



Bangladesh

UTILIZATION OF  
MATERNAL HEALTHCARE SERVICES  
DURING COVID-19 PANDEMIC  
IN DISASTER-PRONE AREAS  
OF BANGLADESH

*University of Dhaka*



Institute of Disaster Management  
and Vulnerability Studies (IDMVS)  
University of Dhaka



**GRRIPP**  
Gender Responsive  
Resilience and Intersectionality In  
Policy and Practice



## Final Report

# Utilization of Maternal Healthcare Services during Covid-19 Pandemic in Disaster-Prone Areas of Bangladesh

### Submitted to

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## Abstract

The Covid-19 pandemic has caused devastating impacts on the lives and livelihood of millions of people across the globe, with severe impacts on reproductive health in low- and middle-income countries (LMIC). People, especially the most vulnerable and disadvantaged socio-economic groups living in disaster-prone areas are even more susceptible to the deprivation/delayed of services related to reproductive health during the pandemic. While greater attention has been given to delivering quality healthcare services to Covid-19 patients during the pandemic, less attention has been given to ensuring adequate maternal healthcare services (MCHs)—one of the major components of reproductive health—during the pandemic. Relying on the intersectional perspective, the study examined the resiliency of maternal healthcare services in Bangladesh—one of the LMICs with more than 165 million population—during the Covid-19 pandemic and to identify effective strategies for ensuring adequate access to MCHs during the pandemic, with particular focus on disaster-prone areas. Drawing on a parallel mixed-method approach, both quantitative and qualitative data were collected from 406 married women of two Upazilas of Satkhira district and Satkhira city corporations of Bangladesh. The findings of this study provide valuable insight into changes in the trends of maternal health, causes for lower access to MCHs, gender-specific vulnerabilities experienced by healthcare workers and caregivers, limitations of current institutional and regulatory frameworks, and identifying effective policy interventions and implementation strategies.

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## Chapter 1: Introduction

### 1.1 Background

Bangladesh has made remarkable progress in improving maternal and child health (MCH) through improved healthcare services over the last two decades, which is reflected in the progress report on the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs). Despite the progress in MCH—as the 2017-2018 Bangladesh demographic and Health Survey (BDHS) shows—the majority of vulnerable women (53%) do not get the required four or more antenatal care (ANC) during pregnancy; about 50% of poor and vulnerable women give birth at home risking the lives of their own and their new-born children; half of the mothers and children do not get postnatal care from a medically trained provider within two days after delivery (BDHS, 2017-2018) (1). This situation is even worse in disaster-prone areas due to limited access to quality maternal healthcare services and barriers related to access and affordability of the required services. The Covid-19 pandemic has further aggravated the situation by restricting access to maternal healthcare services through a periodical lockdown and other measures to control the pandemic and focusing more only on treating Covid-19 patients rather than focusing on ensuring adequate access to maternal healthcare services.

Recent studies showed that the exclusive Covid-19 pandemic-focused approach could lead to more than 30% additional maternal and new-born deaths due to reduced access to relevant essential services such as antenatal care (ANC) and adequately supervised community and health-facility-based deliveries in low- and middle-income countries (LMICs) (2). Another large-scale study based on data from 118 LMICs estimated that the disruption in the utilization of maternal and new-born healthcare services from the pandemic would increase both under-five deaths (10% to 45%) and maternal mortality (8% to 39%) (3). Nevertheless, less is known about the impacts of the Covid-19 pandemic on maternal healthcare services in the context of disaster-prone areas, where women are susceptible to the compounding effects of gender vulnerability, disaster-driven impacts, and institutional constrained related to service delivery. In this context, examining the intersectionality of resilience to maternal healthcare services during the Covid-19 pandemic in disaster-prone areas of Bangladesh is strongly needed. Examining the intersectionality of maternal healthcare services in a

pandemic context in disaster-prone areas will provide valuable insights into identifying underlying causes for poor utilization of MCSs and help to generate viable strategies for ensuring adequate access to and quality services.

## **1.2 Objectives**

The broader objectives of the proposed project are to examine the resilience of poor, vulnerable, and disadvantaged women to maternal healthcare services (MCSs) during the Covid-19 pandemic in disaster-prone areas of Bangladesh. Specific objectives are as follows:

- To identify the effects of Covid-19 on the factors that influence MCSs utilization for poor and vulnerable women.
- To evaluate changes in the utilization of MCSs during the pandemic.
- To detect underlying causes of lower access to MCSs during the pandemic.
- To identify gender-specific vulnerabilities related to MCSs experienced by mothers, mothers-to-be, and health workers during the pandemic.

## Chapter 2: Review of Literature

### 2.1 Introduction

The lower access and utilization of MHC services among the poor, vulnerable, and most disadvantaged women during the Covid-19 pandemic in disaster-prone areas of Bangladesh raises the question of what the underlying causes of lower utilization of MHC services are and to what extent the effects of Covid-19 on the factors that influence MHC service utilization for socio-economically vulnerable groups. Previous research shows that during the Covid-19 pandemic lower utilization of MHC services is detected by many underlying causes, which can be categorized into two major factors including the demand side factor such as distance to the health facility, socio-cultural beliefs, and practices, economic factors, health care seeking behaviour and limited decision-making power within households and community as well as the supply side factors consists of capacity of the health system, attitude of the health care providers, environmental conditions in health care facilities and quality of care (4-13). Earlier research has also revealed the direct and indirect effects of Covid-19 on the factors that influence MHC service utilization including denial of education, lower rate of economic participation, child marriage, and early pregnancy, domestic violence and abuse, nutritional deficiency and food scarcity, and deprived of micronutrient supplements, delay in the decision to seek maternal and child health care, Delay in reaching the health facilities for maternal and child care, delay in receiving the health facilities, denial of family planning and post-partum family planning services, denial of sanitary napkins, denial of antenatal, institutional delivery and postnatal services for mother and new-borns (6, 10, 14-21). A more extended review of the underlying causes of lower utilization of MHC services and the effects of Covid-19 on the factors that influence MHC services in disaster-prone areas of Bangladesh is presented below.

### 2.2 Underlying causes of lower utilization of MHC services

#### 2.2.1 Distance to the health facility

Previous research shows that Bangladeshi women in disaster-prone areas endure multiple challenges due to ecological vulnerability (22). On top of that, the Covid-19 pandemic added some more troubles to them. High distance of the health care facilities and transport problems are causing barriers to access to maternal and child health care services for women

during the ongoing Covid-19 pandemic (7, 10). Besides, the strict lockdown and Covid-19 control policies such as social distancing, and transport barriers have created psychological anxiety among pregnant women to seek maternal and child health care services from the long-distance health facility (23). The unavailability of easy transport in disaster-prone areas is identified as another important challenge to accessing and utilizing maternal and child health care services (24-26). Besides, non-professional attitudes and behaviours from the healthcare providers, lack of referral systems, and unavailability of equipment, medicines, and health workforce at the health facilities as well as high cost of services contributed to delays in getting maternity services (17, 27, 28). Additionally, some women might feel that getting maternal healthcare services depends on personal connection with doctors or the hospitals as well as a handsome amount of bribing issues, which resulted in delays in receiving maternity and new-born treatment (29). The negative impact on service utilization rates eventually pushes vulnerable people in hard-to-reach areas to experience greater disparities (20).

### **2.2.2 Socio-cultural beliefs and practices**

Socio-cultural beliefs and practices have been known to influence maternal and child health service utilization (30, 31). In some cases, the socio-cultural beliefs and practices restrict the available resources to pregnant women, causing adverse health-related complications. The negative socio-cultural norms increased the challenges of women residing in ecologically vulnerable remote areas by shaping the attitude of their family and community members regarding the birthing process, place of childbirth as well as the use of contraceptive practices (30). These beliefs are intergenerational, perpetuate from generation to generation, and work as a major factor in maternal and child health care service utilization. Besides, research showed that in the remote rural setting certain traditional socio-cultural beliefs and practices are linked with lower utilization of maternal and child health care services utilization. There is a range of local beliefs based on rituals that prevail in Bangladesh including the concept of '*atur ghar or the labour room*' where most pregnant women are forced to deliver although many maternal and child health-related complications may rise due to unhygienic environment and in absence of the skilled birth attendants (20, 31, 32).

### **2.2.3 Economic factors**

During the ongoing Covid-19 pandemic, economic crisis due to redundancy, scarcity of resources, strict lockdown, inadequate care, overburdened health systems, restricted health service delivery, travel restrictions, and shifting priorities at the primary level of health care are creating massive challenges for women to seek maternal and child health care services (5, 14, 33). Recent evidence has shown that Covid-19 pandemic control policies created acute vulnerability among the poor expecting mothers of disadvantaged areas as they prioritized purchasing essential commodities such as food items over going to health facilities for maternity services (9, 34). Besides in the pandemic period due to economic constraints the affordability of getting antenatal care, skilled birth attendance, and postnatal care drastically reduced in many low and middle-income countries (12, 13). Moreover, in many settings economic crisis leads to low-quality care received by impoverished and vulnerable women which increases their susceptibility to death during pregnancy, childbirth, and the postpartum period (35).

### **2.2.4 Health care-seeking behaviour**

Literature has shown that a large number of maternal deaths in developing countries occur due to poor maternal and child healthcare-seeking behaviour (21, 36). In hard-to-reach areas of Bangladesh, lower use of antenatal care aggravated by poor use of institutional delivery increases the likelihood of maternal mortality (37, 38). This limited maternal and child healthcare-seeking behaviour is associated with poor educational status, financial crisis, lack of awareness, and willingness (22, 36). Maternal health and childcare-seeking behaviour highly decreased during the ongoing Covid-19 pandemic. Misconceptions and rumours about coronavirus transmission have created anxiety and fear among pregnant mothers (39, 40). This avoidance of being infected with the virus has kept pregnant mothers aloof from seeking maternal and child health care services. The current studies have shown that in many developing and developed countries healthcare facilities are identified as 'hub of virus transmission' that cause reservations in maternal health care seeking (41-43).

### **2.2.5 Lower decision-making power**

Women's ability to act on their wishes largely depends on their socio-economic condition and decision-making power within the household and community. Previous studies revealed that employed women have higher control over decision-making on their healthcare issues compared to unemployed women (21, 31, 44). Besides women's willingness and motivation



to utilize antenatal care, institutional delivery and postnatal care can be considered prime the underlying causes of maternal and child health care service utilization (14, 39). Amid the Covid-19 pandemic poor working women have experienced serious loss of job compounded by a huge financial crisis within the household which decrease their decision-making power over their healthcare (34, 41). In addition, family restrictions, perpetuating patriarchy, women's limited access to the decision-making process, and lack of awareness are all of these contributing factors causing their lower decision-making power over maternal and child health care services (7, 22, 31, 37).

#### **2.2.6 Capacity of the health system**

Disruptions in maternal and child health services have been identified as a major concern during the Covid-19 pandemic (45). While providing essential services to the patients infected with the virus the health systems of both developed and developed countries have been struggling to provide maternal and child health care services and Bangladesh is no such different (46, 47). The health system of Bangladesh is already scuffling with a highly centralized health system, weak governance body, poor monitoring and evaluation, inadequate allocation of resources, lack of skilled manpower, lack of public-private partnership, and lack of availability of basic and comprehensive emergency obstetric and neonatal care services (BEmONC and CEmONC) in all types of health facilities; therewithal the pandemic collapsing the health service delivery to a larger extent (48, 49). Thus, massive disruptions in delivering antenatal, delivery, and postnatal care have been observed in Bangladesh during the pandemic. Additionally, the lack of adequate screening facilities and logistic support for maternal health service providers decreased the capacity of the health system to continue maternity services (8).

#### **2.2.7 Attitude of the health care providers**

Negative attitudes and interactional problems between health care providers and service seekers are accompanied by non-friendly communication, and verbal and physical abuse (9, 50). Service providers' non-professional behaviours toward pregnant women sometimes increase their psychological stress and fear which decreases their likelihood of seeking

maternal and child health care services. In some cases, the unwillingness of the service providers and lack of confidentiality while attaining WHO-recommended antenatal care decreases women's desire to seek and utilize further institutional delivery care and post-partum care. Earlier studies showed that rude behaviours of health service providers as well as poor communication during childbirth made women feel unwanted (43, 50-52). Researches have evidence that health service providers are overburdened with excessive workload since the inception of the coronavirus pandemic in many cases their rush behaviour and negative attitude forced women to seek maternal and child healthcare services (14, 34, 39).

#### **2.2.8 Environmental conditions in health care facilities and quality of care**

Hygienic environmental conditions, availability of equipment and essential medicines, as well as the availability of standard precautionary commodities, are key factors that contribute to pregnant mothers' and their families' willingness to seek maternal health care services (53, 54). Since the inception of the corona virus pandemic, health facilities throughout the world are toiling to maintain Covid-19 safety protocols such as the availability of facial masks, sanitizer, sanitation, waste and water management, and availability of disposable gloves, etc. However resource-poor settings of developing countries are yet to maintain all those precautionary measures (55). In a hygienic environment, quality institutional delivery care by skilled birth attendance and availability of emergency obstetric care might reduce the risk of maternal and child mortality as well as maternal morbidity. Access and utilization of four or more antenatal care and delivery care are strongly associated with positive maternal and child health outcomes (27, 28). A previous study showed that in hard-to-reach areas some cases missed hospital visits during the third trimester of pregnancy due to poor hygiene management of the hospitals. Even in some under-resource settings, women fail to get access to proper maternal health care services because of adequate resources and organization to deal with obstetrics (56).

#### **2.2.9 Natural Disaster**

The geographical location of Bangladesh works as a trigger point which makes it highly vulnerable to disaster and some specific areas experience natural disasters such as cyclones, storm surges, floods, tornados, earthquakes, river bank erosion, droughts, and water salinity (37). The resulting disasters have a large number of effects on maternal and child health care

service utilization (22, 25). While disasters already have created havoc in the life of the people who are residents of disaster-prone areas, the Covid-19 pandemic multiplies their problems to seek healthcare services (57). Many poor families in these disaster-prone areas struggled to survive these frequent disasters which may drive their decisions to purchase basic needs over maternal and childcare services.

## **2.3 Direct and indirect effects of Covid-19 on the factors that influence MHC service utilization**

### **2.3.1 Denial of education**

One of the prime indirect effects of Covid-19 that highly influence MHC service utilization is a denial of education (58). The people of disaster-prone areas of Bangladesh are already vulnerable due to frequent natural disasters and the Covid-19 pandemic doubled their suffering through an economic crisis, loss of jobs, loss of lives of the earning members of the households, and health shocks. Thus, buying essential commodities over their female children's education came out as their major bargaining choice (13). In addition, due to Covid-19 control protocols countries throughout the world including Bangladesh are forced to close educational institutes which is another important negative effect of the pandemic on female education in hard-to-reach-digitally backdated areas (59). Moreover, female children of poor households and communities may be denied education as investing in their education is sometimes considered a waste of money because they are thought to be a homemaker after a wedding.

### **2.3.2 Lower rate of economic participation**

Denial of education leads to lower participation of women in the workforce. Additionally, the corona virus pandemic causes havoc sacristry of jobs in the labour. In many developing countries like Bangladesh due to patriarchal beliefs and traditional gender norms, women's workforce participation is considered the root cause of family tie breakage that negatively affects family honour (31). Women likely also have lower labour force participation due to a lack of higher education. Studies have suggested that women's decision-making power highly depends on their employment status and employed mothers are more likely to utilize maternal and child care services (44).

### **2.3.3 Child marriage and early pregnancy**

Child marriage and early pregnancy are two harmful effects of Covid-19 on the health and well-being of women which limit women's decision-making capacity (40). Previous studies showed that when women get married early due to family pressure of proving fertility they are forced to enter into early childbearing. Child marriage is also linked with lower use of contraceptive services, unintended pregnancy, and lower use of maternal and childcare services (30, 31, 60). When women get married early, they are forced to leave their education, on the other hand in many countries due to social safety and economic reasons parents are compelled to marry their girl child early. Women's autonomy regarding their healthcare-seeking behaviour is highly denied due to child marriage. Some studies showed that the frequency of pregnancy and parity of children are higher for women married in adolescents period and who have early pregnancy than for women who get married after eighteen years or older (10, 30).

### **2.3.4 Domestic violence and abuse**

Studies have shown that domestic violence and abuse reduce women's utilization of antenatal care, institutional delivery, and postnatal care (61, 62). Globally, during the pandemic, domestic violence and abuse against women, suicide, rape, and mental disorders have increased to a larger extent. The report suggested that in Bangladesh physical, financial, psychological, and sexual violence increased during the lockdown (10, 63). Socio-cultural factors, traditional gender roles, and cultural beliefs also contribute to higher rates of domestic violence in Bangladesh. Violence against women is a major effect of Covid-19 that is associated with women's denial of healthcare. Women usually experience domestic violence if they fail to maintain the demands of the household, family members, and the sexual expectations of the husband (27, 38).

### **2.3.5 Food scarcity, nutritional deficiency, and deprivation of micronutrient supplements**

Earlier research suggested that nutritional, genetic, socioeconomic, and environmental factors are associated with childhood anaemia. Mothers' food-taking patterns, micronutrient supplement consumption, and level of nutrition are considered important determinants of anaemia in children (64). Besides both maternal overweight and underweight are found to be associated with child development. Food scarcity in households increases the risk of anaemia

in mothers and new-borns. The study has shown that at the time of pregnancy under-nutrition negatively affects the pregnancy outcome and fetal growth. In Bangladesh, 12% of ever-married women of reproductive age are underweight with a body mass index (BMI) of  $<18.5 \text{ kg/m}^2$  (65). Moreover, iron, iodine, zinc, and nutritional deficiency are major micronutrient challenges issues and problems in Bangladesh (66, 67). However, the major consequence of the ongoing pandemic is a scarcity of the food supply at the household and community level which might have a negative effect on overall maternal and child health (64).

#### **2.3.6 Delay in the decision to seek maternal and child health care**

Evidence highlighted the delay in the decision to seek maternal and child health care, as the major direct effect of Covid-19 on maternal and child health. Fear of being quarantined and stigmatized is associated with this delay in the decision to seek maternal and child health care services (8, 34). Besides this delay in the decision is also linked to women's denial of education and lower participation in the workforce. The decision to seek maternity care is influenced by multiple factors such as socio, economic, demographic, cultural, environmental, and severity of illness. In some households, the first pregnancy is handled with a delicacy which increases the use of scheduled antenatal care and institutional delivery for the next pregnancies. Besides some households considering a fever, abdominal pain, cold, and fainting as danger signs other households may hold a reluctant attitude towards these symptoms as they highly depend on traditional medicines (28, 29). Lack of proper understanding and counselling regarding the complications and risk factors related to many women's failure to decide on when to seek medical assistance.

#### **2.3.7 Delay in reaching the health facilities for maternal and childcare**

The greater the distance to the health facilities the lower the chances of using maternal health care services. In Bangladesh, health facilities in disaster-prone areas already lack adequate resources and infrastructural development. Covid-19 control precautions such as lockdown regulations and social distancing formulas discouraged women to reach health facilities to attain maternity services (25, 37). Besides the lack of availability of transportation and the cost associated with it, damaged roads and geographical location came out as major barriers to reach to the health facilities to receive maternally and childcare (10, 31, 51).



### **2.3.8 Denial of family planning and post-partum family planning services**

Family planning methods assist women to regulate unplanned and unintended pregnancies as well as unsafe abortions. Contraceptive methods help women to limit and space child births, which eventually benefits maternal and child health (16). In Bangladesh, the contraceptive prevalence rate among women of reproductive age is 62% but the unmet need for family planning remained to stagnate at 12% since 2014 (65). Besides, reducing the short birth intervals post-partum family planning services helps to improve maternal and child health. However, the Covid-19 pandemic has adversely affected women's ability to use family planning services by restricting their access to family planning information and services (68, 69). Evidence suggested that during the coronavirus pandemic 15 million unplanned pregnancies occurred in low and middle-income countries due to a 10% decline in the use of short and long-acting reversible contraceptives. Additionally, many women in hard-to-reach areas are unable to visit health facilities or purchase contraceptive methods due to strict lockdowns and fear of being infected with the virus (70).

### **2.3.9 Denial of sanitary napkins**

Gender discrimination, disparities, socio-cultural belief, economic crisis, unwillingness, and lack of knowledge and awareness confined women with poor menstrual health and hygiene. In resource-poor settings women usually feel ashamed about their menstruation, this inferiority leads to poor hygiene maintenance practices among them (71). Poor hygiene practice is associated with yeast infection, abdominal pain, urogenital infections, fungal infection, and in the worst cases prolonged urinary tract infection (72) The strict lockdown, long distance of pharmacy from home, high cost due to the pandemic negatively affect women's menstrual hygiene practices practically for those living in disaster-prone rural areas (73).

### **2.3.10 Denial of antenatal, institutional delivery, and postnatal services**

Several studies have found a strong association between maternal health care service utilization and the reduction of maternal and child mortality (27, 28, 74). In Bangladesh, the current use of four or more antenatal care is 47% and institutional delivery is 49% among women of the reproductive age group. Besides, above 50% of mothers and new-born received postnatal care from a medically trained provider (65). However, due strict lockdown and fear

of being infected with the virus kept women away from utilizing antenatal care, institutional delivery, and postnatal care services eventually increasing the risks of maternal and child morbidity as well as mortality (34, 41). When women receive the World Health Organization (WHO) recommended antenatal care they get proper treatment of diseases due to early detection which leads to better maternal health outcomes (75). For example, early detection of thyroid disease among women and high blood pressure aids to prevent eclampsia, which is one of the leading cause of maternal deaths in Bangladesh (76). Institutional delivery by a skilled birth attendant is an important aspect of maternal and child health care. Due to the inability to detect delivery complications and inadequate referrals many mothers and babies from low and middle-income countries lost their lives. Only an enabling environment with proper availability of equipment, medicine, availability of doctors, and other supplies is required to handle any obstetric complications (21, 76). Additionally, in lower and middle-income countries, haemorrhage, infections, and hypertensive disorders are considered major causes of maternal deaths during the post-partum period. Postnatal care can prevent a huge portion of maternal mortality and morbidity among women in resource-poor settings. Besides services and information on vaccination, maternal and child nutrition, hygiene, and sanitation are also provided during postnatal care (36, 56, 77). Denial of all these services eventually adversely affects the improvement and overall progress related to maternal and child health.

## **2.5 Justification of this research and research gaps**

Disaster-affected people are underprivileged in Bangladesh as their utilization of healthcare services has received less attention in the literature, even though disaster affects livelihoods adversely and causes pressure on the availability of health and social-welfare services (78-81). Health-related vulnerabilities of these groups of people extended further during the Covid-19 pandemic due to its direct and indirect adverse effects on the drivers of healthcare service utilization. Hence, to achieve the maternal health-related targets of Sustainable Development Goals (SDGs), new evidence is required for this disadvantaged group to understand the adversity of Covid-19 on health services availability and its utilization for maternal care.

Despite having plenty of research broadly related to the factors associated with healthcare and inequalities, climate vulnerabilities, and adaptation, there is a lack of research explicitly

on maternal healthcare service utilization of women who lives in the disasters-affected areas in Bangladesh. The reasons for unequal utilization of maternal healthcare services in general, women's perceptions about maternal care services, and their behaviours toward maternal healthcare services utilization have received substantial attention in healthcare-related previous studies (*Chapter 2*). Only a few studies have compared the utilization of maternal healthcare services in a normal situation between displaced and non-displaced women (82, 83). However, the utilization of maternal healthcare services during the Covid-19 pandemic by women who lives in disaster-prone areas in Bangladesh was not considered in any of the studies in Chapter 2, even though the utilization of maternal healthcare service received less attention due to the Covid-19 pandemic protection mechanisms.

The existing literature related to healthcare, climate change, displacement, and health suggests that there is a lack of evidence for understanding maternal healthcare behaviours of disaster-affected women. Moreover, there is a dearth of comparative research on maternal healthcare service utilization between women who live in urban areas and those who live in rural areas during the Covid-19 pandemic. This research, so far to our knowledge, is the first time attempt to explore the utilization of maternal healthcare services during the Covid-19 pandemic in disaster-prone areas in Bangladesh.

### 3.1 Introduction

This research used both quantitative and qualitative data to address the identified research objectives (Section 1.2) with a greater focus on the quantitative part. Quantitative data were collected to obtain information about the disasters, effects of Covid-19 on health and asset vulnerabilities, availability of healthcare services, utilization of healthcare services during Covid-19, and households' background characteristics, such as demographic, socioeconomic, and cultural attributes. In addition to the survey data, qualitative information on how and why the availability and utilization of maternal healthcare services were influenced by the Covid-19 pandemic protection mechanisms, was collected from locally available healthcare service providers and married women aged 18 and above with  $\leq 1$ -year-old child using in-depth interviews to get in-depth explanations relating to some specific research objectives and to develop a narrative for a deeper understanding of the quantitative results.

### 3.2 Study site and basic demographics

Climate-change-related major events in Bangladesh are mostly concentrated in the central and western coastal areas. (84-87). However, this study was conducted in the Satkhira district only: which is located in the coastal region of Bangladesh (Figure 3.1). The population of the studied district living in the coastal region is biophysically and socioeconomically highly vulnerable to experiencing climate-related extreme events such as cyclones, flash floods, and water logging due to its geographical position. Massive climatic events also caused displacement for many people in Assasuni and Shyamnagar sub-districts, but these residents are not yet resilient enough to cope with the effects of climate-related extreme events. People in these areas mostly migrated from one area to another. However, such displacement is estimated to be increased further in this district with an increasing number of disasters.

Selected socio-demographic indicators of Bangladesh and the sub-districts being examined are presented in Table 3.1, based on the Bangladesh Population Census of 2011. Around 0.48% (720,881) of Bangladesh's total population live in the displacement-prone district studied. The average household size of the sub-districts studied is almost equal to the national level (See Table 3.1). However, the household size in the city corporation areas is substantially

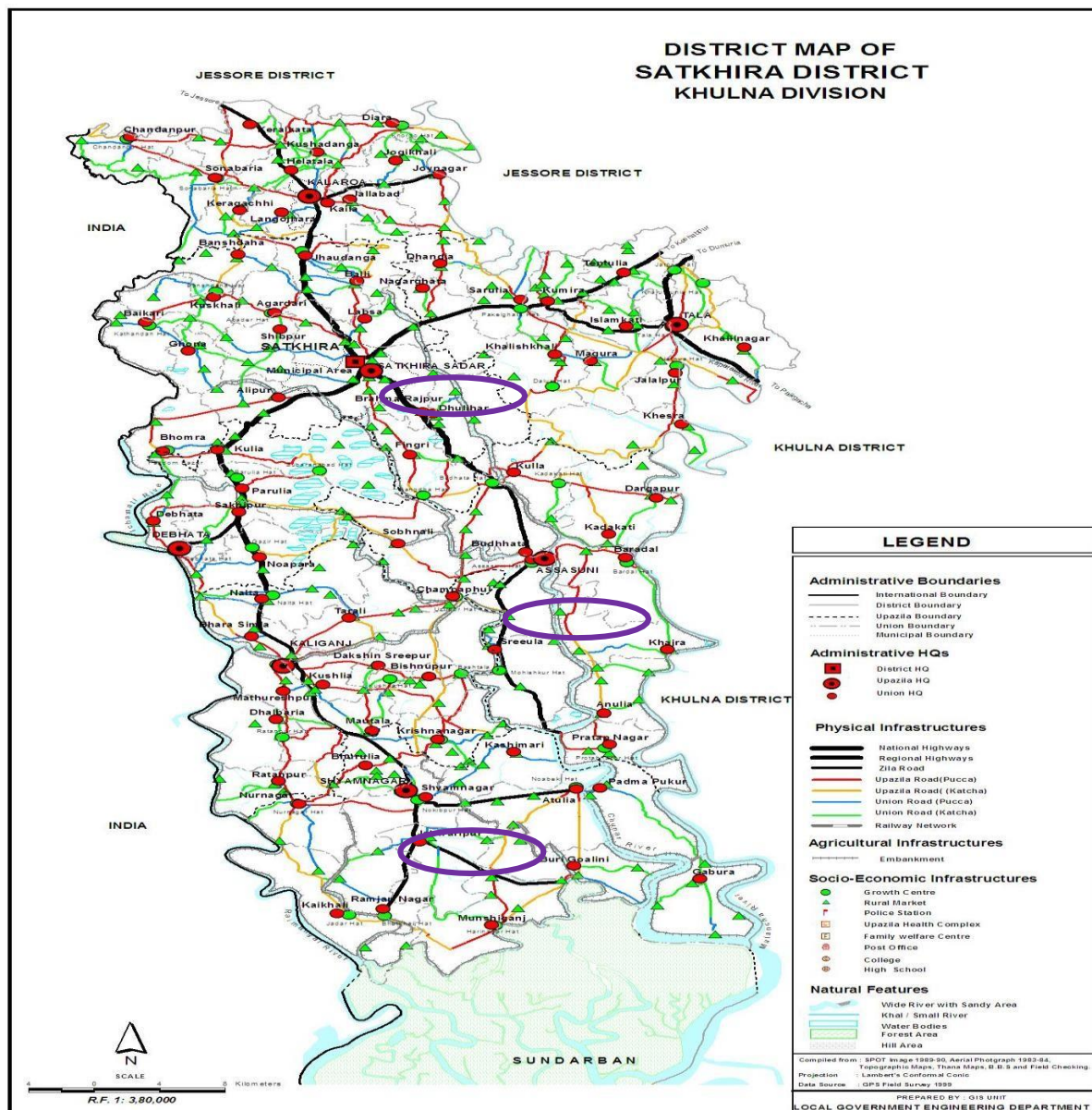
lower compared to Assasuni, Shyamnagar, and the national level. The rate of literacy for studied sub-districts is lower than the national level.

Table 3. 1: Socio-demographic indicators of Bangladesh and the sub-districts studied, 2011

Indicators	Bangladesh	Sub-districts		
		Sadar	Assasuni	Shyamnagar
Area per square km	147,569.06	328.79	121.82	1968.23
Total population	149,772,364	285,309	117,318	318,254
Annual growth rate (%)	1.47	0.28	0.39	1.43
Population density per square km	976	835	925	1024
Urbanization rate	23.3	6.0	26.8	24.4
Sex ratio	98	97	95	93
Average Household size	4.44	3.94	4.57	4.21
Literacy rate, ≥7 years aged population (%)	51.8	37.7	40.3	48.62
School attendance rate, 5-24 years population	52.7	55.3	52.0	46.08

Source: (88-91)

Figure 3. 1: Geographical location of the selected sub-districts of Satkhira district in Bangladesh



Source: <https://oldweb.lged.gov.bd/ViewMap2.aspx?DistrictID=39>



### 3.3 Sample size

#### 3.3.1 Sample size for quantitative data

The sample size for this research was calculated considering the prevalence of using maternal healthcare reported in the latest BDHS report 2014 to get sufficient cases for statistical analysis (92). According to this report, the prevalence ranges from 31% for HC-based delivery to 36% for skilled birth attendants in rural areas. Using the recommended highest prevalence rate (36%) and formula for random sampling,  $(n=Z^2P(1-P)/d^2)$ , where  $n$ = sample size;  $Z= 1.96$  (95% confidence interval indicates a range, upper limit and lower limit that will contain the true population mean);  $P= 0.36$  prevalence of skilled birth attendants at birth; and  $d= 0.05$ , precision) the calculated sample size was 355 for each group (93). However, it reached 387 after adding the impacts of 1.5 design effects and a 10% nonresponse rate. Then the sample size reached 406 due to rounding and distribution purposes among the studied sub-districts. Homogenous attributes of the study populations; sampling types (i.e., purposive, and random); previous experience of conducting surveys in rural Bangladesh; allocated budget, and time were taken into consideration when using design effects and nonresponse rate.

#### 3.3.2 Sample size for qualitative data

Saturation level was considered as the benchmark in this study to continue the collection of qualitative data. Thus, the collection of qualitative data by adding new respondents for each of the categories was carried out until reaching the saturation level. Table 3.2 presents the distribution of respondents for qualitative data by data collection methods and districts.

Table 3. 2: Distribution of qualitative sample by methods and districts

Type of respondents	Methods of Collection	Unit	Total
Married women	In-depth interviews (IDIs)	4 for each sub-district	$4 \times 3 = 12$
Healthcare service providers	Key informant interviews (KIIs)	2 for each district	$2 \times 3 = 06$
<b>Total sample for qualitative data</b>			<b>18</b>

### 3.4 Research design and sampling framework

A cross-sectional survey was conducted, as this study collects participants' information over a short period without any interventions (94-96). For sampling purposes, the study areas were divided into two: urban and rural. A combination of purposive and random sampling (a mixed approach was used to identify displacement sub-districts and unions) procedure was applied

to select study areas and study participants. Married women aged 18 years and above with  $\leq$  1-year-old child who had experienced pregnancy and or delivered birth during the Covid-19 pandemic situation were considered eligible for the sampling. The study participants were informed about the study objectives and verbal consent was taken from each of them before conducting interviews.

### **3.5 Data collection and analysis**

Based on the literature review related to the research objectives, a structured questionnaire was developed to obtain quantitative information. Before finalizing the survey schedule, it was pre-tested in one urban area in Bangladesh (other than the actual study areas) to know insights into other studies and apprehend the strengths and feasibility of this research. A Bengali version of the questionnaire was used to conduct fieldwork for this research.

The graduate interviewers (both male and female) were recruited and trained for a week to clarify the study objectives, ethical issues, participants' consent, probing practices, and to explain the interview questions. The interviewers were responsible only to conduct interviews and crosscheck the completed schedules of other interviewers. During the fieldwork in Bangladesh, I was involved in preparing the list of eligible households and the sample selection process and monitoring the works of the interviewers and data entry operators. The statistical package SPSS was used to analyse the data of this research. The qualitative data were analysed and reported thematically.

## Chapter 4: Background Characteristics of the Respondents

### 4.1 Introduction

This section presents various aspects of respondents' and their husbands' socio-demographic characteristics, household characteristics, income and expenditure, and the impact of Covid-19 on respondents' socio-demographics, household characteristics, and health outcomes of the study area by types of residence. The socio-demographic information of 219 rural women (54.2%) and 185 urban women (45.8%) is presented in this chapter along with the synthesis of qualitative findings.

Table 4.1 shows that overall, one-fourth of the ever-married women in the study areas are aged below 25 years, 65.1% of them are in the 25-34 age group and the remaining of them belong to the age group 35-49 years (10.6%). The age distributions of ever-married women across the residence types are similar, having the highest percentages in the 25-34 age group and the lowest percentage in the 35-49 age group (Table 4.1).

Concerning education, more than 56% of ever-married women have completed secondary education with an almost identical distribution across the residence (urban 54.6% and rural 57.5% respectively). Less than one-third of the women have primary education and 15.6% have a higher than secondary level of education. More than 92% of the ever-married women are housewives with an almost identical distribution across the residence (urban 89.7% and rural 94.1% respectively) and their role as housewives remained the same due to Covid-19 (Table 4.1).

Overall, 47.5% of women in the study areas reported that their age at first marriage was <18 years. Age at first marriage of the studied women varied substantially by residence. A higher percentage of women married before 18 years of age in rural areas (53.9%) than in urban areas (40%). However, a greater percentage of women married before 15 years of age in urban areas (26.5%) than in rural areas (19.2%) (Table 4.1).

Table 4. 1: Percentage distribution of the respondents' socio-demographic characteristics by residence

<b>Respondents' Characteristics</b>	<b>% of rural (n=219)</b>	<b>% of urban (n=185)</b>	<b>Total (N=404)</b>
<b>Respondents' current age</b>			
18-24 years	23.3	25.4	24.3
25-34 years	62.1	68.6	65.1
35-45 years	14.6	5.9	10.6
<b>Respondents' education</b>			
No education	4.1	4.3	4.2
Primary	22.4	25.9	24
Secondary	57.5	54.6	56.2
Higher than secondary	16	15.1	15.6
<b>Respondents' occupation</b>			
Housewife	94.1	89.7	92.1
Housekeepers in others' house	0.5	2.2	1.2
Animal husbandry/livestock cultivation	1.4	2.2	1.7
Government service	0.9	0.0	0.5
Private employment	0.5	1.1	0.7
Small business	0.9	1.6	1.2
Student	0.5	0.0	0.2
Entrepreneur	1.4	2.2	2.2
<b>Whether respondents' occupation was affected by Covid-19</b>			
Yes	4.6	9.7	6.9
No	1.4	0.5	1.0
Not applicable	94.1	89.7	92.1
<b>Respondents' age at first marriage</b>			
12-14 years	19.2	26.5	22.5
15-17 years	53.9	40.0	47.5
18-26 years	26.9	13.5	30.0

Table 4.2 presents that overall, 50% of the ever-married women's husbands are in the 25-34 age group and 43.5% of them are in the 35-45 age group. The spousal age distributions across the residence are similar, having the highest percentages in the 25-34 age group and the lowest percentage in the 18-24 age group.

Overall, 42.6% of respondents' husbands completed secondary education with an almost identical distribution across the residence (urban 45.9% and rural 39.7% respectively). Almost one-third of the respondents' husbands have primary education, only 10.4% of them have no education and 14.6% have a higher than the secondary level of education. More than 38% of the ever-married women's husbands are day laborers, while 18.6% have a small business and 15.8% are vehicle drivers. The highest percentage (95.3%) of ever-married women reported their husbands' occupation was affected due to the Covid-19 pandemic. The distributions of

husbands' age at the time of respondents' first marriage across the residence types are almost identical. In 54% of cases, the spousal age at the time of women's first marriage was in the age group 19-24 whereas one-third of their husband's age at the time of first marriage was in the 25-30 age group.

Table 4. 2: Percentage distribution of socio-demographic characteristics of respondents' spouses by residence

<b>Spousal characteristics</b>	<b>% of rural (N=219)</b>	<b>% of urban (N=185)</b>	<b>Total (N=404)</b>
<b><i>Husbands' current age</i></b>			
18-24 years	3.2	2.2	2.7
25-34 years	47.0	53.5	50.0
35-45 years	44.7	42.2	43.6
45+ years	5.0	2.2	3.7
<b><i>Husbands' education</i></b>			
No education	12.8	7.6	10.4
Primary	34.7	29.7	32.4
Secondary	39.7	45.9	42.6
Higher than secondary	12.8	16.8	14.6
<b><i>Husbands' main occupation</i></b>			
Agriculture	1.8	1.1	1.5
Fishery	6.4	0.0	3.5
Public service	2.3	3.8	3.0
Private service	6.8	9.7	8.2
Small business	16.9	20.5	18.6
Day labourer	49.8	25.4	38.6
Masonry	2.7	12.4	7.2
Painter	0.0	3.8	1.7
Vehicle driver	11.0	21.6	15.8
Others (fishery/handicraft/mill)	2.3	1.6	2.0
<b><i>Husbands' occupations affected by Covid-19</i></b>			
Yes	95.4	95.1	95.3
No	4.6	4.9	4.7
<b><i>Husbands' age at the time of respondents' first marriage</i></b>			
13-18 years	5.9	10.8	8.2
19-24 years	54.3	53.5	54.0
25-30 years	34.2	30.8	32.7
31-36 years	4.1	4.3	4.2
37-42 years	1.4	0.5	1.0

Table 4.3 shows the household characteristics of the respondents in the study area. About 56.4% of the ever-married women have 5-7 household members currently living with them. There is a substantial variation by residence in the number of members involved in income-generating activities before and during Covid-19. The findings of this table reveal that, during the Covid-19 pandemic, in urban areas, almost 3.2% of households have no income-

generating members. In addition, during the pandemic women living in rural areas have a higher percentage of single income-generating members in households than in urban areas (81.3% vs 76.8%). Also, the percentage of at least one male member who migrated elsewhere from their residence due to Covid-19 is higher in rural areas than in urban areas (8.2% vs 3.8%).

Table 4. 3: Percentage distribution of respondents' household characteristics by residence

Characteristics	% of rural	% of urban	Total (N=404)
<b>Total number of members in the household</b>			
2 to 4	29.2	40.5	34.4
5 to 7	58.9	53.5	56.4
8 to 10	9.1	4.9	7.2
10 or more	2.7	1.1	2.0
<b>Total number of members involved in income-generating activities before Covid-19</b>			
1	76.3	76.8	76.5
2	17.4	21.1	19.1
3	5.0	1.6	3.5
≥4+	1.4	.5	.9
<b>Total number of members involved in income-generating activities during Covid-19</b>			
0	1.8	3.2	2.5
1	81.3	76.8	79.2
2	11.9	17.8	14.6
3	3.7	1.6	2.7
≥4+	1.4	.5	.9
<b>Number of males migrated elsewhere from their residences due to Covid-19</b>			
0	90.4	96.2	93.1
≥1	8.2	3.8	6.2
<b>Number of females migrated elsewhere from their residences due to Covid-19</b>			
0	97.3	98.9	98.0
≥1	1.8	1.1	1.5

Table 4.4 shows the before and after the Covid-19 pandemic situation in terms of monthly household income and expenditure of the respondents in disaster-prone areas. Before Covid-19, almost 42% of urban and rural respondents reported that their households' monthly expenditure was between 5,000 to 9,999 BDT which increased to almost 54% for both urban and rural households. On the other hand, before the pandemic, 29.7% of urban respondents and 41.1% of rural respondents reported that their households' monthly income was between 10,000 BDT and 14,999 BDT which decreased to 15.7% and 14.2% for urban and rural households respectively. Therefore, the findings of Table 4.4 show a complete budget deficit during Covid-19, where households' monthly expenditure exceeds households' monthly income in the study area. Moreover, during the pandemic, the difference between average

monthly income and average household expenditure, across the residence types are identical. For example: during Covid-19 48.6% of urban respondents and 50.7% of rural respondents' monthly household income are between 5000 and 9999 BDT whereas 53.5% of urban respondents and 53.9% of rural respondents reported that their monthly household expenditure is in between 5000 and 9999 BDT (Table 4.4).

Table 4. 4: Households' monthly income and expenditure before and during Covid-19 (BDT) by residence

Expenditure and Income	% of urban		% of rural	
	Before Covid-19	During Covid-19	Before Covid-19	During Covid-19
<b>Average monthly household expenditure</b>				
Less than 5,000	1.1	7.6	0.5	4.6
5,000 to 9,999	42.2	53.5	42.0	53.9
10,000 to 14,999	35.7	24.9	34.2	23.3
15,000 to 19,999	13.0	9.7	16.4	14.6
20,000 to 24,999	5.4	2.7	5.0	1.8
25,000 and above	2.7	1.6	1.8	1.8
<b>Average monthly household income</b>				
Less than 5,000	0.5	25.9	0.5	28.8
5,000 to 9,999	31.9	48.6	26.0	50.7
10,000 to 14,999	29.7	15.7	41.1	14.2
15,000 to 19,999	22.7	5.9	18.3	2.7
20,000 to 24,999	6.5	2.2	5.9	1.8
25,000 and above	8.6	1.6	8.2	1.8

The narratives of IDIs and KIIs also showed similar findings where all the respondents, service providers, and family planning inspectors reported that the Covid-19 pandemic placed a negative impact on community people's education, occupation, and household income, expenditure, and food security, and healthcare-seeking behaviour. A postpartum mother in this regard stated that,

“...My husband's career has been greatly affected by Covid-19. His salary was stopped for a long time. Then there was the financial crisis in our family. We usually experience shortage of food in our house all year round, but we had to go without food for almost a day during Corona. I have heard that various help has been given by the government. But we did not get anything...”

Table 4.5 manifests the impact of Covid-19 on household expenditure, income, education, early marriage, occupation, and coping strategies for the budget deficit. Consistent with Table 4.4, Table 4.5 reveals that overall, 97% of the households' average monthly income decreased during Covid-19 while 77.2% of households experienced a budget deficit, where their monthly household expenditure was higher than their monthly income. Moreover, a large majority of



the respondents reported that members of their households became workless for more than a week due to Covid-19.

Table 4. 5: Impacts of COVID-19 on households' income, expenditure, education, and child marriage by residence

Characteristics	% of rural	% of urban	Total (%) N=404
<b>Impact of COVID-19 on household income</b>			
Decreased	98.6	95.1	97.0
Remained same	1.4	4.9	3.0
<b>HH expenditures were higher than the household income during Covid-19</b>			
Yes	80.4	73.5	77.2
No	19.6	26.5	22.8
<b>HH members became jobless/workless for more than one week due to Covid-19</b>			
Yes	90.9	94.1	92.3
No	9.1	5.9	7.7
<b>Discontinuation of education occurred due to Covid-19</b>			
Yes	3.2	1.1	2.2
No	3.7	4.3	4.0
Not Applicable	93.2	94.6	93.8
<b>HH member married before age 18 due to Covid-19</b>			
Yes	3.7	2.7	3.2
No	96.3	97.3	96.8

Only 2.2% and 3.2% of the respondents mentioned the discontinuation of education and child marriage has occurred in their households due to Covid-19. Both of these incidents occurred more in rural areas compared to urban areas. However, the qualitative findings from IDIs and KIIs revealed that during the Covid-19 pandemic they observed many young girls married early and became pregnant due to school closure. A post-partum mother described this as:

“...Schools of our locality are closed for many days and I have witnessed parents are giving marriage of their girls even at the age of 12 and 14 during the Corona period...”

Households' coping mechanisms to cope with the deficit: lower income than expenditure during the Covid-19 pandemic is presented in Figure 4.1. To cope with the budget deficit most of the households purchased goods on credit (90.9% rural and 81.6% urban), loans from friends/relatives (73.3% rural and 81.6% urban), and Bank/NGO/Samity/Mohajon (58.0% rural and 66.9% urban). The prevalence of using savings as a coping strategy was higher in rural areas than in urban areas. Similarly, a greater proportion of rural households (42%) compared to urban households (36%) stopped taking necessary healthcare to cope with the deficit income during the Covid-19 pandemic situation.

Figure 4.1: Households' strategies to cope with the deficit: lower income than expenditure during Covid-19

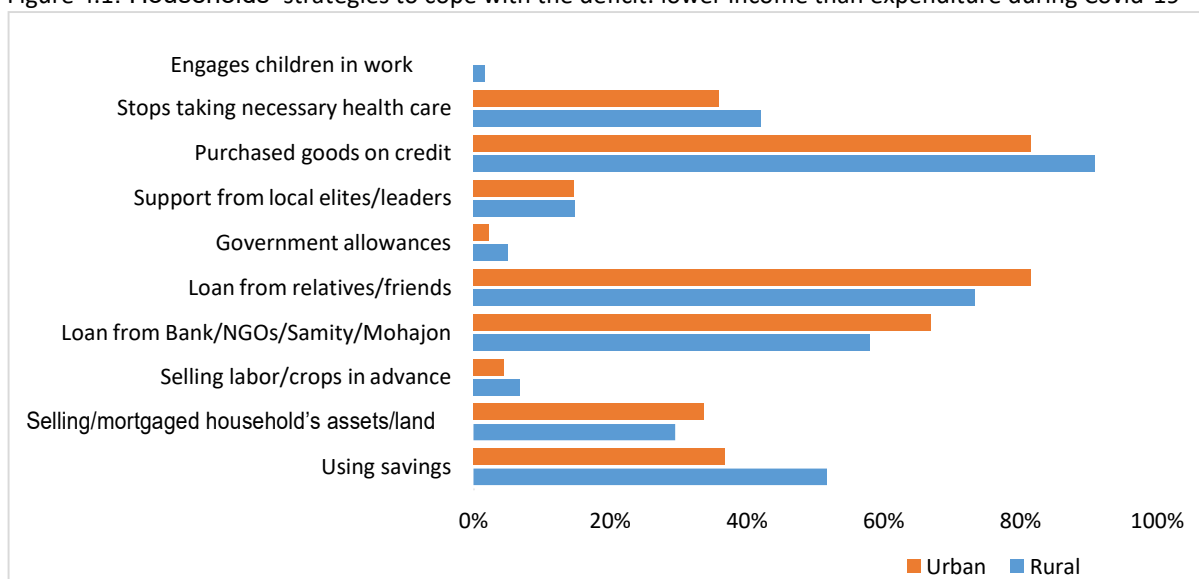


Table 4.6 shows the impact of Covid-19 on the frequency of respondents' visits to healthcare providers, healthcare providers' household visits, and respondents' access to media. Overall, the frequency of visits to healthcare providers decreased in 91.8% of the cases. According to 95.3% of the respondents, healthcare providers' home visits also decreased due to Covid-19. However, access to media increased for around 47% of the cases with a greater increase in urban areas.

Table 4. 6: Impacts of Covid-19 on accessibility to healthcare and media by residence

Characteristics	% of rural	% of urban	Total % (N=404)
<b>Visits to healthcare providers changed due to Covid-19</b>			
Decreased	91.8	91.9	91.8
Increased	1.4	.5	1.0
Remained same	6.8	7.6	7.2
<b>Visits of healthcare providers at home changed due to Covid-19</b>			
Decreased	94.5	96.2	95.3
Increased	-	-	-
Remained same	5.5	3.8	4.7
<b>Use of media changed due to Covid-19</b>			
Decreased	23.7	14.1	19.3
Increased	37.4	57.3	46.5
Remained same	38.8	28.6	34.2

## Chapter 5: Natural Disaster, Covid-19 and Food Security

### 5.0 Introduction

Households' experience of natural disasters and food security during the Covid-19 pandemic are presented in this Chapter. The findings of this Chapter summarize using the responses obtained based on the questions in Sections 2 and 3 (Appendix-1). The synthesis of qualitative findings from in-depth interviews (IDIs) and key informant interviews (KIIs) are also presented along with the quantitative findings.

Households' experience of natural disasters that occurred over the last five years and their required time to recover the damages are presented in Table 5.1. It shows that overall, 98.3% of the households experienced natural disasters during the last 5 years and the majority of them identified cyclones (49.0%) as the most recently experienced natural disaster with a negligible variation by residence. Overall, 36.6% of respondents reported that the endured losses of their households that occurred due to the most recent disasters were irreplaceable, and they could never be able to return to the pre-disaster condition. On the other hand, 43.3% of them stated that within 6 months their household returned to its previous condition.

Table 5. 1: Households' experience of natural disasters and required time to recover disaster effects by residence

Characteristics	% of rural	% of urban	Total % (N=404)
<b><i>Households experienced natural disasters during the last 5</i></b>			
Yes	100.0	96.2	98.3
No	0.0	3.8	1.7
<b><i>Most recent natural disaster that households experienced</i></b>			
Cyclone	45.7	53.0	49.0
Tidal wave	6.4	.5	3.7
Flood	19.6	8.1	14.4
Heavy rainfall	9.6	28.6	18.3
The salinity of water	.5	0.0	.2
Riverbank erosion	16.9	.5	9.4
Waterlogging	1.4	9.2	5.0
<b><i>Households' required months to return to pre-disaster conditions after the most recent disaster</i></b>			
0 to 6	38.4	49.2	43.3
7 to 12	10.5	13.0	11.6
13 to 18	3.2	1.1	2.2
19 to 24	4.1	1.1	2.7
25 to 60	5.9	0.5	3.5
Not possible at all	37.9	35.1	36.6

Figure 5.2 shows the rank of the five most devastating disasters that respondents' households experienced during the last five years by residence. According to the urban residents, the topmost five most devastating natural disasters are cyclones (74.7%), heavy rainfall (44.9%), flood (29.2%), waterlogging (33.1%), and salinity of the water. This pattern is found almost identical to the identified rank of natural disasters by rural residence, cyclone (71.7%), flood (43.8%), heavy rainfall (34.2%), water salinity (22.8%), and waterlogging (34.7%).

Table 5. 2: Top five most devastating disasters experienced by households during the last five years by residence

Disasters	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
<b>Urban (N=185)</b>					
Cyclone	74.7	11.2	9.0	5.6	12.4
Tidal wave	1.7	4.5	3.9	5.6	9.6
Flood	7.3	17.4	29.2	21.9	9.6
Heavy rainfall	11.8	44.9	24.2	19.7	12.4
The salinity of water	0.0	1.7	2.8	6.7	24.2
Riverbank erosion	4.5	0.6	1.7	3.4	6.2
Waterlogging	0.0	19.7	28.1	33.1	11.8
Drought	0.2	0.5	1.1	3.4	14.0
<b>Rural (N=219)</b>					
Cyclone	71.7	15.5	7.8	5.0	5.5
Tidal wave	1.8	3.2	0.0	3.7	3.2
Flood	7.3	43.8	22.8	10.0	9.6
Heavy rainfall	2.7	11.4	34.2	20.5	15.5
The salinity of water	15.1	0.5	5.5	22.8	14.2
Riverbank erosion	1.4	19.2	17.8	18.7	11.4
Waterlogging	0.0	6.4	11.4	17.4	34.7
Drought	0.1	2.3	0.5	1.8	5.9

Overall, 95.5% of the respondents reported that one or more than one member of their household got sick during the ongoing Covid-19 pandemic and 73.8% of them didn't receive any healthcare (Table 5.3). Considering the residence types, the majority of respondents received healthcare from traditional providers during the Covid-19 pandemic (rural 96.0% and urban 82.4%). Surprisingly majority (94.1%) of the respondent reported that none of their household members were affected by Covid-19. Nevertheless, respondents reported that the Covid-19 pandemic affected them by creating stress/anxiety/frightening mentality/stigmatization (urban 86.5% and rural 85.4%), and they had to borrow money for livelihood support (urban 82.2 and rural 94.0%) as most of them lost livelihood/income (urban 79.5% and rural 82.6%) (Table 5.3).

Table 5. 3: Household members' experience of illness during Covid-19 and sources of healthcare by residence

<b>Characteristics</b>	<b>% of rural</b>	<b>% of urban</b>	<b>Total % (N=404)</b>
<b>HHs members get sick during Covid-19</b>			
Yes	97.3	93.5	95.5
No	2.7	6.5	4.5
<b>Received any healthcare for illness during Covid-19</b>			
Yes	70.0	78.6	73.8
No	30.0	21.4	26.2
<b>Sources of healthcare for illness during Covid-19</b>			
Government care provider	9.4	33.8	
NGO care provider	1.3	3.7	
Private practitioners	24.2	19.9	
Traditional providers	96.0	82.4	
<b>Number of household members infected by Covid-19</b>			
0	96.8	90.8	94.1
1+	3.2	9.1	5.8
<b>Households experienced the effects of Covid-19</b>			
Family member/s infected by Covid-19	4.6	9.7	
Loss of lives of a family member(s)	3.7	4.3	
Stress/anxiety / frightening	85.4	86.5	
Loss of livelihood/income	82.6	79.5	
Loss of assets	18.3	28.6	
Decreased settlement/agricultural land	2.3	2.7	
Discontinuation of education	63.9	59.5	
Reduced access to healthcare	72.1	68.1	
Reduced access to other services	49.8	47.0	
Disrupted the social networking	75.3	64.3	
Had to borrow money for livelihood	94.1	82.2	
Communication is disrupted	76.7	74.1	

Table 5.4 shows that 69.9% of rural respondents and 51.9% of urban respondents did not receive any support from anyone other than their family members during the Covid-19 pandemic and most of them received food and water support followed by financial support from their family members (rural 54.5% and urban 60.7%) (Chart A). In addition, both the urban (55.1%) and rural (48.5%) respondents received support from their relatives (Chart B).

Figure 5. 1: Types (A) and sources (B) of support that HHs received during the Covid-19 pandemic by residence

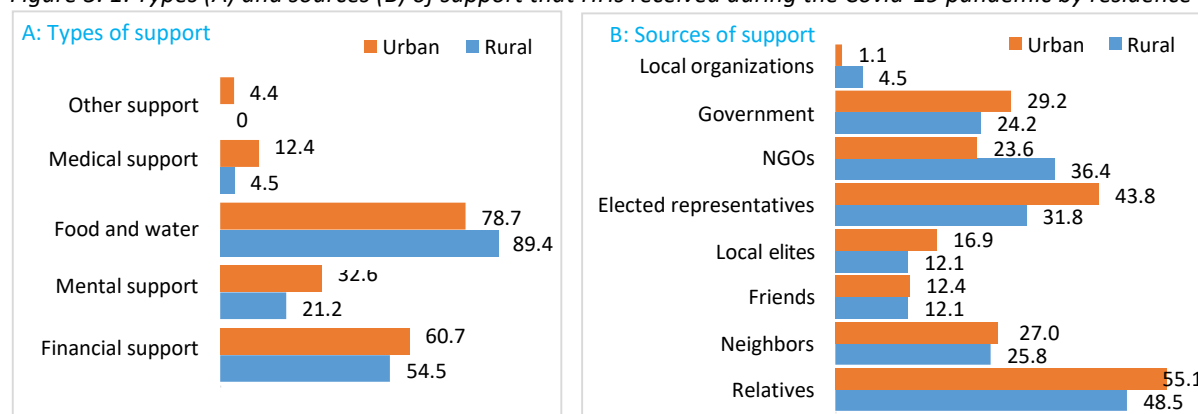
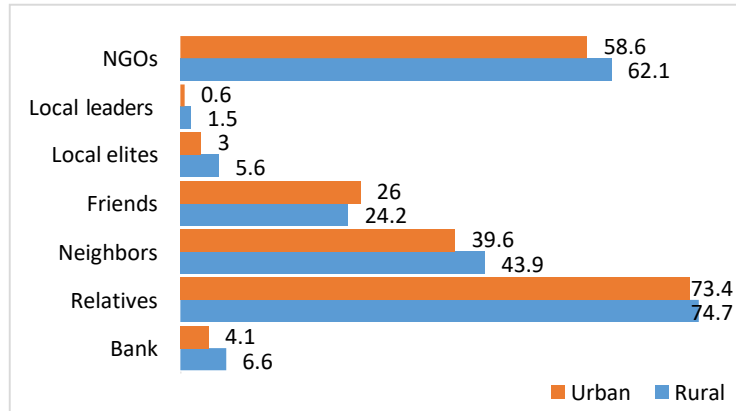


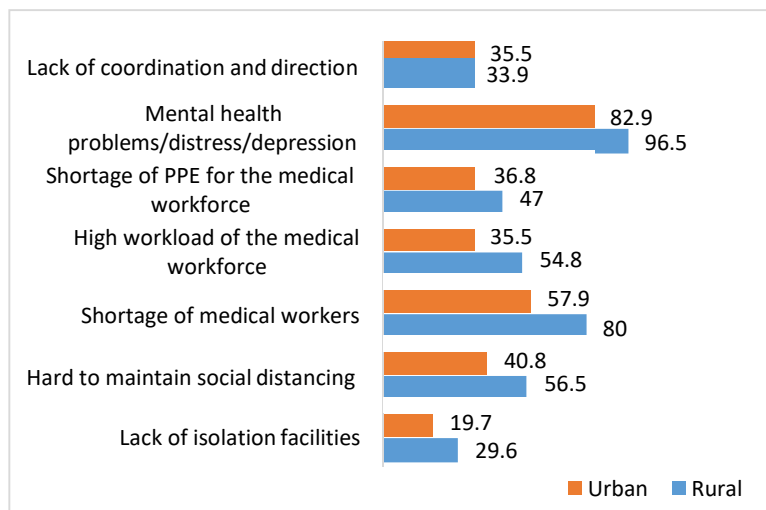
Figure 5.2 manifest that 90.8% of respondents borrowed money, with almost equal percentages from rural and urban areas, from anyone other than their family members during the Covid-19 pandemic (figures are not shown) and almost equal percentages of urban 73.4% and rural 74.7% of households borrowed money from their relatives followed by NGOs and friends.

Figure 5. 2: Sources of borrowed money during Covid-19 pandemic



According to 47.3% of women, the local health center was not well prepared to manage the effects of the Covid-19 pandemic (figures are not shown) and the majority of them reported that they had had to confront numerous health consequences such as mental health problems (urban

Figure 5. 3: Effects due to non-preparedness of local health centres



82.9% and rural 96.5%), shortage of medical workforce (urban 57.9% and rural 80.0%) and maintaining social distancing (urban 40.8% and rural 56.5%) due to the non-preparedness of the local health centre to manage Covid-19 effects.

Qualitative findings revealed that despite the severe need for financial assistance and healthcare support during the pandemic Covid-19, many households in the study areas did not receive such support from outside of their relatives. A service provider stated,

“...I don’t know about any organization/NGO working during the corona period to provide financial support or any family planning or reproductive health care to married women....”

Around 41% of the respondents perceived that the national health system is well prepared for addressing any pandemic like Covid-19 (Table 5.4). However, in response to a link question about whether they received the needed healthcare from the service providers or not, almost 62.6% of the respondents reported that they did not receive their needed health support from the service provider during Covid-19. Moreover, 60.6% of the respondents did not take any initiatives to get the Covid-19 vaccine at the time of the survey.

Table 5. 4: Health system’s preparedness to address the health effects of Covid-19 and respondents’ initiatives to get health services during Covid-19

<i>Characteristics</i>	<i>% of rural</i>	<i>% of urban</i>	<i>Total % (N=404)</i>
<b><i>National health system is well prepared for addressing any pandemic like Covid-19</i></b>			
Yes	42.0	39.5	40.8
No	26.9	27.0	27.0
Do not know	31.4	33.5	33.0
<b><i>Received needed health support from the service provider during Covid-19</i></b>			
Yes	32.4	43.2	37.4
No	67.6	56.8	62.6
<b><i>Initiatives to get the Covid-19 vaccine</i></b>			
Registered for Covid-19 vaccine	6.8	10.3	8.4
Got the 1 <sup>st</sup> dose of Covid-19 vaccine	21.9	14.1	18.3
Got the 2 <sup>nd</sup> dose of Covid-19 vaccine	12.3	13.0	12.6
Did not take any action	58.9	62.7	60.6

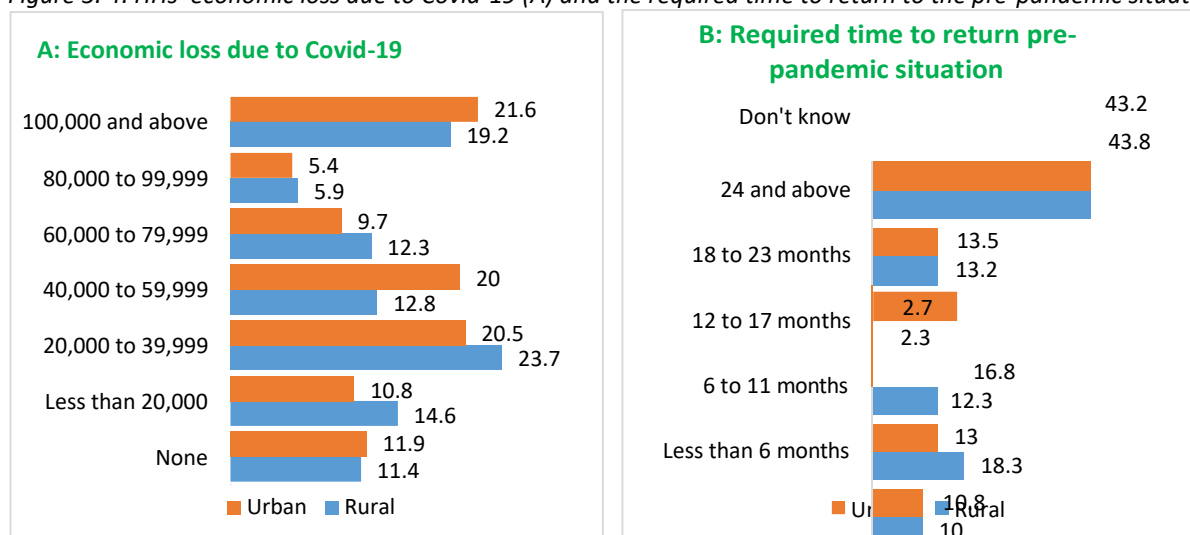
Although the qualitative findings from KIIs showed that health service providers in the study areas continuously tried to make people aware of the precautionary measures of Covid-19 and encouraged them to take the vaccine. A healthcare service provider stated that

“...I along with other health workers, including the Chairman of our area, alerted the community people, worked to ensure social distance, isolation, encouraged everyone to use masks, use of hand sanitizer, soap for washing hands and explained the benefits of taking Covid-19 vaccine...”

This study also gathered information on households’ losses that occurred due to the Covid- 19 pandemic and time required to get back to the pre-disaster condition. Almost one-fourth and one-fifth of respondents reported that Covid-19 endured economic losses (cash/any kind of financial loss) for their households were around 20,000-39,999 and more than 100,000 BDT respectively (Figure 5.4.A). On the other hand, 43.6% of the respondents reported that they have no idea when their households will be able to return to pre-pandemic condition and around 13% of them will require more than two years to return to the pre-pandemic situation (Figure 5.4.B).



Figure 5. 4: HHS' economic loss due to Covid-19 (A) and the required time to return to the pre-pandemic situation



Covid-19 has major consequences on households' food security in the study areas. Table 5.7 shows that overall, 81.7% of the respondents reported that their family experienced a food crisis due to a lockdown during the Covid-19 and it occurred often (a few times each month) in 31.9% of the cases. Moreover, at least one member of one-fifth of the households passed a day or night without having any food and around 88% of the respondents stated that food intake had decreased at the household level due to Covid-19 (Table 5.7).

Table 5. 5: Effects of Covid-19 on households' food security

Characteristics	% of rural	% of urban	Total % (N=404)
<b>Households experienced a food crisis due to the lockdown during Covid-19</b>			
Yes	81.7	81.6	81.7
No	18.3	18.4	18.3
<b>Times of food crisis in households in the last 12 months</b>			
Rarely (1-6 times)	29.3	28.4	28.9
Sometimes (7-12 times)	39.6	26.1	33.6
Often (A few times each month)	23.8	41.8	31.9
Regularly (almost every day)	7.3	3.7	5.7
<b>Households passed a day or night without eating food</b>			
Yes	23.3	26.5	24.8
No	76.7	73.5	75.2
<b>Changes in food intake due to Covid-19</b>			
Decreased	90.9	84.9	88.0
Increased	4.1	1.1	2.7
Remained same	5.0	14.1	9.2

Similarly, qualitative findings from KIIs revealed that during the Covid-19 pandemic, people in disaster-prone areas suffered massively due to a lack of food security. The pandemic control

strict lockdown policies lowered their purchasing power of basic commodities. As stated by the family planning inspector:

***“...Covid-19 pandemic has certainly affected the food supply and created financial crisis.... Since many people lost their jobs during the pandemic period, their sources of income collapse! They spend deplorable days...”***

Another service provider similarly stated that:

***“...The ongoing Covid-19 has had a significant impact on our social and family life. Unemployment of male family members led to financial crisis which later turned into food crisis. Also, the fear of infection creates a scary situation among everyone. While feeding the family is the main issue, family planning and reproductive health care are not people’s priority in many cases...”***

## Chapter 6: Impact of Covid-19 on Sexual and Reproductive Health

### 6.0 Introduction

This section presents the different impacts of Covid-19 on the components of sexual and reproductive health services including family planning as well as the accessibility of the respondents to health service providers. The findings presented in this chapter are summaries of responses from using section 4 of the questionnaire (please see Appendix 1). The synthesis of qualitative findings from in-depth interviews (IDIs) and key informant interviews (KIIs) are also presented along with the quantitative findings.

Table 6.1 exhibits that overall, 61.9% of respondents are currently using contraceptive methods to avoid pregnancy. Urban women's percentage of using contraceptive methods is higher than rural women. Around 72% of them use pills or condoms as a contraceptive method and the prevalence of using pills/condoms is higher among rural women's preference than urban women (not shown). Overall, 38.1% of women who are not using any method of contraceptives to avoid pregnancy identified various reasons such as their babies are currently breastfeeding, they don't feel the necessity to use the contraceptive methods and their period has not started yet (not shown). Overall, 46.5% of the respondents reported that they and their spouses experienced obstacles in adopting the family planning method due to Covid-19. While majority of the respondents (89.4%) mentioned that their healthcare service utilization decreased due to Covid-19 (Table 6.1).

Table 6. 1: Utilization of family planning services during Covid-19

<b>Characteristics</b>	<b>% of rural</b>	<b>% of urban</b>	<b>Total % (N=404)</b>
<b>Currently using a contraceptive method</b>			
Yes	57.1	67.6	61.9
No	42.9	32.4	38.1
<b>Experienced obstacles in adopting family planning methods due to Covid-19</b>			
Yes	56.6	34.1%	46.3%
No	43.4	65.9%	53.7%
<b>Changes in utilization of healthcare services due to Covid-19</b>			
Decreased	90.4	88.1	89.4
Increased	2.7	2.7	2.7
Remained same	6.8	9.2	7.9

Figure 6.1 shows that respondents' utilization rates of sexual and reproductive health services decreased due to Covid-19. A comparison of healthcare services utilization before and during Covid-19 reflects a major decline in the utilization rate. For example, the use of sanitary

napkins, use of family planning methods, use of pregnancy registration services, use of antenatal care from a trained service provider, use of healthcare services for delivery, use of trained service providers for home delivery, use of postpartum family planning services, use of postpartum services for mothers up to two months after delivery and the use of services for new-borns up to 2 months after delivery declined during Covid-19 compared to prior Covid-19 situation.

Figure 6. 1: Utilization of sexual and reproductive healthcare services before and during Covid-19 situations

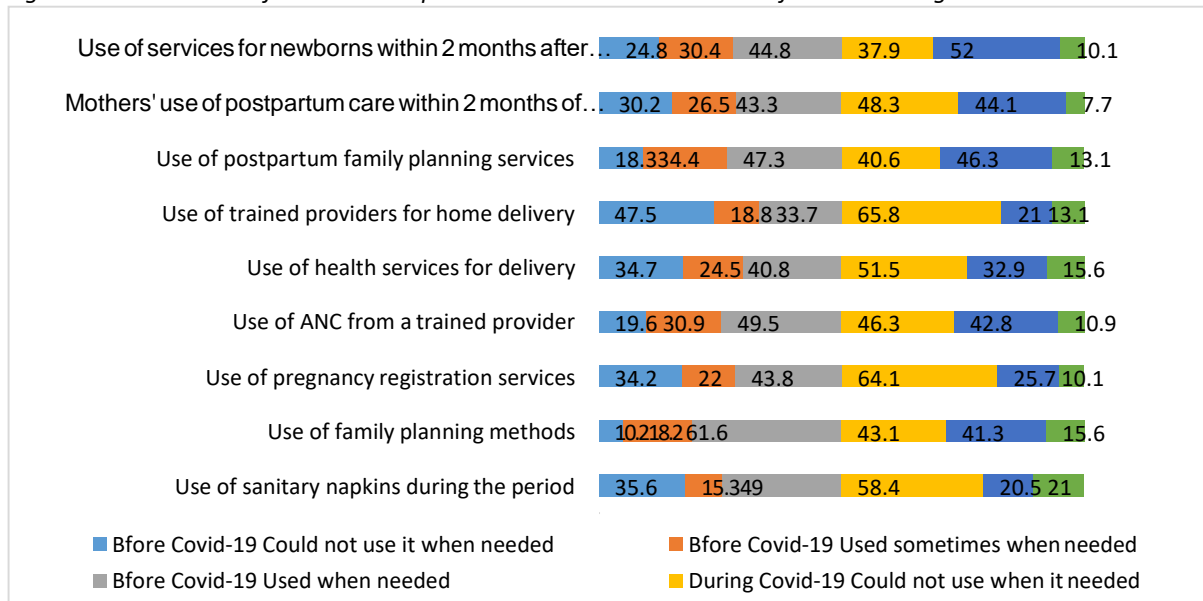


Figure 6.2 shows the major reasons for the lower utilization of sexual and reproductive healthcare services. The major reasons for such utilization are lack of money, health workers' limited home visits due to Covid-19 related restrictions, could not communicate with health workers due to Covid-19, and due to limited access to health centres/clinics/hospitals/ pharmacies.

Figure 6. 2: Reasons for not using sexual and reproductive healthcare services (multiple responses)

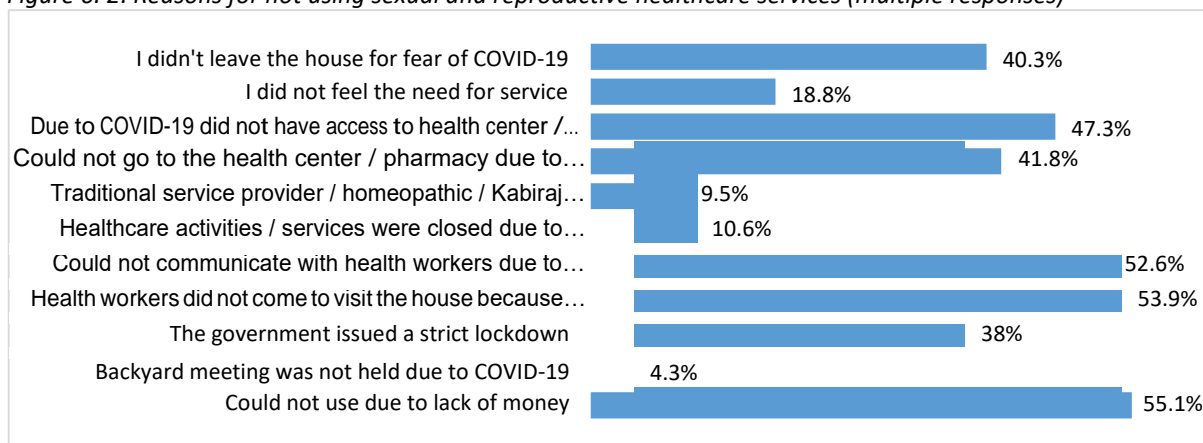
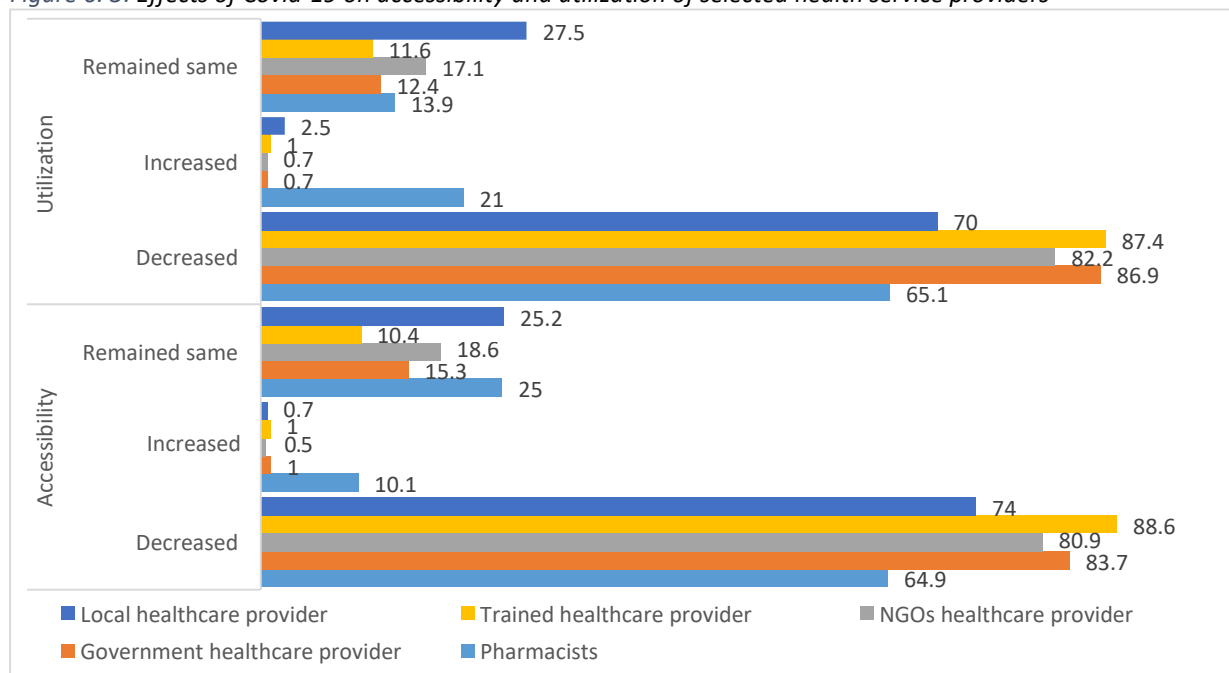


Figure 6.3 shows due to Covid-19 respondents' accessibility to and utilization of services from the following service providers decreased. For example, accessibility and utilization decreased from the following service providers' pharmacists (64.9% and 65.1%), government healthcare providers (83.7% and 86.9%), NGOs healthcare providers (89.9% and 82.2%), trained healthcare providers (88.6% and 87.4%) and local healthcare provider (74.0% and 79.0%).

Figure 6. 3: Effects of Covid-19 on accessibility and utilization of selected health service providers



Likewise, qualitative findings revealed that, that almost all participants of IDIs and some respondents of KIIs including women, family planning inspectors, and service providers expressed that during the ongoing Covid-19 respondents' accessibility and utilization of sexual and reproductive health services decreased three times higher. The lower utilization of sexual and reproductive healthcare services during Covid-19 was associated with limited visits of healthcare providers, fear of being infected with coronavirus, closure of pharmacies and medical shops, lack of availability of doctors and nurses in the health centres, lack of access to health centres due to Covid-19 as well as floods and cyclones, unavailability of the transport system. In this regard, a postpartum mother stated that

***“...We could not go to the health service providers or to the clinic for fear of infection during Covid-19. Also, the frequency of visits by health service providers reduced. As a result, we passed a hard time getting any sexual and reproductive health related advice. As a result, we are forced to communicate via mobile phone. But you can't explain everything via mobile phone...”***

In addition to this, a service provider stated that

***“...There has been no significant change in the services we provide for sexual and reproductive health before and during Covid-19. During this situation, we have given various suggestions for menstrual problems and also distributed a limited range of sanitary napkins. But we have noticed major decrease in the demand side of the family planning methods...since schools and colleges remained close for a longer period of time, many young girls got married and pregnant...”***

A family planning inspector described the situation as follows

***“.... Vulnerability of the people of disaster-prone areas doubled with the emergence of Covid-19 pandemic. Due to strict lockdown policies and flood, we could not visit houses to counsel them about family planning methods. However, by performing satellite clinic activities we tried to provide advice on contraceptive methods such as condoms and pill. Although we failed to reach a minimum number of couples ...”***

## Chapter 7: Impact of Covid-19 on Maternal Health Care Services

### 7.0 Introduction

This section presents the different impacts of Covid-19 on using maternal health care services and receiving maternity allowance. The findings presented in this chapter are summaries of responses from using section 5 of the questionnaire (Appendix 1). The synthesis of qualitative findings from in-depth interviews (IDIs) and key informant interviews (KIIs) are also presented along with the quantitative findings.

All the studied women experienced pregnancy at the time of Covid-19 and around 59% of them received at least one check-up during their pregnancy from a doctor/nurse/midwife followed by locally available government and NGO health workers (Table 7.1). The rest of them (41%) did not receive any antenatal care due to financial problems, health workers could not be reached due to Covid-19, health centres/clinics/hospitals were not accessible during Covid-19 and health workers did not come home visits due to Covid-19.

Table 7. 1: Utilization of antenatal care services during Covid-19

<b>Characteristics</b>	<b>% of rural</b>	<b>% of urban</b>	<b>Total % (N=404)</b>
<b>Received any antenatal care during the last pregnancy</b>			
Yes	50.7	69.7	59.4
No	49.3	30.3	40.6
<b>Recommended number of antenatal check-ups to avoid pregnancy complications</b>			
One	0.0	0.5	0.2
Two	3.7	1.6	2.7
Three	17.8	13.5	15.8
Four or more	42.9	60.0	50.7
Don't know	35.6	24.3	30.4
<b>Number of received antenatal check-ups during the last pregnancy</b>			
None	32.9	19.5	26.7
One Two	18.3	17.8	18.1
Three	21.9	24.3	23.0
Four or more	14.6	13.0	13.9
Don't know	12.3	25.4	18.3
<b>Experienced pregnancy-related complications during Covid-19</b>			
Yes	50.7	51.4	51.0
No	49.3	48.6	49.0
<b>Received any care to recover from the pregnancy-related complications</b>			
Yes	63.1	71.6	67.0
No	36.9	28.4	33.0

Around 51% of women reported that they are recommended to take four or more antenatal check-ups to avoid pregnancy complications and around 50% of the total respondents with a



significantly greater proportion of urban women received four or more antenatal check-ups during the last pregnancy. More than half of the total respondents reported that they experienced pregnancy-related complications during Covid-19. However, one-third of the women did not receive any care to get recovery. The main reasons for not using any care to recover from pregnancy-related complications are strict lockdown during Covid-19, financial barriers, lack of service providers, and fear of Covid-19 infection (Table 7.1).

Table 7.2 shows that half of the respondents had given birth at home and the percentage of women in rural areas delivering birth at home was higher than was in urban areas (61.6% vs 36.8%). Overall, 66.5% of home delivery were assisted by traditional birth attendants, and one-fifth of the total home delivery was assisted by a locally available trained healthcare provider such as FWA, FWV, MA, and SACMO. The main reasons for home-based delivery were financial barriers, previous experience of giving birth at home, and Covid-19-related barriers in access to health centres/clinics/hospitals.

Table 7. 2: Utilization of health services for delivery care during Covid-19

<b>Characteristics</b>	<b>% of rural</b>	<b>% of urban</b>	<b>Total % (N=404)</b>
<b>Place of delivery during the pandemic</b>			
Home	61.6	36.8	50.2
Health Centre	38.4	63.2	49.8
<b>Home delivery assisted during the pandemic</b>			
Relatives/local aged women	7.4	23.5	12.8
Locally available trained provider	21.5	19.1	20.7
Traditional birth attendants	71.1	57.4	66.5
<b>Experienced delivery-related complications during the pandemic</b>			
Yes	49.3	45.4	47.5
No	50.7	54.6	52.5
<b>Received any care to overcome delivery-related complications</b>			
Yes	77.8	76.2	77.1
No	22.2	23.8	22.9

Almost 48% of women experienced delivery-related complications during the pandemic and 77% of them didn't receive any care to overcome the delivery-related complications (Table 7.2). The situation is similar across the residence types. The reasons for not using any care for delivery-related complications were a financial barrier, the government imposed strict lockdown, lack of service providers, and lack of space in health centres/hospitals for maternal care.

In line with the quantitative findings, the IDI and KII participants acknowledged that the utilization of maternal healthcare services reduced markedly in the study areas due to the Covid-19 pandemic. During the Covid-19, women's access to healthcare centres for antenatal, delivery, and postnatal care was markedly reduced because of fear of being infected with coronavirus, lack of availability of health service providers including doctors and nurses, limited or no visits of healthcare service providers, the government imposed strict lockdown, lack of transport facilities, long-distance of health facilities from home and high cost of care. A few quotes from healthcare providers and service recipients are presented below.

*"...There were simultaneous floods in my area during the Corona. During that time, we came to the office regularly even though the transportation system was very bad. But the fear of infection was in all of us which reduced women's maternal health care seeking behaviour..." Family Welfare Assistant*

*"...Inadequate supply of medical equipment before and during Covid-19 pandemic was noticed in the disaster-prone areas, despite having huge demand. With limited manpower and allocation of resources we have tried to address the needs of huge maternal health care services..." Family Planning Inspector*

The service recipients also stated that maternal healthcare service utilization was affected in multiple ways during the pandemic situation. A few of the quotes of the service recipients are as below. As stated by a current pregnant respondent:

*"...I was pregnant in that time, and I faced several troubles, like lack service availability and fear Covid-19 infection, in getting antenatal care during the first and second trimester of my pregnancy because of the rising cases of Covid-19..." Pregnant Woman*

*"...My second child was born during the Covid-19. At that time, I did not get any services related to delivery and postnatal care from anywhere. Our nearby pharmacies were also closed due to the fear of being infected with coronavirus, although we were informed that pharmacies and emergency services will be opened for 24 hours..." Postpartum*

Table 7.3 shows that 52.7% of the women received postnatal care during the pandemic within seven days of delivery, mostly from medically trained doctors and service providers. Utilization of postnatal care is significantly higher among urban women than rural women. Around 35% of women experienced complications within 2 weeks of delivery during Covid-19

and almost one-fourth of them did not receive any care to overcome the complications. Women who did not receive any postnatal care during the pandemic situation mentioned that financial barriers, unable to contact health workers due to the pandemic, and health centers/clinics/hospitals were not accessible due to Covid-19 were the main reasons for not receiving any postnatal care (not shown).

Table 7. 3: Utilization of postnatal care (PNC) services for mothers during Covid-19

<b>Characteristics</b>	<b>% of rural</b>	<b>% of urban</b>	<b>Total % (N=404)</b>
<b>Receive any PNC during the pandemic within 7 days of delivery</b>			
Yes	43.4	63.8	52.7
No	56.2	34.6	46.3
Not applicable	0.5	1.6	1.0
<b>Experience any complications within 2 weeks of delivery</b>			
Yes	34.2	35.1	34.7
No	65.8	64.9	65.3
<b>Receive any care to overcome the complications within 14 days</b>			
Yes	74.7	76.9	75.7
No	25.3	23.1	24.3

Table 7.4 shows that overall, 33.2 % of women reported that their newborn babies experienced complications within 2 weeks of delivery during Covid-19 and 82% of them received service to overcome such complications. The financial crisis was the prime cause for not using any services for new-born. Some other important causes were a low priority in front of Covid-19 patients, government-issued strict lockdown, and lack of space in health centres.

Table 7. 4: Utilization of health services for newborn care during Covid-19

<b>Characteristics</b>	<b>% of rural</b>	<b>% of</b>	<b>Total % (N=404)</b>
<b>New-born babies experienced complications within 2 weeks of birth</b>			
Yes	34.7	31.4	33.2
No	65.3	68.6	66.8
<b>Received any kind of service to overcome the complication</b>			
Yes	80.3	84.5	82.1
No	19.7	15.5	17.9

Only 14% of the studied women in disaster-prone areas received maternity allowance. The proportion of women who received maternity allowance for the first child was higher in urban areas than in rural areas. The lower utilization of healthcare services for antenatal, especially for four-plus antenatal check-ups, hospital-based delivery, and post-natal delivery care was found significantly associated with economic losses that the households experienced during the Covid-19 pandemic situation.

## Chapter 8: Impact of Covid-19 on Women's Empowerment and Gender-Based Violence

### 8.0 Introduction

This section presents the different impacts of Covid-19 on women's empowerment and gender-based violence. The findings presented in this chapter are summaries of responses to queries in section 6 of the questionnaire (Appendix 1). The synthesis of qualitative findings is also presented along with the quantitative findings.

Table 8.1 presents that majority of women (85.1%) are not involved in any income-generating activities over the last 12 months. Only 7.4% of the respondents who are involved in income-generating activities made decisions with their husbands on how their earnings will be utilized. However, in most cases husband alone usually made the decisions on the healthcare of household members, major household purchases, visits to your family or relatives, and the child's healthcare.

Table 8. 1: Women empowerment and gender-based violence during the Covid-19 pandemic

<b>Characteristics</b>	<b>% of rural</b>	<b>% of urban</b>	<b>Total % (N=404)</b>
<b><i>Involved in any income-generating activities over the last 12 months</i></b>			
Yes	13.7	16.2	14.9
No	86.3	83.8	85.1
<b><i>Decisions made to spend own earning</i></b>			
Respondent alone	1.4	2.2	1.7
Husband alone	8.2	2.7	5.7
Wife and husband jointly	4.1	11.4	7.4
<b><i>Decisions made on healthcare for household members</i></b>			
Respondent alone	5.5	4.3	5.0
Husband alone	57.5	50.3	54.2
Wife and husband jointly	22.8	34.6	28.2
Someone else in the household	14.2	10.8	12.6
<b><i>Decisions made on major household purchases</i></b>			
Respondent alone	3.7	7.0	5.2
Husband alone	56.2	43.8	50.5
Wife and husband jointly	24.2	36.2	29.7
Someone else in the household	16.0	13.0	14.6
<b><i>Decisions made about visits to respondents' family or relatives</i></b>			
Respondent alone	1.8	3.8	2.7
Husband alone	54.8	48.1	51.7
Wife and husband jointly	31.1	40.5	35.4
Someone else in the household	12.3	7.6	10.1
<b><i>Decisions made about child's health care</i></b>			
Respondent alone	5.9	5.4	5.7
Husband alone	53.4	43.8	49.0
Wife and husband jointly	29.2	45.4	36.6
Someone else in the household	11.4	5.4	8.7

Table 8.2 presents that 71.2% of rural and 77.8% of urban women reported that the risk of violence against women increased during the Covid-19 pandemic situation. Almost an equal proportion of rural (40.2%) and urban (37.3%) women had experienced violence against them during the Covid-19 pandemic. According to women, physical assault by the husband is justified when someone argues with the husband and when the wife does not obey elders. The most common form of harassment for many women both in rural and urban areas is verbal harassment followed by mental harassment. The violence-against women mostly occurred at the household level by their intimate partners and the prevalence of such violence occurred regularly during the Covid-19 pandemic.

Table 8. 2: Women empowerment and gender-based violence during the Covid-19 pandemic

<b><i>Husband's physical assault on the wife is justified if the wife</i></b>	<b><i>% of rural (N=2019)</i></b>		<b><i>% of urban (N=185)</i></b>	
	<b><i>Yes</i></b>	<b><i>No</i></b>	<b><i>Yes</i></b>	<b><i>No</i></b>
A. Goes outside of the home without prior permission	47.5	52.5	42.7	57.3
B. Neglects the children	46.6	53.4	45.9	54.1
C. Argues with husband	62.1	37.9	53.5	46.5
D. Refuses to have sexual relations with the husband	36.5	63.5	33.0	67.0
E. Spoiled the food while cooking	13.7	86.3	11.4	88.6
F. Does not obey elders	61.6	38.4	51.9	48.1
<b><i>Violence against women increased during the Covid-19</i></b>	<b>71.2</b>	<b>28.8</b>	<b>77.8</b>	<b>22.2</b>
<b><i>Experienced violence against women during the Covid-19</i></b>	<b>40.2</b>	<b>59.8</b>	<b>37.3</b>	<b>62.7</b>

Almost all participants of IDIs and some respondents of KIIs including women, family planning inspectors, and service providers reported that during the ongoing Covid-19 women in disaster-prone areas experienced greater violence and there was a surge of violence against women due to the pandemic control measures. A female postpartum mother who faced physical violence described the situation below.

*"...During the pandemic, my husband asked me to bring money from parental house due to lack of money, but my father's house also had financial problems at that time. When I did not agree to bring money, my husband slapped me a lot and said that if I could not bring money from my father's house, I should go back to my father house and did not have to stay here..."*

A family planning inspector similarly stated that *when men are in a bad mood due to various reasons including the financial crisis, anxiety for the near future, and so on during disasters, they abuse women.*

## Chapter 9: Conclusions and Policy Recommendations

### 9.1 Introduction

The Covid-19 pandemic has caused wider impacts on health and well-being among women in Bangladesh. Women living in disaster-prone areas of Bangladesh were even more susceptible to the negative impacts of Covid-19 on their reproductive health. This study examined the resilience of poor, vulnerable, and most disadvantaged women to maternal health care services during the pandemic in disaster-prone areas of Bangladesh with a particular focus on identifying factors that influence MCSs utilization, evaluating changes in utilization of MCSs, assessing gender-specific vulnerabilities related to MCSs, and generating effective strategies for tackling the lower access to MCSs for poor and vulnerable women during the pandemic. Drawing on a parallel mixed method approach, we collected both quantitative and qualitative data to generate an in-depth and comprehensive understanding of the impacts of the Covid-19 pandemic on health and asset vulnerabilities, availability of healthcare services, and utilization of healthcare services during Covid-19. The key findings of this study can be summarized into five broader categories as mentioned below.

### 9.2 Socioeconomic impacts of Covid-19

A vast majority of the respondents were employed in unpaid care work (housewives) which includes maintaining the household and child-rearing. Women's limited access to income-generating activities makes them more vulnerable to greater negative impacts on their health and well-being during the pandemic. This is further compounded by the fact that husbands' employment and other income-generating activities by the household members were severely affected by the pandemic. Many respondents reported that their household members became jobless for quite some time during the pandemic. Some of the household members migrated elsewhere in search of work for supporting their families during the pandemic. Children's education was also severely interrupted during the pandemic. The socioeconomic disruptions during the pandemic have led to a wide range of impacts including the increasing prevalence of child marriage, higher rate of child labour, greater reliance on loans for purchasing goods and services, selling crops and labour in advance, selling household assets, and not taking necessary healthcare. The majority of the respondents

reported that both their visits to healthcare providers and visits of healthcare providers at home had decreased due to the Covid-19 pandemic situation.

### **9.3 Natural disaster, food security, and Covid-19**

Bangladesh is one of the highest disaster-prone countries in the world. The study findings showed that almost all households experienced various natural disasters which include cyclones, floods, and riverbank erosions among the most common recent disasters. Natural disasters adversely affect people's livelihood which is reflected by the fact that more than half of the respondents' households took about a year to recover from the recent disaster and more than one-third were even never able to recover from the disaster. The impacts of natural disasters were further pronounced by the negative effects of the Covid-19 pandemic on people's health and healthcare utilization. About one-fifth of respondents reported that their family members couldn't receive healthcare for their sickness during the pandemic, with an even higher percentage reported from rural areas. In addition to health consequences, the respondents' households were also affected during the pandemic due to stress/anxiety, loss of income and assets, discontinuation of education, reduced access to healthcare services, and disruption in their social network and other means of communication. Despite the wider impacts of the pandemic on their lives and livelihoods, only one-third of respondents received support outside from their families which mostly include financial, food and water, and mental support. However, the support services were so inadequate that 90.0% of the respondents had to borrow money from various sources during the pandemic.

The Covid-19 pandemic revealed the extent to which local health centres were unprepared for managing pandemics such as Covid-19. Due to the unpreparedness of the local health centres, the respondents faced a wide range of consequences including a lack of isolation facilities, difficulty in maintaining social distancing, shortage of medical workers, shortage of PPE for the medical workforce, mental health problems, and lack of coordination and direction. In addition, the national health system also was not well-prepared for the Covid-19 pandemic. As a result, two-thirds of the respondents did not get needed healthcare support during the pandemic. In most cases, the out-of-pocket expenditures for the households were very high, and about half of the respondents were not even sure how long it would take for them to recover from the financial loss. Food insecurity during the pandemic in the household was so high that a substantial number of the respondents' household members sometimes had to go to bed without eating anything. Overall, the reduction in food intake



among the household members was at an alarming level which will have long-term consequences on their health and well-being as well.

#### **9.4 Sexual and reproductive health and Covid-19**

The Covid-19 pandemic has disrupted sexual and reproductive health services both in rural and urban areas in Bangladesh. However, the impacts on sexual and reproductive health services were much higher in rural areas of Bangladesh. More than half of the respondents in rural areas and one-third in urban areas experienced obstacles in adopting family planning methods due to Covid-19. An overwhelming majority of the respondents also experienced a reduction in their healthcare service utilization due to the pandemic. The healthcare services that respondents could not use due to the pandemic include the use of sanitary napkins during the period, family planning methods, pregnancy registration services, antenatal care services from the trained provider, healthcare services for delivery, postpartum family planning services, and postnatal services for new-borns. The reasons for not using these healthcare services during Covid-19 include not leaving the house for fear of Covid-19, not having access to health centres due to Covid-19, being unable to go to health centre due to Covid-19, closure of healthcare services due to Covid-19, no home visit of healthcare activities due to Covid-19, strict lockdown due to Covid-19, no backyard meeting due to Covid-19, and lack of money to access the healthcare services. In addition, access to and utilization of healthcare services from various providers such as pharmacists, Government healthcare providers, NGO healthcare providers, and local healthcare providers decreased substantially during the pandemic.

#### **9.5 Maternal healthcare services and Covid-19**

Access to and utilization of maternal health care services were adversely affected due to Covid-19 in Bangladesh. Despite being pregnant, about half of the respondents in rural areas and about one-third in urban areas did not visit have access to maternal health care services due to multiple reasons including the absence of backyard meetings, strict lockdown imposed by the government, closure of health care services, unable to go to health centre due to transportation problem, financial problem, and the problem of accessing health centres/

clinics/hospitals due to Covid-19. As a result, one-fourth of the respondents who were pregnant during the Covid-19 couldn't receive any ANC and only one in every seven respondents received the recommended 4-plus ANC check-up. More than half of the respondents who were pregnant during the pandemic gave birth at home, with even higher percentages in rural areas because of financial barriers and problems in accessing health centres/clinics/ hospitals. In addition, half of the respondents who gave birth during the pandemic did not receive any postnatal care within seven days of the delivery. About one-third of the new-borns during the pandemic experienced complications but many of them did not get any kind of services to overcome the complications because of strict lockdown imposed by the government, lack of service providers, lack of space in hospitals, fear of Covid-19 infection, and financial barriers.

### **9.6 Intersectionality of women's empowerment, gender-based violence, and Covid-19**

The Covid-19 pandemic has also exerted strong negative impacts on factors that promote women's empowerment and exacerbated gender-based violence in Bangladesh. Women's income-generating activities, an important marker of empowerment, were severely affected. Women's participation in family decision-making was very low. In most cases, their husbands decide about spending the money earned by the respondents, healthcare for household members, making major household purchases, visiting family or relatives, and child's health care. Although in some cases, the respondents jointly took the decisions with their husbands, there was evidence that other members of the households also played important role in the family decision-making process. An overwhelming majority of the respondents believe that the risk of violence against women has increased during the Covid-19 pandemic. This is evident by the fact that a substantial number of women regularly experienced several types of violence during the Covid-19 pandemic including verbal harassment, physical torture, sexual harassment, and mental harassment, mostly by husbands/partners.

### **9.2 Policy Recommendations for Action Plan**

- Develop disaster risk reduction framework for health under the health sectoral plan integrating a provision to deliver minimum essential SRH services during emergencies.

- Create more employment opportunities for all, with a particular focus on women. Increase women's participation in the formal labour force so that they can get financial benefits even during pandemics.
- Create sustained income opportunities for all with a greater emphasis on rural areas in which people were disproportionately affected due to the pandemic.
- Recruit adequate healthcare providers and provide adequate support services for preventing decreased visits of healthcare providers at home due to the pandemic.
- Strengthen disaster-related coping strategies and provide adequate financial support to households for a quick return to pre-disaster conditions.
- Promote public-private partnerships for ensuring better access to healthcare services during disasters and pandemics.
- Provide adequate financial support to all households during pandemics following the need-based approach. Emphasis on prioritizing the needs of children, vulnerable women, and those who are at higher risk of greater vulnerability to disasters such as people with disabilities and others.
- Increase mental health support to people during the pandemic by ensuring an adequate number of counsellors/mental health care providers during pandemics.
- Adequately prepare local health centres to manage pandemics by ensuring required human resources, healthcare providers, medicine, and other support services.
- Deliver adequate PPE for the medical workforce, create adequate isolation facilities, recruit adequate medical workers, and ensure proper coordination and direction during the pandemic.

## References

1. NIPORT, ICF II. Demographic and Health Survey 2017-2018. Dhaka: Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT, and ICF; 2019.
2. Stein D, Ward K, Cantelmo C. Estimating the potential impact of COVID-19 on mothers and newborns in low-and middle-income countries. Health Policy Plus 2020.
3. Robertson T, Carter ED, Chou VB, Stegmuller AR, Jackson BD, Tam Y, et al. Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study. The Lancet Global Health 2020;8(7): e901-e908.
4. Akaba G, Dirisu O, Okunade K, Adams E, Ohioghome J, Obikeze O, et al. Impact of COVID-19 on utilization of maternal, newborn and child health services in Nigeria: protocol for a country-level mixed-methods study. F1000Research 2020;9(1106):1106.
5. Feyissa GT, Tolu LB, Ezech A. Impact of COVID-19 pandemic on sexual and reproductive health and mitigation measures: the case of Ethiopia. African journal of reproductive health 2020;24(2):24-26.
6. Sarwer A, Javed B, Soto EB, Mashwani ZuR. Impact of the COVID-19 pandemic on maternal health services in Pakistan. The International Journal of Health Planning and Management 2020;35(6):1306-1310.
7. Kisiangani I, Elmi M, Bakibinga P, Mohamed SF, Kisia L, Kibe PM, et al. Persistent barriers to the use of maternal, newborn and child health services in Garissa sub-county, Kenya: a qualitative study. BMC pregnancy and childbirth 2020; 20:1-12.
8. Ahmed SAS, Ajisola M, Azeem K, Bakibinga P, Chen Y-F, Choudhury NN, et al. Impact of the societal response to COVID-19 on access to healthcare for non-COVID-19 health issues in slum communities of Bangladesh, Kenya, Nigeria and Pakistan: results of pre-COVID and COVID-19 lockdown stakeholder engagements. BMJ Global Health 2020;5(8):e003042.
9. Ahmed T, Rahman AE, Amole TG, Galadanci H, Matjila M, Soma-Pillay P, et al. The effect of COVID-19 on maternal newborn and child health (MNCH) services in Bangladesh, Nigeria and South Africa: call for a contextualised pandemic response in LMICs. International Journal for Equity in Health 2021;20(1):1-6.
10. Pant S, Koirala S, Subedi M. Access to maternal health services during COVID-19. Europasian Journal of Medical Sciences 2020;2:46-50.
11. Riley T, Sully E, Ahmed Z, Biddlecom A. Estimates of the potential impact of the COVID-19 pandemic on sexual and reproductive health in low-and middle-income countries. International Perspectives on Sexual and Reproductive Health 2020;46:73-76.
12. Cena L, Rota M, Calza S, Massardi B, Trainini A, Stefana A. Estimating the impact of the COVID-19 pandemic on maternal and perinatal health care services in Italy: results of a self-administered survey. Frontiers in public health 2021;9:971.
13. Goyal M, Singh P, Singh K, Shekhar S, Agrawal N, Misra S. The effect of the COVID-19 pandemic on maternal health due to delay in seeking health care: experience from a tertiary center. International Journal of Gynecology & Obstetrics 2021;152(2):231-235.
14. Temesgen K, Wakgari N, Debelo BT, Tafa B, Alemu G, Wondimu F, et al. Maternal health care services utilization amidst COVID-19 pandemic in West Shoa zone, central Ethiopia. PloS one 2021;16(3):e0249214.

15. Dahal M, Khanal P, Maharjan S, Panthi B, Nepal S. Mitigating violence against women and young girls during COVID-19 induced lockdown in Nepal: a wake-up call. *Globalization and health* 2020;16(1):1-3.
16. Ilesanmi O, Otolorin D, Afolabi A, Adebayo A. The effect of COVID-19 on the Sexual and Reproductive Health of Women. *Public Health in Practice (Oxford, England)* 2021;2:100066.
17. Kassie A, Wale A, Yismaw W. Impact of Coronavirus Diseases-2019 (COVID-19) on Utilization and Outcome of Reproductive, Maternal, and Newborn Health Services at Governmental Health Facilities in South West Ethiopia, 2020: Comparative Cross-Sectional Study. *International Journal of Women's Health* 2021;13:479.
18. Balogun M, Banke-Thomas A, Sekoni A, Boateng GO, Yesufu V, Wright O, et al. Challenges in access and satisfaction with reproductive, maternal, newborn and child health services in Nigeria during the COVID-19 pandemic: A cross-sectional survey. *PLoS One* 2021;16(5):e0251382.
19. De Beni D, Maurizio F. Coronavirus is leaving pregnant women with tough choices and bleaker outcomes. In: *World Economic Forum*; 2020; 2020.
20. Ilerioluwa Oke G, Ebuka Elebesunu E, Ihekweazu V. Impact of COVID-19 Pandemic on Maternal and Child Health. *Modern Care Journal* 2020;17(4).
21. Devi AM. Maternal Health in View of COVID 19: Women's Awareness, Attitude and Self Reported Behavior. *Indian Journal of Forensic Medicine & Toxicology* 2021;15(3).
22. Haque MR, Parr N, Muhidin S. The effects of household's climate-related displacement on delivery and postnatal care service utilization in rural Bangladesh. *Social Science & Medicine* 2020;247:112819.
23. Kassie A, Wale A, Yismaw W. Impact of Coronavirus Diseases-2019 (COVID-19) on Utilization and Outcome of Reproductive, Maternal, and Newborn Health Services at Governmental Health Facilities in South West Ethiopia, 2020: Comparative Cross-Sectional Study. *Int J Womens Health* 2021;13:479-488.
24. Abdullah ASM, Dalal K, Halim A, Rahman A, Biswas A. Effects of climate change and maternal morality: perspective from case studies in the rural area of Bangladesh. *International journal of environmental research and public health* 2019;16(23):4594.
25. Haque MR, Parr N, Muhidin S. Parents' healthcare-seeking behavior for their children among the climate-related displaced population of rural Bangladesh. *Social Science & Medicine* 2019;226:9-20.
26. Fisseha G, Berhane Y, Worku A, Terefe W. Distance from health facility and mothers' perception of quality related to skilled delivery service utilization in northern Ethiopia. *International journal of women's health* 2017;9:749.
27. Pulok MH, Sabah MN-U, Uddin J, Enemark U. Progress in the utilization of antenatal and delivery care services in Bangladesh: where does the equity gap lie? *BMC pregnancy and childbirth* 2016;16(1):1-16.
28. Pulok MH, Uddin J, Enemark U, Hossin MZ. Socioeconomic inequality in maternal healthcare: An analysis of regional variation in Bangladesh. *Health & place* 2018;52:205-214.
29. Shah B, Krishnan N, Kodish SR, Yenokyan G, Fatema K, Uddin KB, et al. Applying the Three Delays Model to understand emergency care seeking and delivery in rural Bangladesh: a qualitative study. *BMJ open* 2020;10(12):e042690.
30. Sumankuuro J, Crockett J, Wang S. Sociocultural barriers to maternity services delivery: a qualitative meta-synthesis of the literature. *Public health* 2018;157:77-85.
31. Mochache V, Wanje G, Nyagah L, Lakhani A, El-Busaidy H, Temmerman M, et al. Religious, socio-cultural norms and gender stereotypes influence uptake and utilization of maternal health services among the Digo community in Kwale, Kenya: a qualitative study. *Reproductive health* 2020;17:1-10.

32. Banglapedia. Childbirth Rituals. In; 2021.
33. Akseer N, Kandru G, Keats EC, Bhutta ZA. COVID-19 pandemic and mitigation strategies: implications for maternal and child health and nutrition. *The American journal of clinical nutrition* 2020;112(2):251-256.
34. Oluoch-Aridi J, Chelagat T, Nyikuri MM, Onyango J, Guzman D, Makanga C, et al. COVID-19 Effect on access to maternal health services in Kenya. *Frontiers in Global Women's Health* 2020;1:19.
35. Ahmed S, Creanga AA, Gillespie DG, Tsui AO. Economic status, education and empowerment: implications for maternal health service utilization in developing countries. *PloS one* 2010;5(6):e11190.
36. Machira K, Palamuleni M. Women's perspectives on quality of maternal health care services in Malawi. *International journal of women's health* 2018;10:25.
37. Haque MA, Dash SK, Chowdhury MAB. Maternal health care seeking behavior: the case of Haor (wetland) in Bangladesh. *BMC public health* 2016;16(1):1-9.
38. Piu ZA, Khanam M. Women empowerment and maternal healthcare service utilization: evidence from Bangladesh. *Women Empowerment* 2020;36.
39. Onchonga D, Alfatafta H, Ngetich E, Makunda W. Health-seeking behaviour among pregnant women during the COVID-19 pandemic: A qualitative study. *Heliyon* 2021;7(9):e07972.
40. Karavadra B, Stockl A, Prosser-Snelling E, Simpson P, Morris E. Women's perceptions of COVID-19 and their healthcare experiences: a qualitative thematic analysis of a national survey of pregnant women in the United Kingdom. *BMC Pregnancy and Childbirth* 2020;20(1):1-8.
41. Ochoa LB, Brockway M, Stock SJ, Been JV. COVID-19 and maternal and perinatal outcomes. *The Lancet Global Health* 2021;9(8):e1063-e1064.
42. Siddiqui D, Ali TS. The importance of community midwives in Pakistan: Looking at existing evidence and their need during the COVID-19 pandemic. *Midwifery* 2021:103242.
43. Westgard CM, Rogers A, Bello G, Rivadeneyra N. Health service utilization, perspectives, and health-seeking behavior for maternal and child health services in the Amazon of Peru, a mixed-methods study. *International journal for equity in health* 2019;18(1):1-12.
44. Akhter S, Dasvarma GL, Saikia U. Reluctance of women of lower socio-economic status to use maternal healthcare services—Does only cost matter? *Plos one* 2020;15(9):e0239597.
45. Aranda Z, Binde T, Tashman K, Tadikonda A, Mawindo B, Maweu D, et al. Disruptions in maternal health service use during the COVID-19 pandemic in 2020: experiences from 37 health facilities in low-income and middle-income countries. *BMJ global health* 2022;7(1):e007247.
46. Hebbar PB, Sudha A, Dsouza V, Chilgod L, Amin A. Healthcare delivery in India amid the Covid-19 pandemic: Challenges and opportunities. *Indian J Med Ethics* 2020;5(03):215-218.
47. Armocida B, Formenti B, Ussai S, Palestra F, Missoni E. The Italian health system and the COVID-19 challenge. *The Lancet Public Health* 2020;5(5):e253.
48. Islam A, Biswas T. Health system in Bangladesh: Challenges and opportunities. *American Journal of Health Research* 2014;2(6):366-374.
49. Organization WH. Bangladesh health system review: Manila: WHO Regional Office for the Western Pacific; 2015.
50. Burrowes S, Holcombe SJ, Jara D, Carter D, Smith K. Midwives' and patients' perspectives on disrespect and abuse during labor and delivery care in Ethiopia: a qualitative study. *BMC pregnancy and childbirth* 2017;17(1):1-14.
51. Mannava P, Durrant K, Fisher J, Chersich M, Luchters S. Attitudes and behaviours of maternal health care providers in interactions with clients: a systematic review. *Globalization and health* 2015;11(1):1-17.

52. Bradley S, McCourt C, Rayment J, Parmar D. Disrespectful intrapartum care during facility-based delivery in sub-Saharan Africa: a qualitative systematic review and thematic synthesis of women's perceptions and experiences. *Social science & medicine* 2016;169:157-170.
53. Cronk R, Bartram J. Environmental conditions in health care facilities in low-and middle-income countries: coverage and inequalities. *International journal of hygiene and environmental health* 2018;221(3):409-422.
54. Cross S, Afsana K, Banu M, Mavalankar D, Morrison E, Rahman A, et al. Hygiene on maternity units: lessons from a needs assessment in Bangladesh and India. *Global health action* 2016;9(1):32541.
55. Prakash L, Dhar SA, Mushtaq M. COVID-19 in the operating room: a review of evolving safety protocols. *Patient Safety in Surgery* 2020;14(1):1-8.
56. Jabir M, Abdul-Salam I, Suheil DM, Al-Hilli W, Abul-Hassan S, Al-Zuheiri A, et al. Maternal near miss and quality of maternal health care in Baghdad, Iraq. *BMC pregnancy and childbirth* 2013;13(1):1-9.
57. Seddighi H. COVID-19 as a natural disaster: focusing on exposure and vulnerability for response. *Disaster Medicine and Public Health Preparedness* 2020;14(4):e42-e43.
58. Daniel J. Education and the COVID-19 pandemic. *Prospects* 2020;49(1):91-96.
59. Schleicher A. The impact of COVID-19 on education insights from education at a glance 2020. Retrieved from oecd. org website: <https://www.oecd.org/education/the-impact-of-covid-19-on-education-insights-education-at-a-glance-2020.pdf> 2020.
60. Department of Population Sciences. Context of child marriage and its implications in Bangladesh. Dhaka, Bangladesh 2017.
61. Musa A, Chojenta C, Geleto A, Loxton D. The associations between intimate partner violence and maternal health care service utilization: a systematic review and meta-analysis. *BMC women's health* 2019;19(1):1-14.
62. Ononokpono DN, Azfredrick EC. Intimate partner violence and the utilization of maternal health care services in Nigeria. *Health care for women international* 2014;35(7-9):973-989.
63. Sifat RI. Impact of the COVID-19 pandemic on domestic violence in Bangladesh. *Asian journal of psychiatry* 2020;53:102393.
64. Ali M, Amin M, Jarl J, Chisholm N, Saha S. Maternal health status and household food security on determining childhood anemia in Bangladesh-a nationwide cross-sectional study. *BMC public health* 2021;21(1):1-11.
65. National Institute of Population Research Training (NIPORT) and ICF International. Bangladesh demographic and health survey 2017–2018. Dhaka, Bangladesh and Rockville,MD; 2019.
66. Fahim SM, Hossain MS, Sen S, Das S, Hosssain M, Ahmed T, et al. Nutrition and Food Security in Bangladesh: Achievements, Challenges, and Impact of the COVID-19 Pandemic. *The Journal of Infectious Diseases* 2021;224(Supplement\_7):S901-S909.
67. Rahman S, Ireen S. Groundwater iron has the ground: low prevalence of anemia and iron deficiency anemia in Bangladesh. *The American journal of clinical nutrition* 2019;110(2):519-520.
68. Roy N, Amin MB, Maliha MJ, Sarker B, Aktarujjaman M, Hossain E, et al. Prevalence and factors associated with family planning during COVID-19 pandemic in Bangladesh: A cross-sectional study. *PloS one* 2021;16(9):e0257634.
69. Islam MT, Talukder AK, Siddiqui MN, Islam T. Tackling the COVID-19 pandemic: The Bangladesh perspective. *Journal of Public Health Research* 2020;9(4).
70. United Nations Population Fund. Impact of the COVID-19 Pandemic on Family Planning and Ending Gender-based Violence, Female Genital Mutilation and Child Marriage; 2020.

71. Hasan M, Hassan MN, Mita MH, Zahara FT, Hasib M. Menstrual hygiene practices and school absenteeism among adolescent girls in Bangladesh: A cross-sectional study. *Population Medicine* 2021;3(March):1-8.
72. Sinha RN, Paul B. Menstrual hygiene management in India: The concerns. *Indian Journal of Public Health* 2018;62(2):71.
73. Plan International. *Periods in a Pandemic: Menstrual hygiene management in the time of COVID-19*. United Kingdom; 2020.
74. Ahmed F, Oni FA, Hossen SS. Does gender inequality matter for access to and utilization of maternal healthcare services in Bangladesh? *Plos one* 2021;16(9):e0257388.
75. Gabrysch S, Campbell OM. Still too far to walk: literature review of the determinants of delivery service use. *BMC pregnancy and childbirth* 2009;9(1):1-18.
76. Nuamah GB, Agyei-Baffour P, Mensah KA, Boateng D, Quansah DY, Dobin D, et al. Access and utilization of maternal healthcare in a rural district in the forest belt of Ghana. *BMC pregnancy and childbirth* 2019;19(1):1-11.
77. Starrs AM. Safe motherhood initiative: 20 years and counting. *The Lancet* 2006;368(9542):1130-1132.
78. Thomas SL, Thomas SDL. Displacement and Health. *British Medical Bulletin* 2004; 69:115-127.
79. McMichael C, Barnett J, McMichael AJ. An ill wind? Climate change, migration, and health. *Environmental Health Perspectives* 2012;120(5):646-654.
80. Schütte S, Gemenne F, Zaman M, Flahault A, Depoux A. Connecting planetary health, climate change, and migration. *Lancet Planetary Health* 2018;2(2): e58-e59.
81. Schwerdtle P, Bowen K, McMichael C. The health impacts of climate-related migration. *BMC Medicine* 2018;16(1):1.
82. Haque MR, Parr N, Muhidin S. The effects of household's climate-related displacement on delivery and postnatal care service utilization in rural Bangladesh. *Social Science & Medicine* 2020:112819.
83. Haque MR, Parr N, Muhidin S. Climate-Related Displacement and Antenatal Care Service Utilization in Rural Bangladesh. *International Perspectives on Sexual and Reproductive Health* 2020; 46:175-185.
84. DS. *Climate Change Displacement in Bangladesh: The Need for Urgent Housing, Land and Property (HLP) Rights Solutions*. Displacement Solutions (DS), Geneva, Switzerland: Displacement Solutions (DS); 2012.
85. Shamsuddoha M, Khan SMH, Raihan S, Hossain T. *Displacement and Migration from Climate Hot-Spots in Bangladesh: Causes and Consequences*. Dhaka, Center for Participatory Research and Development and Action Aid Bangladesh; 2012.
86. MER. *Climate Change Profile: Bangladesh*. In. Netherlands: Ministry of Foreign Affairs (MFA) of the Netherlands, Center for Development Innovation (CDI), the Netherlands Water Partnership (NWP), and Dutch Sustainability Unit (DSU); 2015. p. 1-26.
87. Islam MR, Shamsuddoha M. Socioeconomic consequences of climate induced human displacement and migration in Bangladesh. *International Sociology* 2017;32(3):277-298.
88. BBS. *Population Census Report 2011: Community Series-Rajshahi Dhaka*: Bangladesh Bureau of Statistics (BBS), Ministry of Planning. Government of Bangladesh; 2011.
89. BBS. *Population Census Report 2011: Community Series-Naogaon*. Dhaka: Bangladesh Bureau of Statistics (BBS), Ministry of Planning. Government of Bangladesh; 2011.
90. BBS. *Population Census Report 2011: Community Series-Rajbari*. Dhaka: Bangladesh Bureau of Statistics (BBS), Ministry of Planning. Government of Bangladesh; 2011.



91. BBS. Population Census Report 2011: Community Series-Sirajganj. Dhaka: Bangladesh Bureau of Statistics (BBS), Ministry of Planning. Government of Bangladesh; 2011.
92. NIPOORT, Associates Ma, International I. Bangladesh Demographic and Health Survey 2014. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPOORT (National Institute of Population Research and Training), Mitra and Associates, and ICF International; 2015.
93. Naing L, Winn T, Rusli B. Practical issues in calculating the sample size for prevalence studies. Archives of Orofacial Sciences 2006; 1:9-14.
94. Sedgwick P. Cross sectional studies: Advantages and disadvantages. BMJ: British Medical Journal 2014;348.
95. De Vaus D. Surveys in Social Research. 5th ed. Australia: Allen & Unwin, NSW; 2002.
96. Creswell W. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches 3rd ed. New Delhi SAGE; 2009

