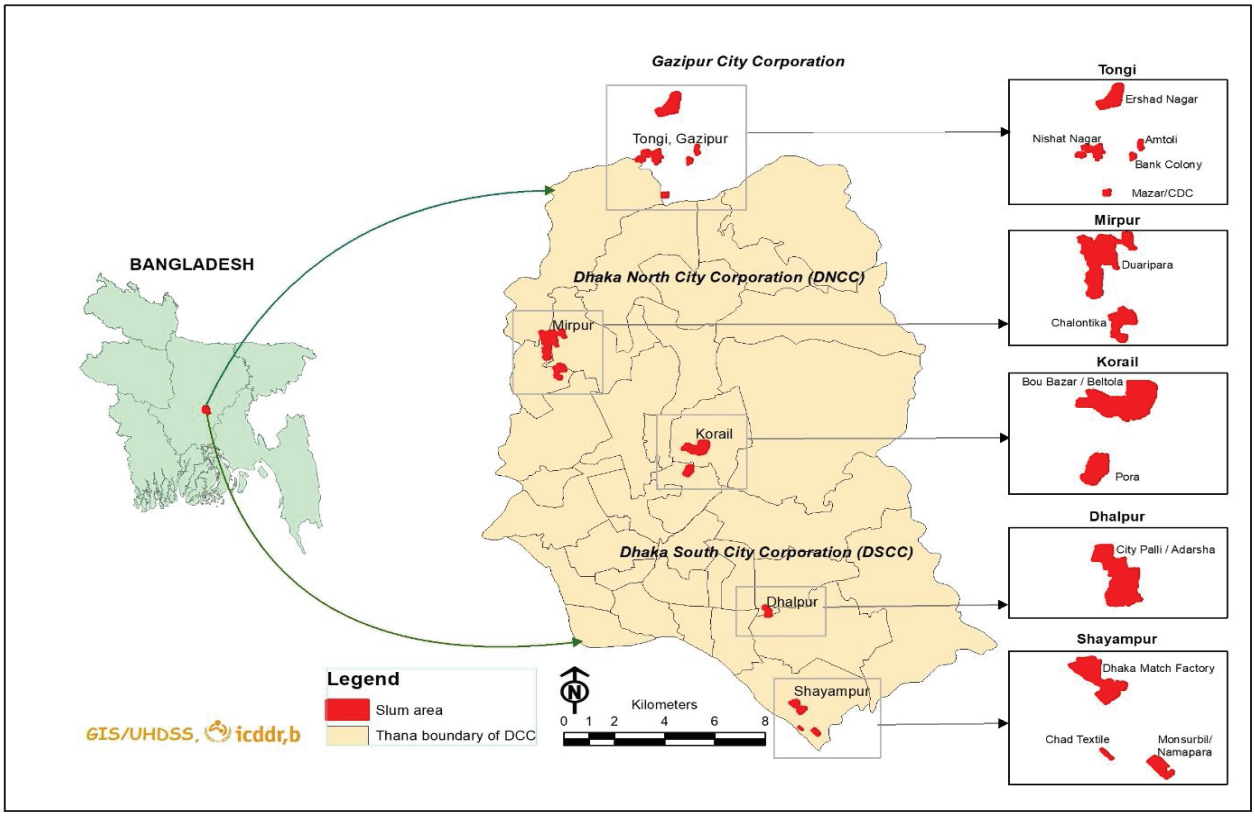
Regarding urban health, the Local Government Division (LGD) has been implementing the Urban Primary Health Care Service Delivery Project (UPHCSDP) to deliver primary health-care services through urban local bodies and NGOs since 1998 (https://uphcsdp.gov.bd/). Later in 2019, UNICEF decided to establish the Aalo Clinics (model clinics) to provide comprehensive primary health care services to the urban poor as well as to support the Health and Demographic Surveillance System in selected slums in and around the Dhaka City Corporations. Although, UNICEF has been supporting Urban HDSS since December 2019, the functioning of the Aalo Clinics has been delayed for COVID-19.

In 2021, a total of six clinics are established adjacent to the Urban HDSS areas so that community-level monitoring and the progress of the services provided by the clinics are maintained. Therefore, the objective of the Urban HDSS is to collect detailed data on demographic and health indicators of selected slum dwellers for monitoring and impact evaluation of the comprehensive Primary Health Care (PHC) services that are being provided by the Aalo Clinics.

To understand the population, health, and socioeconomic conditions of slum dwellers and to monitor the services those provided by the UPHCSDP and local bodies, icddr,b established the Health and Demographic Surveillance System (HDSS) in 2016, that is currently covering around 160,000 population. In addition to that, the Urban HDSS also included detailed data on maternity care, child health, breastfeeding, childhood immunization, and WHO VA data from 2021.

The Urban HDSS operates in selected slums of Dhaka (North & South) and Gazipur City Corporations (Figure 1.1). In Dhaka North City Corporation, slums include from Korail are — Bowbazar, Beltola, Lake Par, TNT Ansar Camp, Jhilpar, and Sattola; and from Mirpur are — Bhola, Molla, and Duaripara. In Dhaka South City Corporation, slums include from Dhalpur are — Pura Bosti, Driver, Nubur, City Palli, Power House, and Mannan slums; and from Shaympur are — Dhaka Mach Colony, Monsur Beel/Nama Para, and Rail Line slums. In Gazipur City Corporation slums include from Tongi are — Bank Field, Hazi Mazar, Nishad Nagar, and Kalabagan; and Ershad Nagar slums.

Figure 1.1. Location of Slums: Dhaka (North & South) and Gazipur City Corporations



Chapter 2 : Methods and Materials

In 2021, mid-year population of the Urban HDSS became 158,917, living in 42,107 households. In Dhaka North City Corporation, Korail slums had 59,307 populations, and Mirpur slums had 30,759 populations. In Dhaka South City Corporation, 18,049 populations were from Dhalpur, and Shaympur slums. In Gazipur City Corporation, 50,802 populations were from Tongi, and Ershad Nagar slums.

The Urban HDSS started with an initial population and socioeconomic census of the residents living in a defined geographical area, followed by regular household visits by female Field Workers to update information on births, deaths, migrations, marriage/divorce, health services, and socioeconomic data. Each female Field Worker was assigned to visit 40–45 households every day and to cover her assigned area within three months. The data were collected using portable devices (tablets) programmed in SQL, and the database was relational and managed by the MySQL server. From this year, the HDSS had been working on to establish the online data collection platform.

Each working day, the female Field Workers visited their assigned households, guided by the database previously loaded onto the portable devices. A written consent was obtained during the baseline population census for every household, which included consent for subsequent visits for HDSS data collection. After obtaining their consent, the Field Worker first performed a roll call using the database to identify any HDSS events. If any event had occurred in the household (except for newly in-migrants), the interviewer entered the identification number into their data collection device to retrieve the basic information from the database. For the newly in-migrants or births, a new identification number was assigned under the household, and additional data were started to collect.

The HDSS data include:

a) conception and pregnancy outcomes (livebirths, stillbirths, induced and spontaneous miscarriages);
b) death and its causes using the World Health Organization-Verbal Autopsy (WHO VA);
c) migration (out-, in-, and internal-);
d) marriage/divorce;
e) head change/household split;
f) safe motherhood practices with ANC components, pregnancy/delivery complications, violence during pregnancy; knowledge and behaviour on pregnancy, delivery and new-born care;
g) fertility regulation;
h) child immunization.
i) Geographic Information System (GIS)

From this year, causes of death were collected using the standard questionnaire of WHO VA. For WHO VA data, female Field Workers first identified the deaths during the routine HDSS data collection, and another female Field Worker (trained on VA) visited the deceased household to collect detailed VA data; the visit was usually occurred within 4-6 weeks of the death and data were collected from a household member or caregiver who would be able to provide information related to death.

Chapter 3 : Population Composition

- Overall, 56.5% of the population were aged 15-44 years, 29.3% were <15 years, 10.1% were 45-59 years, and 4.2% were 60+ years.
- The total dependency ratio was 46.8, including 43.0 for young dependents and 3.8 for old dependents.
- Among the total population, more males were never married (43.2% vs. 33.7%) than females, lower in currently married (55.4% vs. 57.0%), and previously married (1.4% vs. 9.3%).

The mid-year population's age-sex-specific distribution, dependency ratio, and marital status by age and sex are provided in this chapter. Detailed population distributions by slums and sex are also provided (see Appendix A: Appendix Table 1 and 2). The population characteristics of the slum areas are not the same as those of rural areas; therefore, the findings are compared with those of Matlab HDSS areas (government service areas).

The distribution of the Urban HDSS population by age differed from that of the Matlab HDSS (Table 3.1). In the Urban HDSS areas, there were more young adults (15–44 years) than in theMatlab HDSS areas (56.5% vs. 41.3%), but slightly lower populations of under 15 years (29.3% vs. 30.1%). There were appreciably fewer older adults (45–59 years) (10.1% vs. 16.1%) and elderly (60+ years) (4.2% vs. 12.5%). Both the young (43.0% vs. 48.5%) and old (3.8% vs. 12.7%) dependency ratios were lower for Urban HDSS than for the Matlab HDSS.

The age pyramid reflects a rapid decline in fertility, with more young people than elderly people (Figure 3.1). There were slightly more males than females for ages below 15 (30.0% vs. 28.5%), but appreciably more females than males for age groups 15–19 (11.9% vs. 10.2%), 20–24 (12.8% vs. 10.3%), and 25–29 (10.7% vs. 10.1%), while for subsequent higher age groups, slightly more males than females (Appendix table 1).

Among males, 43.2% were never married, 55.4% were currently married, and the rest were either widowed, divorced, or separated (1.4%), compared to 33.7%, 57.0%, and 9.2% for females (Table 3.2).

Table 3.1. Distribution of Population by Broad Age Group and Sex (per cent), Urban HDSS 2021

Age in years	Urban HDSS						Matlab HDSS-2021*
	Number			Percent			Percent
	Both	Male	Female	Both	Male	Female	Both
<15	46,512	23,584	22,928	29.3	30.0	28.5	30.1
15–44	89,798	43,036	46,761	56.5	54.8	58.2	41.3
45–59	15,967	8,388	7,579	10.1	10.7	9.4	16.1
60–64	2,571	1,354	1,217	1.6	1.7	1.5	4.6
65+	4,070	2,153	1,917	2.6	2.7	2.4	7.9
Total	**158,917**	**78,515**	**80,402**	**100.0**	**100.0**	**100.0**	**100.0**
Dependency ratio							
Total				46.8			61.3
Young				43.0			48.5
Old				3.8			12.7

Note: Population as of June 30, 2021.
* Matlab HDSS government service areas.

Figure 3.1. Age Pyramid of the Mid-year Population, Urban HDSS 2021

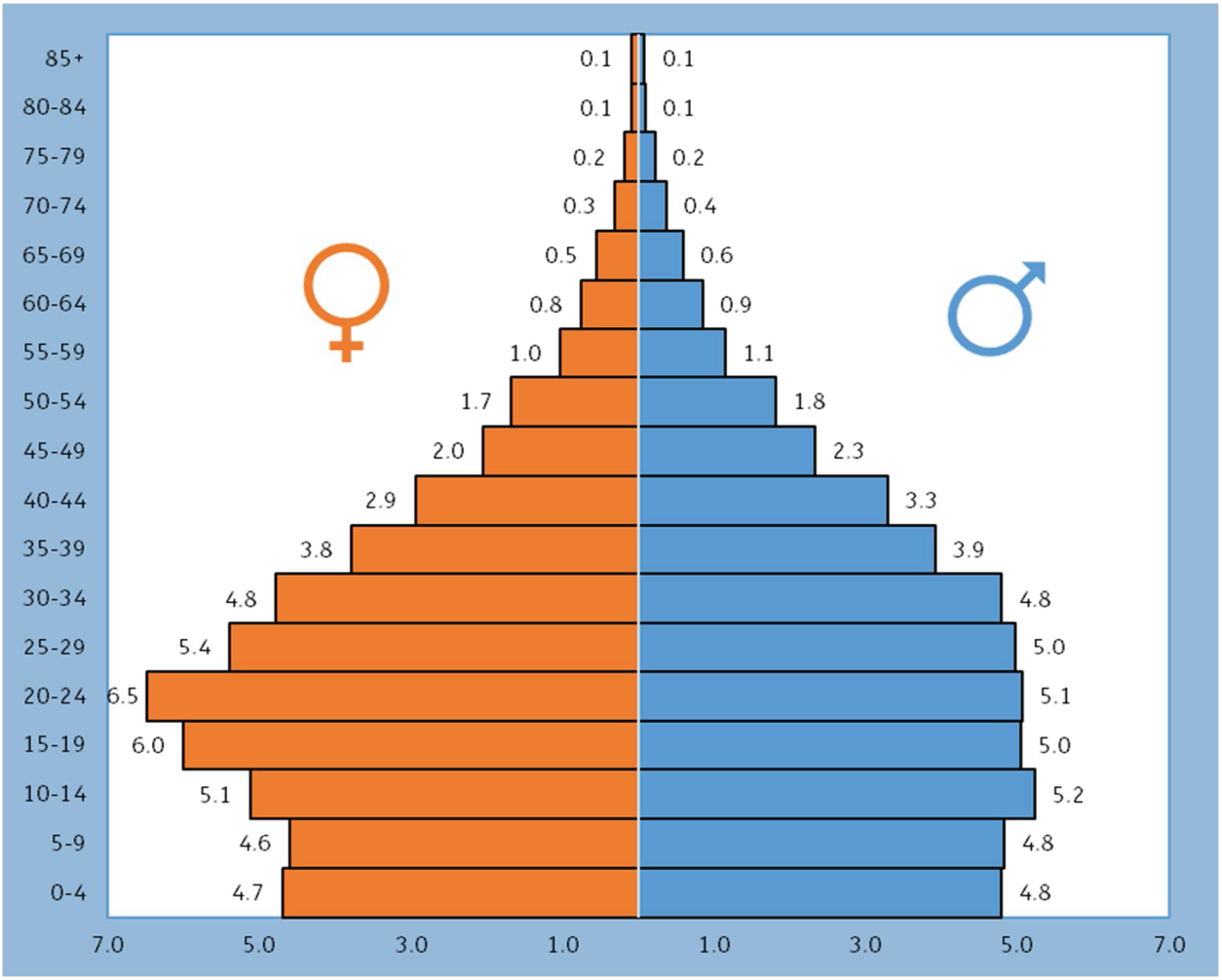


Table 3.2. Distribution of Current Marital Status by Age and Sex (per cent), Urban HDSS 2021

Age in years	Male						Female					
	NM	CM	WID	DIV	SEP	Total	NM	CM	WID	DIV	SEP	Total
0–4	100.0	0.0	0.0	0.0	0.0	7,610	100.0	0.1	0.0	0.0	0.0	7,462
5–9	100.0	0.0	0.0	0.0	0.0	7,672	100.0	0.1	0.0	0.0	0.0	7,329
10–14	98.5	1.5	0.0	0.0	0.0	8,302	87.5	12.3	0.0	0.2	0.0	8,137
15–19	81.0	18.5	0.1	0.5	0.1	8,016	39.3	58.8	0.1	1.5	0.3	9,550
20–24	37.0	61.4	0.1	1.3	0.3	8,058	11.3	85.4	0.3	2.2	0.9	10,310
25–29	8.7	89.4	0.2	1.6	0.2	7,907	2.3	92.6	0.9	2.1	2.2	8,580
30–34	2.5	95.5	0.2	1.4	0.5	7,619	0.8	92.9	1.8	1.9	2.7	7,617
35–39	0.9	97.4	0.4	0.9	0.4	6,221	0.4	89.9	4.1	1.8	3.9	6,026
40–44	0.5	98.1	0.5	0.7	0.2	5,216	0.2	84.1	9.2	1.6	4.9	4,678
45–49	0.4	97.8	0.8	0.5	0.5	3,709	0.1	76.6	17.2	1.2	4.9	3,256
50–54	0.2	97.2	1.6	0.5	0.5	2,870	0.3	66.7	26.9	1.2	4.9	2,686
55–59	0.2	96.9	2.2	0.3	0.4	1,809	0.1	53.6	39.9	1.1	5.3	1,637
60–64	0.4	95.1	4.1	0.2	0.3	1,354	0.4	38.0	57.3	1.1	3.2	1,217
65–69	0.6	93.5	5.1	0.4	0.3	936	0.4	27.5	67.0	0.6	4.6	869
70–74	0.2	91.6	7.7	0.5	0.0	584	0.0	19.8	78.4	0.4	1.4	485
75–79	1.1	88.1	10.5	0.3	0.0	354	0.3	10.4	82.8	1.0	5.4	297
80–84	0.7	85.0	12.9	0.0	1.4	147	0.8	5.3	91.7	1.5	0.8	132
85+	3.8	81.8	14.4	0.0	0.0	132	2.2	8.2	88.1	0.0	1.5	134
Total	**43.2**	**55.4**	**0.5**	**0.7**	**0.2**	**78,516**	**33.7**	**57.0**	**6.2**	**1.2**	**1.8**	**80,402**

Note: NM is never married, CM is currently married, WID is widow/widower, DIV is divorced, SEP is separated.

Chapter 4 : Mortality

- The crude death rate was 4.5 per 1,000 population.
- Overall, the under-5 mortality rate was 41.8, neonatal mortality rate was 27.2 and infant mortality rate was 37.3 (per 1,000 livebirths).
- Life expectancy at birth was higher for females (71.3) than males (68.4).
- 65.9% deaths were due to non-communicable and 11.4% were due to communicable causes.

A total of 718 deaths were registered from January to December 2021. Data on symptoms leading to death were collected using WHO VA and subsequently coded by a medical assistant. The age-sex distribution of deaths and death rates are shown in this chapter. As the distribution of the Urban HDSS population by age differed from that of the Matlab HDSS population, the Urban HDSS death rates were standardized with the Matlab HDSS (government service areas).

Out of 718 deaths, 16.0% were infants, 2.1% were children aged 1–4 years, 45.7% were aged 5-59 years, and 36.3% were aged 60 years or older. Comparable figures from the Matlab HDSS areas were 5.7%, 2.1%, 19.3%, and 72.8%, respectively (Table 4.1).

Table 4.1. Distribution of Deaths by Age and Sex (per cent), Urban HDSS 2021

Age in years	Urban HDSS						Matlab HDSS-2021*
	Both		Male		Female		
	Number	Percent	Number	Percent	Number	Percent	Both
<1 year	115	16.0	80	20.0	35	11.0	5.7
<7 days	*68*	*9.5*	*47*	*11.7*	*21*	*6.6*	*3.6*
7–29 days	*16*	*2.2*	*11*	*2.7*	*5*	*1.6*	*1.2*
1–5 months	*24*	*3.2*	*17*	*4.1*	*7*	*2.2*	*0.4*
6–11 months	*7*	*1.0*	*5*	*1.2*	*2*	*0.6*	*0.5*
1–4	15	2.1	10	2.5	5	1.6	2.1
5–9	6	0.8	5	1.2	1	0.3	0.6
10–14	16	2.2	7	1.7	9	2.8	0.5
15–19	13	1.8	6	1.5	7	2.2	0.9
20–24	18	2.5	3	0.7	15	4.7	0.4
25–29	18	2.5	8	2.0	10	3.2	0.5
30–34	24	3.4	13	3.3	11	3.5	1.2
35–39	33	4.6	19	4.8	14	4.4	1.0
40–44	40	5.6	22	5.5	18	5.7	2.4
45–49	46	6.4	27	6.7	19	6.0	2.6
50–54	65	9.1	38	9.5	27	8.5	2.6
55–59	49	6.8	27	6.8	22	6.9	6.6
60–64	40	5.6	19	4.8	21	6.6	11.3
65–69	52	7.3	18	4.5	34	10.7	10.4
70–74	68	9.5	38	9.5	30	9.5	11.3
75–79	39	5.4	26	6.5	13	4.1	14.7
80–84	31	4.3	18	4.5	13	4.1	13.3
85+	30	4.2	17	4.2	13	4.1	11.8
Total	**718**	**100.0**	**401**	**100.0**	**317**	**100.0**	**100.0**

* Matlab HDSS government service areas.

The crude death rate (per 1,000 population) in Urban HDSS areas was 4.5, compared to 9.1 in Matlab HDSS areas (Table 4.2). The crude death rate in Urban HDSS areas became 8.7 after standardization, while the age-standardized mortality rates were 1.0 for young people, 2.4 for adults, and 5.3 for the elderly (per 1,000 population) compared to Matlab government service areas.

The infant mortality rate (per 1,000 livebirths) in Urban HDSS areas was 37.3, and the under-five mortality rate was 41.8, while comparable figures in Matlab areas were 27.1 and 37.3, respectively.

Table 4.2. Age Specific Death Rates (per 1,000 population), Urban HDSS 2021

All ages	Urban HDSS			Matlab HDSS-2021¥
	Male	Female	Both	Both
<1 year*	50.3	23.4	37.3	27.1
Neonatal*	36.5	17.4	27.2	23.1
Post neonatal*	13.8	6.0	9.7	4.0
1–4	1.6	0.8	1.2	2.3
Under 5*	56.0	26.7	41.8	37.3
5–9	0.7	0.1	0.4	0.5
10–14	0.8	1.1	1.0	0.4
15–19	0.7	0.7	0.7	0.9
20–24	0.4	1.5	1.0	0.5
25–29	1.0	1.2	1.1	0.7
30–34	1.7	1.4	1.6	1.6
35–39	3.1	2.3	2.7	1.5
40–44	4.2	3.8	4.0	3.7
45–49	7.3	5.8	6.6	4.7
50–54	13.2	10.1	11.7	4.3
55–59	14.9	13.4	14.2	10.9
60–64	14.0	17.3	15.6	22.1
65–69	19.2	39.1	28.8	32.1
70–74	65.1	61.9	63.6	49.2
75–79	73.4	43.8	59.9	86.2
80–84	122.4	98.5	111.1	151.3
85 +	128.8	97.0	112.8	207.9
Crude death rate**	**5.1**	**3.9**	**4.5**	**9.1**
Std. mortality ratio†			**8.7**	
Young			1.0	
Adult			2.4	
Elderly			5.3	

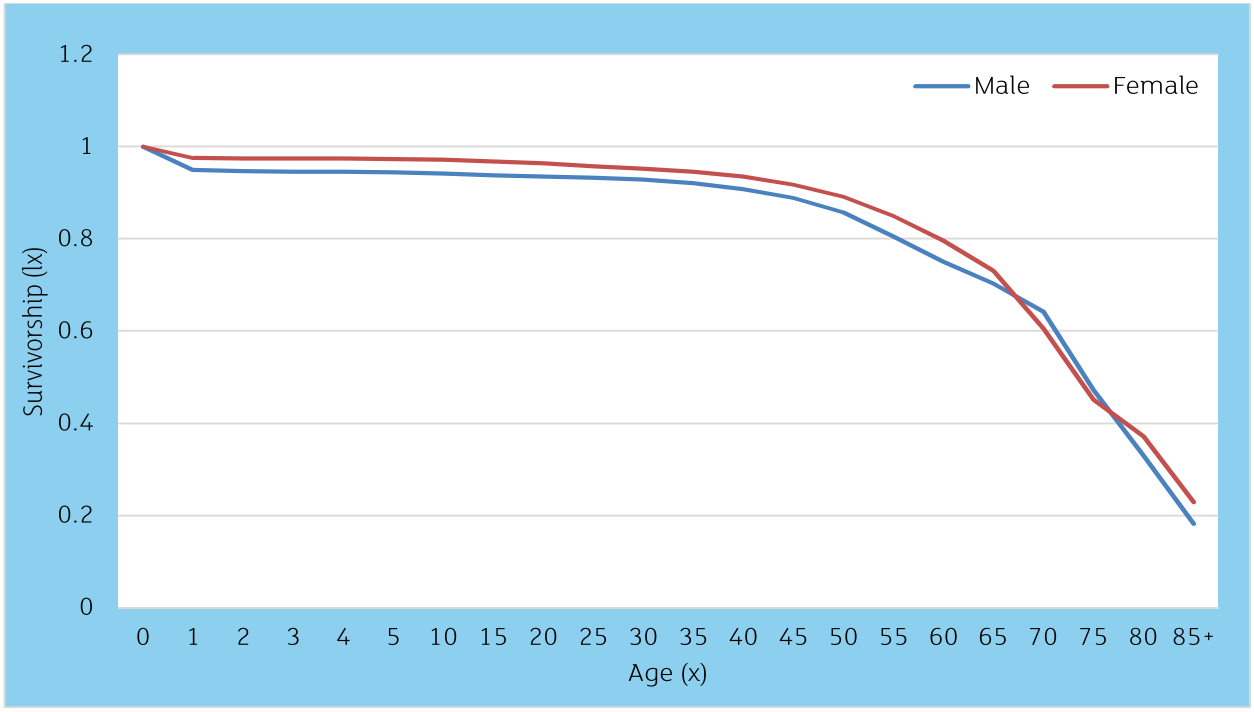
*Per 1,000 livebirths; ** per 1,000 population.
†Direct standardized mortality ratio standardized by the Matlab government service area data.
¥Matlab HDSS government service areas.

The abridged life table (Table 4.3) derived from the age-sex specific death rates shows that life expectancy at birth was higher for females than males (71.3 vs. 68.4). However, life expectancy in all the age groups were usually higher for females than that of males (see Appendix B: Life Table Equations). The survival (lx) times are plotted in Figure 4.1. The probability of survival was higher for females than males up to age 65 years, and then the survival was higher for males than females.

Table 4.3. Life Table by Male and Female, Urban HDSS 2021

Age in years	Male				Female			
	^nq_x	l_x	L_x	e^0_x	^nq_x	l_x	L_x	e^0_x
0	50.3	100,000	95,721	68.4	23.4	100,000	98,011	71.3
1	1.2	94,965	94,898	71.0	1.2	97,660	97,589	72.0
2	0.6	94,851	94,822	70.1	0.6	97,539	97,508	71.1
3	1.3	94,794	94,734	69.1	1.3	97,478	97,414	70.1
4	0.0	94,674	94,674	68.2	0.0	97,350	97,350	69.2
5	3.3	94,674	472,662	67.2	0.7	97,350	486,597	68.2
10	4.2	94,366	470,916	62.4	5.5	97,283	485,181	63.3
15	3.7	93,969	469,037	57.7	3.7	96,747	482,919	58.6
20	1.9	93,618	467,689	52.9	7.3	96,393	480,353	53.8
25	5.0	93,444	466,133	48.0	5.8	95,694	477,188	49.2
30	8.5	92,972	463,040	43.2	7.2	95,138	474,111	44.4
35	15.2	92,182	457,684	38.5	11.6	94,453	469,748	39.7
40	20.9	90,784	449,540	34.1	19.1	93,362	462,696	35.2
45	35.8	88,888	437,069	29.7	28.8	91,581	451,806	30.8
50	64.2	85,707	415,710	25.8	49.1	88,945	434,577	26.6
55	72.1	80,202	387,518	22.3	65.2	84,577	410,043	22.9
60	67.9	74,419	360,306	18.9	82.9	79,066	379,999	19.3
65	92.0	69,363	331,866	15.0	178.9	72,509	331,618	15.8
70	280.8	62,981	271,793	11.3	268.9	59,534	258,761	13.7
75	311.1	45,295	191,878	9.7	198.1	43,528	197,004	12.7
80	466.3	31,203	118,811	8.0	394.9	34,905	139,965	10.2
85+	1000.0	16,654	129,317	7.8	1000.0	21,121	217,707	10.3

Figure 4.1. Probability of Survival from Birth to Age (x) by Sex, Urban HDSS 2021



Non-communicable diseases were the leading cause of death (65.9%), followed by communicable diseases (11.4%), maternal and neonatal conditions (11.1%), external causes (6.7%), and unknown and unspecified causes (4.6%) (Table 4.4).

Among non-communicable disease deaths, the most prevalent was ischemic heart disease (14.9%), followed by stroke (14.6%), other forms of heart disease (10.3%), malignant neoplasm (9.3%), and diabetes (3.1%) (Table 4.4). Over all, non-communicable disease deaths was higher for females than males (70.7% vs. 62.1%). Deaths due to malignant neoplasm and congenital malformation, neuro-psychiatric and asthma/bronchitis/COPD were higher for males than females, while all other non-communicable diseases were higher for females than males. Of communicable disease deaths, the most prevalent were COVID-19 (3.9%), followed by pneumonia/respiratory infection (3.3%), septicaemia (1.5%), and diarrhoea (1.4%); except septicaemia and meningitis, all were higher for males than females. For deaths due to maternal and neo-natal conditions, the most prevalent were all other neonatal causes (5.6%), followed by birth asphyxia (3.2%) and maternal death (1.5%). For neonatal deaths, birth asphyxia and other neonatal causes were higher among males than females. Among deaths related to external causes, the most prevalent were suicide (1.7%), followed by accident (1.5%) and drowning (1.4%) and homicide (1.3%); except accidents and other external causes, rest were higher for females than males.

Deaths due to communicable diseases (19.7%), maternal and neonatal conditions (45.4%) and nutritional deficiency (1.3%) were higher for under 15 years (Table 4.5). 86.3% deaths due to the non-communicable diseases occurred for those aged 50 and older above (86.3%). Deaths due to external causes were higher for ages 15–49 (13.0%).

Table 4.4. Death by Detail Cause and Sex (per cent), Urban HDSS 2021

Cause of deaths	Male	Female	Total
Communicable diseases	**14.0 (56)**	**8.2 (26)**	**11.4 (82)**
Diarrhoeal	1.8 (7)	1.0 (3)	1.4 (10)
Tuberculosis (TB)	0.5 (2)	0.3 (1)	0.4 (3)
Meningitis	0.0 (0)	0.3 (1)	0.1 (1)
Pneumonia/respiratory infection	4.7 (19)	1.6 (5)	3.3 (24)
Septicaemia	1.0 (4)	2.2 (7)	1.5 (11)
COVID-19	5.2 (21)	2.2 (7)	3.9 (28)
All other communicable diseases	0.8 (3)	0.6 (2)	0.7 (5)
Maternal and neonatal conditions	**12.5 (50)**	**9.5 (30)**	**11.1 (80)**
Maternal death	0.0 (0)	3.5 (11)	1.5 (11)
Premature and low birth weight	1.0 (4)	0.6 (2)	0.8 (6)
Birth asphyxia	4.0 (16)	2.2 (7)	3.2 (23)
All other neonatal causes	7.5 (30)	3.2 (10)	5.6 (40)
Nutritional deficiency	**0.0 (0)**	**0.6 (2)**	**0.3 (2)**
Non-communicable diseases	**62.1 (249)**	**70.7 (224)**	**65.9 (473)**
Malignant neoplasm	9.7 (39)	8.8 (28)	9.3 (67)
Malignant neoplasm of female genital organs	0.0 (0)	1.3 (4)	0.6 (4)
Congenital malformation	1.5 (6)	0.6 (2)	1.1 (8)
Diabetes	2.5 (10)	3.8 (12)	3.1 (22)
All other endocrine diseases	0.3 (1)	0.3 (1)	0.3 (2)
Neuro-psychiatric	1.0 (4)	0.6 (2)	0.8 (6)
Hypertensive diseases	1.0 (4)	2.5 (8)	1.7 (12)
Ischemic heart disease	14.2 (57)	15.8 (50)	14.9 (107)
Pulmonary heart disease	0.5 (2)	0.0 (0)	0.3 (2)
Stroke (cerebrovascular)	13.2 (53)	16.4 (52)	14.6 (105)
Other forms of heart disease	9.0 (36)	12.0 (38)	10.3 (74)
All other circulatory disease	0.3 (1)	0.6 (2)	0.4 (3)
Asthma/bronchitis/COPD	4.2 (17)	1.3 (4)	2.9 (21)
All other respiratory disease	0.3 (1)	0.3 (1)	0.3 (2)
Digestive disease	2.2 (9)	3.8 (12)	2.9 (21)
Renal failure	2.0 (8)	2.5 (8)	2.2 (16)
Nephritic syndrome	0.3 (1)	0.0 (0)	0.1 (1)
External causes	**7.2 (29)**	**6.0 (19)**	**6.7 (48)**
Accident	2.7 (11)	0.0 (0)	1.5 (11)
Falls	0.3 (1)	0.3 (1)	0.3 (2)
Drowning	1.3 (5)	1.6 (5)	1.4 (10)
All other external causes	1.0 (4)	0.0 (0)	0.6 (4)
Suicide	1.3 (5)	2.2 (7)	1.7 (12)
Homicide	0.8 (3)	1.9 (6)	1.3 (9)
Unspecified/unknown	**4.1 (17)**	**5.1 (16)**	**4.6 (33)**
Senility	0.0 (0)	0.3 (1)	0.1 (1)
Fever of unknown	0.8 (3)	0.6 (2)	0.7 (5)
Sudden infant deaths	0.3 (1)	1.0 (3)	0.6 (4)
All other unknown causes	3.2 (13)	3.2 (10)	3.2 (23)
Total	**100.0 (401)**	**100.0 (317)**	**100.0 (718)**

Table 4.5. Death by Major Cause and Age (per cent), Urban HDSS 2021

Broad cause of deaths	<15 years	15-49 years	50+ years	Total
Communicable diseases	19.7 (30)	8.9 (17)	9.4 (35)	11.4 (82)
Maternal and neonatal condition	45.4 (69)	5.7 (11)	0.0 (0)	11.1 (80)
Nutritional deficiency	1.3 (2)	0.0 (0)	0.0 (0)	0.3 (2)
Non-communicable diseases	13.8 (21)	67.2 (129)	86.3 (323)	65.9 (473)
External causes	12.5 (19)	13.0 (25)	1.1 (4)	6.7 (48)
Unspecified/unknown	7.2 (11)	5.2 (10)	3.2 (12)	4.6 (33)
Total	**100.0 (152)**	**100.0 (192)**	**100.0 (374)**	**100.0 (718)**

Chapter 5 : Fertility

- Among 3,563 pregnancies, 85.9% were livebirths, 3.0% were induced miscarriages, 8.3% were spontaneous miscarriages and 2.7% were stillbirths.
- The crude birth rate was 19.4, the total fertility rate was 1.7, and the general fertility rate was 61.7.
- The age-specific fertility rate was the highest at ages 20–24 (100.5).
- The overall sex ratio at birth was 106 males per 100 females.

This chapter provides the types of pregnancy outcomes, distribution of birth by mother's age, age-specific fertility rates, and pregnancy outcomes by month.

Out of 3,563 pregnancies, 85.9% were livebirths, 3.0% were induced miscarriages, 8.3% were spontaneous miscarriages, and 2.7% were stillbirths while the comparable figures from the Matlab HDSS areas were 84.3%, 2.5%, 11.8%, and 1.5%, respectively (Table 5.1). There were 22 multiple pregnancies in the urban area, and all of these pregnancies were twin livebirths except two multiple births were still births and one was a live and stillbirth. The distribution of livebirth pregnancies by slums and months is also reported (see Appendix A: Appendix Tables 5 and 6).

Table 5.1. Distribution of Pregnancy Outcomes (per cent), Urban HDSS 2021

Pregnancy outcome	Urban HDSS		Matlab HDSS-2021*
	Number	Percent	Percent
Total pregnancies	**3,563**	**100.0**	**100.0**
Livebirth pregnancies	3,066	85.9	84.3
Miscarriage			
Induced	107	3.0	2.5
Spontaneous	295	8.3	11.8
Stillbirth pregnancies	95	2.7	1.5
Multiple pregnancy	22		
Multiple stillbirth pregnancy	2		
Multiple livebirth pregnancy			
Two	19		
One livebirth and one stillbirth	1		

* Matlab HDSS government service areas.

Table 5.2 shows the distribution of births by mother's age. 26.9% of births were to mothers aged under 20 years (9.7% were to mothers under 18), 33.6% were to mothers aged 20–24 years, 21.9% were to mothers aged 25–29 years, and 17.5% were to mothers aged 30 or older. Comparable figures for Matlab HDSS were 16.9%, 31.8%, 23.9%, and 27.3%, respectively.

Table 5.2. Distribution of Birth by Mother's Age (per cent), Urban HDSS 2021

Mother's age at birth	Urban HDSS		Matlab HDSS-2020*
	Number	Percent	Percent
15-17	*299*	*9.7*	-
18-19	*534*	*17.3*	-
15-19	633	26.9	16.9
20-24	1,036	33.6	31.8
25-29	675	21.9	23.9
30-34	380	12.3	17.5
35+	161	5.2	9.8
Total	**3,085**	**100.0**	**100.0**

* Matlab HDSS government service areas.

Table 5.3 shows the age-specific fertility rates (per 1,000 women) and fertility indices. The total fertility rate (per woman) in Urban HDSS areas was 1.7, compared to 2.3 in Matlab HDSS areas, and 1.9 in the Urban Health Survey. The age-specific fertility rate (per 1,000 women) was the highest at age groups 20–24 (100.5), followed by 15–19 (87.2), and 25–29 (78.7). The crude birth rate in Urban HDSS areas was 19.4, compared to 19.0 in Matlab HDSS areas, and 20.9 in the Urban Health Survey. Additionally, the general fertility rate was lower in Urban HDSS areas (61.7) than in Matlab HDSS areas (71.0), and in the Urban Health Survey (82.0).

Table 5.3. Age-specific Fertility Rates (per 1,000 women) and Indices, Urban HDSS 2021

Age (years)	No. of women	No. of births	Urban HDSS	UHS-2021+++	Matlab HDSS-2021¥
All ages	**50,017**	**3,085**			
≤19	9,550	833	87.2	96.0	65.7
20-24	10,310	1,036	100.5	134.0	140.0
25-29	8,580	675	78.7	103.0	118.5
30-34	7,617	380	49.9	56.0	84.1
35-39	6,026	131	21.7	29.0	41.3
40-44	4,678	26	5.6	11.0	10.2
45+	3,256	4	1.2	0.0	1.5
Total fertility rate+			1.7	1.9	2.3
General fertility rate++			61.7	82.0	71.0
Crude birth rate			19.4	20.9	19.0

¥Matlab HDSS government service areas.
+The average number of children that would be borne by a woman if she goes through life having children at the current age-specific rates.
++ Total number of livebirths per 1,000 women of reproductive age (ages 15 to 49 years) in a population per year.
+++ City Corporation slums.

Table 5.4 shows the distribution of pregnancy outcomes by month of occurrence and sex. Data shows that livebirths were highest in October, followed by August, December, September, and November. The overall sex ratio at birth was 106 males per 100 females, with no definite trend by month; the lowest sex ratio was in April (0.84), and the highest in November (1.31).

Table 5.4. Pregnancy Outcomes by Month (per cent), Urban HDSS 2021

Months	Pregnancy outcome					No. of live born children			
	All	Miscarriage		Still birth	Live birth	Both	Male	Female	Ratio
		Induced	Spon.						
January	261	5	26	11	219	220	116	104	1.12
February	245	7	32	6	200	203	100	103	0.97
March	282	18	21	9	234	237	119	118	1.01
April	296	19	33	10	234	235	107	128	0.84
May	246	9	28	8	201	202	95	107	0.89
June	232	5	22	5	200	202	106	96	1.10
July	289	12	24	9	244	244	125	119	1.05
August	338	5	20	6	307	308	153	155	0.99
September	325	6	19	5	295	297	151	146	1.03
October	381	8	23	7	343	345	188	157	1.20
November	335	9	23	12	291	293	166	127	1.31
December	333	4	24	7	298	299	163	136	1.20
Total	**3,563**	**107**	**295**	**95**	**3,066**	**3,085**	**1,589**	**1,496**	**1.06**

Chapter 6 : Marriage and Divorce

- For females, the mean age at marriage was 18.1, while 17.5 for the first marriage and 23.0 for remarriage.
- For males, the mean age at marriage was 23.5, while 22.6 for the first marriage and 29.1 for remarriage.
- The mean age at divorce was 23.3 for females and 29.0 for males.

This chapter provides the age-specific distribution of marriage and divorce for brides and grooms, mean age by their previous marital status, and the distribution of marriages and divorces by month.

The mean age at marriage for females was 18.1, which was lower than the mean age at marriage in the Matlab HDSS areas (19.8) (Table 6.1). However, the mean age at first marriage (previously single) was 17.5, and the mean age at remarriage was 23.0 years. In the Urban HDSS areas, 55.8% of girls' first marriage took place before the age of 18. The mean age at divorce for brides was 23.3 (Table 6.2); while 15.7% of divorces took place before the age of 18.

Table 6.1. Bride's Age at Marriage (per cent), Urban HDSS 2021

Age in years	All bride	Previous marital status	
		Single	Ever married
<15	11.5 (242)	12.4 (229)	5.3 (13)
15–17	40.7 (856)	43.4 (805)	20.7 (51)
18–19	24.9 (522)	25.3 (469)	21.5 (53)
20–24	16.7 (351)	16.6 (308)	17.5 (43)
25+	6.2 (130)	2.3 (44)	35.0 (86)
Total	**100.0 (2,101)**	**100.0 (1,855)**	**100.0 (246)**
Mean age at marriage	18.1 (19.8*)	17.5 (18.8*)	23.0 (31.0*)

* Mean age at marriage of Matlab HDSS 2021.

Table 6.2. Bride's Age at Divorce (per cent), Urban HDSS 2021

Age in years	Number	Percent
<15	4	2.0
15–17	28	13.7
18–19	39	19.1
20–22	50	24.5
23–24	18	8.8
25–29	25	12.3
30+	40	19.6
Total	**204**	**100.0**
Mean age at divorce		23.3

For males, the mean age at marriage was 23.5, which was lower than the mean age at marriage in the Matlab HDSS areas (28.3) (Table 6.3). However, the mean age at first marriage (previously single) was 22.6, and the mean age at remarriage was 29.1 years. In the Urban HDSS areas, 32.3% of first

marriages took place before the age of 21. The mean age at divorce for grooms was 29.0 (Table 6.4); while 11.3% of divorces took place before the age of 21.

Table 6.3. Groom's Age at Marriage (per cent), Urban HDSS 2021

Age in years	All groom	Previous marital status	
		Single	Ever married
<18	6.6 (138)	7.3 (131)	2.4 (7)
18–20	23.1 (486)	25.0 (452)	11.7 (34)
21–22	20.2 (424)	21.3 (386)	13.1 (38)
23–24	18.2 (383)	19.5 (353)	10.3 (30)
25–29	21.8 (458)	21.4 (388)	24.0 (70)
30+	10.1 (212)	5.5 (100)	38.5 (112)
Total	**100.0 (2,101)**	**100.0 (1,810)**	**100.0 (291)**
Mean age at marriage	23.5 (28.3*)	22.6 (26.9*)	29.1 (35.7*)

* Mean age at marriage of Matlab HDSS 2021.

Table 6.4. Groom's Age at Divorce (per cent), Urban HDSS 2021

Age in years	Number	Percent
<18	2	1.0
18–20	21	10.3
21–22	20	9.8
23–24	28	13.7
25–29	60	29.4
30+	73	35.8
Total	**204**	**100.0**
Mean age at divorce		29.0

Marriages were highest in January, and lowest in December; however, divorces were highest in January, and lowest in November (Table 6.5).

Table 6.5. Number of Marriage and Divorces by Months (per cent), Urban HDSS 2021

Months	Number		Percent	
	Marriage	Divorce	Marriage	Divorce
January	241	27	11.5	13.2
February	203	15	9.6	7.3
March	163	21	7.8	10.3
April	135	21	6.4	10.3
May	176	14	8.4	6.8
June	163	13	7.8	6.4
July	174	14	8.3	6.9
August	224	14	10.6	6.9
September	180	15	8.6	7.4
October	178	18	8.5	8.8
November	140	10	6.6	4.9
December	124	22	5.9	10.8
Total	**2,101**	**204**	**100.0**	**100.0**

Chapter 7 : Migration

- Overall, the in-migration rate was 142.9, the out-migration rate was 174.9, and the internal-movement rate was 103.7 per 1,000 population.
- The main reasons for such movements were due to join family and/or looking for work.

This chapter presents the age-sex specific distribution of migrants (in-, out-, and internal-), their rates and causes of migration.

During 2021, a total of 22,708 persons migrated-in to the HDSS areas, 27,793 persons migrated-out from the HDSS areas, and 16,474 persons moved internally within the HDSS areas (Table 7.1). The highest incidence of in-migration (15.8%), and out-migration (14.0%) occurred at age 20–24, while the highest incidence of internal-movement occurred at age 0–4 (12.1%). In fact, incidences of in-migration, out-migration, and internal-movement below age 30 usually varied between 8% and 16%; however, such incidences at ages 45 or more were very low (1.0%–3.7%). Moreover, slum- and month-wise migrations are also reported (see Appendix A: Appendix Tables 11-20).

Table 7.1. Distribution of Migrants by Age, Sex and Direction (per cent), Urban HDSS 2021

Age in years	Both			Male			Female		
	In-	Out-	Internal-	In-	Out-	Internal-	In-	Out-	Internal-
0–4	10.5	8.8	12.1	11.3	9.3	12.1	9.9	8.3	12.1
5–9	8.7	9.3	10.3	9.1	10.0	10.8	8.2	8.8	9.8
10–14	9.3	9.1	10.6	9.4	8.9	10.3	9.1	9.2	10.9
15–19	14.2	11.8	11.5	9.2	9.0	9.5	18.9	14.4	13.3
20–24	15.8	14.0	11.7	14.4	10.7	10.6	17.1	16.9	12.8
25–29	10.7	12.4	11.0	11.9	12.7	10.7	9.5	12.1	11.2
30–34	9.0	10.5	9.7	10.0	11.7	10.3	8.1	9.4	9.2
35–39	8.2	7.5	7.6	9.1	8.4	7.9	7.3	6.8	7.2
40–44	5.5	5.7	5.7	6.6	6.7	6.5	4.5	4.8	4.9
45–49	2.5	3.7	3.7	2.8	4.3	4.2	2.2	3.2	3.2
50–54	2.2	2.7	2.5	2.6	3.0	2.8	1.9	2.3	2.2
55–59	1.2	1.6	1.4	1.2	1.9	1.8	1.3	1.4	1.1
60–64	1.2	1.3	1.0	1.3	1.5	1.2	1.1	1.1	0.9
65+	1.0	1.6	1.2	1.1	1.9	1.3	0.9	1.3	1.2
Total	**22,708**	**27,793**	**16,474**	**10,870**	**13,298**	**8,095**	**11,838**	**14,495**	**8,379**

In 2021, the estimated in-migration rate was 142.9, the out-migration rate was 174.9, and the internal-movement rate was 103.7 per 1,000 population (Table 7.2). The highest in-migration rate (195.5) occurred at ages 0–4, while for males, it was highest at ages 0–4 (198.3), and for females, it was highest at ages 15–19 (253.1). For out-migration, the highest rate occurred at ages 25–29 (206.3), while for males, it was highest at ages 25–29 (213.3), and for females, it was highest at ages 15–19 (235.4). The highest rate of internal-movement occurred at ages 0–4 (162.4), while for both males (158.2) and females (166.7), it was also highest at ages 0–4.

Table 7.2. Migration Rate by Age, Sex and Direction (per 1,000 population), Urban HDSS 2021

Age in years	Both			Male			Female		
	In-	Out-	Internal-	In-	Out-	Internal-	In-	Out-	Internal-
0-4	195.5	199.1	162.4	198.3	199.6	158.2	192.7	198.6	166.7
5-9	131.8	174.2	113.4	130.5	174.3	114.9	133.1	174.0	111.9
10-14	129.2	154.9	107.1	123.3	143.2	99.9	135.4	167.0	114.5
15-19	193.2	195.7	112.5	126.1	151.2	97.6	253.1	235.4	125.8
20-24	185.9	201.3	100.0	188.5	172.2	103.1	184.0	223.3	97.7
25-29	144.8	206.3	108.0	163.3	213.3	109.2	128.1	199.9	107.0
30-34	125.1	179.2	98.4	133.3	192.0	103.0	117.1	166.5	93.9
35-39	149.2	168.6	100.5	157.7	177.2	102.2	140.5	159.9	98.8
40-44	118.3	150.5	89.5	128.4	160.0	95.2	106.9	139.8	83.1
45-49	80.9	147.8	87.5	81.4	152.7	91.6	80.3	142.2	82.7
50-54	86.5	126.2	71.0	94.9	133.6	75.7	77.6	118.4	66.0
55-59	75.6	121.6	63.2	68.3	127.7	74.5	83.7	114.8	50.9
60-64	104.4	138.1	63.2	101.3	144.6	66.6	108.0	130.7	59.3
65+	54.7	102.7	48.2	54.3	111.8	46.7	55.2	92.5	49.7
Total	**142.9**	**174.9**	**103.7**	**138.4**	**169.4**	**103.1**	**147.2**	**180.3**	**104.2**

46.3% of in-migration occurred due to joining family, followed by looking for work (39.1%) (Table 7.3). 54.5% of out-migration occurred due to joining family, followed by unknown (16.7%) (Table 7.4). 64.2% of internal movements occurred due to marriage and/or joining family, followed by merging families (21.5%) (Table 7.5).

Table 7.3. In-migration by Cause and Sex (per cent), Urban HDSS 2021

Cause of in-migration	Number			Percent		
	Both	Male	Female	Both	Male	Female
Looking for work	8,868	5,576	3,292	39.1	51.3	27.8
To earn more money	2,107	1,237	870	9.3	11.4	7.4
River erosion	76	38	38	0.3	0.4	0.3
To join family	10,513	3,793	6,720	46.3	34.9	56.8
For children education	7	2	5	0.03	0.02	0.04
For own education	36	18	18	0.2	0.1	0.2
Marriage	936	118	818	4.1	1.1	6.9
Other	165	88	77	0.7	0.8	0.6
Total	**22,708**	**10,870**	**11,838**	**100.0**	**100.0**	**100.0**

Table 7.4. Out-migration by Cause and Sex (per cent), Urban HDSS 2021

Cause of out-migration	Number			Percent		
	Both	Male	Female	Both	Male	Female
Looking for work	2,017	1,353	664	7.3	10.2	4.6
To earn more money	1,286	765	521	4.6	5.7	3.6
To join family	15,134	6,516	8,618	54.5	49.0	59.5
For own education	93	41	52	0.3	0.3	0.4
Marriage	607	48	559	2.2	0.4	3.9
Divorce	140	41	99	0.5	0.3	0.7
Earning not sufficient	1,579	955	624	5.7	7.2	4.3
Fire/Slum eviction	83	34	49	0.3	0.3	0.3
To better facility	61	33	28	0.2	0.2	0.2
Do not know	4,652	2,344	2,308	16.7	17.6	15.9
Others	2,141	1,168	973	7.7	8.8	6.7
Total	**27,793**	**13,298**	**14,495**	**100.0**	**100.0**	**100.0**

Table 7.5. Internal-movement by Cause and Sex (per cent), Urban HDSS 2021

Cause of internal-movement	Number			Percent		
	Both	Male	Female	Both	Male	Female
Work/economic	423	373	50	2.6	4.6	0.6
Marriage/join family	10,573	4,147	6,426	64.2	51.2	76.7
For better facility	1,172	683	489	7.1	8.5	5.8
Due to split	221	108	113	1.3	1.3	1.4
Merging family	3,551	2,470	1,081	21.5	30.5	12.9
Fire in slum	74	38	36	0.5	0.5	0.4
Other	460	276	184	2.8	3.4	2.2
Total	**16,474**	**8,095**	**8,379**	**100.0**	**100.0**	**100.0**

Chapter 8 : Safe Motherhood Practices

- Among livebirths, 81.9% of women received at least one ANC visits, 35.4% received at least four ANC visits; of them mostly received from NGOs (51.5%).
- The component of ANC services varied from 76% (Birth preparedness) to 94% (Blood pressure measured).
- Complications were higher at delivery than pregnancy (14.3% vs. 7.3%), while 4.1% faced violence at pregnancy.
- Nearly 53% of deliveries took place at facilities, where 33.5% were delivered at private facilities, and 77.7% facility delivery were decided by the family members.
- 34.9% of livebirths were delivered by C-section, and 38.7% were attended by MBBS doctors.
- Though 38.5% of pregnant mothers received all the safe delivery care, it varied from 65% to 97% by different delivery-related safety measures.
- Every 1 out of 20 livebirths had sepsis/infections and among them 44.7% treated with antibiotics.
- About 6-24% of pregnant mothers had no knowledge of pregnancy, delivery, postpartum, and newborn complications as well as the pregnancy and newborn referrals.
- Among livebirths, 47.3% of women received PNC visits for themselves, and 50.5% for their children, of them mostly received from private facilities (62.7% for mothers and 60.2% for children).
- Services uptake for lowest and highest asset quintiles were as follows: received at least ANC (71.3% vs. 89.4%); facility delivery (43.1% vs. 62.6%); birth attended by MBBS doctors (29.2% vs. 49.3%); C-section (25.2% vs. 45.2%); received at least one PNC for mothers (36.6% vs. 60.3%) and for children (44.1% vs. 62.9%).

The health care a woman receives during pregnancy, delivery, and shortly after delivery is crucial for the survival and well-being of both the mother and the child. The Government of Bangladesh is committed to achieving the targets for Sustainable Development Goals (SDGs) 3 and 5. The Urban HDSS recorded antenatal, delivery and postnatal care (for both mother and child). In this chapter, the percentage distribution of the antenatal, delivery, and postnatal services is provided from a universal health coverage perspective.

Antenatal Care Services

Out of 3,066 livebirth pregnancies, 18.1% of women did not attend any antenatal check-ups, while only 35.4% had four or more antenatal check-ups (Table 8.1). Among women who received antenatal care, 35.6% women had antenatal check-ups between 3 and 4 months, followed by 29.5% between 5 and 6 months (Table 8.2). Of them, 51.5% of women reported that they had antenatal check-ups at NGO facilities, followed by private facilities (24.2%), while only 2.1% had antenatal check-ups at public facilities (Table 8.3).

Table 8.1. Number of Antenatal Visits (per cent), Urban HDSS 2021

No. of visits	Urban HDSS		UHS-2021*
	Number	Percent	Percent
0	556	18.1	11.7
1	311	10.1	10.4
2	486	15.9	20.6
3	627	20.5	17.6
4+	1,086	35.4	39.8
Total	**3,066**	**100.0**	**100.0**

*City Corporation slums of Urban Health Survey 2021.

Table 8.2. Antenatal Care by Duration of Pregnancy (per cent), Urban HDSS 2021

Visit by duration (months)	Urban HDSS	
	Number	Percent
<3	541	21.6
3-4	894	35.6
5-6	740	29.5
7+	335	13.4
Total	**2,510**	**100.0**

Table 8.3. Place of Antenatal Care (per cent), Urban HDSS 2021

Place of care	Urban HDSS		UHS-2021*
	Number	Percent	Percent
Home	504	20.1	15.4
Public facility	53	2.1	23.1
NGO facility	1,068	42.6	-
NGO(UPHCSDP)	223	8.9	30.8
Private facility	608	24.2	53.5
Qualified doctor chamber	46	1.8	-
Unqualified doctor chamber	4	0.2	-
Other	4	0.2	0.2
Total	**2,510**	**100.0**	**100.0**

*City Corporation slums of Urban Health Survey 2021 and multiple responses were reported.

The use of at least one antenatal care varied by asset quintile; 71.3% of women in the lowest quintile used ANC, compared to 89.4% in the highest quintile (Table 8.4). Those who used antenatal care from NGOs and private facilities also varied. Among women in the highest quintile, 47.7% received ANC from NGOs, whereas it was 26.7% of women in the lowest quintile received. Similarly, 25.1% of women in the highest quintile received ANC from private healthcare facilities, whereas it was 13.4% of women in the lowest quintile.

Table 8.4. Antenatal Care by Facilities and Asset Quintile (per cent), Urban HDSS 2021

Asset quintile	Received any ANC (%)	Home (%)	Public (%)	NGOs (%)	Private (%)	Others (%)	None (%)	No. of women
Lowest	71.3	27.2	1.5	26.7	13.4	2.5	28.7	202
Lower	75.9	18.9	1.1	36.9	16.9	2.2	24.1	556
Middle	73.8	18.8	1.7	38.5	13.1	1.7	26.2	351
Higher	81.2	16.5	1.4	43.1	18.8	1.4	18.8	792
Highest	89.4	12.6	2.3	47.7	25.1	1.7	10.6	1,165
Total	**81.9**	**16.4**	**1.7**	**42.1**	**19.8**	**1.8**	**18.1**	**3,066**

Asset quintile developed by the 15 battery of household possessions and belongings using principal component analysis.

Among the mothers who gave livebirths, 7.3% had complications during pregnancy, 14.3% during delivery, and 4.1% faced antepartum violence (Table 8.5). However, we estimated their gestational age from their last menstrual date before the current conception and found that 19.8% of the pregnancies had premature birth. 21% of women missed Iron and Folic Acid intake, and 56.9% missed Vitamin A.

Table 8.5. Pregnancy Conditions and Supplementations (per cent), Urban HDSS 2021

Conditions/Supplementations	Urban HDSS		
	Yes N (%)	No N (%)	Total N (%)
Complications during pregnancy	223 (7.3)	2,843 (92.7)	3,066 (100.0)
Complications during delivery	437 (14.3)	2,629 (85.7)	3,066 (100.0)
Violence during pregnancy	127 (4.1)	2,939 (95.9)	3,066 (100.0)
Premature birth	606 (19.8)	2,460 (80.2)	3,066 (100.0)
Iron and Folic Acid intake	2,421 (79.0)	645 (21.0)	3,066 (100.0)
Vitamin-A intake	1,320 (43.1)	1,746 (56.9)	3,066 (100.0)

Women who received any ANC services (Table 8.6), 93.8% measured their blood pressure, followed by monitoring weights (88.6%), nutritional counselling (87.5%), urine test (84.1%), blood test (82.5%). However, 79.2% of mothers who received ANCs, were counselled on pregnancy related danger signs, while 23.3% of those women were missed counselling for birth preparedness. Of mothers receiving antenatal care (ANC), 59.5% received quality care overall, but only 32.0% of those with 4+ ANC visits.

Table 8.6. Component of ANC Services Taken During the ANC visits (per cent), Urban HDSS 2021

Components of ANC	Urban HDSS		
	Yes (%)	No (%)	Total
Weight measures	2,223 (88.6%)	287 (11.4%)	2,510 (100.0)
Blood pressure measured	2,354 (93.8%)	156 (6.2%)	2,510 (100.0)
Urine test	2,110 (84.1%)	400 (15.9%)	2,510 (100.0)
Blood test	2,070 (82.5%)	440 (17.5%)	2,510 (100.0)
Informed danger signs of pregnancy	1,989 (79.2%)	521 (20.8%)	2,510 (100.0)
Nutritional counselling	2,195 (87.5%)	315 (12.5%)	2,510 (100.0)
Birth preparedness	1,925 (76.7%)	585 (23.3%)	2,510 (100.0)
Quality care (Any ANC)	1,494 (59.5%)	1,016 (40.5%)	2510 (100.0)
Quality care (4+ ANC)	804 (32.0%)	1,706 (67.0%)	2510 (100.0)

Quality care refers to those who received all the components of ANC.

Delivery Care Services

Among the livebirth pregnancies, 46.7% of deliveries took place at home, followed by private facilities (33.5%), NGO facilities (14.8%), and public facilities (4.9%) (Table 8.7). The place of delivery varied by asset quintile (Table 8.8); 43.1% of women in the lowest quintile delivered at the facility, compared to 62.6% of women in the highest quintile; the opposite pattern was observed for home delivery. Most of the facility deliveries were decided by family members (77.7%), followed by ANC providers (8.7%), birth attendants (6.1%), and only 5.6% were decided by mother herself (Table 8.9).

Table 8.7. Livebirth Pregnancies by Place of Delivery (per cent), Urban HDSS 2021

Place of delivery	Urban HDSS		UHS-2021*
	Number	Percent	Percent
Home	1,433	46.7	45.9
Public facility	149	4.9	13.3
NGO facility	275	9.0	9.8
NGO (UPHCSDP)	178	5.8	-
Private facility	1,028	33.5	30.6
Other	3	0.1	0.4
Total	**3,066**	**100.0**	**100.0**

*City Corporation slums of Urban Health Survey 2021.

Table 8.8. Place of Delivery by Asset Quintile (per cent), Urban HDSS, 2021

Asset quintile	Home (%)	Facility (%)	No. of women
Lowest	56.9	43.1	202
Lower	54.1	45.9	556
Middle	50.4	49.6	351
Higher	51.0	49.0	792
Highest	37.4	62.6	1,165
Total	**46.7**	**53.3**	**3,066**

Asset quintile developed by the 15 battery of household possessions and belongings using principal component analysis.

Table 8.9. Facility Delivery Decided by (per cent), Urban HDSS 2021

Facility delivery decided by	Urban HDSS	
	Number	Percent
Self (mother herself)	91	5.6
Birth attendant	99	6.1
ANC provider	142	8.7
Family members	1,267	77.7
Others	10	0.6
Missing	21	1.3
Total	**1,630**	**100.0**

Deliveries attended by MBBS doctors were the highest (38.7%), followed by TBA (27.4%), TTBA (21.3%), and Nurse (11.4%) (Table 8.10). The type of birth attendant during delivery varied by asset quintile (Table 8.11); those deliveries attended by TBA (40.6% vs. 16.1%) were highest for the lowest asset quintile and lowest for the highest quintile. The patterns were opposite for those attended by Nurses (7.4% vs. 12.1%), and those attended by MBBS doctors (29.2% vs. 49.3%).

Table 8.10. Livebirth Pregnancies by Birth Attendant (per cent), Urban HDSS 2021

Birth attendant	Urban HDSS		UHS-2021*
	Number	Percent	Percent
TBA	839	27.4	29.2
TTBA	654	21.3	9.5
Nurse	350	11.4	11.7
MBBS	1,185	38.7	44.5
SBA (NGO)	4	0.1	1.9
Others	34	1.1	3.2
Total	**3,066**	**100.0**	**100.0**

*City Corporation slums of Urban Health Survey 2021.

Table 8.11. Birth Attendants by Asset Quintile (per cent), Urban HDSS 2021

Asset quintile	TBA (%)	TTBA (%)	Nurse (%)	MBBS (%)	Others (%)	No. of women
Lowest	40.6	21.3	7.4	29.2	1.5	202
Lower	33.3	23.7	10.4	31.3	1.3	556
Middle	37.0	17.1	12.8	32.5	0.6	351
Higher	32.1	22.2	11.5	33.3	0.9	792
Highest	16.1	20.9	12.1	49.3	1.6	1,165
Total	**27.4**	**21.3**	**11.4**	**38.7**	**1.2**	**3,066**

Asset quintile developed by the 15 battery of household possessions and belongings using principal component analysis.

Regarding the mode of delivery, 65.1% were normal deliveries, and the rest by C-section (34.9%) (Table 8.12). The mode of delivery varied by asset quintile (Table 8.13); C-section (25.2 vs. 45.2%) were the lowest for the lowest quintile and the highest for the highest quintile. The patterns were opposite for normal deliveries (74.8% vs. 54.8%).

Table 8.12. Livebirth Pregnancies by Mode of Delivery (per cent), Urban HDSS 2021

Mode of delivery	Urban HDSS		UHS-2021*
	Number	Percent	Percent
Normal	1,997	65.1	-
C-section	1,069	34.9	31.3
Total	**3,066**	**100.0**	**100.0**

*City Corporation slums of Urban Health Survey 2021.

Table 8.13. Mode of Delivery by Asset Quintile (per cent), Urban HDSS 2021

Asset quintile	Normal (%)	C-section (%)	No. of women
Lowest	74.8	25.2	202
Lower	73.2	26.8	556
Middle	70.4	29.6	351
Higher	69.9	30.1	792
Highest	54.8	45.2	1,165
Total	**65.1**	**34.9**	**3,066**

Asset quintile developed by the 15 battery of household possessions and belongings using principal component analysis.

Among the livebirth pregnancies, 38.5% of mothers reported receiving all delivery care services (Table 8.14). During delivery, steps taken to wash hand by soap were high (96.7%), followed by wrap in <5 mins (94.7%), skin-to-skin contact (92.9%), disinfecting the delivery kits (92.7%), immediate breastfeeding (80.7%), delayed bathing >3 days (74.9%), and cord-care (64.9%). Among the livebirth pregnancies, 5% of the babies had reported sepsis or infection (Table 8.15). Of them, 45% were treated with antibiotics.

Table 8.14. Quality of the Delivery Care for the Newborn (per cent), Urban HDSS 2021

Delivery care	Urban HDSS		Total N (%)
	Yes N (%)	No N (%)	
Disinfect the kits	2,841 (92.7)	225 (7.3)	3,066 (100.0)
Wash hand by soap	2,966 (96.7)	100 (3.3)	3,066 (100.0)
Cord care	1,989 (64.9)	1,077 (35.1)	3,066 (100.0)
Wrap in <5 mins	2,902 (94.7)	164 (5.3)	3,066 (100.0)
Delay bath >3 days	2,297 (74.9)	769 (25.1)	3,066 (100.0)
Immediate breastfeed	2,474 (80.7)	592 (19.3)	3,066 (100.0)
Skin-to-skin contact	2,847 (92.9)	219 (7.1)	3,066 (100.0)
All safe delivery care	1,179 (38.5)	1,887 (61.5)	3,066 (100.0)

Table 8.15. Suspected Infections of the Newborn (per cent), Urban HDSS 2021

Suspected infection/sepsis	Urban HDSS	
	Number	Percent
Had newborn infection		
No	2,914	95.0
Yes	152	5.0
Antibiotic treatments		
Yes	68	44.7
No	84	55.3

We collected the information related to knowledge about the complications of pregnancy, delivery, postpartum period, and for newborn, and referrals for pregnancy and newborn danger signs from mothers on a sample basis (Table 8.16). In 2021, a total of 230 women were interviewed to collect information about complications and referrals.

Regarding the pregnancy complications, 54-73% of women responded after asking the questions; while 8-39% responded promptly. Nearly 6-18% of mothers did not know about these pregnancy complications. Regarding delivery complications, 6-18% of mothers had no knowledge of delivery complications, while 56-71% responded after asking questions, and 17-37% of women identified these delivery complications promptly.

Regarding postpartum complications, 12-24% of mothers had no knowledge on the postpartum complications, while 65-77% responded after asking questions, and 3-22% of women identified these complications promptly. Regarding newborn complications, 7-24% of mothers had no knowledge of

newborn danger signs and complications, while 63-75% responded after asking questions, and 4-29% of women identified these complications promptly.

For referral signs of mothers, 6-24% had no knowledge about the referrals for pregnancy complications, while 63-83% responded after asking the questions, and 6-19% responded promptly. Similarly for newborn complications, 6-17% had no knowledge of those components.

Table 8.16. Knowledge on Complications and Referrals* of the Pregnant Mothers, Urban HDSS 2021

Knowledge and behavior	Urban HDSS		
	Fluently	After saying	Don't know
Pregnancy complications			
Vaginal bleeding	69 (30.0%)	143 (62.2%)	18 (7.8%)
Convulsion/fits	89 (38.7%)	126 (54.8%)	15 (6.5%)
Severe headache with blurred vision	57 (24.8%)	148 (64.4%)	25 (10.9%)
Fever and weakness	53 (23.0%)	141 (61.3%)	36 (15.7%)
Severe abdominal pain	52 (22.6%)	148 (64.4%)	30 (13.0%)
Fast or difficult breathing	19 (8.3%)	169 (73.5%)	42 (18.3%)
Delivery complications			
Water breaks	85 (37.0%)	130 (56.5%)	15 (6.5%)
Excessive bleeding	60 (26.1%)	154 (66.9%)	16 (7.0%)
Vaginal prolapse	55 (23.9%)	158 (68.7%)	17 (7.4%)
Convulsion/eclampsia	77 (33.5%)	137 (59.5%)	16 (7.0%)
High fever/sepsis	50 (21.7%)	149 (64.8%)	31 (13.5%)
Severe headache with blurred vision	45 (19.6%)	144 (62.6%)	41 (17.8%)
Loss of consciousness	39 (17.0%)	163 (70.87%)	28 (12.2%)
Postpartum complications			
Excessive vaginal bleeding	26 (11.3%)	167 (72.6%)	37 (16.1%)
Convulsion/eclampsia	51 (22.2%)	150 (65.2%)	29 (12.6%)
High fever/sepsis	20 (8.7%)	164 (71.3%)	46 (20.0%)
Smelly discharge	7 (3.0%)	167 (72.6%)	56 (24.4%)
Severe headache with blurred vision	7 (3.0%)	177 (77.0%)	46 (20.0%)
Loss of consciousness	28 (12.2%)	164 (71.3%)	38 (16.5%)
Newborn danger signs and complications			
Inability to suck	56 (24.3%)	158 (68.7%)	16 (7.0%)
Baby too small	67 (29.1%)	147 (63.9%)	16 (7.0%)
Fast breathing	23 (10.0%)	163 (70.9%)	44 (19.1%)
Convulsion	49 (21.3%)	154 (67.0%)	27 (11.7%)
Drowsy/unconsciousness	24 (10.4%)	169 (73.5%)	37 (16.1%)
Immobile	37 (16.1%)	171 (74.3%)	22 (9.6%)
Grunting	27 (11.7%)	161 (70.0%)	42 (18.3%)
Severe chest indrawing	21 (9.1%)	174 (75.7%)	35 (15.2%)
Fever	40 (17.4%)	147 (63.9%)	43 (18.7%)
Hypothermia	43 (18.7%)	146 (63.5%)	41 (17.8%)
Central cyanosis	10 (4.3%)	168 (73.0%)	52 (22.6%)
Red coloration of umbilicus	14 (6.1%)	160 (69.6%)	56 (24.3%)
Referred during pregnancy			
Prolonged labour	31 (13.5%)	145 (63.0%)	54 (23.5%)
Excessive bleeding	27 (11.7%)	189 (82.2%)	14 (6.1%)
Severe headache with blurred vision	32 (13.9%)	176 (76.5%)	22 (9.6%)
Obstructed labour	19 (8.3%)	192 (83.5%)	19 (8.3%)
Convulsion	44 (19.1%)	171 (74.4%)	15 (6.5%)
Retained placenta	14 (6.1%)	171 (74.8%)	44 (19.1%)
Referred during complication of newborn			
Difficult to breath	49 (21.3%)	165 (71.7%)	16 (7.0%)
Inability to eat/drink/suck	52 (22.6%)	163 (70.9%)	15 (6.5%)
Temperature too high/ too low	69 (30.0%)	143 (62.2%)	18 (7.8%)
Turns blue (cyanosis)	19 (8.3%)	171 (74.3%)	40 (17.4%)
Convoluted	37 (16.1%)	170 (73.9%)	23 (10.0%)
Chest indrawing	19 (8.3%)	174 (75.6%)	37 (16.1%)

*Responses were taken 'fluently' if they can respond promptly, 'after saying' if they responded after providing ques and 'don't know'.

Postnatal Care Services

For maternal postnatal care services, 52.7% of mothers did not have any postnatal visits for themselves, while 16.3% had one postnatal visit, and 10.1% had four or more postnatal visits (Table 8.17). Among them who received postnatal care, 62.7% mothers had postnatal visits at private facilities, followed by NGO facilities (25.8%), while 7.7% visits to public facilities (Table 8.18).

Mothers who had at least one postnatal care visit varied by asset quintile (Table 8.19); 36.6% were in the lowest quintile, and 60.3% were in the highest quintile. The use of postnatal care from NGOs (11.4% vs. 14.0%), and from private facilities (19.8% vs. 40.0%) also varied, with higher use for the highest quintile and lower use for the lowest quintile.

Table 8.17. Number of Postnatal Care Visits for Mother (per cent), Urban HDSS 2021

No. of visits	Urban HDSS		UHS-2021*
	Number	Percent	Percent
0	1,615	52.7	31.0
1	501	16.3	-
2	148	4.8	-
3	492	16.1	-
4+	310	10.1	-
Total	**3,066**	**100.0**	-

*City Corporation slums of Urban Health Survey 2021.

Table 8.18. Place of Postnatal Care Visits for Mother (per cent), Urban HDSS 2021

Place of care	Urban HDSS	
	Number	Percent
Home	32	2.2
Public facility	112	7.7
NGO facility	237	16.3
NGO (UPHCSDP)	138	9.5
Private facility	909	62.7
Qualified doctor chamber	11	0.8
Unqualified doctor chamber	10	0.7
Pharmacy	1	0.1
Others	1	0.1
Total	**1,451**	**100.0**

Table 8.19. Postnatal Care Visits for Mother by Facilities and Asset Quintile (per cent), Urban HDSS 2021

Asset quintile	Received any PNC (%)	Home (%)	Public (%)	NGOs (%)	Private (%)	Others (%)	None (%)	No. of women
Lowest	36.6	1.0	4.5	11.4	19.8	0.0	63.4	202
Lower	36.3	0.5	2.9	10.3	22.1	0.5	63.7	556
Middle	38.8	0.3	4.3	10.5	22.8	0.9	61.3	351
Higher	42.4	1.4	2.3	12.0	25.3	1.5	57.6	792
Highest	60.3	1.3	4.6	14.0	40.0	0.4	39.7	1,165
Total	**47.3**	**1.0**	**3.7**	**12.2**	**29.7**	**0.8**	**52.7**	**3,066**

Asset quintile developed by the 15 battery of household possessions and belongings using principal component analysis.

For newborn postnatal care services, 49.5% of children did not have any postnatal visits, while 19.1% had one postnatal visit, and 8.4% mothers had four or more postnatal visits (Table 8.20). Among those who received postnatal care, 60.2% of children had postnatal visits at private facilities, followed by NGO facilities (26.8%), while visit to public facilities were only 8.0% (Table 8.21).

Children who had at least one postnatal care varied by asset quintile (Table 8.22); 44.1% were in the lowest, and 62.9% were in the highest quintile. The use of postnatal care from NGOs (15.4% vs. 14.9%), and from private facilities (20.8% vs. 40.4%) also varied, with higher use for the highest quintile and lower use for the lowest quintile.

Table 8.20. Number of Postnatal Care Visits for Child (per cent), Urban HDSS 2021

No. of visits	Urban HDSS		UHS-2021*
	Number	Percent	Percent
0	1,528	49.5	33.7
1	588	19.1	-
2	219	7.1	-
3	491	15.9	-
4+	259	8.4	-
Total	**3,085**	**100.0**	**-**

*City Corporation slums of Urban Health Survey 2021.

Table 8.21. Place of Postnatal Care Visits for Child (per cent), Urban HDSS 2021

Place of care	Urban HDSS	
	Number	Percent
Home	40	2.6
Public sector	125	8.0
NGO sector	270	17.3
NGO (UPHCSDP)	148	9.5
Private sector	937	60.2
Qualified doctor chamber	12	0.8
Unqualified doctor chamber	17	1.1
Pharmacy	5	0.3
Others	3	0.2
Total	**1,557**	**100.0**

Table 8.22. Postnatal Care Visits for Child by Facilities and Asset Quintile (per cent), Urban HDSS 2021

Asset quintile	Received any PNC (%)	Home (%)	Public (%)	NGOs (%)	Private (%)	Others (%)	None (%)	No. of births*
Lowest	44.1	2.0	5.0	15.4	20.8	1.0	55.9	202
Lower	39.3	0.7	3.0	11.9	22.4	1.3	60.7	562
Middle	44.2	0.3	4.3	13.3	24.4	2.0	55.8	353
Higher	44.5	1.6	2.6	12.4	26.4	1.4	55.5	796
Highest	62.9	1.5	5.3	14.9	40.4	0.9	37.1	1,172
Total	**50.5**	**1.3**	**4.1**	**13.6**	**30.4**	**1.2**	**49.5**	**3,085**

*Multiple responses from same woman recorded if she had multiple pregnancies in 2021;
Asset quintile developed by the 15 battery of household possessions and belongings using principal component analysis.

Chapter 9 : Family Planning

- 73.4% of women used any contraception methods, of them 91.2% used modern contraceptive methods.
- The most used modern contraceptive method was pill (47.5%), followed by injectable (27.3%), and male condom (9.5%).
- The main source of these modern contraceptives was pharmacy (74.9%), followed by NGOs (9.7%).

In the Urban HDSS, the current use of contraception is defined as the proportion of currently married women who reported using a family planning method at the time of the survey. Information on contraceptive use and the sources of modern contraceptive methods were collected from 3,886 married women (aged 15–49) who were resided in HDSS areas during August–September 2021.

Overall, 73.4% of currently married women aged 15–49 were using any form of contraceptive methods (Table 9.1). Contraceptive use did not vary much by age below 40 (70%–79%), but declined dramatically to 62.2% for women aged 40–44, and 39.4% for women aged 45–49 (Figure 9.1). Modern methods were used widely than traditional methods (91.2% vs. 8.8%) (Table 9.2). Among the contraceptive users, pill was the most widely used method (47.5%), followed by injectable (27.3%), condom (9.5%), female sterilization (tubectomy) (3.8%), and long-acting methods (IUD and implant) (2.3%); and about 0.8% used either vasectomy or emergency contraception.

The most common source of contraception was pharmacy (74.9%), followed by NGO facilities (9.7%). However, public facilities (4.4%) and private facilities (2.4%) as sources of contraception were very low (Table 9.3).

Table 9.1. Contraceptive Method (per cent), Urban HDSS 2021

Method	Urban HDSS		UHS-2021*
	Number	Percent	Percent
Pill	1,354	34.8	31.8
Injectable	779	20.0	14.9
Condom	271	7.0	7.4
Long-acting (implant, IUD)	65	1.7	2.9
Tubectomy	108	2.8	4.4
Vasectomy	19	0.5	1.4
Emergency contraception	4	0.1	0.0
Traditional	242	6.2	7.9
Other	9	0.2	0.9
No method	1,035	26.6	28.4
Total	**3,886**	**100.0**	**100.0**

*City Corporation slums of Urban Health Survey 2021.

Table 9.2. Contraceptive Method Mix (per cent), Urban HDSS 2021

Method	Urban HDSS	
	Number	Percent
Pill	1,354	47.5
Injectable	779	27.3
Condom	271	9.5
Long-acting (implant, IUD)	65	2.3
Tubectomy	108	3.8
Vasectomy	19	0.7
Emergency contraception	4	0.1
Traditional	242	8.5
Other	9	0.3
Total	**2,851**	**100.0**

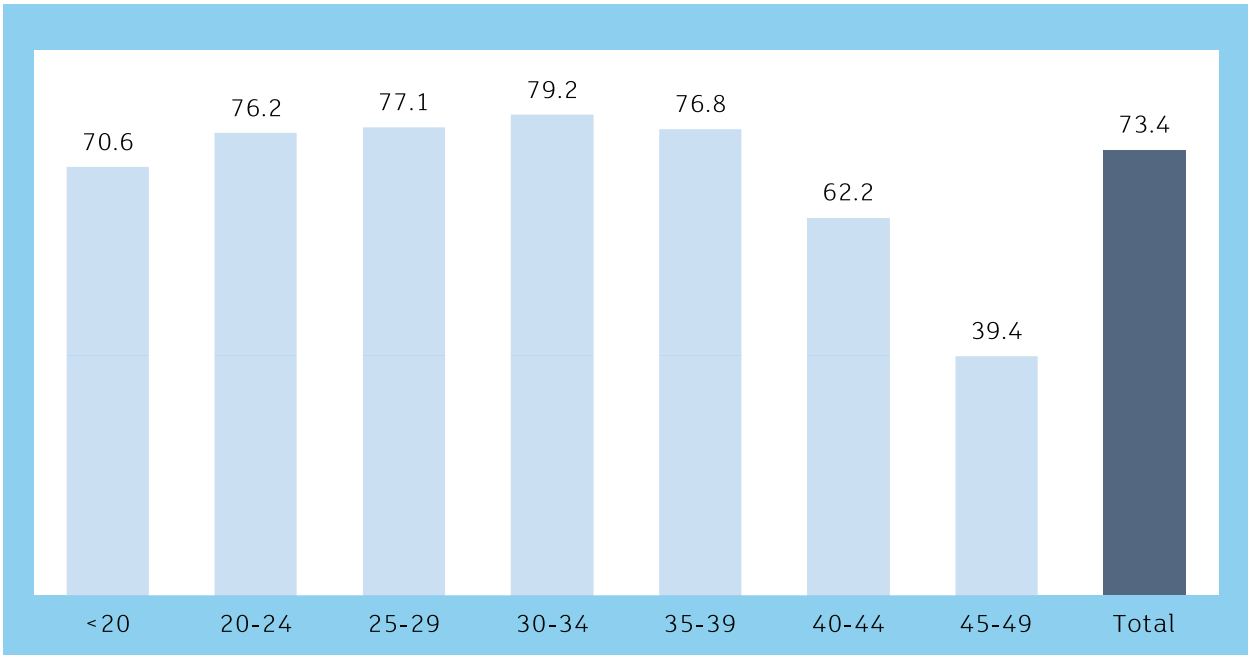
*City Corporation slums of Urban Health Survey 2021.

Table 9.3. Source of Contraception (per cent), Urban HDSS 2021

Source	Urban HDSS		UHS-2021*
	Number	Percent	Percent
Public facility	126	4.4	14.6
Private facility	67	2.4	73.6
NGO facility	277	9.7	11.8
Pharmacy	2,135	74.9	-
Other	246	8.6	-
Total	**2,851**	**100.0**	**100.0**

*City Corporation slums of Urban Health Survey 2021.
Public facility (government medical college/hospitals, Maternal Child Welfare Centres, Upazila Health Complexes, Family Welfare Centers, Satellite clinic/EPI outreach centers, community clinics and government fieldworkers), NGO facility (static clinics, satellite clinics, depot holders, and NGO fieldworkers), private facility (private hospitals/clinics, qualified doctors, unqualified doctor), pharmacies (drug sellers) and others (shop and friends/relatives).

Figure 9.1. Contraceptive Prevalence Rate of Currently Married Women (per cent), Urban HDSS 2021



Chapter 10 : Child Vaccination

- Overall, 65.1% children received all the basic vaccines, while the figure was 71.8% for 12-23 months and 85.5% for 24+ months.
- Among children aged 12-23 months, 97.8% received BCG, 97-91% received pentavalent 3 doses, 91-97% received PCV 3 doses, 89-97% received OPV 3 doses, 74.7% received the MR-1, and only 39.2% received the MR-2 dose.

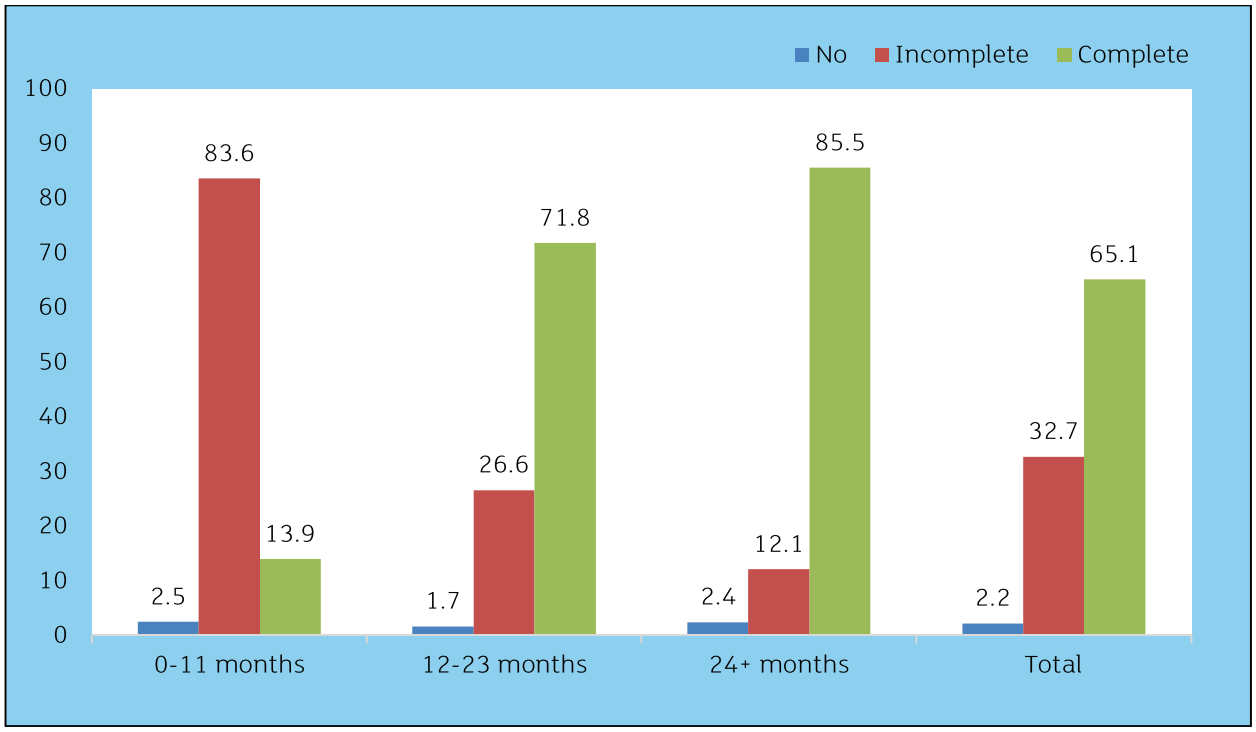
In 2021, the Urban HDSS collected a total of 4,107 children's data on their immunization status (Table 10.1). Overall, 97.6% children received the BCG vaccine, 83-95% received 3 doses of pentavalent, pneumococcal-conjugated vaccine (PCV), oral polio vaccine (OPV), 66.4% received the 1st dose of measles-rubella vaccine (MR-1) and only 47.8% received the 2nd dose. The comparable figure for age 12-23 months were 97.8% for BCG, 91-97% for 3 doses of pentavalent, 91-97% for 3 doses of PCV, and 89-97% for 3 doses of OPV, 74.7% received the MR-1, and only 39.2% received the MR-2 dose.

Figure 10.1 represents the basic vaccine coverage (1 dose of BCG, 3 doses of pentavalent, 3 doses of OPV and the 1st dose of MR). Overall, 65.1% of children received all the basic vaccines, while the comparable figure was 71.8% for age 12-23 months and 85.5% for children with 24+ months of age. However, overall, 2.2% of children did not take any basic vaccines and the figure was 1.7% for 11-23 months, and 2.4% for 24+ months of age.

Table 10.1. Immunization Status for the Children (per cent), Urban HDSS 2021

Vaccines	Age groups			Total
	<12 months	12-23 months	24+ months	
BCG	97.4	97.8	97.6	97.6
Penta-1 DPT HEP B	90.0	97.4	96.7	95.4
Penta-2 DPT HEP B	71.4	95.2	94.8	89.6
Penta-3 DPT HEP B	54.0	90.9	92.2	83.2
PCV-1	89.6	97.3	96.7	95.3
PCV-2	71.5	95.1	94.6	89.5
PCV-3	54.5	91.3	92.1	83.4
OPV1	89.8	96.8	96.7	95.2
OPV2	71.1	94.0	94.5	89.0
OPV3	54.2	89.7	92.0	82.8
MR (1st dose)	14.1	74.7	86.3	66.4
MR (2nd dose)	1.0	39.2	76.2	47.8
Total	**926**	**1,275**	**1,906**	**4,107**

Figure 10.1. Children's Basic Immunization Coverage in Different Age-groups



Chapter 11 : Geographic Information System (GIS)

Geographic information system (GIS) has been a very important and powerful decision-making tools in any field of research and policy making and planning over recent decades. Public health researcher uses geo-referenced data to create thematic maps, generate spatial variables, and perform spatial and temporal analyses to explain geographical variations in health outcomes such as mortality, morbidity, and other public health issues.

GIS can also be used to identify available services in a defined location for specific outcomes. For example, the number of health facilities in an area and proximal distances from the dense population zone can also visualise healthcare service utilizations which later resulted in a specific morbidity pattern in the area. However, the slums are very congested and the geocoordinates of the healthcare facilities and the type of the healthcare facilities can be helpful for service evaluation as well as service coverage.

To enrich the research from a geo-spatial perspective, the Urban HDSS incorporated GIS data on different types of healthcare facilities, groups of households (bari), local amenities such as educational institutions, Mosques and Markets. The GIS efforts were limited within the Urban HDSS areas. Trained field supervisors and research investigator collected the spatial data using handled Global Positioning System (GPS) devices under the supervision of a GIS expert. The HDSS area layers were created by satellite images according to household location using Google Earth Pro and ArcGIS. The following table (Table 11.1) shows different object-oriented structural layers that the Urban HDSS uses for spatial analysis.

Table 11.1. Existing Geospatial Database in Different Layer within the Urban HDSS Area

Points	**Lines**	**Polygons**
Household Bari* Community clinic Government hospital icddr,b hospital NGO facility NGO (UPHCSDP) NGO (Aalo clinic) Private clinic Doctor Chamber Pharmacy	Road networks - Main roads - Sub roads	HDSS area Ward boundary Thana boundary City corporation boundary District boundary

Points	Lines	Polygons
Educational institutions -Nursery, Primary, Secondary, and Madrasa Mosque/Mandir Market		

*A cluster of households where owner of these houses are usually the same and the tenants use a common space or facility.

The available geo-coordinates of different types of health facilities, educational institutions, and local amenities are provided in Table 11.2.

Table 11.2. Types of Geo-coordinates Available by Slums, Urban HDSS

Types	Korail	Mirpur	Shaympur/ Dhalpur	Tongi
Bari/household group	2,661	2,436	1,433	5,583
Mosque/mandir	15	4	5	12
Market (bazar)	0	0	0	1
Private pharmacy	59	17	28	55
Doctor chamber and pharmacy	3	1	5	5
Private clinic	0	0	0	2
NGO clinic	1	0	2	2
NGO satellite clinic	6	5	5	0
Government hospital	0	0	0	1
NGO hospital	1	0	0	0
Nursery school (private)	1	0	0	1
Nursery school (NGO)	5	4	13	4
Primary school (govt)	1	0	2	3
Primary school (NGO)	36	4	5	3
Secondary school (govt)	0	0	0	1
Secondary school (private)	9	0	2	9
Secondary school (NGO)	2	1	3	2
Madrasa (regular)	2	5	7	0
Madrasa (kowmi)	4	0	2	2
Others	23	1	1	22

As the Urban HDSS follows the healthcare and wellbeing of the urban poor population, we also developed the slum-specific maps that represents the proportion of slum boundaries in respective wards and the available health facilities (See Figures 11.1-11.5).

Figure 11.1. Korail Slum of Dhaka North City Corporations, Urban HDSS

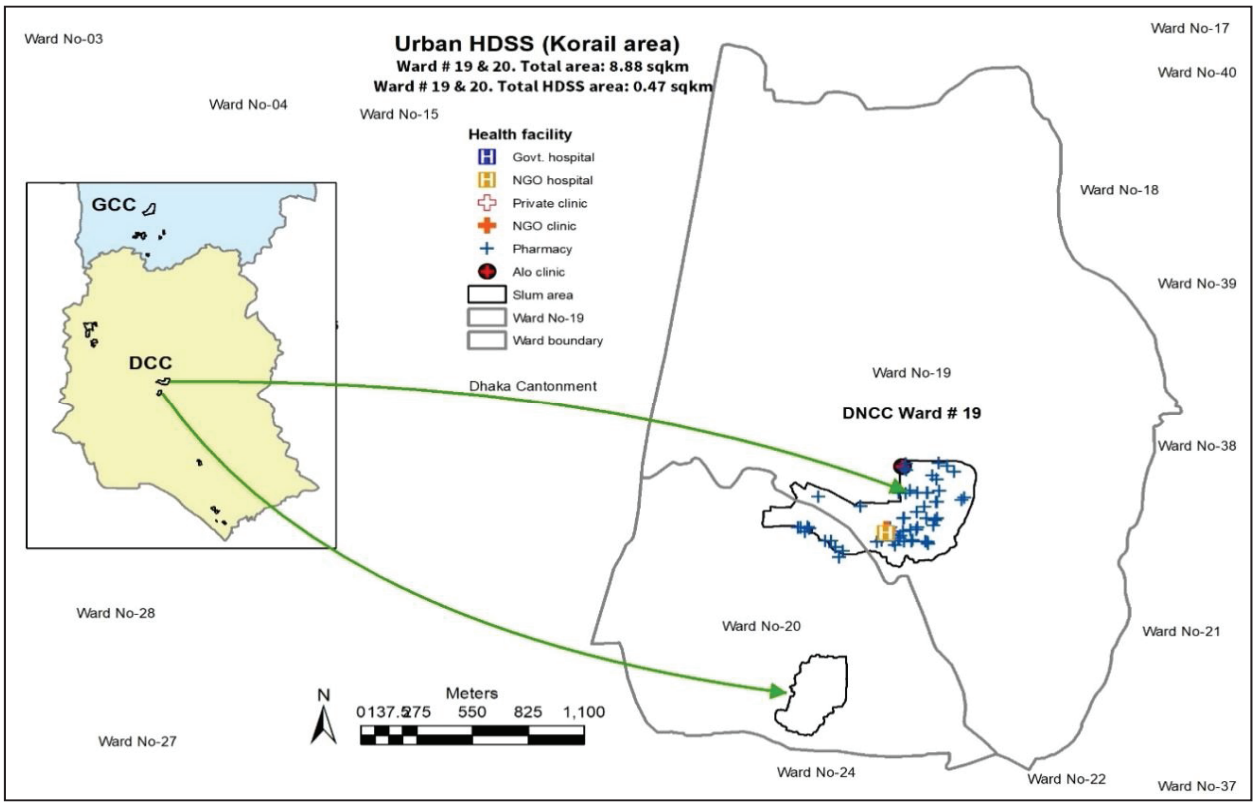


Figure 11.2. Mirpur Slum of Dhaka North City Corporations, Urban HDSS

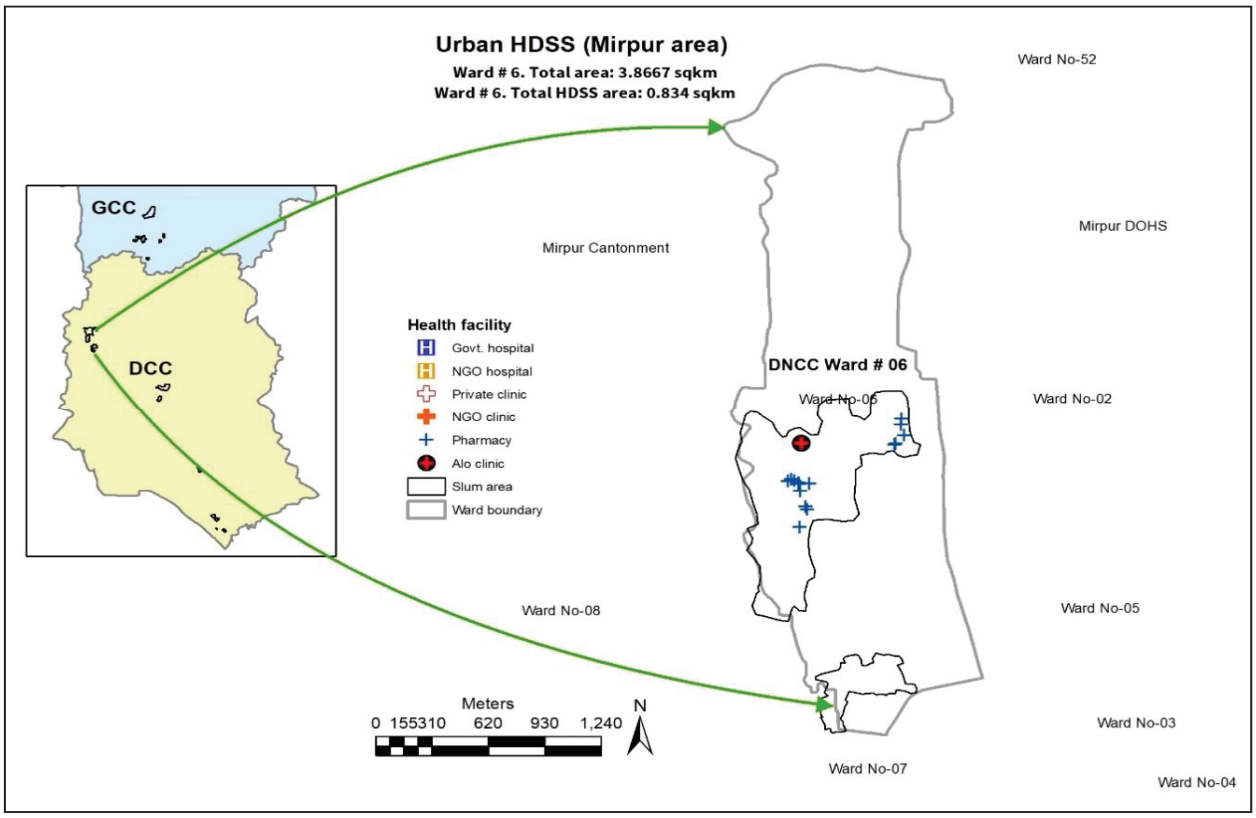


Figure 11.3. Dhalpur Slum of Dhaka South City Corporations, Urban HDSS

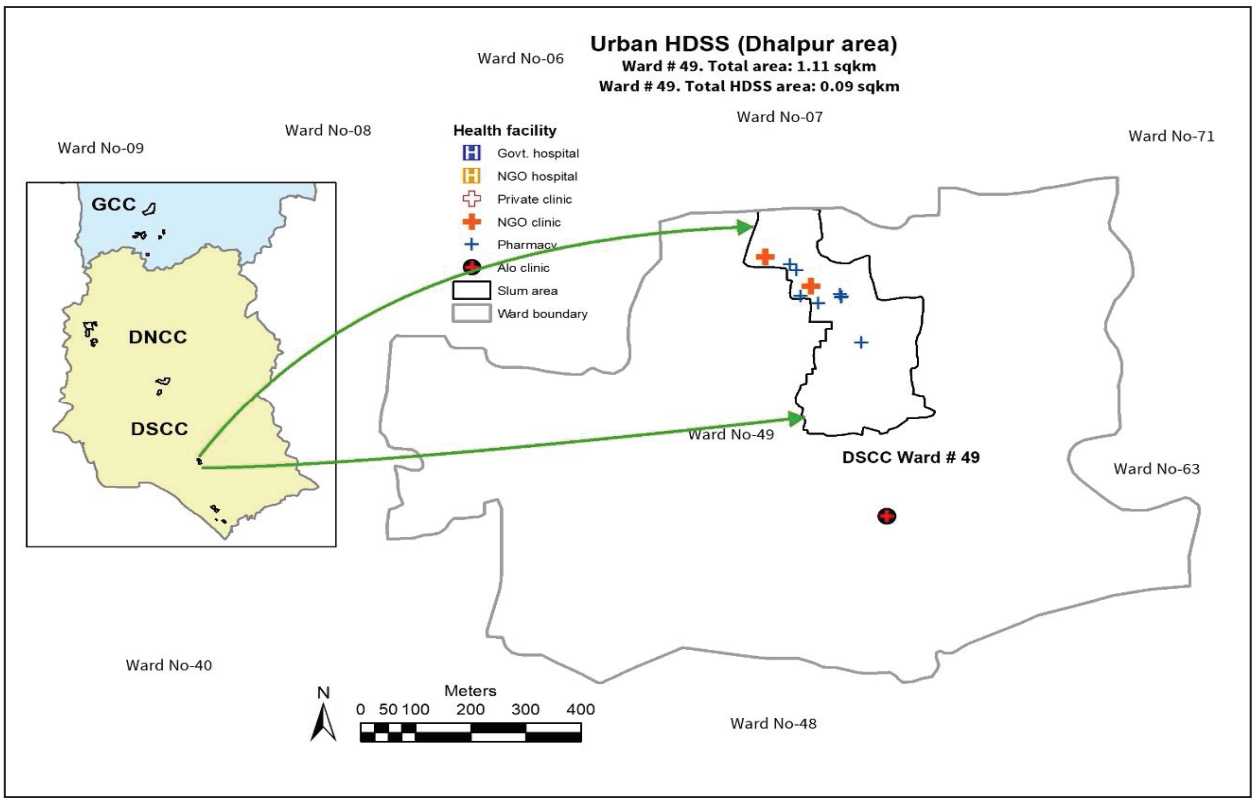


Figure 11.4. Shaympur Slum of Dhaka South City Corporations, Urban HDSS

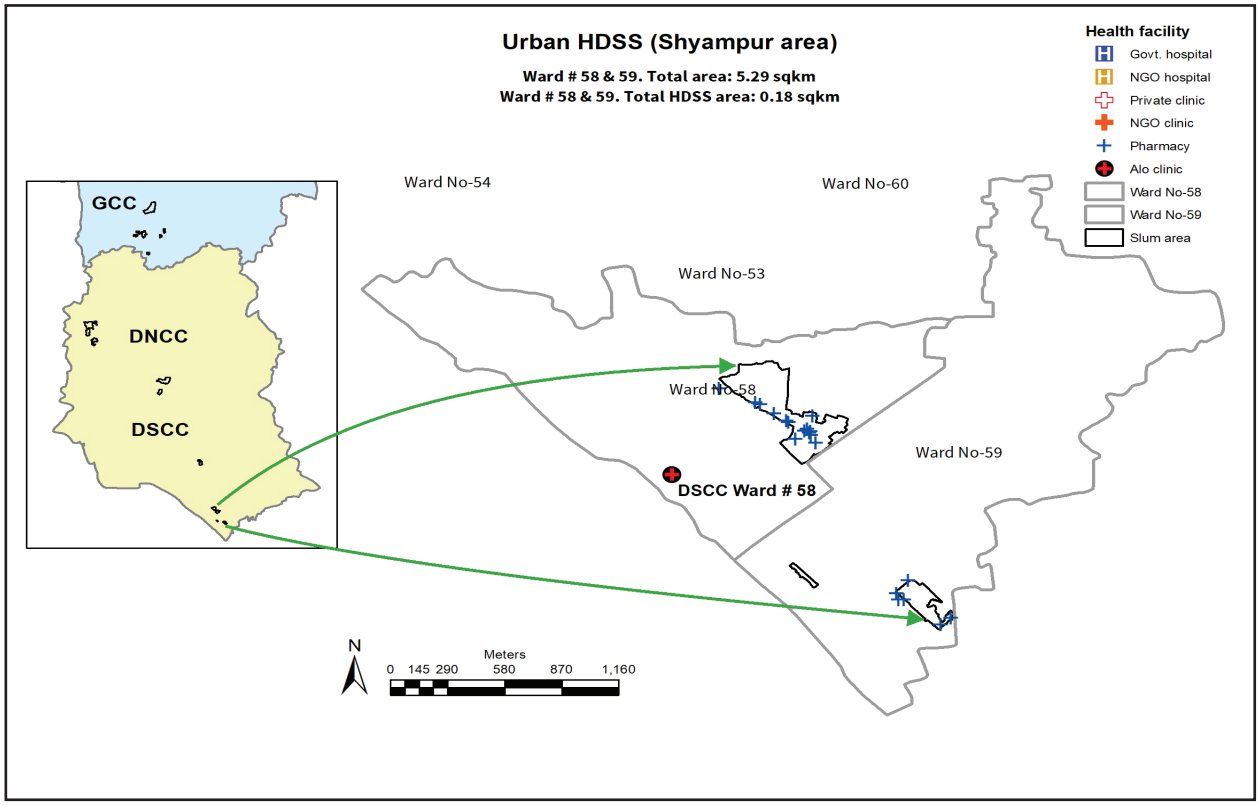
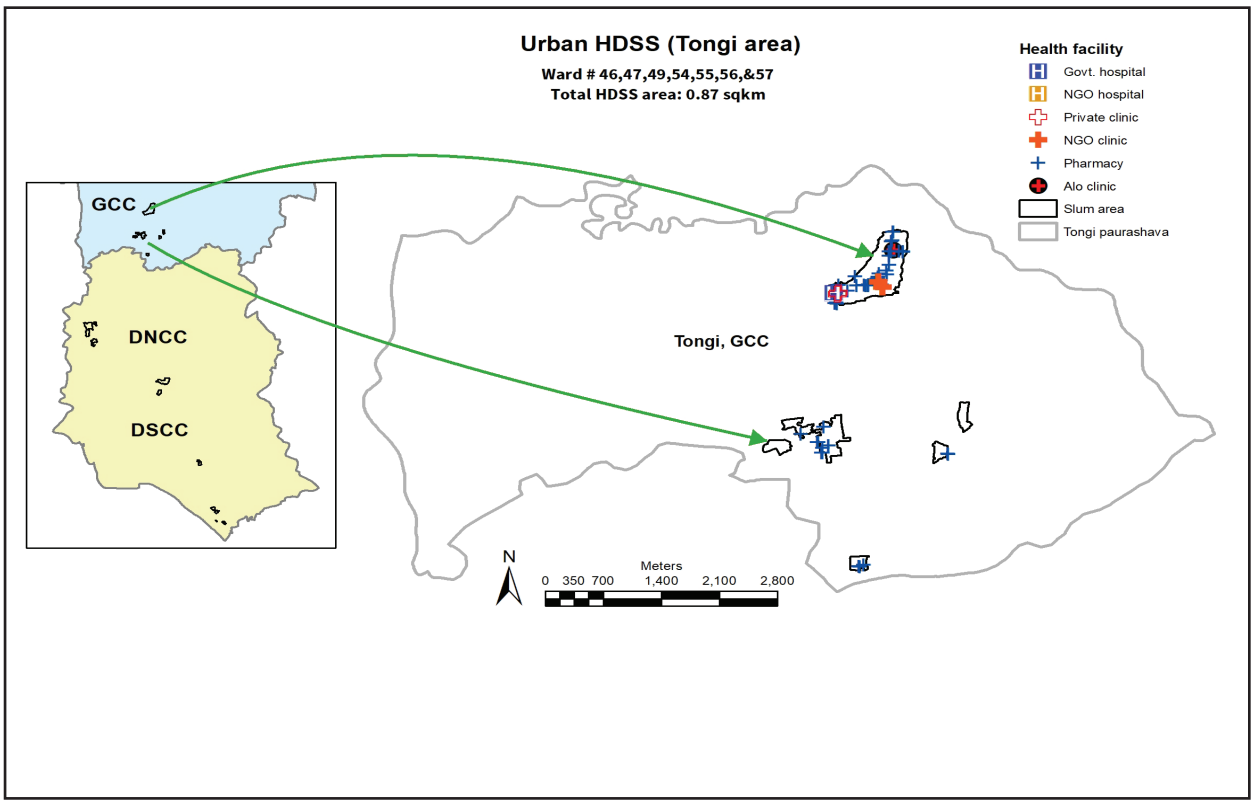


Figure 11.5. Tongi and Ershadnagar Slum of Gazipur City Corporations, Urban HDSS



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Appendix A: Supplementary Tables

Appendix table 1. Distribution of Population by Age Group and Sex, Urban HDSS 2021

Age (year)	Urban HDSS						Matlab HDSS-2021
	Number			Percent			Percent
	Both	Male	Female	Both	Male	Female	Both
<1 year	2610	1281	1329	1.6	1.6	1.7	2.0
1	3263	1660	1603	2.1	2.1	2.0	2.1
2	3258	1651	1607	2.1	2.1	2.0	2.1
3	3109	1588	1521	2.0	2.0	1.9	2.1
4	2832	1430	1402	1.8	1.8	1.7	2.1
1-4	12462	6329	6133	7.8	8.1	7.6	8.3
5-9	15001	7672	7329	9.4	9.8	9.1	10.2
10-14	16438	8301	8137	10.3	10.6	10.1	9.5
15-19	17566	8016	9550	11.1	10.2	11.9	9.2
20-24	18368	8058	10310	11.6	10.3	12.8	7.1
25-29	16487	7907	8580	10.4	10.1	10.7	6.1
30-34	15236	7619	7617	9.6	9.7	9.5	6.7
35-39	12247	6221	6026	7.7	7.9	7.5	6.3
40-44	9894	5216	4678	6.2	6.6	5.8	6.0
45-49	6965	3709	3256	4.4	4.7	4.1	5.3
50-54	5556	2870	2686	3.5	3.7	3.3	5.5
55-59	3446	1809	1637	2.2	2.3	2.0	5.5
60-64	2571	1354	1217	1.6	1.7	1.5	4.5
65-69	1805	936	869	1.1	1.2	1.1	2.9
70-74	1069	584	485	0.7	0.7	0.6	2.0
75-79	651	354	297	0.4	0.5	0.4	1.5
80-84	279	147	132	0.2	0.2	0.2	0.8
85+	266	132	134	0.2	0.2	0.2	0.5
Total	158917	78515	80402	100.0	100.0	100.0	100.0

Note: Population as of June 30, 2021; Transgendered people were excluded.

Appendix table 2. Mid-year Population by Age, Sex and Slum Location, Urban HDSS 2021

Age (year)	Korail		Mirpur		Dhalpur & Shaympur		Tongi		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
0	525	523	252	264	132	143	372	399	2610
1	654	620	359	308	157	166	490	509	3263
2	670	654	320	283	178	173	483	497	3258
3	625	608	314	294	192	164	483	497	3109
4	594	567	288	282	154	152	394	401	2832
1-4	2543	2449	1281	1167	681	655	1824	1862	12462
5-9	3032	2846	1465	1363	933	870	2242	2250	15001
10-14	3128	3048	1583	1558	1010	1055	2580	2476	16438
15-19	3058	3625	1470	1914	954	1116	2534	2895	17566
20-24	3223	3986	1350	1995	973	1079	2512	3250	18368
25-29	3277	3425	1575	1843	829	826	2226	2486	16487
30-34	2982	2786	1496	1506	789	836	2352	2489	15236
35-39	2286	2097	1380	1379	641	632	1914	1918	12247
40-44	1849	1655	1095	869	537	569	1735	1585	9894
45-49	1320	1100	743	619	472	386	1174	1151	6965
50-54	972	855	564	461	350	339	984	1031	5556
55-59	584	464	301	244	230	207	694	722	3446
60-64	401	356	251	206	171	135	531	520	2571

Age (year)	Korail		Mirpur		Dhalpur & Shaympur		Tongi		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
65-69	229	186	138	118	151	98	418	467	1805
70-74	169	97	106	73	68	51	241	264	1069
75-79	78	56	28	19	46	23	202	199	651
80-84	24	24	28	19	9	16	86	73	279
85 +	23	26	18	18	19	18	72	72	266
Total	29703	29604	15124	15635	8995	9054	24693	26109	158917

Appendix table 3. Death by Age and Slum Location, Urban HDSS 2021

Age (year)	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
<1 year	50	29	9	27	115
1	2	3	1	1	7
2	2	1	0	0	3
3	0	0	0	0	0
4	2	0	2	1	5
5-9	3	1	1	1	6
10-14	8	3	2	3	16
15-19	3	5	2	3	13
20-24	6	6	0	6	18
25-29	10	4	1	3	18
30-34	13	1	1	9	24
35-39	11	11	2	9	33
40-44	11	7	4	18	40
45-49	18	6	4	18	46
50-54	20	12	4	29	65
55-59	10	10	12	17	49
60-64	10	3	9	18	40
65-69	11	6	7	28	52
70-74	17	10	12	29	68
75-79	8	1	6	24	39
80-84	6	6	1	18	31
85+	5	5	4	16	30
Total	226	130	84	278	718

Appendix table 4. Death by Month and Slum Location, Urban HDSS 2021

Months	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
January	22	11	5	36	74
February	22	12	9	21	64
March	12	11	5	17	45
April	30	11	13	20	74
May	18	11	4	15	48
June	14	7	4	12	37
July	19	12	7	19	57
August	15	12	2	28	57
September	16	10	12	26	64
October	19	12	6	28	65
November	21	10	7	23	61
December	18	11	10	33	72
Total	226	130	84	278	718

Appendix table 5. Livebirth Pregnancy by Mother's Age and Slum Location, Urban HDSS 2021

Mother's age (year)	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
15-19	356	153	99	225	833
20-24	418	191	100	327	1036
25-29	306	131	45	193	675
30-34	148	64	42	126	380
35-39	50	36	8	37	131
40-44	8	3	4	11	26
45+	3	1	0	0	4
Total	1289	579	298	919	3085

Appendix table 6. Livebirth Pregnancy by Month and Slum Location, Urban HDSS 2021

Months	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
January	99	30	26	65	220
February	92	34	21	56	203
March	112	53	14	58	237
April	100	41	19	75	235
May	83	40	17	62	202
June	92	39	14	57	202
July	115	40	21	68	244
August	119	61	26	102	308
September	114	57	35	91	297
October	147	65	39	94	345
November	102	58	34	99	293
December	114	61	32	92	299
Total	1289	579	298	919	3085

Appendix table 7. Antenatal Care by Mother's Age and Slum Location, Urban HDSS 2021

Mother's age (year)	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
11-17	92	46	35	68	241
18-19	183	87	59	110	439
20-24	326	162	92	286	866
25-29	236	108	41	169	554
30-34	106	52	33	108	299
35-39	30	22	5	33	90
40-44	5	3	4	6	18
45+	2	1	0	0	3
Total	980	481	269	780	2510

Appendix table 8. Antenatal Care by Month and Slum Location, Urban HDSS 2021

Months	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
January	76	26	25	57	184
February	67	26	19	45	157
March	88	43	14	54	199
April	85	36	16	68	205
May	65	33	15	51	164
June	65	36	11	51	163
July	87	31	19	51	188
August	84	49	23	81	237
September	85	48	34	78	245
October	117	57	33	80	287

Months	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
November	77	46	30	87	240
December	84	50	30	77	241
Total	980	481	269	780	2510

Appendix table 9. Postnatal Care by Mother's Age and Slum Location, Urban HDSS 2021

Mother's age (year)	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
11-17	45	14	29	46	134
18-19	92	30	45	84	251
20-24	142	67	73	222	504
25-29	117	38	31	133	319
30-34	48	19	25	81	173
35-39	19	9	6	25	59
40-44	0	2	3	4	9
45+	2	0	0	0	2
Total	465	179	212	595	1451

Appendix table 10. Postnatal Care by Month and Slum Location, Urban HDSS 2021

Months	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
January	30	7	17	37	91
February	36	7	13	34	90
March	49	13	11	36	109
April	38	14	10	49	111
May	31	5	14	35	85
June	29	14	10	37	90
July	39	15	15	42	111
August	46	18	17	69	150
September	33	16	21	58	128
October	55	21	33	67	176
November	38	19	23	68	148
December	41	30	28	63	162
Total	465	179	212	595	1,451

Appendix table 11. Number of In-, Out-, and Internal-migration by Month and Sex, Urban HDSS 2021

Months	In-migration			Out-migration			Internal		
	Both	Male	Female	Both	Male	Female	Both	Male	Female
January	3920	1895	2025	2333	1093	1240	1632	813	819
February	1744	854	890	1607	777	830	1309	635	674
March	1930	908	1022	1571	713	858	1409	700	709
April	1283	604	679	1406	659	747	1045	509	536
May	1562	744	818	1515	747	768	1267	595	672
June	1630	781	849	1595	751	844	1447	729	718
July	1815	882	933	2301	1090	1211	1397	699	698
August	2017	965	1052	2207	1031	1176	1387	673	714
September	2053	971	1082	1699	833	866	1468	741	727
October	2035	971	1064	2214	1065	1149	1672	824	848
November	1312	616	696	4021	1964	2057	1652	806	846
December	1407	679	728	5324	2575	2749	789	371	418
Total	22708	10870	11838	27793	13298	14495	16474	8095	8379

Appendix table 12. In-migration by Age and Slum Location, Urban HDSS 2021

Age (year)	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
0-4	1024	670	193	509	2396
5-9	905	548	163	350	1966
10-14	929	587	162	429	2107
15-19	1288	858	279	811	3236
20-24	1634	849	252	851	3586
25-29	1168	653	137	463	2421
30-34	882	551	140	463	2036
35-39	800	533	110	408	1851
40-44	482	372	99	292	1245
45-49	266	154	48	99	567
50-54	188	161	52	107	508
55-59	112	65	22	81	280
60-64	101	80	19	76	276
65+	83	73	15	62	233
Total	9862	6154	1691	5001	22708

Appendix table 13. In-migration by Cause and Slum Location, Urban HDSS 2021

Cause	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
Looking for work	4873	1824	242	1929	8868
To earn more money	166	871	902	168	2107
River erosion	4	72	0	0	76
For familial	4387	3211	467	2448	10513
For children education	3	2	0	2	7
For own education	3	23	3	7	36
Marriage	402	142	77	315	936
Other	24	9	0	132	165
Total	9862	6154	1691	5001	22708

Appendix table 14. In-migration by Month and Slum Location, Urban HDSS 2021

Months	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
January	1657	1245	277	741	3920
February	620	578	170	376	1744
March	856	639	92	343	1930
April	542	393	65	283	1283
May	709	519	83	251	1562
June	819	399	113	299	1630
July	805	474	135	401	1815
August	906	521	163	427	2017
September	929	435	151	538	2053
October	883	365	187	600	2035
November	565	291	92	364	1312
December	571	295	163	378	1407
Total	9862	6154	1691	5001	22708

Appendix table 15. Out-migration by Age and Slum Location, Urban HDSS 2021

Age (year)	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
0-4	888	712	246	594	2440
5-9	944	706	382	566	2598
10-14	869	717	405	534	2525
15-19	1056	971	427	823	3277
20-24	1407	1039	504	934	3884
25-29	1294	1014	406	734	3448
30-34	1080	818	369	649	2916
35-39	673	705	239	475	2092
40-44	513	480	208	383	1584
45-49	360	325	144	207	1036
50-54	237	215	120	169	741
55-59	166	99	74	111	450
60-64	94	116	54	101	365
65+	121	117	71	128	437
Total	9702	8034	3649	6408	27793

Appendix table 16. Out-migration by Cause and Slum Location, Urban HDSS 2021

Cause	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
Looking for work	1399	282	13	323	2017
To earn more money	321	439	196	330	1286
Familial	4083	4775	2158	4118	15134
For own education	25	19	19	30	93
Marriage	156	146	52	253	607
Divorce	56	22	9	53	140
Could not earn sufficient money	367	643	143	426	1579
Fire/eviction of slum	0	0	9	74	83
To better facility	1	9	36	15	61
Do not know	2764	1542	97	249	4652
Other	530	157	917	537	2141
Total	9702	8034	3649	6408	27793

Appendix table 17. Out-migration by Month and Slum Location, Urban HDSS 2021

Months	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
January	798	506	337	692	2333
February	468	435	321	383	1607
March	533	504	199	335	1571
April	555	389	156	306	1406
May	541	481	133	360	1515
June	667	471	83	374	1595
July	718	932	95	556	2301
August	924	754	71	458	2207
September	654	520	101	424	1699
October	744	450	474	546	2214
November	1371	1291	850	509	4021
December	1729	1301	829	1465	5324
Total	9702	8034	3649	6408	27793

Appendix table 18. Internal-movement by Age and Slum Location, Urban HDSS 2021

Age (year)	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
0-4	1060	404	162	364	1990
5-9	846	366	150	330	1692
10-14	863	400	180	303	1746
15-19	959	393	174	358	1884
20-24	976	369	192	393	1930
25-29	915	397	140	354	1806
30-34	747	359	139	356	1601
35-39	601	310	114	222	1247
40-44	445	239	82	176	942
45-49	297	150	61	105	613
50-54	182	104	45	86	417
55-59	97	53	30	54	234
60-64	74	33	23	37	167
65+	60	47	37	61	205
Total	8122	3624	1529	3199	16474

Appendix table 19. Internal-movement by Cause and Slum Location, Urban HDSS 2021

Cause	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
Work/economic	397	25	1	0	423
Marriage/familial	5548	2455	691	1879	10573
To a better facility	547	261	150	214	1172
Due to split	42	52	64	63	221
Due to merge	1506	814	543	688	3551
Fire in slum	2	0	37	35	74
Other	80	17	43	320	460
Total	8122	3624	1529	3199	16474

Appendix table 20. Internal-movement by Month and Slum Location, Urban HDSS 2021

Months	Korail	Mirpur	Dhalpur & Shaympur	Tongi	Total
January	832	243	239	318	1632
February	501	355	158	295	1309
March	714	281	133	281	1409
April	460	196	136	253	1045
May	712	162	171	222	1267
June	804	307	127	209	1447
July	693	285	158	261	1397
August	670	319	97	301	1387
September	692	390	118	268	1468
October	894	379	118	281	1672
November	857	431	59	305	1652
December	293	276	15	205	789
Total	8122	3624	1529	3199	16474

Appendix B: List of Equations

Dependency ratio

Dependency ratio is calculated with the formula= $\frac{Px}{P15-64} \times 100$; where P_x is the Population in age group x.

$$DR = Young\ dependency\ ratio + Old\ dependency\ ratio$$

$$= \frac{Number\ of\ person\ age < 15\ years}{Number\ of\ persons\ age\ 15-64\ years} + \frac{Number\ of\ persons\ age\ 65+}{Number\ of\ persons\ age\ 15-64\ years} \times 1000$$

$$= \frac{Number\ of\ person\ age < 15\ years + Number\ of\ persons\ age\ 65+}{Number\ of\ persons\ age\ 15-64\ years}$$

Mortality

Crude death rate: $CDR = \frac{Number\ of\ deaths}{Mid\ year\ population} \times 1000$

Life table equations

Probability of dying at age x : $q_x^n = \frac{m_x^n}{\frac{1}{n} + m_x^n[\frac{1}{2} + \frac{n}{12} + (m_x^n - lnC)}, if\ x > 0$

$$q_0 = infant\ death\ rate\ per\ 1000\ live\ births$$

Cohort : $l_0 = 100{,}000$

Proportion alive at age interval x: $l_x = (1 - q_{x-n}^n) \times l_{x-n}$

$$L_0 = 0.15 \times l_0 + 0.85 \times l_1$$

$$L_1 = 0.15 \times l_1 + 0.85 \times l_2$$

$$L_i = \frac{1}{2}(l_i + l_{i+1}), for\ i = 2, 3, and\ 4$$

$$L_i^n = \frac{d_i^n}{m_i^n}, for\ 5 \le i \le 80$$

$$L_i^n = \frac{l_{85}}{l_{85}^\infty}, for\ last\ age\ group\ 85+\ years$$

Life expectancy at age x: $e_x = \frac{T_x}{l_x}, where\ T_x = \sum_{i=x}^{\infty} L_i$

NOTE: Computed using Greville's method, as suggested in: Shryock HS, Seigel JS, et al. (1975).

NOTE: lnC assumed to be 0.095; separation factors in equation 3 correspond to an infant mortality rate of 50 per 1000 livebirths.

Fertility

Crude birth rate $CBR = \frac{Number\ of\ births}{Mid\ year\ population} \times 1000$

Age specific fertility rate $ASFR_i = \frac{Number\ of\ births\ at\ women's\ age\ i}{Number\ of\ womens\ at\ age\ i} \times 1000$

Total fertility rate $TFR = \sum_{i=1}^{\infty} ASFR_i$

General fertility rate $GFR = \frac{Number\ of\ \text{total}\ births}{Number\ of\ women\ at\ the\ age\ of\ 15-49\ years} \times 1000$

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