

**Needs, Experiences, Barriers and Facilitators to Primary and
Maternal Healthcare Accessibility and Utilisation among
Women in Rural Bangladesh: A Mixed Methods Study**

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Abstract

Introduction: The Bangladeshi government has sought to improve primary healthcare (PHC) and its maternal healthcare (MHC) services through the priorities of the nation's Sustainable Development Goals. Despite reducing maternal mortality rates, challenges still remain for rural Bangladeshi women in both accessing and utilising those healthcare services. Therefore, further exploration of the access and utilisation of PHC and MHC services by rural Bangladeshi women is a necessary first step to help improve their overall health and well-being.

Methods and findings: An exploratory sequential mixed methods design comprising two studies was undertaken. Study 1 was a qualitative study using focus groups and interviews with women, their husbands and healthcare providers. Themes were developed using Framework Analysis, underpinned by the Theoretical Domains Framework. Five themes summarised the key barriers: i) a limited understanding in healthcare services; ii) intrapersonal barriers such as fear; iii) sociocultural barriers such as lack of family support; iv) organisational barriers including inadequate medicines; and v) environmental constraints including natural disasters. The key facilitators were: a) health self-management techniques including service utilising experience; b) sociocultural facilitators such as support from spouses; and c) organisational support including free services.

Study 2, was a quantitative and qualitative study, where Nominal Group Technique workshops were employed with women, local policy makers and healthcare professionals, to prioritise solutions to the healthcare access barriers. The top solutions were about raising awareness of healthcare services and preventive healthcare, reaching a 51% level of agreement between the participants.

Conclusions: This study has provided an in-depth understanding of the barriers and facilitators experienced by rural Bangladeshi women in accessing and utilising PHC and MHC services. Components of the access and utilisation intervention were developed. This study's findings have key policy implications for: a) addressing the health-related knowledge gap evident in rural Bangladeshi women, and b) the delivery of quality healthcare services.

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List of Abbreviations

Abbreviation	Definition
ANC	Antenatal Care
BBS	Bangladesh Bureau of Statistics
BCW	Behavioural Change Wheel
BDHS	Bangladesh Demographic Health Survey
BHW	Bangladesh Health Watch
BHC	BRAC Health Centre
BPC	Bangladesh Planning Commission
BRAC	Bangladesh Rural Advancement Committee
BRDB	Bangladesh Rural Development Board
CASP	Critical Appraisal Skills Programme
CBBCI	Community-Based Behavioural Change Intervention
CC	Community Clinic
CDC	Consensus Development Conference
CHWs	Community Health Workers
CHCP	Community Healthcare Provider
CI	Confidence Interval
COM-B	Capability, Opportunity, Motivation and Behaviour
CS	Caesarean Section
FA	Framework Analysis
FBS	Facility-Based Services
FWA	Family Welfare Assistant
FWV	Family Welfare Visitor
FYP	Five Year Plan
GDPR	General Data Protection Regulations
GED	General Economic Division
GoB	Government of Bangladesh
GT	Grounded Theory
HA	Health Assistants
HC	Health Centre
HP	Healthcare Provider
HPNSP	Health, Population and Nutrition Sector Programme
IDI	In-Depth Interview
IFA	Iron Folic Acid
INGO	International Non-Governmental Organisation

IPV	Intimate Partner Violence
KII	Key Informant Interview
LMIC	Low- and Middle-Income Country
MDG	Millennium Development Goal
MeSH	Medical Subject Headings
mHealth	Mobile Health
MHC	Maternal Healthcare
MM	Mixed Methods
MMAT	Mixed Methods Appraisal Tool
MMR	Maternal Mortality Ratio
MOHFW	Ministry of Health and Family Welfare
MORTB	Ministry of Road Transport and Bridges
MR	Menstrual Regulation
MRC	Medical Research Council
NCD	Noncommunicable Disease
NGO	Non-Governmental Organisation
NHP	National Health Policy
NIPORT	National Institute of Population Research and Training
ODPL	Organisational Development and Professional Learning
OR	Odd Ratio
PAC	Postabortion Care
PAHO	Pan American Health Organization
PHC	Primary Healthcare
PHCC	Primary Healthcare Centre
PhD	Doctor of Philosophy
PICO	Problem/Population Intervention Comparison and Output
PNC	Postnatal Care
RCT	Randomised Control Trial
RHV	Reproductive Health Volunteer
SACMO	Sub-Assistant Community Medical Officer
SDG	Sustainable Development Goal
STI	Sexually Transmitted Infection
TA	Thematic Analysis
TB	Tuberculosis
TBA	Traditional Birth Attendant
TDF	Theoretical Domains Framework
UHC	Upazila Health Complex
UHFWC	Union Health and Family Welfare Centre

UK	United Kingdom
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization
WRDTP	White Rose Doctoral Training Programme

List of Glossaries

Glossary	Definition
Apa	Sister
Burkha	A long cloth that covers whole parts of the body
Dai	Traditional female childbirth attendant
Didi	Female CC healthcare provider
Gunnah	Task of offence
Haram	Not allowed
Hujur	Islamic priest
Kabiraj	Traditional healer
Pir/fakir	Faith healers
Saree	A long cloth which is traditionally worn by South Asian women
Upazila	Sub-district
Uthan baithak	Courtyard meeting

Chapter 1 Introduction

1.1 Introduction

This first chapter provides an account of the researcher's interest for doing this PhD study, followed by the background for the underlying reasons to conduct the study. An overview of the United Nations Sustainable Development Goals (SDGs) and the international guidelines for primary and maternal healthcare services is provided. The context of the study will be described to provide information related to Bangladesh and its healthcare system, including the health policy. Finally, the aim and objectives, and an outline of the PhD project will be presented.

1.2 The interest in the research and PhD journey

My interest in primary and maternal healthcare research has grown from a background of studying Sociology. My insights regarding healthcare issues have developed specifically from undertaking health-related courses in bachelor and masters programmes, such as 'sociology of health and illness', and 'health and development', and from observing the healthcare situation for rural Bangladeshi women. Having the appropriate theoretical knowledge and considering the practical healthcare situation, I focused on women and health-related topics in my bachelor and masters theses. I then joined Khulna University in Bangladesh to take up a teaching and research position. In addition, I was involved with local health-related projects. My previous experience influenced my research direction at the University as I became much more interested in researching how women's healthcare issues can be enhanced in practice settings. My professional goals are to learn as much as I can about higher education and the health agenda in order to strengthen my awareness about trends within the field and how I can contribute to the overall mission and purpose of the profession. Therefore, my background in Sociology, research experience and professional goals developed my motivation for pursuing doctoral research that considered experiences, barriers and facilitators to access and utilisation of primary and maternal healthcare services by rural Bangladeshi women.

I chose this PhD project using a mixed methods approach for two main reasons: (i) In the past, I was mainly a quantitative researcher with very limited experience in qualitative research; therefore, I found this project to be an opportunity for training to develop an in-depth understanding of qualitative, quantitative and mixed methods approaches, and gain hands-on experience in using different methodologies; and (ii) The project included

issues such as rural women and their primary and maternal healthcare services, which are my areas of interest and related to the Sustainable Development Goals.

1.3 Study background and rationale

1.3.1 Defining primary and maternal healthcare

Access to and utilisation of primary and maternal healthcare services have become important issues to ensure sound health. In this study, primary healthcare (PHC) refers to the first level of contact for rural women with the national health system and addresses the main health problems in the community, providing health promotion, preventive, curative and rehabilitative services, and their experiences such as service care they receive outside of a hospital (World Health Organization [WHO], 2021a). In addition, primary maternal healthcare (MHC) encompasses the care and services within the community, which are provided for rural mothers during pregnancy, childbirth and postnatal care (PNC).

1.3.2 Primary and maternal healthcare context

Since the Alma-Ata Declaration of 1978, the PHC services have been introduced worldwide to strengthen the provision of healthcare for all (WHO, 2021a; WHO and United Nations International Children's Emergency Fund [UNICEF], 2018a). Global PHC services are estimated to save around 60 million lives and increase the average life expectancy of low- and middle-income countries (LMICs) by 3.7 years by 2030 (WHO, 2021a). The contribution of PHC and its MHC services provided by primary healthcare centres (PHCCs) has been observed in the improvement of some key health issues including communicable diseases, such as tuberculosis and diarrhoea; noncommunicable diseases (NCDs), such as cancer and diabetes; and maternal health across the world (WHO and UNICEF, 2018a; WHO, 2003). In addition, PHC and MHC services contribute to reducing healthcare costs, increasing efficiency by improving access to preventive and promotive services, and coordinating people-centric care based upon the needs of community members (Starfield, 2012; Friedberg et al., 2010). Despite successful improvements in healthcare provision, there has been an increase in NCDs globally and 85% of deaths related to these diseases occur in LMICs (WHO, 2021b). In addition, the maternal mortality ratio (MMR) was 152 per 100,000 live births worldwide and 147 per 100,000 in South Asia in 2020 (Bill & Melinda Gates Foundation, 2021).

Bangladesh, like other WHO member nations, has provided affordable PHC services mostly to rural people since the Alma-Ata Declaration. Bangladesh has made significant

progress in achieving the Millennium Development Goals and is currently working on the SDGs agreed to be achieved by 2030 (Ministry of Health and Family Welfare [MOHFW], 2019). Bangladesh has also made remarkable progress in many of the SDG3 targets (see Table 1-1) set by the United Nations. For example, the recent SDG progress report indicates that MMR has persistently dropped (165 per 100,000 live births in 2019 from 447 in 1995) and the number of births attended by skilled health personnel has greatly improved (9.5% in 1994 to 59% in 2019) (General Economic Division [GED] and Bangladesh Planning Commission [BPC], 2020). However, the full potential of healthcare services at all levels (i.e. tertiary, secondary and primary levels) has never been equitably met due to lower concentration on the PHCCs (WHO, 2015a), the lowest healthcare service level covering the upazila (sub-district), union and village. Local PHCCs provide both PHC and MHC services to rural Bangladeshi women, but several challenges remain in accessing and utilising the services (Evans and Alam, 2017). For example, some of the key challenges in accessing PHC and MHC services by rural Bangladeshi women include lack of encouragement from family members for women to seek care, women's reliance on traditional medicine (Tarafder, 2013), healthcare costs, lack of transport (Ahmed, et al., 2014), physician preference to work in urban health centres (WHO, 2005) and women's lifelong dependence on men (Kabir and Salam, 2001). In addition, the COVID-19 pandemic reduced the services that PHCC offers in rural Bangladesh (WHO and UNICEF, 2022). This has meant that access to the rural healthcare services were affected by the pandemic. Therefore, progress towards health achievements of Bangladesh are still far behind developed countries. For example, in 2018, the overall national antenatal care (ANC) visits of pregnant women were 56% lower than the United States of America (92.2%) (Pan American Health Organization/WHO et al., 2018).

Access to and utilisation of PHC and MHC services is not equitable for Bangladeshi women who reside in remote rural regions (Haque et al., 2016). In 2014, rural women (26%) in Bangladesh were less likely than urban women (46%) to have met the WHO recommended four or more ANC visits (National Institute of of Population Research and Training [NIPORT] et al., 2016). In the case of facility-based childbirth, while more than half (56.8%) of the urban childbirths in Bangladesh were attended by healthcare providers (HPs), such as doctors, nurses, or other healthcare staff, this rate is relatively low (30.6%) for rural childbirths (NIPORT et al., 2016). Only 35.6% of the rural women have a childbirth assisted by medically trained birth attendants, leading to different postpartum complications, such as pain and bleeding (NIPORT et al., 2016). Given the situation, reaching the UN SDGs call for a global reduction of maternal mortality to 70 or

less per 100,000 live births by 2030 may be a challenge for Bangladesh (United Nations [UN], 2015).

Therefore, to promote overall health and wellbeing of rural Bangladeshi women, it is important to understand what is actually necessary to improve the healthcare situation, to explore knowledge and experiences of women regarding PHC and MHC services, and identify the barriers and facilitators that rural Bangladeshi women face in accessing and utilising PHC and MHC services from PHCCs.

1.4 Sustainable Development Goals (SDGs)

The 2030 agenda for Sustainable Development provides a shared 17 point plan to ensure peace and prosperity across the world (UN, 2015). PHC has been considered as a cornerstone to achieving health-related SDGs (WHO and UNICEF, 2018b). Recognising the interdependence of health and prosperity, the UN SDGs provide a comprehensive plan of action to end injustices that underpin poor health and development outcomes (Joint SDG Fund, 2015). In doing so, they have started the process of following up and reviewing the progress of the SDG agenda at national, regional and global levels, and are working coherently with the existing institutions of the member states (United Nations General Assembly, 2016). Health research is considered a key part of the process to increase access to and use of healthcare services (Joint SDG Fund, 2015). This study contributes to this process by exploring barriers and facilitators to accessing and using PHC and MHC services by rural dwelling Bangladeshi women. Therefore, the study is linked to the following SDG goal and its targets, as shown in Table 1-1.

Table 1-1 Mapping the Sustainable Development Goal and its targets

Goal 3	Ensure healthy lives and promote well-being for all
Targets	3.1 Reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030;
	3.4 Reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being by 2030; and
	3.7 Ensure universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes by 2030.

Source: UN (2015)

1.5 International guidelines for primary and maternity healthcare services

PHC is rooted in a commitment to social justice, equity and participation (WHO and UNICEF, 2018b). The updated guidelines of PHC and MHC include meeting community health needs through comprehensive, promotive, protective, preventive, curative, rehabilitative and palliative care throughout the life span (WHO and UNICEF, 2018b). In addition, WHO envisages that across the world “every pregnant woman...[should] receive quality care throughout the pregnancy, childbirth and the postnatal period” (Tuncalp et al., 2015, p.1045). ANC provides a platform for important healthcare functions, including health promotion, screening and diagnosis, and disease prevention. Currently, WHO in its new ‘2016 WHO ANC model’ recommended at least eight ANC visits to ensure women’s experience of care and reducing perinatal mortality (WHO, 2016b, p.1). Achieving the SDG3 goal requires improving primary and maternal care for mothers. Healthcare providers from PHCCs must have access to appropriate medications and relevant training to ensure quality care, especially in LMICs (WHO, 2018). The WHO’s international guidelines for the PNC suggest that mothers should receive care from health centres for at least one day following the childbirth (WHO, 2017). In addition, a minimum of three additional PNC visits are recommended for all mothers during the first week, between the second and third weeks after childbirth, and within six weeks after childbirth (WHO, 2017; WHO, 2013b).

1.6 Bangladesh and its healthcare system

1.6.1 Geography and demography

Bangladesh is a South Asian country bordered by the Bay of Bengal to the south, Myanmar to the southeast and India to the east, north and west. Most of the land is a low lying delta plain with a wide network of large and small rivers, and the remnants are hilly areas scattered in the north and east, vital to the socioeconomic life of the country. Bangladesh is known as the country most affected by the direct and indirect effects of global climate change. The country regularly experiences a number of natural disasters, such as floods, cyclones and tidal surges, which have slowed the progress of poverty reduction (World Bank, 2019). Bangladesh has a population of 168.2 million, occupying 147570 square kilometres (Bangladesh Bureau of Statistics [BBS], 2021). The population density of 1265 people per square kilometre is one of the highest in the world (World Bank, 2019). According to the latest national population census, around 90% of the population are Muslims, 9% are Hindus and 1% are Christians, Buddhists and other faiths (BBS, 2014). Bangladesh has undergone a significant demographic change with a rapid decline in fertility rate to 2.04 in 2020 from 6.9 births per woman in the early 1970s and the population growth rate in 2020 was only 1.3%, compared to 1.47 in the last 2011 census (BBS, 2021; 2014). In addition, Bangladesh is experiencing rapid urban growth,

with an urbanisation rate of 3.17% annually, and the city population living rate increased from 26% in the 1980s to 38.9% in 2021 (Central Intelligence Agency, 2021).

1.6.2 Health overview

During the last 50 years since independence in 1971, Bangladesh has made many improvements in health sectors. Health infrastructure in Bangladesh is growing including public and private medical education institutions, district hospitals or clinics, rural health centres and community clinics to make skilled manpower and provide services (MOHFW, 2019b). Government and non-governmental organisations (NGOs) continue to campaign for maternal and child health, immunisation and sanitation programmes (MOHFW, 2019b). Bangladesh has made significant progress in the areas of average life expectancy, which has increased by 30 years after independence (in 1971), and through improved maternal and child health (Table 1-2) (World Bank, 2022b; BBS, 2021). During the two decades between 2000 and 2020, the under-5 mortality rate per 1000 live births has decreased by 60%, the infant mortality rate by 43% and the neonatal mortality rate by 35% in Bangladesh (Table 1-2). Furthermore, compared to its neighbours, the country has made significant gains on some indices. For instance, in the recent global data, the under-five mortality rate (28 deaths per 1000) in Bangladesh was lower than India (33 per 1000) and Pakistan (65 per 1000) in 2020 (World Bank, 2022b). However, although Bangladesh's gross domestic product (GDP) per capita is now \$1,961 ahead of India (\$1,927) and Pakistan (\$1,188) (World Bank, 2022a), the nation's current health allocation (% of GDP) is 2.48, which is lower than India (3.01), Pakistan (3.38) and even South Asia as a whole (3.10) (WHO, 2022).

Table 1-2 Health indicators of Bangladesh in different decades

Indicator	1970	1980	1990	2000	2010	2020
Life expectancy at birth, total (years)	42	55	59	65	69	72.8
Life expectancy at birth, female (years)	44	54	59	65	69	74.5
Life expectancy at birth, male (years)	40	56	60	65	68	71.2
Adolescent fertility rate (per 1000 women ages 15–19)	-	195.4	163.7	116.6	83.8	74
Infant mortality rate (per 1000 live births)	-	133	99.5	64.2	37.5	21
Neonatal mortality rate (per 1000 live births)	-	-	54.1	40.7	27	15
Under-5 mortality rate (per 1000 live births)	-	197.8	143.6	87.7	47.2	28
Maternal mortality ratio (per 100 000 live births)	-	-	551.9	375	300	163

Source: World Bank (2022b); BBS (2021)

1.6.3 Overview of the Bangladeshi healthcare system

Similar to many international countries, the constitutional obligation of the Government of Bangladesh is to provide basic healthcare services to all. Article 15 of the Constitution of Bangladesh states that it shall be a fundamental responsibility of the nation to ensure the provision of the basic necessities of life of its citizens, such as food, clothing, shelter, education and healthcare (MOHFW, 2011). Furthermore, Article 18 of the Constitution stipulates that the State shall increase the nutritional level of its population and improve public health facilities as part of its primary obligations (MOHFW, 2011). In line with this legal framework, the health sector has developed several policies and programmes to improve healthcare situations, which are implemented in different phases through the central control of the MOHFW. Although there is a constitutional obligation to secure healthcare services for all, this responsibility has practically been shared with a private sector. Bangladesh has an entrepreneurial healthcare system, for example, access to healthcare services is considered the individual's responsibility depending on his or her economic condition (NIPORT, 2016), whereas in the United Kingdom (UK), healthcare is free for all citizens (Chang et al., 2011).

Bangladesh's healthcare system is pluralistic, where multiple actors play different roles and functions through a combined system of medical practices. Bangladesh has four key actors that define the structure and functioning of the broader healthcare system: public, private, NGOs and donor agencies (Adams et al., 2018; WHO, 2015a). Public, private and NGOs are engaged in service delivery, financing and employing health staff; donors play a key role in financing and planning health programmes. The public sector (see [section 1.6.4.1](#) for the role of the public sector in the primary level healthcare system) is authorised not only to set policies and regulations but also to provide comprehensive healthcare services, and to manage financing and recruiting healthcare workers. The functions of public, private and NGO healthcare services are regulated by the government laws. Healthcare services in Bangladesh are provided through healthcare centres by involving healthcare providers, such as doctors, nurses, pharmacists and healthcare workers (WHO, 2015a).

The government services are not-for-profit curative services to a limited extent at the national and subnational level. NGOs provide mainly preventive and basic care and these are non-commercial. In contrast, the private sector provides commercial services that involve key personnel, such as traditional healers, allopath and hired physicians who are government employees (WHO, 2015a).

The MOHFW, with its two branches, the Director General of Health Services (DGHS) and the Director General of Family Planning (DGFP), manages health services in the

public sector ranging from primary to tertiary care. The structure of the provision of services follows the country's administrative model, starting from the national, district, upazila, union and ward levels. It provides promotive, preventive and curative services, such as outdoor (outpatient), indoor (inpatient) and emergency care at three different levels: tertiary, secondary and primary levels. The tertiary level facilities mostly exist at the divisional and national levels, providing specialised and advanced care, and the secondary level exists at the district level providing specialised care (Kabir et al., 2021). Finally, the primary care level exists at the upazila level, which provides basic healthcare services (WHO, 2015a).

1.6.3.1 Health policy in Bangladesh

One of the main responsibilities of the Government of Bangladesh (GoB) is making policy of the nation's healthcare system. The healthcare system of Bangladesh is regulated by the MOHFW in collaboration with the local government. The GoB made the country's first National Health Policy (NHP) in 2011. The main objectives of the current health policy from 2011 were (i) to ensure the basic and emergency healthcare services are available to the people at all levels; (ii) to increase the spread and equality of healthcare services; and (iii) to encourage people to access services to prevent and reduce diseases (MOHFW, 2011). In addition, the current NHP includes 19 specific goals ([Appendix A](#)), which are targeted to be achieved by 16 specific principles and 39 activities (MOHFW, 2011).

1.6.4 Primary level healthcare system

The primary level healthcare system of Bangladesh incorporates mainly two sectors, which are controlled by the MOHFW, namely public and private.

1.6.4.1 Public sector

The focus of this research project is on primary level healthcare systems in Bangladesh. The government's three-tier system of rural PHC and MHC services: (i) the Upazila Health Complex (UHC) at upazila level; (ii) Union Health & Family Welfare Centres (UHFWC) at union level; and (iii) Community Clinic (CC) at village ward level (Figure 1-1). The UHC provides comprehensive inpatient and facility services with healthcare professionals while UHFWC mainly focuses on maternity services provided by paraprofessionals and family welfare visitors and CC provides care in the community by community health workers (Murshid and Haque, 2020). The purpose of these three lower levels of the health system is to provide free healthcare and referrals for more specialised treatment for about 105 million people in rural Bangladesh (Evans and Alam, 2017). Although the MOHFW regulates rural PHC and MHC services, the concerned local

government bodies (municipalities and city corporations) under the Ministry of Local Government, Rural Development and Cooperatives control urban PHC services (Urban Primary Healthcare Services Delivery Project [UPHCSDP], 2019). Figure 1-1 summarises the organisation of the MOHFW service delivery structure (NIPORT, 2016).

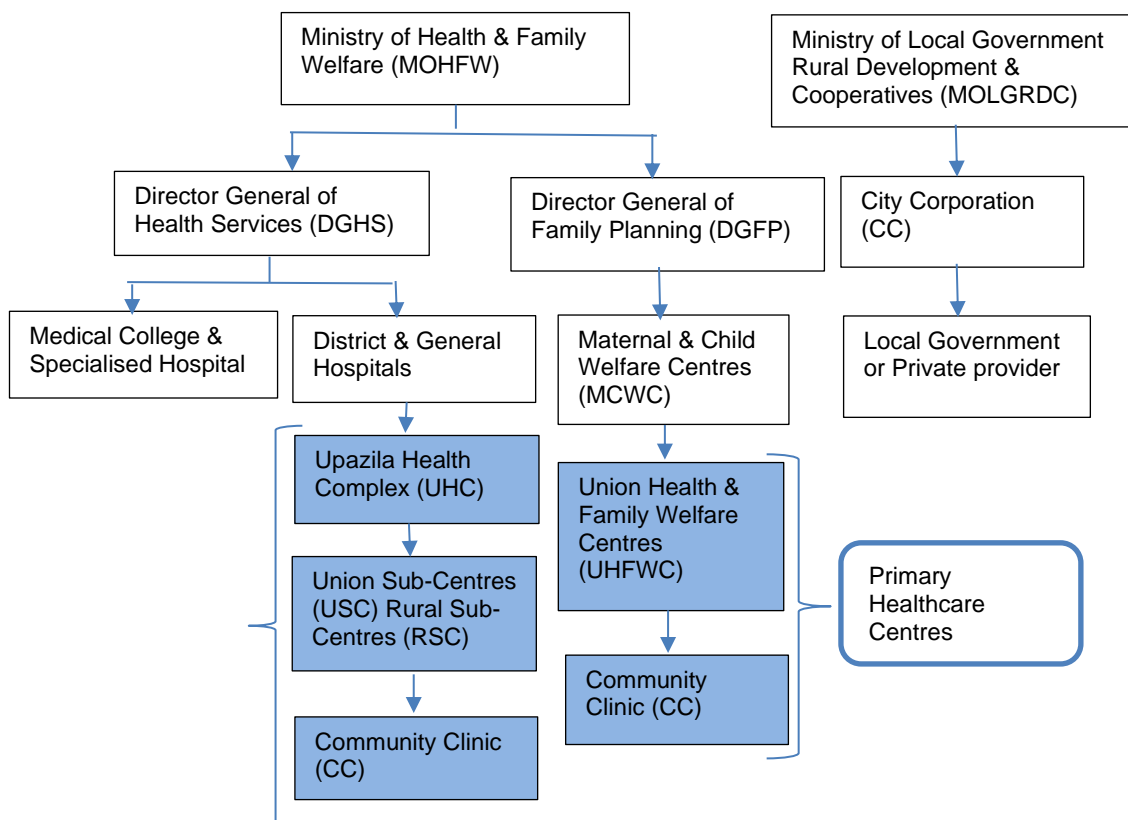


Figure 1-1 Health service delivery organisational structure in Bangladesh

Adapted from Bangladesh Health System Review, WHO (2015a).

1.6.4.2 Private Sector

Private healthcare providers play an important role in the Bangladeshi healthcare system (Kalin, 2011). In fact, around 85% of the people in Bangladesh turn to private sector providers for healthcare provision (Bangladesh Health Watch [BHW], 2007). This sector consists of informal village doctors, pharmacists, traditional healers and homeopathic practitioners. Village doctors are popular among the public and they practice mostly modern medicine, but often do not have more than three months of training in diagnosing and treating common ailments (Ahmed, 2005). Village doctors are popular among the villagers because these providers have created a high level of confidence in the community about them due to their continuous services and close relationships, and they are also flexible in the mode of payment (BHW, 2007). Ahmed (2005) observed five types of therapeutic choices in Bangladesh: self-care, pharmacists, traditional, paraprofessional and professional allopath. Self-care includes taking their own

medications such as oral saline or herbal medicine without consulting a doctor. Treatment is also provided by local pharmacists who are not experts in modern medicine, and few have only a six-week training course. The traditional healer includes people who are not trained in modern medicine and are mainly herbalists, spiritual healers and homeopaths. The semi-qualified allopaths are called paraprofessionals. They have different groups: (a) village doctors with a short training in diagnosing and treating common ailments, mostly from private institutions of questionable quality; (b) medical assistants who complete a three-year medical assistant training programme, and family welfare visitors who complete 18-month training in pregnancy and delivery care from a public institution; and (c) various government and nongovernment community health workers who have some basic preventive and curative health training. Finally, the professional allopaths are primarily considered as qualified registered doctors because they complete six years of professional training, including one year of internship.

Unlike urban areas, the large-scale healthcare privatisation process is not functional at the primary healthcare level in rural Bangladesh (Rahman, 2019). However, some small-scale privately owned clinics, pharmacists, traditional healers (*Kabiraj* or faith healers such as *pir/fakir*) and homeopathic practitioners provide maternal and reproductive services, such as ANC, childbirth, PNC and birth control methods, which rural Bangladeshi women utilise to improve their health condition (Berer, 2011). Private sector services are popular among villagers as compared to public sector services because these services are affordable, accessible and responsive, such as friendliness and respect (Kaloti, 2021; BHW, 2007), resulting in women accessing more healthcare services from the private sector. For example, about 60% of healthcare services in rural Bangladesh are covered by this sector (BHW, 2007). These services, along with government-run services, have contributed to achieving the Millennium Development Goal (MDG) 5, improving maternal health, in 2015 (Berer, 2011), and are now contributing to achieve the SDG3 related targets in Bangladesh (GED and BPC, 2020b).

1.6.5 Women's entrepreneurship and their healthcare access

The involvement of Bangladeshi women as entrepreneurs is not as common as in other parts of the world. For example, only 7.2% of all businesses in Bangladesh are owned by women (Business Inspection, 2023), whereas the rate in Latin America is 24.1% (Global Entrepreneurship Monitor, 2022). In Bangladesh, women-led small businesses and enterprises include small boutique, handicrafts, agriculture and shops (Business Inspection, 2023; The Asia Foundation, 2021). Women earn money through their business involvement, which empowers them to make decisions about accessing and using healthcare services (Ahmed, 2022; Anik, et al., 2021; Mujeri, 2019).

1.7 Overall study aim and objectives

The aim of this study is to explore experiences, barriers and facilitators to accessing and utilising primary and maternal healthcare services among women in rural Bangladesh.

The study includes the following specific objectives:

- i. To explore knowledge and experiences of primary and maternal healthcare services among women in rural Bangladesh;
- ii. To identify factors that influence access to and utilisation of primary and maternal healthcare services among women in rural Bangladesh;
- iii. To prioritise solutions from the list of solutions identified based on the Study 1 findings to develop a behaviour change intervention; and
- iv. To develop a logic model based on the findings from Studies 1 and 2 to improve primary and maternal healthcare among women in rural Bangladesh.

1.8 Structure of the thesis

The thesis incorporates eight chapters. **Chapter 2** is the narrative literature review, which begins with the systematic search strategy, and then findings of the review of existing studies on barriers and facilitators to healthcare access and utilisation by rural women. It also provides a summary of the nature of evidence identified and highlights key gaps in the existing literature that the study seeks to address. It then concludes with the scope and future direction of this study.

Chapter 3 presents the methodology. It describes the nature of qualitative and quantitative research and justifies the choice of a mixed methods design for the empirical investigations conducted. **Chapter 4** discusses the findings from focus groups and interviews conducted in Study 1 to address the first and second objectives of the study. This chapter includes five broad themes to present and summarise the findings. The mapping and identification of what needs to be changed to overcome the barriers to accessing and using PHC and MHC services by women is included in **Chapter 5**.

Chapter 6 is about Study 2 which highlights the identification of a priority list of solutions through the Nominal Group Technique workshops to address the third objective of the study. A logic model based on the findings from Studies 1 and 2 is presented in order to show how an intervention will work to improve the healthcare access and use of services for rural women in **Chapter 7**. This chapter will address the final objective of the study. The final **Chapter 8** provides a project summary, discusses the integration of the key findings and the contribution of the study to knowledge. This is followed by implications for further policy and practice, and research, and a discussion of strengths and limitations of this MM study in general.

Chapter 2 Literature review

2.1 Introduction

This chapter presents a narrative review of literature in relation to access and utilisation of healthcare services by rural women. The chapter is structured into eight sections. The literature review starts with the rationale for using a narrative review, followed by a guiding framework, and the specific aim of the review. The method section describes the review methodology, including the process of identifying search strategies, eligibility criteria, study selection, quality assessment and the data synthesis process. The findings section details the background, determinants, experiences, barriers and facilitators to accessing and utilising women's healthcare services. The discussion section provides a key summary with the nature of evidence identified along with recommendations, and highlights key gaps in the existing literature that the study seeks to address. The review section then concludes with the scope and direction of this study.

2.2 Rationale for using a narrative review

Over the years, several types of literature reviews have emerged, though four key types are commonly used: narrative, systematic, meta-analysis and meta-synthesis (Danson and Arshad, 2014). The purpose of narrative reviews is to provide a comprehensive overview of the literature by summarising and synthesising the evidence, while systematic reviews answer the specific research questions by using a rigorous process (Danson and Arshad, 2014; Cronin et al., 2008). In addition, meta-analysis focuses on statistical analysis of quantitative results, whereas common themes of qualitative findings are identified in meta-synthesis (Danson and Arshad, 2014; Cronin et al., 2008). As the review will provide a holistic understanding of the existing literature on accessing and utilising healthcare services by women, and identify gaps in the literature to highlight the significance of new research, the narrative review is considered to be the most suitable approach in this instance when compared with others.

2.3 Guiding framework

The Social-Ecological Model (SEM) is largely used to understand healthcare access and utilisation of individuals (Sallis et al., 2008) as it considers the dynamic interactions between individuals and their environments as determinants of health-related behaviour (Ma et al., 2017). The SEM shows that individuals' healthcare access behaviour is shaped through five hierarchical levels, including the intrapersonal, interpersonal, institutional, community and policy levels (Sallis et al., 2008) (Figure 2-1). The review adopted the SEM to provide a holistic understanding of access to and utilisation of

healthcare services by women. Furthermore, the categorisation of existing literature with the SEM provides a multilevel understanding of healthcare access behaviours, which have similarity with subsequent uses of the Theoretical Domains Framework (TDF) and Capability, Opportunity, Motivation and Behaviour (COM-B) model to understand the phenomena.

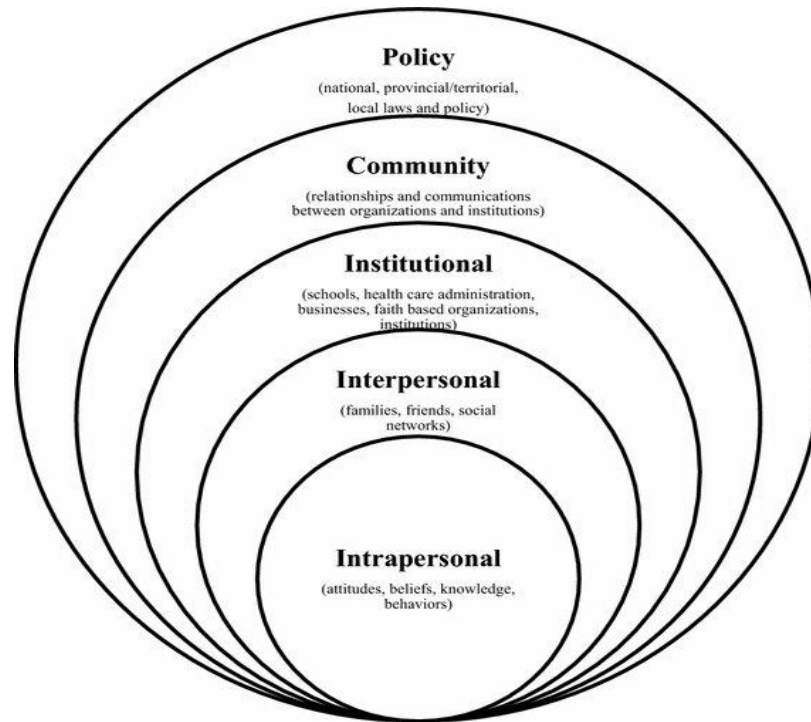


Figure 2-1 The Social-Ecological Model (Ma et al., 2017)

2.4 Aim

The aim of the review was to critically analyse published studies examining determinants, experiences, barriers and facilitators of access to and utilisation of PHC and MHC services by rural Bangladeshi women in an attempt to identify main themes and possible gaps in knowledge.

2.5 Methods

2.5.1 Search strategies

A systematic and manual search strategies were applied to adopt an explicit procedure so that thoroughness can be ensured and biases of the researcher can be minimised. Search strategies were undertaken for two stages: original and updated. To identify studies to be included in the review, an original systematic search was undertaken with six electronic databases on 30 November 2019: MEDLINE, PubMed, Web of Science, Scopus, ProQuest Sociological Abstract, ProQuest Dissertation & Theses as these

databases contain published manuscripts in the disciplines of health and biomedical sciences, social sciences, public health and nursing, which provide insights into the specific topic of interest. The original search with electronic databases was undertaken to find studies published between 1 January 2000 to 30 November 2019. The starting year 2000 was chosen because this review intended to examine changes in the PHC and MHC services in Bangladesh over the past two decades as Bangladesh's healthcare system has undergone changes during that time. For example, community clinics were constructed in 1998 to provide PHC and MHC services to rural residents of Bangladesh from their nearest locations (Sarker et al 2015). This is because, research focusing on these services was not published prior to 2000. The full-text versions of potential citations were retrieved for a detailed examination. Also, an original manual search with Google scholar, Google and the University of Leeds library was made with key terms for literature. Studies from this search were included as some important studies might not be included in electronic databases.

In addition, the saved searches from 1 December 2019 were rerun on each databases along with Google scholar, Google and the University of Leeds library on 29-30 November 2022 to ensure that updated studies published since the original search were included in the review.

Studies from similar socioeconomic countries to Bangladesh, such as India, Pakistan, Nepal, South Asia and low-and middle-income countries (LMICs), were included as there were insufficient peer-reviewed studies published specifically on Bangladesh. The search included medical subject headings (MeSH) and text words for determinants, healthcare access, and healthcare utilisation. The Population, Intervention, Comparison, and Outcome (PICO) model was used to develop the search terms from the review questions. Despite the existence of other approaches, such as sample, phenomenon of interest, design, evaluation, research (SPIDER) and setting, perspective, intervention, comparison, evaluation (SPICE), the PICO was used as it facilitates to easily develop search terms from the review question and is widely used (Eriksen and Frandsen, 2018). See [Appendix B](#) for an example of search terms in Medline.

2.5.2 Eligibility criteria

The inclusion and exclusion criteria are detailed in Table 2-1. This narrative review included research of various types (cross-sectional, qualitative, mixed methods and review) focusing on the access to and utilisation of PHC and MHC services by women. The studies included for the review were limited to those published in the English language as these were peer-reviewed and had access to international readers. In

addition, a time-limit was used to find the studies, which were published after the year 2000 (see [section 2.5.1](#) for justification).

Table 2-1 Inclusion and exclusion criteria for selecting studies

Factor	Inclusion criteria	Exclusion criteria
Purpose	Studies focusing on the access and utilisation of PHC and MHC services, and intervention	Studies focusing on the secondary and tertiary healthcare access and utilisation
Text	Full text articles	Posters, conference abstracts, supplements and newspaper articles
Age limit	Age of >16 and <49	Age of <16 and >49,
Participants	Women	Men, girls, child, newborn and elderly
Country and region	Bangladesh, South Asia, LMIC and rural region	Africa, developed country and only urban region
Format	English language and peer-reviewed	Bangla language and non-peer-reviewed
Time-limit	Studies published after the year of 2000	Studies published before the year of 2000

2.5.3 Assessing quality of the included studies

The quality of the selected studies was assessed prior to inclusion in this review. Several appraisals were used to assess qualitative, quantitative, mixed methods (MM) and review studies ([Appendix C](#)) because a single appraisal tool does not exist to cover all types addressed in the literature.

In total, three types of quantitative studies were explored: cohort study, cross-sectional and randomised control trial (RCT). For this assessment, cohort and RCT studies were assessed using the Critical Appraisal Skills Programme (CASP) checklists (CASP, 2018a; CASP, 2018c), which included a total of 12 and 11 questions, respectively, in three broad sections, namely (a) the validity of the results, (b) the results and (c) the implications of the results. Furthermore, cross-sectional studies were assessed by using the critical appraisal checklist for cross-sectional studies that was adapted from Crombie (CEBM, 2014), which included 12 questions with possible answers of 'Yes', 'No', or 'Can't tell' to assess the research design, selection of the subjects and representativeness, the reliability of the measurement and the statistical analysis.

The quality of qualitative studies was assessed using CASP checklists (CASP, 2018b), which assess the rigour, credibility and relevance of the qualitative study. CASP contains ten items, with items 1–9 being questions with possible answers of 'Yes', 'No', or 'Can't tell'. Explanatory hints are provided in each question.

For MM studies, the mixed methods appraisal tool (MMAT) version 2018 (Hong et al., 2018) was used to critically appraise the studies. MMAT contains 17 questions, of which the first two were about screening questions and the remaining 15 with possible answers

of 'Yes', 'No', or 'Can't tell' were equally divided between the qualitative, quantitative and MM category of design. Finally, the review study was assessed using the CASP checklist, which incorporated 10 items under three broad subjects: (a) validity of the results, (b) results and (c) the implications of the results. Eight of the questions were answered using 'Yes', 'No', or 'Can't tell', and the remaining two were open-ended.

To achieve a total score and ascertain the quality of the studies included in this review, the following procedures were used for all the appraisals: (a) the score achieved for each study was calculated, and the score achieved was divided by the total score, and then the score was converted into a percentage to categorise the quality of the studies; and (b) based on the percentage distribution and range, the quality of the studies was classified into three bands: (i) 80-100%=high, 60-79%=good and <60%=poor. Qualitative answers were not counted for scoring, and explanatory hints were provided for each question.

2.5.4 Data synthesis

This review includes results from both qualitative and quantitative studies. Meta-analysis used for only quantitative data synthesis was inappropriate for this narrative review as this review included the heterogeneous nature of studies, such as RCTs and cross-sectional. Therefore, thematic synthesis (Thomas and Harden, 2008) was used to synthesise the studies included in the review. There are trends in the use of thematic synthesis for narrative review in healthcare research where there is heterogeneity in studies (Ryan et al., 2018; Nagata et al., 2013). Thematic synthesis is considered an adaptation of thematic analysis to synthesise the studies and offers a range of established methods and techniques for the identification and development of analytic themes in first hand data (Thomas and Harden, 2008). As the studies included in the review used multiple approaches, such as qualitative, quantitative, MM and review, data were identified, tabulated, analysed and synthesised using a thematic approach and presented as narrative. Then the emerging themes were organised based on the SEM.

The characteristics and key findings were extracted and tabulated according to the Ma et al. (2017) guidelines. The main characteristics include: (1) author(s), year of publication, country where the study was conducted, (2) aims of the study, (3) study design, (4) sampling method, (5) participants, (6) types of healthcare services and (7) main findings. Initially, the studies were grouped and summarised separately on the basis of quantitative or qualitative design. Likewise, data obtained from the quantitative and qualitative components of the mixed methods studies were included in the relevant group. The characteristics and key findings of these studies are summarised and categorised in [Appendix D](#).

2.6 Findings

2.6.1 Background of the studies

2.6.1.1 Study selection

A total of 3609 studies were identified from the original search. Of this total, 1706 studies were removed due to duplication, and the remaining 1903 were screened. Duplicate study detection was executed using EndNote software and a rigorous manual process where studies were checked one by one. Of these, 1242 publications were excluded as title and abstract did not clearly match with the research topic. The full texts of the remaining 661 studies were examined in detail and 640 were further excluded based on the exclusion criteria, leaving 21 studies to be included from the original search. In addition, additional search with Google, Google Scholar and the University of Leeds library included 19, and the updated one included six studies. Finally, 46 studies were considered eligible and included in this review. The PRISMA flowchart of the literature search and selection process is summarised in Figure 2-2.

2.6.1.2 Study characteristics

A summary of the characteristics of the included studies is presented in Appendix D. Studies were published between 2001 and 2022 (Figure 2-3). Most studies were published from 2011 to 2018 (n=36; 78.2%). Most studies (n=36; 78.2%) included in this narrative review were considered to be of high quality, the remaining nine were judged to be of good quality and one received a score showing poor quality. The review consists of 46 studies and of which 33 (71.7%) were from Bangladesh and 13 international, including South Asia and low-and middle-income countries (LMICs). Of the studies included in the review, 23 contained quantitative, 17 qualitative, four MM and two review information. Survey methods were employed in quantitative studies, and qualitative studies mostly used Focus Groups (FGs), interviews and Key Informant Interviews (KIIs) to collect data from participants. MM studies used survey for quantitative phase, and FGs and interviews for qualitative phase. Most studies included in this review used purposive, random and multistage cluster sampling; however, nine studies did not clearly report the sampling technique (Huda et al., 2018; Huq et al., 2018; Khanam et al., 2016; Hajizadesh et al. 2014; Rob and Alam, 2014; Anjan et al., 2013; Rahman, 2009; Shahjahan and Kabir, 2006; Paul and Rumsey, 2002). Half of the studies were carried out in rural locations, and the remaining studies focused on both rural and urban locations.

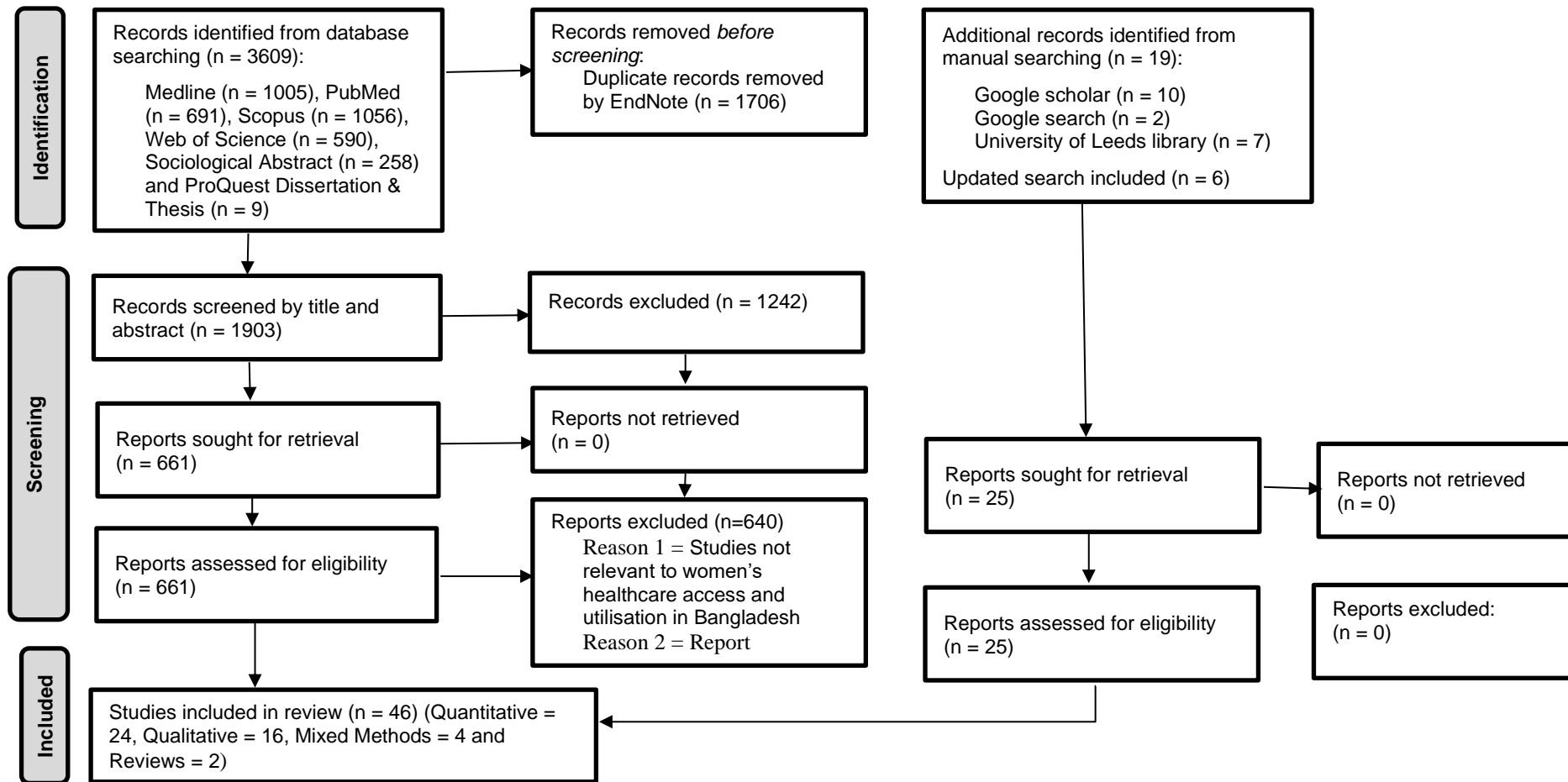


Figure 2-2 PRISMA Flowchart for searches of databases and records (Adapted from Page et al. (2021))

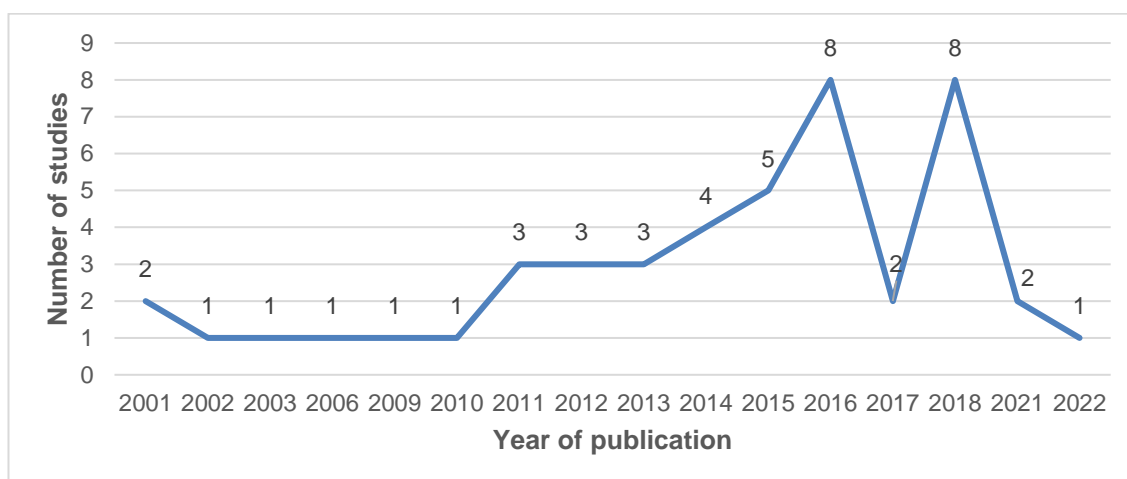


Figure 2-3 Year of publication of the included studies

2.6.1.2.1 Participants

The total sample size of 42 studies out of 46 was 439246 and outcomes for individual participants vary from 20 to 145404. Two out of four were review studies, one used national data without reporting exact sample sizes, and the remaining one reported the number of health centres (n=15).

2.6.1.2.2 Outcome types

Ten themes emerged from the thematic synthesis process, and several subthemes were identified under each theme to present the findings of the reviewed studies. Of the 46 included studies, 15 (33%) reported on determinants or factors; 15 (33%) on experiences; 26 (57%) on barriers; and 15 (33%) on facilitators of healthcare access and utilisation ([Appendix E](#)). Emerging themes were grouped into the SEM layers, categorising review findings into (i) intrapersonal, (ii) interpersonal, (iii) community and social, and (iv) organisational level factors influencing access and utilisation of healthcare services by women. A section on differences in accessing healthcare services by women in Bangladesh and other South Asian countries was also included.

2.6.2 Intrapersonal level factors to accessing and utilising healthcare services

Intrapersonal level factors include the characteristic of individuals, such as knowledge, attitudes, behaviour, skills, etc. (McLeroy et al., 1998). In this review, the intrapersonal level factors included three themes: socio-demographic determinants, lack of self-confidence in treatment, and experience of healthcare access and utilisation.

2.6.2.1 Socio-demographic determinants

Twelve out of 46 studies (Huda et al., 2018; Islam and Masud, 2018; Rahman et al., 2018; Saha et al., 2017; Rahman et al., 2016; Kamal et al., 2015; Rai, 2015; Sarker et al., 2015; Edmonds et al., 2012; Islam and Odland, 2011; Rahman, 2009; Chakraborty et al., 2003) focused on socio-demographic factors as determinants of healthcare access and utilisation. The socio-demographic determinants included: marital age, maternal age, parity, education, occupation and religion.

2.6.2.1.1 Marital age

Marital age was found as a significant predisposing determinant for maternal healthcare. Five quantitative studies, conducted in Bangladesh, reported on the relationship between marital age of women and their healthcare seeking behaviour (Rahman et al., 2018; Islam and Masud, 2018; Rahman et al., 2016; Edmonds et al., 2012; Chakraborty et al., 2003). This relationship was found to be significant in all studies except Chakraborty et al. (2003). For example, Rahman et al. (2018) demonstrated that women with marital age of 30-49 years had higher odds of delivery by caesarean section (CS) [OR = 2.37; CI = 1.47-3.81] than mothers who got married at the age of 15-19 years. Aged mothers can make a right decision compared to the younger. Also, Edmonds et al. (2012) showed that early marriage increased the birth rate, resulting in an increase in women's workload and a demand for financial resources. Thus, the use of healthcare services was decreased by early married women (Edmonds et al., 2012).

Conversely, one study indicated an inverse relationship between marital age and healthcare utilisation, showing that women, who married at age ≥ 15 years, were less likely to consult with medical practitioners compared to those who married at ≤ 15 years (Chakraborty et al., 2003). However, the reason behind this was not explored in the study. In addition, no study from South Asia and LMIC perspective was found where marital age was associated with access and utilisation of healthcare services.

In conclusion, marital age was found to be associated with access and utilisation of MHC healthcare in Bangladesh. However, it is also necessary to identify the age at pregnancy to depict the actual effect of maternal age on healthcare access because some women may marry early, but they can have a child later.

2.6.2.1.2 Maternal age

Maternal age (either during pregnancy or childbirth) is considered a determinant of healthcare access and utilisation. Six studies found a significant association between maternal age and access to healthcare (Rahman et al., 2018; Rahman et al., 2016; Kamal et al., 2015; Rai, 2015; Sarker et al., 2015; Chakraborty et al., 2003). For example, Rahman et al. (2018) found that women aged 30-49 had twice as many facility-based

childbirths as the younger group (15-19) [OR = 2.37; CI 1.47-3.81]. Similarly, older mothers (35 or above) were found to have a higher odds [OR = 1.903; CI = 0.784-4.617] of using traditional healthcare services compared to younger mothers (age <20) (Chakraborty et al., 2003) in Bangladesh. Sarker et al. (2015) found that women aged 20-29 were more aware of community clinic (CC) services and more likely to use CC services compared to women aged 12-19 years [for CC awareness: OR= 1.18; CI = 1.03-1.35 and for CC visitation: OR= 1.49; CI= 1.05-2.11].

In contrast, two studies, conducted in Bangladesh and South Asia in general, did not show an association between maternal age and healthcare access (Huda et al., 2018; Khanam et al., 2016) and one study, conducted in India, concluded without any indication as to whether there was an association (Arokiasamy and Pradhan, 2013). In addition, both positive and negative effects of maternal age on ANC utilisation were explored in India (Arokiasamy and Pradhan, 2013).

In conclusion, the maternal age of women can be positively and negatively associated with MHC. However, in the case of Bangladesh, all studies, except Khanam et al. (2016), agreed that aged mothers were more likely to have healthcare access and utilisation compared to younger mothers. How parity may be connected with women's healthcare access and utilisation is now discussed.

2.6.2.1.3 Parity

Parity is the number of children a woman has had. Parity was found to be associated with healthcare access and utilisation in Bangladesh (Saha et al., 2017) and South Asia (Huda et al., 2018; Rai, 2015) in the use of facility-based services (FBS). Seven studies found that women who experienced more than one childbirth were less likely to visit for ANC (Huda et al., 2018; Islam and Masud, 2018; Saha et al., 2017; Rahman et al., 2016; Rai, 2015; Sarker et al., 2015; Kamal et al., 2015) as they relied on their previous experiences (Saha et al., 2017). Also, Rahman et al. (2018) identified that the chance of CS delivery decreased with three or more children [OR=0.42; CI=0.29-0.63] compared to a single child. Contrary to this, Chakraborty et al. (2003) found that Bangladeshi mothers with previous pregnancy experience were more likely to visit hospitals for childbirth although there was no significant association between the variables measured.

In general, an inverse relationship was found between higher parity and maternity care in all studies except Chakraborty et al. (2003).

2.6.2.1.4 Education of women

Knowledge of health is considered to be the underlying mechanism in the association between formal education and healthcare services (Huda et al., 2018). Generally,

education means formal education, provided by educational institutions, which can be divided into four broad categories in the context of Bangladesh: (i) no education (ii) primary (ii) secondary and (iv) higher (Rahman et al., 2018).

Eleven out of 46 studies found a significant positive association between mothers' education level and their access to healthcare services (Huda et al., 2018; Islam and Masud, 2018; Saha et al., 2017; Khanam et al., 2016; Rahman et al., 2016; Kamal et al., 2015; Rai, 2015; Sarker et al., 2015; Arokiasamy and Pradhan, 2013; Edmonds et al., 2012; Chakraborty et al., 2003). The importance of the mother's education on the utilisation of their healthcare services in Bangladesh was identified. For instance, highly educated mothers, compared to illiterate ones, were around 16 times more likely to have ANC and 14 times more likely to receive the items of ANC content visits (e.g. urine or blood tests and counselling about danger signs) (Islam and Masud, 2018), which could be due to educated mothers' greater awareness of the benefits of ANC services (Rahman et al., 2016). Similarly, around 77% of educated Bangladeshi mothers, compared to 8.9% mothers, who did not attend school, received ANC services (Islam and Odland, 2011), and mothers with no education were 8.94 (95% CI, 5.2–15.3) times more likely not to have a PHCC visit compared to educated mothers (Saha et al., 2017). In India, education of women is considered a powerful individual level determinant and educated mothers were more likely to have greater awareness, autonomy and decision-making ability to use ANC services (Arokiasamy and Pradhan, 2013). Women's education was a predictor not only of access to MHC services, but also of PHC services. For instance, Huq et al. (2018) shed more light on the association between the lack of women's education and the delay in starting first consultation with a doctor for PHC treatment such as tuberculosis. Likewise, women without formal education were less aware of diabetes than those who had at least primary education (Jennings et al., 2021). In summary, education of women is an important determinant for primary and maternal healthcare access and utilisation. It is also necessary to investigate the role of women's occupation to assess the effects on their access to healthcare.

2.6.2.1.5 Occupation of women

Although education helps to increase knowledge to make a decision, occupation plays an important role in accessing appropriate healthcare services by women. Occupation works as a proxy determinant of income (Sarker et al., 2015). One study positively emphasised the mother's work status with their healthcare services (Chakraborty et al., 2003). For example, in Bangladesh, almost 35.4% working women, compared to 25.3% unemployed women, consulted with a doctor during pregnancy (Chakraborty et al., 2003). A few studies demonstrated lower levels of healthcare utilisation among working

mothers than unemployed mothers (Huda et al., 2018; Rahman et al., 2018; Rahman et al., 2016), which contradicted the study of Chakraborty et al. (2003).

2.6.2.1.6 Religion

Rai (2015); Arokiasamy and Pradhan (2013) found religion to be a determinant for ANC visits. For instance, in India, Muslim women were generally found to have a lower level of ANC utilisation than Hindu women (Arokiasamy and Pradhan, 2013). Also, Bangladeshi Muslim women were less likely to have at least four or more ANC visits than in India. However, religion was not identified as a significant predictor of ANC visits in Bangladesh (Saha et al., 2017). There were insufficient studies from Bangladesh, which concentrated on religion and, therefore, it is difficult to make a generalisation from the perspective of Bangladesh.

The varieties of religion do not play a role in the variation of healthcare access and use in Bangladesh, while in India, religion is found to be associated and may be due to the prevailing rigorous religious caste system.

2.6.2.2 Lack of confidence in treatment

Thirteen studies (Jennings et al., 2021; Begum et al., 2018; Huda et al., 2018; Hossain et al., 2016; Khanam et al., 2016; Nisar et al., 2016; Rahman et al., 2016; Alam et al., 2015; Gazi et al., 2014; Anjan et al., 2013; Azmat et al., 2012; Choudhury and Ahmed, 2011; Afsana and Rashid, 2001) focused on the lack of confidence in treatment. Three individual issues, including misconception, fear and low decision-making ability are included to describe the lack of confidence in treatment.

2.6.2.2.1 Misconception

In this review, the term misconception refers to misinformation, wrong belief or opinion as a result of not understanding something related to healthcare services. Four qualitative studies focused on different misconception issues related to female patients in Bangladesh (Begum et al., 2018; Hossain et al., 2016; Alam et al., 2015; Afsana and Rashid, 2001).

Most misconceptions were related to caesarean birth at hospitals in rural Bangladesh (Begum et al., 2018; Afsana and Rashid, 2001). Afsana and Rashid (2001) identified some glaring gaps between service providers and patients or attendants regarding the lack of information on physical examinations, medication, progress of labour, condition of the baby and purpose of immunisation or safe hygienic perineal care practice.

Furthermore, Begum et al. (2018) found that women reported limited knowledge of caesarean childbirth in Bangladesh. For example, the FG data suggested that women

had the misconception that episiotomy itself was a 'small caesarean' (Begum et al., 2018). In addition, pregnant women reported that they did not receive any information about the risks and benefits of caesarean and normal childbirth from the hospital or community clinic during ANC visits. Family members or friends, who had the same experience, were the main sources of information.

In addition, misconception was also related to medicine intake. For instance, although Community Health Workers (CHWs) advised pregnant women to take iron folic acid (IFA) supplements, they were not advised of the reasons why these tablets were needed during pregnancy (Alam et al., 2015).

Women's misconception was also related to menstrual regulation (MR) services. Women were in doubt about using an appropriate technique to regulate MR cycles because they reported that some were provided pills and some had a surgical operation (Hossain et al., 2016). Two factors were reported to be related to women's misconceptions: (i) lack of healthcare providers' understanding about the importance of the right information and (ii) lack of training for healthcare providers (Afsana and Rashid, 2001).

2.6.2.2.2 Fear of provided services

Ten studies (Jennings et al., 2021; Begum et al., 2018; Hossain et al., 2016; Nisar et al., 2016; Alam et al., 2015; Gazi et al., 2014; Anjan et al., 2013; Azmat et al., 2012; Choudhury and Ahmed, 2011; Afsana and Rashid, 2001) focused on the fear of women in accessing and utilising services. Based on the literature, fear can be divided into two categories: pre-treatment and post-treatment.

Pre-treatment fears involve fears that arise before seeking services. Several issues were revealed from the literature, which can be divided into four categories: (i) fear of the surgical instruments, (ii) unskilled performance of female doctors during childbirth, (iii) unhygienic behaviour of birth attendants, such as improper washing of hands and improper boiling of surgical instruments, and (iv) feeling intimidated to interact and express feelings with healthcare providers due to hierarchical and class distinctions (Nisar et al., 2016; Choudhury and Ahmed, 2011; Afsana and Rashid, 2001).

Furthermore, post-treatment fear was related to the side effects of surgery and prescribed medication. Bangladeshi women felt that caesarean babies were more susceptible to pneumonia, and post-caesarean incisions were painful for a long time (Begum et al., 2018). In addition, some maternal complications were reported to be included, such as excessive bleeding after abortion (Hossain et al., 2016), placental expulsion, heavy vaginal bleeding and hypertension after childbirth (Gazi et al., 2014) in Bangladesh. Azmat et al. (2012), in a qualitative study undertaken in Pakistan, found

that the most women had to go the hospital for post-abortion care, including surgical treatment, one year after an abortion as they experienced abortion complications.

Furthermore, medicinal side effects were identified in Bangladesh, India and Pakistan (Nisar et al., 2016; Alam et al., 2015; Anjan et al., 2013; Choudhury and Ahmed, 2011). For example, Alam et al. (2015), in a qualitative study conducted in Bangladesh, found that women experienced various side effects of taking iron folic acid (IFA) supplementation, such as nausea and vomiting, diarrhoea and blackened stool, and consequently, women did not take all the prescribed medicines. A MM study conducted by Jennings et al. (2021) found that some rural women experienced receiving inappropriate medication and overtreatment by CHWs for diabetes treatment, causing women to feel unwell and stop taking medicines.

Thus, women's fear experience was associated with services, such as operational instruments, unskilled performance of doctors, unhygienic staff behaviour and outcome of treatments.

2.6.2.2.3 Low decision-making ability

Three studies reported that less than 50% of women did not have the ability to make a decision about going to healthcare facilities (Huda et al., 2018; Rahman et al., 2016; Khanam et al., 2016). Women's lower decision-making ability was found to be associated with their lower healthcare access (Khanam et al., 2016). Three studies demonstrated an association between the decision-making ability and ANC and childbirth care (Huda et al., 2018; Rahman et al., 2016; Khanam et al., 2016). For example, Khanam et al. (2016) found that rural Bangladeshi mothers who made a decision about visiting healthcare centres were more likely to seek both trained (RR, 95% CI: 1.3, 1.05-1.49) and untrained carers (RR, 95% CI: 1.8, 1.35-2.28) for intrapartum problems compared to those who did not make a decision.

2.6.2.3 Experience of women in healthcare access and use

This broad theme includes 10 studies, of which five reported on women's satisfaction with healthcare services (Adhikary et al., 2018; Gazi et al., 2014; Alam et al., 2013; Azmat et al., 2012; Choudhury and Ahmed, 2011). Two qualitative studies conducted in rural Bangladesh explored whether women were happy to get some local CC services, including (i), pregnancy confirmation services (ii) IFA supplementation during pregnancy and (iii) modern birth control techniques (Alam et al., 2013; Choudhury and Ahmed, 2011). Another qualitative study undertaken in Pakistan by Azmat et al. (2012) showed that most women had positive experiences with post-abortion care provided by NGOs. Likewise, Adhikary et al. (2018), in a cross-sectional study exploring the level of

satisfaction with healthcare facilities, found that 63.2% women were satisfied with the healthcare service they received.

However, women reported some negative experiences with previous care. Five qualitative studies found mixed experiences of utilising both FBS and non-FBS for ANC, childbirth and PNC among women (Begum et al., 2018; Sikder et al., 2011; Choudhury and Ahmed, 2011; Afsana and Rashid, 2001), and post-abortion care (PAC) (Azmat et al., 2012). For example, FBS includes the health centre services of government, private and NGOs where modern equipment and skilled healthcare staff are provided compared to non-FBS such as traditional health attendants in rural settings. Islam and Masud (2018) found six essential components of ANC from FBS in Bangladesh: (i) weight measurement, (ii) blood pressure, (iii) urine testing, (iv) blood testing, (v) performing ultrasound and (vi) informing and counselling about danger signs of pregnancy complications. Unfortunately, around 80% of mothers did not receive all the six selected elements of ANC services (Islam and Masud, 2018). However, the underlying reasons for not receiving these services were not properly reported in the study. Sikder et al. (2011), in a qualitative study conducted in Bangladesh, found that women visiting government funded hospitals typically reported being referred to other private facilities. It means that although there was a provision of ANC services, all services were not provided by all rural healthcare centres. Thus, a major proportion of women were observed to visit NGO health centres, including BRAC health centre (BHC) for childbirth in Bangladesh (Afsana and Rashid, 2001) and NGO clinics for PNC services at rural Sindh and Punjab in Pakistan (Azmat et al., 2012). Furthermore, Gazi et al. (2014), in an RCT that investigated changes in a reproductive health indicator, found that women in rural Bangladesh also visited government satellite clinics which is a public facility.

Four qualitative studies focused on women's experiences of healthcare with untrained personnel including TBA, village doctor, and spiritual healer (Begum et al., 2018; Sikder et al., 2011; Choudhury and Ahmed, 2011; Afsana and Rashid, 2001). Sikder et al. (2011) found that 93% women were first seen by non-certified healthcare providers, and women experienced maternal complications. Both pregnant and post-caesarean women in rural Bangladesh preferred a vaginal birth to a caesarean section where TBA was the main birth attendant (Begum et al., 2018). In addition, patients, who received healthcare services in private facilities, were more satisfied in comparison with public facilities (OR 2.64; 95% CI: 1.61±4.32). Cleanliness (OR 4.30; 95% CI: 3.29±5.62) and privacy settings (OR 1.68; 95% CI: 1.28±2.21) were the strongest predictors of patient satisfaction in private health centres (Adhikary et al., 2018).

In summary, positive and negative satisfaction with the use of healthcare services was found. Women were satisfied with local ANC and family planning services, and also preferred the services of private clinics over public clinics.

2.6.3 Interpersonal level factors to accessing and utilising healthcare services

Interpersonal level factors encompass interactions of individuals with others, including formal and informal social networks, and social support systems, such as the family and friendship networks (McLeroy et al., 1998). In this review, the interpersonal level factors included two themes: interactive factors and sociocultural barriers.

2.6.3.1 Interactive factors

Twelve studies (Huda et al., 2018; Islam and Masud, 2018; Rahman, et al., 2018; Saha et al., 2017; Khanam et al., 2016; Rahman et al., 2016; Kamal et al., 2015; Rai, 2015; Sarker et al., 2015; Arokiasamy and Pradhan, 2013; Rahman 2009; Chakraborty et al., 2003) highlighted the interactive factors related to healthcare access and utilisation by women. The interactive factors include interpersonal issues that involve interactions between people. Therefore, this section highlights how interactive factors of women determine their access to healthcare services. This theme includes three subthemes: education of husbands, occupation of husbands and household wealth.

2.6.3.1.1 Education of husband

As husbands, in a patriarchal society like Bangladesh, generally play a key household decision making role, their level of education may be associated with women's access and utilisation of healthcare. Four studies suggest that the level of husbands' education plays a positive role in determining wife's healthcare access and utilisation (Huda et al., 2018; Islam and Masud, 2018; Khanam et al., 2016; Rai, 2015). Husbands' educational level was considered an important determinant, which was associated with four or more ANC visits (Islam and Masud, 2018) and treatment for antepartum and intrapartum complications in Bangladesh (Khanam et al., 2016), and facility-based childbirth in India (Arokiasamy and Pradhan, 2013). The influence of husband's education was more evident in Bangladesh (12.6%) compared to other South Asian countries (e.g. Pakistan (7.0%) and Nepal (4.0%)) to confirm facility-based childbirth (Huda et al., 2018).

In contrast, one study showed a negative association between husband's education and healthcare access to their wives in Bangladesh (Saha et al., 2017). Therefore, all but one study demonstrated that husbands' higher level of education is positively related to

their wives' healthcare access and utilisation in both Bangladesh and South Asia in general.

2.6.3.1.2 Occupation of husband

Three studies suggested that husbands' occupational status is positively related to healthcare access of women (Rahman, et al., 2018; Saha et al., 2017; Chakraborty et al., 2003). For example, women whose husbands were involved in earning sectors such as business or services were more likely to use modern and traditional healthcare services in Bangladesh (Chakraborty et al., 2003). Similarly, Islam and Odland (2011) found that the number of PNC visits was higher for women whose husbands were employed compared to those whose husbands were agricultural workers.

Hence, access and utilisation of healthcare services by women depends not only on their husband's occupation but also on their occupational status. It is also necessary to explore the role of household wealth in accessing healthcare services by women.

2.6.3.1.3 Household wealth

The household wealth index is a strong predictor of improving the ability of families to seek healthcare services. Household wealth includes property or economic status of the household, and is classified into five categories: poorest, poorer, middle, richer and richest. Eight quantitative studies explored the wealth status of households and found this to be related to healthcare access and utilisation by women in Bangladesh and other South Asian countries (Huda et al., 2018; Islam and Masud, 2018; Rahman et al., 2018; Saha et al., 2017; Khanam et al., 2016; Rahman et al., 2016; Kamal et al., 2015; Arokiasamy and Pradhan, 2013). For example, women living in households in the highest wealth quintiles were found to be twice as likely to seek trained care for antepartum and intrapartum complications (Khanam et al., 2016). Similarly, mothers in the richest group, compared to the poorest group, were 1.5 times more likely to receive ANC services (Islam and Masud, 2018). Saha et al. (2017) identified that the wealth index was also a strong determinant where the poorest, compared to the richest, mothers had a 7.16 (95% CI, 4.5–11.3) times higher risk of no ANC visits in Bangladesh. In cross country perspectives, Bangladesh, Pakistan and Nepal, the observed use of facility-based childbirth was lowest among the poorest and highest among the richest, indicating an inequality in the use of healthcare services (Bangladesh 62.9%, Pakistan 55.1% and Nepal 57.1%) (Huda et al., 2018). Also, the poorest, compared to the richest mothers, were around 72% less likely to receive PNC services in Bangladesh (Rahman, 2009).

Conversely, one study did not observe any positive impact of women's wealth status on their access and utilisation of healthcare services during pregnancy (Chakraborty et al.,

2003), which may be the influence of government facilities. However, government-run health centres were less likely to be visited by wealthy individuals and this may be related to lower quality services (Sarker et al., 2015).

Thus, in the main, the wealth status of women affects their access and utilisation of healthcare services, which is true in both Bangladesh and South Asia.

2.6.3.2 Family support

Three studies focused on family support for maternal and reproductive healthcare practices (Sharma et al., 2018; Choudhury and Ahmed, 2011; Afsana and Rashid, 2001). Positive attitudes of men towards family planning issues and maternity services helped women to access healthcare services (Sharma et al., 2018). Likewise, Choudhury and Ahmed (2011) found that husbands and other family members assisted women in doing household activities during pregnancy such as cooking food, which helped women to access healthcare services.

2.6.3.3 Family barriers

Nine studies, including five qualitative (Sharma et al., 2018; Alam et al., 2015; Choudhury and Ahmed, 2011; Sikder et al., 2011; Shahjahan and Kabir, 2006), two mixed methods (Jennings et al., 2021; Banik, 2017), one quantitative (Rahman et al., 2012) and one review (Finlayson and Downe, 2013) reported on family barriers.

2.6.3.3.1 Absence of male participation

Historically male engagement with the use of women's healthcare services has been portrayed as obstructive or non-existent in reproductive health matters (Sharma et al., 2018). Due to some sociocultural barriers in a patriarchal society like Bangladesh, less participation of husbands in helping their wives to access healthcare was observed. Shahjahan and Kabir (2006) found that Bangladeshi husbands, due to the prevailing culture and myth, felt embarrassed to accompany their wives while seeking care and did not feel comfortable discussing reproductive healthcare issues with healthcare providers. In addition, Muslim women in rural communities were not always encouraged to go to external health centres due to prevailing religious and *purdah* practices (Shahjahan and Kabir, 2006). In Nepal, sociocultural factors, including patriarchal family structure, generation gap among family members, having a male as a solo income generator and female preferences to go alone for MHC services could have hindered males from accompanying their wives in clinics (Sharma et al., 2018).

2.6.3.3.2 Violence

Intimate partner violence (IPV) plays a significant barrier in reducing the utilisation of reproductive healthcare services among women in Bangladesh. Rahman et al. (2012), in a quantitative study focusing on IPV and reproductive healthcare services using national data, found that maternal experience of physical IPV was associated with a lower use of sufficient ANC (AOR 0.69; 95% CI 0.49–0.96), a lower likelihood of using ANC (AOR 0.69; 95% CI 0.53–0.89), and assisted deliveries from a skilled provider (AOR 0.54; 95% CI 0.37–0.78). The same study also indicated that women, who were sexually abused, were less likely to visit a skilled ANC and childbirth care provider.

2.6.3.3.3 Delay in decision-making about healthcare services

Eight studies, including five qualitative (Begum et al., 2018; Vidler et al., 2016; Alam et al., 2015; Sikder et al., 2011; Afsana and Rashid, 2001), two quantitative (Amin et al., 2010; Chakraborty et al., 2003) and one mixed methods (Edmonds et al., 2012) reported on decisions about taking women to a healthcare centre.

In Bangladeshi hierarchical society, most decisions regarding women's healthcare come from family members, including husbands, in-laws and elders. Decisions about birth attendants and place of birth are part of a dynamic health seeking process that involves delays in reaching and actualising a final course of action (Edmonds et al., 2012). Several studies portrayed that the decision to seek maternity care came from the family members, which led to delays in seeking treatment (Begum et al., 2018; Alam et al., 2015; Sikder et al., 2011). For example, Sikder et al. (2011) found that around 50% of women had to wait until they could no longer endure their pain to inform their families of the severe obstetric complications. When they are informed, their relatives including husbands, fathers and mothers-in-law, and others played a central role in deciding when and where to seek care during delivery crises (Sikder et al., 2011). The preferred mode of childbirth is vaginal birth in a joint family and this decision particularly comes from the mother-in-law in rural Bangladesh (Begum et al., 2018). It is reported that there are delays in decision-making because women's healthcare decisions are related to other people and cultural practices. Family members, including mothers-in-law and husbands hold the decision-making power, and they often resist facility-based care for women in India (Vidler et al., 2016). Sometimes, when the women's physical condition is beyond the control of family members, they decide to take women to the facility (Sikder et al., 2011; Afsana and Rashid, 2001). Women with a history of life-threatening complications are twice as likely to seek care from a doctor or nurse to treat pregnancy-related morbidities in Bangladesh (Chakraborty et al., 2003). However, if a mother has the decision-making ability, she can expect to seek significant trained care from health centres (Amin et al., 2010).

Based on the evidence, women are often not taken to the hospital or clinic until they experience a life-threatening condition.

2.6.4 Community and social level factors to accessing and utilising healthcare services

Community and social level factors consist of individuals' relationship with organisations, institutions and informal social networks within a set of boundary (McLeroy et al., 1998). Three themes, including sociocultural barriers, geographical barriers, and NGO support and media exposure, are included to describe the community and social level factors to accessing and utilising healthcare services by women.

2.6.4.1 Sociocultural barriers

Three studies (Banik, 2017; Alam et al., 2015; Finlayson and Downe, 2013) reported on sociocultural barriers. Sociocultural barriers include two subthemes: attitudes and beliefs about pregnancy and childbirth, and rituals in accessing healthcare services by women.

2.6.4.1.1 Attitudes and beliefs about pregnancy and childbirth

Two studies found that pregnancy was not considered an illness in Bangladesh (Banik, 2017; Finlayson and Downe, 2013). A MM study, conducted in Bangladesh by Banik (2017) explored the issue that, since pregnancy and childbirth are not considered illnesses, seeking proper medical care and booking hospital beds prior to childbirth were not considered necessary. Labour is considered very normal before childbirth in rural communities (Banik, 2017). Access to healthcare was identified as a barrier owing to religious and local beliefs. For example, in a review, Finlayson and Downe (2013) found that pregnancy disclosure was believed to lead to unwanted spiritual complications and was shameful in many LMICs. Similarly, Alam et al. (2015), in a qualitative study, found there was an embargo on pregnant women going outside during certain times of the day and week, because it was believed to be harmful to the foetus (Alam et al., 2015). Therefore, these perceptions reduced the mobility and ability of expectant mothers to seek MHC services.

2.6.4.1.2 Rituals

One study identified that rituals related to childbirth may have an adverse impact on access to healthcare for mothers (Banik, 2017). Generally, a separate room is set up before the start of labour where pregnant mothers deliver their babies. Moreover, differentiation of choosing space based on religion is also observed. For illustration, Hindus usually arrange a separate room for childbirth and seclusion, whereas Muslims use their kitchen or the room where *dhekhi* (an implement for paddy husking) is kept.

This practice of seclusion has been followed for two reasons: staying free from outside pollution and evil spirits (Banik, 2017). Nevertheless, these practices are not modern and impede pregnant women from accessing emergency care during a crisis as the secluded room tends to be unhygienic, being always closed, dark and with poor ventilation.

2.6.4.2 Geographical barriers

Geographical barriers were considered in 12 studies, including two qualitative (Vidler et al., 2016; Sikder et al., 2011), six quantitative (Islam and Masud, 2018; Rahman et al., 2018; Kamal et al., 2015; Rai, 2015; Hajizadeh et al., 2014; Khanam et al., 2016), three MM (Jennings et al., 2021; Edmonds et al., 2012; Islam and Odland, 2011) and one review (Finlayson and Downe, 2013). The theme of geographical barriers included three subthemes: place of residence, distance of healthcare facility and transport.

2.6.4.2.1 Place of residence

Five studies identified the place of residence as a significant barrier for healthcare access and utilisation (Islam and Masud, 2018; Rahman et al., 2018; Kamal et al., 2015; Rai, 2015; Hajizadeh et al., 2014). Rural women, compared to urban women, were less likely to seek ANC visits (Islam and Masud, 2018; Saha et al., 2017; Rahman et al., 2016; Kamal et al., 2015) and were more likely to enter ANC late (Kamal et al., 2015). For example, a high quality retrospective cross-sectional study presented that urban women were 1.4 times more likely to receive the items of ANC services compared with their rural counterparts (OR = 1.351; 95% CI: 1.104-1.496) (Islam and Masud, 2018). Furthermore, urban mothers were more interested in caesarean childbirth than rural mothers (Rahman et al., 2018; Rahman et al., 2016). For instance, urban compared with rural mothers experienced higher odds of caesarean section (CS) delivery [OR = 1.91; CI = 1.15-3.16] in Bangladesh (Rahman et al., 2018). Similarly, in a cross country analysis, Rai (2015) found that childbirth by skilled birth attendants (SBAs) were higher among urban Muslim mothers compared to rural mothers in India (OR = 1.97; CI = 1.75-2.22), Bangladesh (OR = 1.78; CI = 1.46-2.18), and Pakistan (OR = 1.43; CI = 1.27-1.62).

Inadequate transportation and challenging access were identified as the main causes of low ANC visits and delayed entry to ANC for rural women in Bangladesh (Islam and Masud, 2018; Kamal et al., 2015). Hajizadeh et al. (2014), in a quantitative study measuring social inequalities in the utilisation of maternal care, demonstrated that the absolute gap in the utilisation of FBS between rural and urban areas increased between 1995 and 2010 in Bangladesh. It is clear that rural women lag behind urban women for ANC and safe childbirth in Bangladesh. The distance to healthcare facilities is described below to illustrate how it hinders access to healthcare services by rural women.

2.6.4.2.2 Distance to healthcare centres

The distance of households from healthcare services is a major concern for getting services in rural Bangladesh. Five studies identified distance as a major barrier to accessing healthcare services (Banik, 2017; Nisar et al., 2016; Khanam et al., 2016; Finlayson and Downe, 2013; Islam and Odland, 2011). Thus, it is necessary to identify how distance is associated with healthcare services. It has been reported that the definition of distance varies, for example, Khanam et al. (2016), in a quantitative study, measured distance as <10 kilometre (km) and ≥ 10 km, whereas Islam and Odland (2011), in a MM study, categorised distance into three groups: <8 km, 8-16 km and >16 km. Women, who lived ≥ 10 km from a health facility, were more likely to access healthcare services, including antepartum and intrapartum complications, compared to those who lived >10 km away (Khanam et al., 2016). Moreover, Islam and Odland (2011) found that around 16% of women received ANC services when they lived within <8 km from the facility, and this trend was only 9.4% among women who had a distance of >16 km from the facility. However, although there was an association between distance and healthcare access, this association was not found to be statistically significant (Edmonds et al., 2012; Islam and Odland, 2011). Finlayson and Downe (2013), in their review study, found that the risks and challenges associated with walking up to four hours on poor roads during the monsoons sometimes prevented women from accessing services. The barriers were not only poor roads but also fear of physical harm to seek ANC services. Furthermore, women sometimes stopped visiting health centres for diabetes check-ups because they were unable to travel long distances (Jennings et al., 2021). Hence, distance appears to be a key deterrent to accessing healthcare services for rural women. In the next sub-section, transportation is described as it is considered to be another barrier associated with accessing healthcare services in rural areas.

2.6.4.2.3 Transportation

Transportation is necessary when the distance is long from the healthcare services to the home of women. Two studies (Finlayson and Downe, 2013; Sikder et al., 2011) reported on transportation as a challenge for healthcare access and utilisation by rural women. In Bangladesh, rural people usually rely on several types of hired vehicles, including the rickshaw, van, motorbike, three-wheeled mini taxi and country boat. For example, Sikder et al. (2011) found that more than half of Bangladeshi women travelled to the hospital by non-motorised vehicles to seek treatment (Sikder et al., 2011), which delayed arrival at the facility. In addition, it was reported that accessing the facility was complicated due to the narrow village roads (Vidler et al., 2016) and during the rainy season, transportation became even more difficult due to coverage of the land-mass by flood waters (Edmonds et al., 2012). Hence, women needed to have private vehicles,

but some families could not afford them (Vidler et al., 2016). When the transport system was not in operation, the dependency of an expectant mother on a traditional birth attendant (TBA), locally called *dai*, was observed. For example, Edmonds et al. (2012) found that the presence of a *dai* was expected during childbirth as she was the key alternative to a skilled birth attendant (SBA) in rural Bangladesh (Edmonds et al., 2012). The lack of transportation facilities in Bangladesh was reported to be related to a low use rate of ANC services (Islam and Masud 2018). Likewise, Islam and Odland (2011), investigating the use of MHC services by Bangladeshi indigenous women, found that women travelling by a vehicle to the facility were twice as likely to use ANC services as women visiting health centres on foot.

In summary, physical barriers include a place of residence, distance and transportation. Rural women, compared to urban women, were less likely to seek healthcare services. Distance for rural women becomes a barrier when they need to walk for a long time. Public transport such as a bus or train is not frequent in the village area and small vehicles are not always available in many remote villages. Bangladesh includes all three physical barriers such as place of residence, distance and transportation, whereas South Asia includes a place of residence, and India and LMICs cover the distance jointly.

2.6.4.3 NGO support and mass media exposure

Nine studies (Islam and Masud, 2018; Rahman et al., 2018; Saha et al., 2017; Sarker et al., 2015; Arokiasamy and Pradhan, 2013; Edmonds et al., 2012; Islam and Odland, 2011; Rahman, 2009; Afsana and Rashid, 2001) reported on the theme of NGO support and mass media exposure. This theme include three subthemes: the role of civil societies and NGOs/INGOs in improving healthcare access and utilisation; NGO involvement empowering women to access healthcare; and exposure to mass media.

2.6.4.3.1 The role of civil societies and NGOs/INGOs in improving healthcare access and utilisation

In Bangladesh, civil society was found to work as a pressure group against the government and to play an active role in trying to maintain equitable rural healthcare services through NGO healthcare services (Schurmann and Mahmud, 2009). Two studies (Islam and Odland, 2011; Afsana and Rashid, 2001) reported that NGOs are working together with the government to raise awareness campaigns in order to increase the uptake of maternity care services for rural Bangladeshi women. For example, BRAC has established its own healthcare centre, the BRAC Health Centre, in almost all upazilas in Bangladesh to provide basic ANC, childbirth, PNC and laboratory services; however, it was only limited to women who received microcredit from BRAC (Afsana and Rashid, 2001). Islam and Masood (2018) found that NGOs contributed to providing MHC

services to about 7.2% of rural Bangladeshi women. In addition, NGOs also undertook research about how to improve their services (Afsana and Rashid, 2001). Furthermore, Islam and Odland, (2011) reported that some international organisations, including the United Nations Population Fund (UNFPA) and UNICEF provided monetary support to the government of Bangladesh and NGOs to improve maternity service access and utilisation. Consequently, NGOs and INGOs, together with the government, have contributed towards increasing access and use of women's maternity services in Bangladesh (Islam and Masud, 2018; Islam and Odland, 2011).

Therefore, the role of NGOs and INGOs in improving healthcare access and utilisation by rural Bangladeshi women is summarised into three categories: (i) providing healthcare services, (ii) conducting health research and (iii) providing monetary support. The next section discusses how NGO participation among rural Bangladeshi women increases their access to healthcare services.

2.6.4.3.2 NGO involvement empowering women to access healthcare

Women in rural communities are empowered through their involvement in NGOs. In Bangladesh, access to NGOs is identified as a determinant of access to healthcare, especially for rural women. Rural women are generally involved with various types of NGOs, including the Bangladesh Rural Advancement Committee (BRAC), *Grameen* Bank, the Bangladesh Rural Development Board (BRDB), etc., which involve social activities and provide microcredit to rural women (Saha et al., 2017).

Two studies found an association between women's access to microcredit organisations and NGOs, and access to healthcare in Bangladesh (Islam and Masud, 2018; Rahman, 2009). Islam and Odland (2011) found that mothers, who were poor, were likely to contribute to household resources through their microcredit participation, thereby increasing the household's ability to pay for healthcare services (Islam and Odland, 2011). The frequency and content of ANC visits were also found to be higher among mothers who visited NGOs health facilities (Islam and Masud, 2018), while women who did not have access to NGO were 0.93 times less likely to receive PNC services by health and non-health professionals (Rahman, 2009). Accessing ANC services by women may be a consequence of NGO health facilities being more accessible to the community and less costly (Islam and Masud, 2018). However, Saha et al. (2017) found no statistical relationship between women's NGO involvement and their healthcare participation in Bangladesh.

2.6.4.3.3 Exposure to mass media

The term mass media includes radio, television or newspaper messages about healthcare access and utilisation. Exposure to mass media is a proxy determinant that captures an individual's exposure to information within a broader community network, and hence any member of a community or cluster who is exposed to the same mass media is likely to receive the same information (Gupta et al., 2003).

Six studies found that individuals' exposure to mass media messages can affect their healthcare access and utilisation (Islam and Masud, 2018; Rahman et al., 2018; Saha et al., 2017; Arokiasamy and Pradhan, 2013; Edmonds et al., 2012; Rahman, 2009). Mass media exposure was found to be a source of learning about how to access healthcare services and therefore evidence shows positive demand effects of media exposure on MHC utilisation in India (Arokiasamy and Pradhan, 2013). In Bangladesh, media effects depend on the usage of different electrical home appliances. For example, mothers, who watch television at least once a week compared with the women with no television access, were found to be 1.24 times more likely to have ANC visits and understand the importance of ANC services (Islam and Masud, 2018). In addition, media campaigns, as an intervention, were found to have had a positive impact on greater utilisation of ANC services while the government is disseminating important health messages through television (Islam and Masud, 2018). Similarly, another study also revealed that 52.6% of women, who had exposure to any media, received PNC services, while this was only 3.9% for those who had no media contact (Islam and Odland, 2011). Listening to radio and watching television have been found to have an impact on ANC and PNC services of Bangladeshi mothers. The study suggests that women who do not listen to the radio are 0.8 and 0.18 times less likely to receive PNC services by healthcare and non-healthcare professionals, respectively, whilst having a television in the community increased the likelihood of receiving PNC services by the healthcare and non-healthcare professionals (Rahman, 2009).

In summary, the use of media campaigns through television and radio have a positive effect on access to healthcare services by women in Bangladesh and India.

2.6.5 Organisational level factors to accessing and utilising healthcare services

Organisational or institutional level factors are identified with the characteristics of social institutions, including formal and informal rules and regulations for its functioning (McLeroy et al., 1998). This review focused on organisational factors within the healthcare system. The organisational level factors include two themes, organisational barriers and organisational facilitators, to describe accessing and utilising healthcare services by women.

2.6.5.1 Organisational barriers

Thirteen studies (Kabir et al., 2022; Jennings et al., 2021; Rawal et al., 2021; Begum et al., 2018; Morgan et al., 2018; Banik, 2017; Hossain et al., 2016; Khatun et al., 2016; Nisar et al., 2016; Simkhada et al., 2014; Finlayson and Downe, 2013; Choudhury and Ahmed, 2011; Sikder et al., 2011) focused on organisational barriers to access and utilisation of PHC and MHC services by rural women. This theme includes five subthemes: lack of quality healthcare service provision, discriminatory service provision, maltreatment, gender relations in accessing healthcare and financial constraints.

2.6.5.1.1 Lack of quality healthcare service provision

Five studies (Kabir et al., 2022; Rawal et al., 2021; Begum et al., 2018; Morgan et al., 2018; Banik, 2017) focused on the lack of quality healthcare services as a barrier for women to utilise services. When dealing with patients, the important issues related to the quality of services are: (i) adequate physical facilities, such as health personnel, infrastructure and medicine; (ii) the behaviour and attitude of service providers towards service users; (iii) the extent of knowledge of service providers; and (iv) the use of hygienic procedures (Begum et al., 2018; Banik, 2017). Several studies reported that patients in Bangladesh and India apparently received poor quality PHC and MHC services for the following reasons: shortages of qualified personnel (Morgan et al., 2018), lack of training of health staff and limitations of diagnosis (Kabir et al., 2022; Rawal et al., 2021; Begum et al., 2018; Banik, 2017). These issues were reported to affect the quality of services offered by healthcare providers (Banik, 2017).

2.6.5.1.2 Discriminatory service provision

Another barrier to accessing healthcare services is the use of unfair political power to make services culturally insensitive. For example, Banik (2017) found that rural poor were entitled to free healthcare services, but the provision of services was sometimes affected by the illegitimate demands of local political leaders to provide free services to the affluent (Banik, 2017). The same author also reported that rich people sometimes presented some fake documents in support of getting free services, and providers were bound to allow them services in order that local project activities run smoothly in the rural area. In addition, Morgan et al. (2018), in India, found that nurses in government hospitals sometimes made illegal financial demands to assist female patients in the childbirth process, and that patients, who protested against these demands, were not properly served (Morgan et al., 2018). Inequality exists not only within healthcare centres but also between healthcare centres in the provision of PHC facilities in Bangladesh. For example, Kabir et al. (2022), in a review, found that the availability of PHC services varied greatly between CC and UHC for cervical cancer (0.4%–37.5%), chronic respiratory

diseases (34.1%–93.9%), cardiovascular diseases (1.4%–69.6%), diabetes mellitus (0.9%–84.5%) and hypertension (3.5%–91.5%). Therefore, such inequality discouraged rural women accessing and using PHC and MHC services from public facilities.

2.6.5.1.3 Maltreatment

Maltreatment or misbehaviour with patients by healthcare staff was found in three studies (Begum et al., 2018; Choudhury and Ahmed, 2011; Afsana and Rashid, 2001), which identified various types of abuse that rural women faced during childbirth under facility-based care in Bangladesh. For example, women experienced maltreatment during labour, such as delays in an operation and no response from healthcare attendants to their enquiries (Begum et al., 2018). Similarly, Choudhury and Ahmed (2011) reported that the use of vulgar words and the low tolerance level of healthcare workers discouraged women from using the services provided by local health centres for ANC and childbirth services in Bangladesh. The main causes of the late caesarean section included the inaccessibility and incompetence of the obstetricians and nurses. In addition, Afsana and Rashid (2001) identified the rude attitude of female paramedics towards women in labour. For example, women, who screamed during childbirth, were called 'uncivilised' by birth attendants. Workload, long working hours and constant responsibilities were reported to cause poor attitudes (Afsana and Rashid, 2001).

Two quantitative studies supported the qualitative findings (Hameed and Avan, 2018; Paul and Rumsey, 2002). One quantitative study conducted in Bangladesh found negative perceptions about the quality of services, including inattentive, discourteous staff behaviour, lack of cooperation and lack of privacy, and these were widely considered to be related to the underutilisation of rural public health facilities (Paul and Rumsey, 2002). Likewise, Hameed and Avan (2018) conducted a cross-sectional study in Pakistan and observed that 97% women experienced at least one maltreatment from both home and facility centre. Experiences of maltreatment were further divided into six categories: non-consented care, lack of right to information, non-confidential care, verbal abuse, abandonment of care and physical abuse (Hameed and Avan, 2018).

2.6.5.1.4 Gender relation in accessing healthcare services

The gender of the healthcare personnel was identified as an important factor that influences pregnant mothers' decisions about the utilisation of formal MHC services. Three studies, conducted in Bangladesh and India (Morgan et al., 2018; Banik, 2017; Afsana and Rashid, 2001), reported that female patients were not confident enough to visit a male doctor during pregnancy due to traditional ideas and beliefs. This is one kind of taboo that prevents women from visiting PHCCs. Furthermore, Khatun et al. (2017), in a quantitative study on gender differences and mobile health (mHealth) services in

Bangladesh, reported that 7.3% of men compared to 1.4% of women had access to internet facilities on their phones, and, on average 38.5% of men compared to 26.5% of women, were aware of using mobile phones for healthcare information. The same authors also interpreted that this might be due to cultural contexts where women enjoy less freedom to access mobile phones and the internet. Thus, social taboos and women's low access to mass communication were major barriers to accessing healthcare.

2.6.5.1.5 Financial constraints to utilising healthcare services

Eight studies identified financial limitation as a significant barrier to PHC and MHC healthcare and utilisation (Jennings et al., 2021; Banik, 2017; Nisar et al., 2016; Hossain et al., 2016; Simkhada et al., 2014; Finlayson and Downe, 2013; Choudhury and Ahmed, 2011; Sikder et al., 2011). For example, Jennings et al. (2021) found that some rural women were unable to take their prescribed medication for diabetes because they could not afford the medication.

Some costs were related to a direct impact on healthcare access such as delayed care seeking or doctor payments. For example, Choudhury and Ahmed (2011) and Finlayson and Downe (2013), in Bangladesh and LMICs, found that the cause of delayed care-seeking in case of complications was household financial limitations. In addition, a qualitative study undertaken by Sikder et al. (2011) concluded that poor women use to agree with induced abortion, which applied traditional crude methods that threaten life, such as an insertion of tree roots into the vaginal canal, instead of seeking modern services because of the cost.

Conversely, there are some indirect impacts of financial constraints. The lack of money is associated with nutritional deficiencies. Choudhury and Ahmed (2011) found that although additional food was necessary for rural expectant mothers, they could not afford this food due to lack of money. Furthermore, financial constraints were associated with travel during care seeking. For instance, two qualitative studies reported that paying the cost of travel to seek services was a common access barrier for rural Pakistani and Nepali women (Nisar et al., 2016; Simkhada et al., 2014). The cost was also associated with service related charges such as blood or urine tests, which was also a burden for Nepali mothers seeking ANC services (Simkhada et al., 2014). In addition, Banik (2017) found that household financial shortages prevented rural Bangladeshi women from hiring a housemaid to help with household chores during their pregnancy.

Therefore, it is clear from the literature that cost impedes rural women from accessing PHC and MHC services. Financial problems are a major concerning issue, not only in Bangladesh, but also in LMICs and South Asia.

2.6.5.2 Organisational facilitators

Facilitators are considered to be factors that help women to access and use healthcare services. Six qualitative studies (Sharma et al., 2018; Akhter et al., 2016; Khatun et al., 2016; Nisar et al., 2016; Schuler et al., 2001; Afsana and Rashid, 2001) identified the facilitating factors of accessing and utilisation of healthcare services by women.

2.6.5.2.1 Healthcare centre support

Healthcare centre facilitators are used to provide services. Pregnant women in rural Pakistan identified that ANC services from government-run health centres are useful for several reasons, including: (i) low cost of medications and tests, (ii) recommendations from local doctors, (iii) trust in a government health system and (iv) receiving information on complications or nutritional education (Nisar et al., 2016). Two studies focused on intervention as facilitators of healthcare (Akhter et al., 2016; Schuler et al., 2001). The intervention targeted improving the quality of care by improving the infrastructure of healthcare centres, and providing free MHC and family planning services. For example, Akhter et al. (2016) found that the quality scores of facilities increased by 23% at 14 months of intervention with a significant improvement in ANC, PNC and FBS childbirth services in Bangladesh. Likewise, Schuler et al. (2001), in a qualitative study on service delivery culture, demonstrated that free services of family planning techniques and information on choosing the best technique through community clinics and door-to-door services of government and NGOs inspired rural women accessing these services to take control over their own reproductive health. This service not only helped couples who decided to practice contraception, but also supported the National Family Planning efforts to change the client's behaviour to ensure better reproductive health (Schuler et al., 2001). In addition, emotional support from HPs helped women with treatment. For example, Afsana and Rashid (2001) found that most of the women during childbirth were emotionally supported by female paramedics that strengthened the women in labour rooms (Afsana and Rashid, 2001). Such support motivated women to access and utilise health facilities.

2.6.5.2.2 Technological assistance

Two studies (Akhter et al., 2016; Khatun et al., 2016) reported on technological support to enhance healthcare access to rural women. Technology, including mobile phones, can in some cases reduce the cultural gap between a female patient and a male doctor. For example, Khatun et al. (2016) found that while a Bangladeshi female patient felt uncomfortable sharing their confidential health problems face-to-face with a male doctor, mHealth was found to be as a good solution to consult with a doctor. In addition, Akhter et al. (2016), in another qualitative study on service providers, found that the online blood

information management application (BIMA) system facilitated the blood transfusion process for poor patients at a lower cost for 24 hours a day (Akhter et al., 2016). Thus, mHealth and BIMA systems were supportive for women in accessing and utilising healthcare services.

In summary, key facilitators to healthcare access are: (i) health centre support including free services, and (ii) technology support including mHealth services to reduce the cultural gap between a patient and an HP to utilise services.

2.6.6 Differences in accessing PHC and MHC services by women in Bangladesh and other South Asian countries

Although there were similarities in women's access to and use of healthcare services in Bangladesh and other South Asian countries, some differences were found which were related to a number of issues. Table 2-2 shows that religion was found to be a determinant for ANC visits for Indian women (Rai, 2015; Arokiasamy and Pradhan, 2013). For example, Muslim women were generally found to have a lower level of ANC utilisation than Hindu women (Arokiasamy and Pradhan, 2013). However, religion was not identified as a significant predictor of ANC visits for women in Bangladesh (Saha et al., 2017). In addition, having a facility-based childbirth was associated with the husband's educational level, and was found to be different in Bangladesh and other South Asian countries. For example, the impact of husband's education was more evident in Bangladesh (12.6%) than Pakistan (7.0%) and Nepal (4.0%) to confirm facility-based childbirth (Huda et al., 2018).

Muslim women in rural Bangladeshi communities were not always encouraged to visit external health centres due to some cultural issues, such as prevailing the *pardah* practice (Shahjahan and Kabir, 2006), whereas different sociocultural factors, including patriarchal family structure, generation gap among family members and having a male as a solo income generator were identified as barriers for Nepali and Indian Hindu women (Sharma et al., 2018). Finally, two studies found that there was a positive role for women's participation in microcredit organisations and NGOs in accessing healthcare services in Bangladesh (Islam and Masud, 2018; Rahman, 2009), but no such research was identified for other South Asian countries in this area.

Table 2-2 Differences in accessing PHC and MHC services by women in Bangladesh and other South Asian countries

Issues differentiating in accessing healthcare services	Bangladesh	Other South Asia
Faith	No	Yes (mostly related to India)
Husband's education	Yes	Yes, but not highly

<i>Purdah</i> practice	Yes	Not relevant to Nepal
Involvement in microcredit organisations and NGOs	Yes	No

2.7 Discussion

This appears to be the first review that investigates multilevel factors using the SEM of access and utilisation of healthcare services by rural Bangladeshi women. This narrative review shows that the factors that influence the healthcare access behaviours of women can be categorised under the SEM as intrapersonal, interpersonal and family, community and social, and organisational levels. Through this review, the findings suggest that healthcare accessibility and utilisation by women continues to be a major public health challenge. Although maternal mortality has decreased over the decades and facility-based childbirth has increased, MHC services remain low. This reflects the failure of health policies to improve and secure women's health services. The most prominent findings identified from the literature review, and relevant recommendations to increase access and utilisation of healthcare services by women are discussed below.

2.7.1 Emphasising the education of women and their husbands to reduce knowledge gaps in healthcare services

In both intrapersonal and interpersonal levels, education of women and their husbands were found to be highly associated with MHC service access to women. For example, the education of women was found to be the strongest predictor of the use of ANC services in Bangladesh, which is consistent with the findings of other countries (Dimbuene et al., 2018; Taguchi et al., 2003).

Although improving women's education remains an effective intervention in rural settings to increase access and utilisation of healthcare services by women, it is also necessary to consider the husbands' knowledge (Dimbuene et al., 2018). Therefore, an education intervention of healthcare service information should be targeted towards both women and their husbands.

2.7.2 Increasing women's decision-making power and men's involvement in women's care

Decision-making is crucial as women's healthcare depends on timely decisions. However, Bangladeshi women's healthcare decisions are mainly based on family members, which can sometimes cause a delay in seeking care. Some rural husbands were not readily involved with their wives while seeking care. Two factors account for men's low participation in women's healthcare services: (i) the negative perceptions of a patriarchal society and (ii) restrictions on men's access to MCH clinics (Sharma et al.,

2018; Davis et al., 2016; Kaye et al., 2014). WHO (2015b) strongly recommended men's participation as an intervention during maternal care, such as pregnancy, childbirth and PNC, in a way that enables the choices and autonomy of women in decision-making and supports them in taking care of themselves and their new-borns. Also, women who were physically and sexually abused by their partner were less likely to have visited a qualified ANC provider. This may be related to women's stress after experiencing IPV, which may lead to a lack of motivation to pursue appropriate care (Rahman et al., 2012).

2.7.3 Empowering women to increase access to healthcare

Women's association with NGOs increased their empowerment, resulting in them being able to make decisions about healthcare. This literature review showed that women with NGOs and microcredit connections, in contrast to those without connections, had greater access to health information and services. It may be due to the fact that NGOs have their own health centre for their client and the services are less costly and easily accessible. This finding has similarity with the findings of other countries about the seeking of ANC services (Kyei et al., 2012; Rani et al., 2008). Moreover, when a woman gets money from an organisation as a loan, she can utilise that money to get out of poverty, which ultimately allows her to access healthcare. In addition, women's outside connections beyond their family make them resourceful through receiving health-related information from organisations or fellow members, which can be referred to as cultural capital. Thus, in several ways, the connection with NGOs and microcredit organisations help women to be independent, which in turn makes their PHCC healthcare access and use easier in rural Bangladesh.

2.7.4 Increasing the quality of services

Lack of quality of services was strongly identified as a barrier for women to utilise services. Although most women frequently visit government-run healthcare centres, they are more satisfied with the services of privately-run centres. Women are dissatisfied with government facilities due to its poor services, which also corroborates previous studies (Sikder et al., 2015; Aminu et al., 2014).

Women prefer to visit a healthcare centre when they enjoy the quality of care, there is good infrastructure and they have sufficient time for the visit. Therefore, it is important to have a quality organisational management and a good structural condition of the health centre to ensure effective healthcare services. Also, door-to-door family planning and community centre services in rural communities became popular in Bangladesh to change the fertility behaviour of women. Continuous increases in the utilisation of family planning services has been emphasised by the UN because one of its areas of

importance in attaining SDGs is to ensure universal access to sexual and reproductive healthcare services (Starbird et al., 2016; UN, 2015). Furthermore, the emotional support of healthcare staff is related to healthcare access. In previous systematic reviews, Srivastava et al. (2015) and Yargawa and Leonardi-Bee (2015) found that emotional support of service staff has been identified as significant determinants that are associated with improved health outcomes in developing countries as these may reduce anxiety and fear, and associated adverse effects during the provision of health services. In addition, some women experience maltreatment from HPs while utilising services. Most maltreatments include rude behaviour, late surgery and physical abuse. Such maltreatment does not concur with the National Health Policy of Bangladesh (MOHFW, 2011) and the National Institute for Health and Care Excellence (NICE) guidelines (Gholitabar et al., 2011), which emphasise the advice and information for women about specific treatments. Although women's experiences of existing healthcare services are mixed, undesirable experiences are more evident. Evidence from Asia and Africa shows that health workers need adequate training to provide satisfactory services to women (Lacerte et al., 2011; Tita et al., 2005).

2.7.5 Gaps in knowledge

Although previous studies (Huda et al., 2018; Islam and Masud, 2018; Saha et al., 2017; Islam and Odland, 2011) have identified several factors related to access and utilisation of healthcare services by women, a minimal focus on PHC and MHC services is observed relative to other research. In addition, there has been limited work foregrounding women's healthcare experiences in rural Bangladeshi settings. The studies also included in the review mostly focused on barriers to healthcare service access, making it difficult to comment on sources of facilitators, experience and factors. In the main, studies reported on MHC issues, including ANC, childbirth and PNC, and very little evidence was found related to PHC services, such as NCDs, fever, injury or seasonal diseases. Further research evidence is needed in this area.

Several knowledge gaps in research based on the SEM levels are also identified. At the intrapersonal level, the previous literature did not emphasise the knowledge gap of rural Bangladeshi women in the healthcare services provided to them, their service needs and the role of healthcare providers, which are considered major access barriers (Maheen et al., 2021; Mattern et al., 2017). In addition, although fear of women in treatment was identified, other behavioural factors, such as shyness, ability to travel alone and ability to memorise the advice of doctors, were not identified.

At the interpersonal level, only men's role in women's healthcare services was emphasised in the existing literature; however, the role of other family members, including in-laws, was minimally focused upon.

At the community and social level, although mass media, including television and radio are included as determinants and the contribution of mHealth has been identified as a facilitator, healthcare information in daily newspapers and magazines has been ignored. Few studies have recently recognised the print media, including daily newspapers and magazines, as one of the main sources of health information and campaigns in Bangladesh (Tabassum et al., 2018; Gugsa et al., 2016). In addition, previous authors have missed the opportunity to identify the positive role of social interaction with community members such as neighbours, in accessing healthcare services by rural Bangladeshi women. Although there are some adverse impacts of transforming ideas to one another, women have usually shared their knowledge and experiences of healthcare services with their relatives and neighbours (Leone et al., 2008). Furthermore, as Bangladesh is a disaster prone area (World Bank, 2019), the impact of natural disasters and seasonality in accessing healthcare facilities by rural women have not been a focus.

In organisational barriers, some issues, such as lack of quality healthcare, discriminatory services, maltreatment and costs to utilise healthcare services, were identified. However, other factors, such as structural condition of the facility, lack of emergency and preventive services, lack of HP planning in service provision, etc. have not been identified in the literature. Inadequate infrastructure and attitudes of HPs were identified as obstacles for women in healthcare utilisation (Okonofua et al., 2017; Mannan, 2013).

In terms of methodological gaps, most of the reviewed studies (39/46) focused mainly on the self-reported information from women's perspective. Thus, earlier studies may contain the limitations of validation. If data were collected from different participant groups, it would increase the scope for making comparative judgments. Another drawback is related to the methodological approach of the literature. As only four of the 46 reviewed studies used the mixed methods approach, there was a lack of holistic information on accessing and utilising healthcare services by women.

Given the importance of the gaps, this study has tried to extend the previous studies and reduce the gaps by adopting a mixed methods approach.

2.7.6 Strengths and limitations

Although there is one review on access to healthcare services by rural Bangladeshi women (Hossen and Westhues, 2011), it did not clearly focus on the methodological aspect of data collection and synthesis. This narrative review with its systematic search

is the first known review of the literature to assess access and utilisation of healthcare services by rural Bangladeshi women. This thesis has adopted a systematic approach to searching, screening, appraising and extracting data. An attempt has been made to minimise citation bias by reviewing references from included studies and relevant systematic reviews. The use of six databases and multiple search terms of peer-review literature has provided a broad scope of studies. The inclusion of qualitative, quantitative, MM and review studies provides both descriptive and inferential data alongside the lived experiences of the participants and the context of these experiences. The search results of databases were reviewed, and the quality of the studies was assessed to reduce the error for inclusion.

There are some limitations to this review in that only peer-reviewed studies and those published in English have been included. The relative lack of inclusion of grey literature in this review may limit the results, which has implications for external validity. In addition, only studies published in English were included due to limited resources, which may have narrowed the scope of this review. It is possible that studies in other languages, particularly Bengali, may have provided valuable contributions. The wide variety of study methods precluded the possibility of conducting a meta-analysis, which can be used to identify the common effect. As the review only focused on Bangladesh and South Asian low and middle-income countries, the results may not be applicable to highly developed countries such as the UK.

There are some limitations related to the use of the SEM to structure the review. As the SEM was developed and piloted in westernised countries, there are some difficulties with its applicability in non-westernised countries such as Bangladesh. Aronica et al., (no date) emphasised that the SEM is not fit for every situation as each scenario has its own challenges. For example, the geographical barrier including poor road connection was highly evident from the literature review as a barrier to access healthcare services by Bangladeshi rural women. However, since the geographical barrier is less relevant to women accessing healthcare in Western countries, much consideration was not evident to accommodating this in the SEM layers. Therefore, it was sometimes difficult to categorise the theme of geographical barrier to the SEM layers. This is because, some areas could be categorised in more than one SEM layer. For example, while the geographical barrier to accessing healthcare was categorised under the organisational layer by Shahabuddin et al. (2017), the same issue was categorised under the community layer by Garney et al. (2021). In addition, this model does not show how factors at each level affect health behaviours (Ma et al., 2017). Finally, the complexity of the model also reflects the practicality and difficulty of designing appropriate interventions (Stokols, 1996). This is because, although this model suggests designing

multilevel interventions, managing the links between different interventions appears to be difficult in guiding interventions (Schölmerich and Kawachi, 2016). However, the SEM was used as it provided multiple layers to frame the findings of the literature review, and potential gaps were identified based on the layers.

2.8 Chapter summary

Access to and utilisation of healthcare services by women is a complex issue involving a number of determinants, experiences, barriers and facilitators at the intrapersonal, interpersonal, community and social, and organisational levels. The SEM provided an approach to understanding how these multilevel factors affect the healthcare services of women. The intrapersonal level included individual factors, such as demographic determinants, lack of self-confidence and experience of women in healthcare access and utilisation, while some interactive factors, such as family support and family barriers to accessing care, were included in the interpersonal level. The community and social level factors included sociocultural and geographical barriers, and NGO support and media exposure as facilitators. Finally, organisational barriers such as lack of quality care, and organisational facilitators such as healthcare centre support were included in the organisational level factors.

However, some gaps were identified from the studies in the review, which included (i) little emphasis on PHC services, the knowledge gap of women regarding services, the role of social interaction, and organisational barriers; and (ii) methodological limitations, such as lack of data validity due to the use of data from a single perspective, and dearth of holistic information due to the relative lack of MM studies. Targeting these gaps in the literature review, this thesis contributes to understanding the experiences, barriers and facilitators to access and utilisation of healthcare services by women in rural Bangladesh. In doing this, a MM exploratory sequential approach has been used, where qualitative data have been collected first with the guidance of the TDF, followed by prioritising the qualitative findings in order to develop a behavioural change intervention using the Behavioural Change Wheel (BCW) guidelines.

The findings of this review have been used throughout the thesis. For example, the outcomes of this review contextualise the findings of the study that has been conducted. In addition, while writing the section on the contribution to knowledge in the discussion and conclusion Chapter, the similarity of the findings from empirical works have been mapped to the findings from the literature. The next chapter will describe the methodology employed in this research.

Chapter 3 Methodology

3.1 Introduction

This chapter provides an account of the research design for this PhD project. The literature review highlighted several gaps ([section 2.7.5](#)) related to PHC and MHC services for rural women. To address the gap in the literature required further qualitative and quantitative studies, and therefore using mixed methods (MM) is appropriate. Four main research objectives were developed to address the knowledge gaps ([section 1.7](#)). This research design is an exploratory sequential MM study, following the Theoretical Domains Framework (TDF), and Capability, Opportunity, Motivation and Behaviour (COM-B) model for interpretation and informing intervention (Atkins et al., 2017). This chapter subsequently details the justification for the approaches used to collect data and the data transcription process. Finally, a summary of the chapter will be provided.

3.2 Methodology

The PhD study followed an exploratory sequential MM research design.

3.2.1 Philosophical position

Pragmatism is the philosophy underpinning this MM research. Pragmatism may combine both qualitative and quantitative information to get a complete understanding of the phenomenon (Creswell and Plano Clark, 2011).

3.2.1.1 Thesis paradigm/ theoretical perspectives

It is important to outline the philosophical assumptions or the 'research paradigm' supporting the choice of study approach to develop a research plan (Creswell, 2014). Thomas Kuhn has been credited for his contribution to popularise the term 'paradigm' as a way to summarise the beliefs of researchers about their efforts to create knowledge, in his seminal work, *The Structure of Scientific Revolutions* (1970). Kuhn defined a paradigm as 'what members of a scientific community share' (1970, p.176). In this study the term 'paradigm' has been conceptualised as a set of beliefs and practices, which affect how a researcher chooses the questions they wish to study and the methods used to study them (Morgan, 2007). Similarly, the research paradigm is defined as a set of beliefs that underpin how a problem should be understood and how the research questions should be addressed (Creswell, 2014).

Researchers use certain principles or beliefs to inform their ontological, epistemological, and methodological position in their research (Creswell, 2014). These basic principles or beliefs, which guide the activities of researchers are called paradigms or interpretation

frameworks (Creswell, 2014; Denzin and Lincoln, 2011). A number of paradigms exist including positivism, postpositivism, interpretivism, constructivism, feminism, hermeneutics, participatory, postmodern and pragmatism (Creswell and Poth, 2018; Denzin and Lincoln, 2011).

Four paradigms are generally used in MM research: postpositivism, constructivism, transformative and pragmatism (Creswell and Plano Clark, 2018). In postpositivism, knowledge is shaped from the objective reality and the postpositivist belief in a single reality is associated with quantitative research (Creswell and Plano Clark, 2018; Doyle et al., 2009). Conversely, constructivism is a form of inquiry where understanding is developed from individual experiences; the belief is that there are multiple realities and it is generally aligned with qualitative research (Creswell and Plano Clark, 2018; Doyle et al., 2016). The transformative world views focus on bringing about change for marginal people, and the focus of pragmatism is the consequence of research drawing upon multiple views (Creswell and Plano Clark, 2018). Although a combination of paradigms has been suggested for use in MM, debates exist in the literature as to whether two paradigms can be mixed in a study (Creswell and Plano Clark, 2018; Sandelowski, 2000a). Critics have argued that qualitative and quantitative research are associated with several paradigms, which are incompatible (Sandelowski, 2000a). For example, a constructivist view of multiple and co-constructed realities is not compatible with the positivist view of a single and objective reality (Sandelowski, 2000a). In addition, pragmatism has been suggested to be the philosophical partner of MM (Johnson and Onwuegbuzie, 2004). A pragmatist philosophy “advances the notion that the consequences are more important than the process and therefore the end justifies the means” (Doyle et al., 2009, p.176). Therefore, a pragmatic researcher is concerned with ‘what works’ to answer the objective or question rather than aligning to a methodological position (Creswell, 2014; Tashakkori and Teddlie, 2003). Pragmatism and MM research were associated earlier based on several principles (Tashakkori and Teddlie, 2003), as follows:

- Quantitative and qualitative methods can be used in a single study.
- The research question should be of key significance.
- The dichotomy of forced choice between postpositivism and constructivism should be abandoned.
- The use of metaphysical concepts, such as ‘truth’ and ‘reality’, should also be abandoned.
- A philosophy of practical and applied research should provide methodological choices.

This PhD project therefore adopted the pragmatic worldview because this allowed the use of different research methods to answer the study objectives and it also fits well with the adoption of the qualitative and quantitative approaches to inquiry for this study.

Therefore, the ontological and epistemological positions along with the appropriate paradigmatic perspective related to this study are now discussed.

3.2.1.2 Thesis ontology

Ontological orientation refers to whether social reality is viewed as external and objective or as constantly changing by individual actions (Bryman, 2012).

The ontological perspective of pragmatism is that reality is constantly renegotiated, debated and interpreted. Here, the reality is what works at the time (Creswell, 2014). In this study, rural Bangladeshi women's access to and utilisation of PHC and MHC services are influenced by both individual and community actions. Hence, it is necessary, on the one hand, to identify the underlying meaning and interpretation of the action. On the other hand, it is necessary to know the underlying factors of healthcare access and utilisation. Thus, the research objectives incorporate both qualitative and quantitative issues, and it is expected to investigate responses from subjective and objective realities of the participants. In MM research, researchers use both quantitative and qualitative data in their efforts to provide the best understanding of a research problem (Creswell, 2014). Consequently, this study included multiple realities, which encompassed both constructivism and postpositivism. Reality is multifaceted in constructivism, which is widely used in qualitative studies, while a single reality is accompanied by postpositivism, which is often associated with the quantitative approach (Creswell and Plano Clark, 2018). Constructivism works from a dual perspective: (i) responses are shaped by social interaction with others and (ii) personal views (Creswell and Plano Clark, 2018; Bryman, 2012). Conversely, in postpositivism, knowledge is based on determinism, reductionism-limitation and concentrated variables to interact, detailed observations and tests of theories (Slife and William, 1995). In this PhD project, the reality is multiple and integrated with each other, which works together to illustrate the phenomenon.

3.2.1.3 Thesis epistemology

The epistemological position refers to the best way of learning knowledge to solve the problem. In an epistemological sense, this thesis followed pragmatism as a scientific paradigm. Pragmatism highlights creating "shared meanings and joint action" (Morgan, 2007, p.67), and is result-oriented and interested in determining the meaning of facts (Johnson and Onwuegbuzie, 2004). For shared meaning, it understands the fundamental belief in complementarity, which means that qualitative and quantitative

approaches can be combined to complement the merits and demerits present within each (Shannon-Baker, 2015) and for result-oriented, this means creating practical solutions to social problems. In addition, pragmatism is based on the belief that theories can be both contextual and generalisable by analysing them for 'transferability' to another situation (Shannon-Baker, 2015). Making the relation between theory and data, pragmatism uses 'abduction', which "moves back and forth between induction and deduction—first converting observations into theories and then assessing those theories through action" (Morgan, 2007, p.7). In other words, theory can both guide research and evolve through research.

The pragmatic paradigm is considered as a set of beliefs that emerged as a single paradigm response to the debate surrounding the 'paradigm wars' and the emergence of approaches of MM and mixed models (Armitage, 2007), where it is possible to deal with both numerically coded and narrative data. According to Creswell (2014), pragmatism is based on a rejection of the forced choice between postpositivism in quantitative and constructivism in qualitative research. The purpose of a MM study is to deliver a more complex understanding of a phenomenon that would otherwise not have been accessible by using a single approach (Creswell and Plano Clark, 2011).

3.2.2 Nature of qualitative research

Although qualitative research is traditionally an investigation process derived from the social sciences, including anthropology, sociology and psychology, it has now increasingly used in health sciences (Renjith et al., 2021; Pope and Mays, 2019). Various descriptions of what constitutes qualitative research exist in the literature. For example, Merriam (2009, p.13) stated that:

qualitative researchers are interested in understanding the meaning people have constructed, that is how people make sense of their world and the experiences they have in the world.

This definition primarily focuses on the purpose of qualitative research. However, the following definition concentrates on the context of data collection:

Interpretive, material practice designed to transform the world into a series of representations, including fieldnotes, interviews, conversations, photographs, recordings, and memos in order to make the world visible (Denzin and Lincoln, 2011, p.3).

Despite these definitions, qualitative researchers often seek to understand phenomena from the perspective of participants, and how participants give meaning and interpretation to their experiences (Hennink et al., 2020; Creswell, 2013; Denzin and Lincoln, 2011). This type of investigation is carried out in the natural setting of the study participants to allow researchers to understand how the behaviour and experiences of

the participants have been influenced by the sociocultural environment in which they live (Hennink et al., 2020). Thus, this research approach focuses on understanding the subjective experience of people. With the importance of qualitative research for exploring people's experiences, behaviour and emotions, and in understanding a phenomenon from the perspectives of participants (Holloway and Wheeler, 2016), qualitative research in healthcare research is increasingly being used to understand complex social problems (Pope and Mays, 2019).

Qualitative research encompasses a number of philosophies and approaches, and has been classified and described in different ways in the literature (Creswell, 2013; Merriam, 2009). Five approaches were developed by Creswell (2013) to qualitative inquiry: narrative, phenomenology, grounded theory, ethnography and case study. However, there are other approaches, including autoethnography, participatory action research and conversational analysis (Creswell, 2013; Denzin and Lincoln, 2011). This section presents a short overview of the five qualitative approaches identified by Creswell (2013) and provides a rationale for choosing a general approach in the present study.

In narrative research, data related to stories of lived and told experiences of individuals are mainly collected through interviews and other forms of data collection including observations, documents, and pictures (Creswell, 2013). Narrative approaches are increasingly being employed in medicine and health to understand patients' experience of healthcare services (Fadlallah et al., 2019; Martin, 2011). Ethnography involves studying the culture of groups to understand their values, beliefs, behaviours and language patterns (Creswell, 2013). Data in ethnography are usually collected, for example, through interviews, observations, symbols and artefacts (Creswell, 2013).

Furthermore, qualitative researchers generally employ a phenomenological approach developed by Husserl (1988) to understand the essence of a 'lived experience' of a phenomenon for several individuals (Creswell, 2013). In phenomenological studies, several methods, such as interviews, observations, poems and documents, are primarily used to collect data (Creswell, 2013). Rodriguez and Smith (2018) suggested the application of phenomenology in healthcare research, and the application has been observed in several healthcare studies (Dainty et al., 2021; Flaherty et al., 2019). However, it can be difficult to find people who have experienced all of the phenomena, given a research subject (Creswell, 2013).

Another approach is grounded theory (GT) where the emphasis is given on theory development. GT uses an iterative data collection and analysis process to generate theory inductively for a process (Creswell, 2013; Strauss and Corbin, 1998). Three different approaches are used in GT: Glaser's approach, a structured approach and a

constructivist approach (Strauss and Corbin, 1998; Creswell, 2013; Charmaz, 2006). The details of these approaches are beyond the scope of this thesis section. However, although different approaches exist, central to GT is the development or discovery of a theory (Creswell, 2013). Therefore, a GT design may be useful where there is no theory to explain a topic area. However, generating a theory was not the explicit aim of this PhD project because several theories or models exist and have been used to explore barriers and facilitators to women accessing and using healthcare services (Cane et al., 2012; Michie et al., 2011). Also, the GT approach would not identify potential changes needed for the development of healthcare access and utilisation in Bangladesh. Thus, applying this approach was considered inappropriate.

In case study research, a case (individual or group) or several cases in real life are carried out in-depth through observations, interviews, documents and reports (Creswell, 2013). The unit of analysis in this type of study is the case(s) that are being investigated. Case studies therefore result in an in-depth understanding of the case(s) being studied in their real-life context (Creswell, 2013; Crowe et al., 2011). Several healthcare researchers have used the case study approach in their qualitative inquiry (Algunmeeyn et al., 2021; Walugembe et al., 2015). However, the present research focused on rural women from a geographic area and did not intend to study any particular case, and consequently, this approach is not suitable to adequately address the research aim.

Since there are several limitations to the approaches described above, a generic approach to inquiry was considered appropriate in the qualitative component of the current study. A generic research approach seeks to “discover and understand a phenomenon, a process, or the perspectives and world views of the people involved” (Merriam, 1998, p.11) instead of focusing on philosophical foundations (Caelli et al., 2003). The approach has also been described in literature as basic qualitative and interpretative descriptions (Merriam, 2009; Cooper and Endacott, 2007; Sandelowski, 2000b; Merriam, 1998; Thorne et al., 1997). A generic approach is employed in studies for some practical reasons: (i) the inability to find a specific approach that fits the study, (ii) the priority of the research aim over a philosophical position, (iii) the opportunity to use theoretical frameworks to guide interview questions and data analysis, and (iv) the desire to precisely represent participants’ views (Merriam, 2009; Cooper and Endacott, 2007). Therefore, these practical reasons were considered when selecting the generic approach in the qualitative component of the current MM study.

3.2.3 Nature of quantitative research

Quantitative research involves collecting numerical data which are usually statistically analysed to explain a phenomenon (Bryman, 2012; Muijs, 2011). Quantitative research

is employed to test hypotheses and examine relationships between variables (Creswell, 2014). Quantitative research designs are usually classified into three: experimental, quasi-experimental and non-experimental research designs (Muijs, 2011). In an experimental study, the researcher has a great deal of control over the study conditions, which include the manipulation of a set of independent variables to produce systematic changes in the dependent variable (Polgar and Thomas, 2019; Creswell, 2014). In this design, study units are allocated to treatment groups in a random design (Polgar and Thomas, 2019; Creswell, 2014), and consequently there is an opportunity to produce higher levels of research evidence compared to other designs. An example of an experimental design is the randomised controlled trial (Harris-Fry et al., 2016). On the other hand, Creswell (2014) showed that a quasi-experimental design differs from an experimental design where treatments are not randomly allocated to groups. An example of a quasi-experimental design is the time series design (Polgar and Thomas, 2019).

In non-experimental design, the researcher has limited control over the conditions of the study (McBurney and White, 2010). Non-experimental research studies are necessary because not all variables, such as gender and age, are subject to experimental manipulation (Polgar and Thomas, 2019). Examples of non-experimental research designs are survey and observational research (McBurney and White, 2010). Survey is used to provide a quantitative description of data from a study population by studying a representative portion of the population and making generalisations about them (Creswell, 2014). Survey can be cross-sectional, where data are collected at one point in time (Creswell, 2014), or longitudinal, where data are collected over time on multiple occasions from the same sample of the population (Bryman, 2012; Lynn, 2009). Survey generally includes two types of data collection methods: questionnaires and structured interviews (Creswell, 2014). Structured interviews in workshops were employed in Study 2 to prioritise solutions to improve primary and maternal healthcare access and utilisation for rural women in Bangladesh.

3.2.4 Mixed methods design

The MM approach is increasingly popular as a third research approach alongside existing qualitative and quantitative research approaches (Johnson et al., 2007). This approach has been used by researchers in various fields, including social sciences, education and healthcare (Morse and Niehaus, 2009). However, several controversies have been raised about MM and what constitutes MM research. These controversies include the evolving definitions of MM, the paradigm debate, advantages of MM over mono-methods and the choice of appropriate designs from an array of designs available in the literature (Creswell and Plano Clark, 2018).

The term MM has been defined in several ways (Creswell and Plano Clark, 2018). For example, MM is defined as research that includes the collection, analysis and interpretation of quantitative and qualitative data in a single study or in a series of studies investigating the same underlying phenomenon (Leech and Onwuegbuzie, 2009). Reviewing 19 different definitions of MM, Johnson et al. (2007) summarised that MM is a type of research that combines qualitative and quantitative research approaches to achieve the depth and breadth of understanding and corroboration. This PhD uses the definition of Johnson et al. (2007) as it seeks to combine elements of qualitative and quantitative research to develop a deeper understanding of the phenomenon being investigated.

3.2.5 Rationale for choosing mixed methods design

In this research, there were several reasons for choosing a MM design. Firstly, the main reason for the use of MM was its ability to answer different research objectives that require different methodologies. The combination of quantitative and qualitative research methods offers more insights and answers beyond the capabilities of each method (Greene et al., 1989). Secondly, sometimes the findings of one study can provide an incomplete understanding of a research problem and further explanations are needed (Creswell and Plano Clark, 2018). Thus, findings of one study can be used to inform another study to enhance understanding of a research problem. Thirdly, the use of multiple data sources facilitates a holistic understanding of a research problem, which can lead to change. Finally, by combining qualitative and quantitative methods and findings into the study design, researchers can gain a deeper understanding of the participants' perspectives and explore complex social phenomena, which lead to design interventions (Peterson et al., 2013).

3.2.6 Typologies of mixed methods design

Creswell and Plano Clark (2011) recognised that there are primarily four basic MM designs: convergent parallel, explanatory sequential, exploratory sequential and embedded design. This thesis employed an exploratory sequential MM design, where the researcher begins with qualitative data collection and analysis, followed by a development phase of translating the qualitative findings into an approach or tool that is tested quantitatively (Creswell and Plano Clark, 2018). Thus, this approach includes three phases: qualitative, development and quantitative. In this form of design, the qualitative phase is given priority as this phase of research predominantly aims at answering the research objectives (Creswell and Plano Clark, 2011). Study 1 included the qualitative data, which informed and led to the development of Study 2, which involved both quantitative and qualitative data. This design was appropriate because the

qualitative findings of Study 1 were expected to answer the main research objectives in this project, and the findings of Study 1 were expected to develop an instrument for Study 2.

Quantitative information was used to prioritise the solution in order to develop an intervention to improve access and use of PHC and MHC services by rural Bangladeshi women. Therefore, the combination of qualitative and quantitative information was used because it provides a comprehensive understanding and captures the nuances of the phenomenon investigated. The flowchart (Figure 3-1) below shows the procedure of the exploratory sequential MM design for this study.

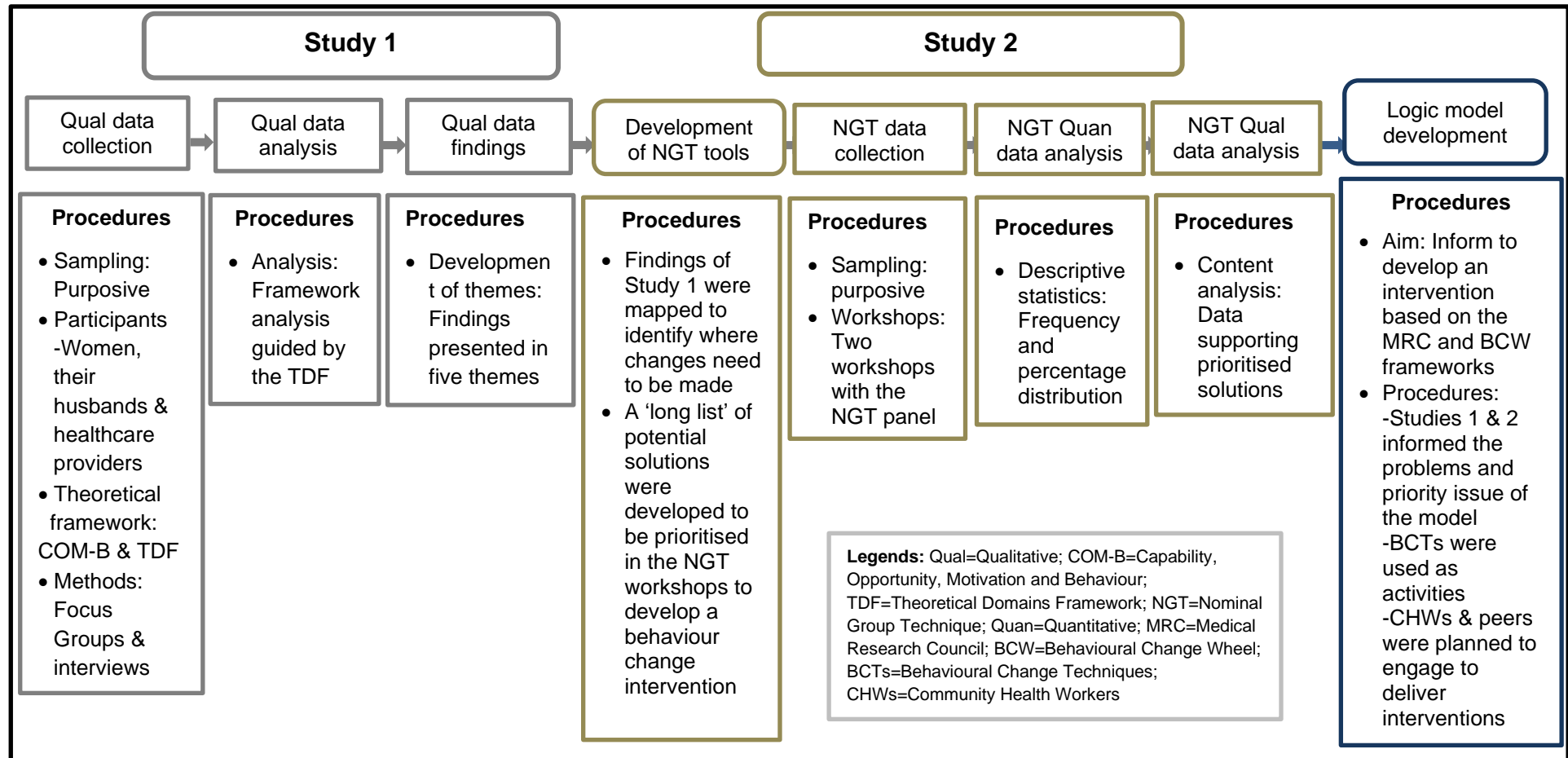


Figure 3-1 Flowchart of the exploratory sequential MM design

Source: Adapted from Berman (2017)

3.2.7 Theoretical frameworks

A number of theoretical frameworks and models were used to guide this study. An account and justification for the selection of the following theoretical frameworks and models is provided.

3.2.7.1 Medical Research Council (MRC) Framework

The UK Medical Research Council (MRC) provides a framework for the development and implementation of complex interventions. The MRC framework is useful in the development of evidence-based and systematic support strategies (Craig et al., 2008). A systematic approach is important because designing interventions for beneficiaries containing different interacting components can change the results of strategies (Craig et al., 2008). Given the importance of the framework for intervention development, the study adopted the development aspect of this framework to develop a logic model. Despite having the updated version of the MRC framework (Skivington et al., 2021), the justification for using the earlier version of this framework (Craig et al., 2008) is provided in Chapter 7 ([section 7.3](#)). Figure 3-2 depicts the four key elements of this framework: (i) development, (ii) feasibility and piloting, (iii) evaluation and (iv) implementation.

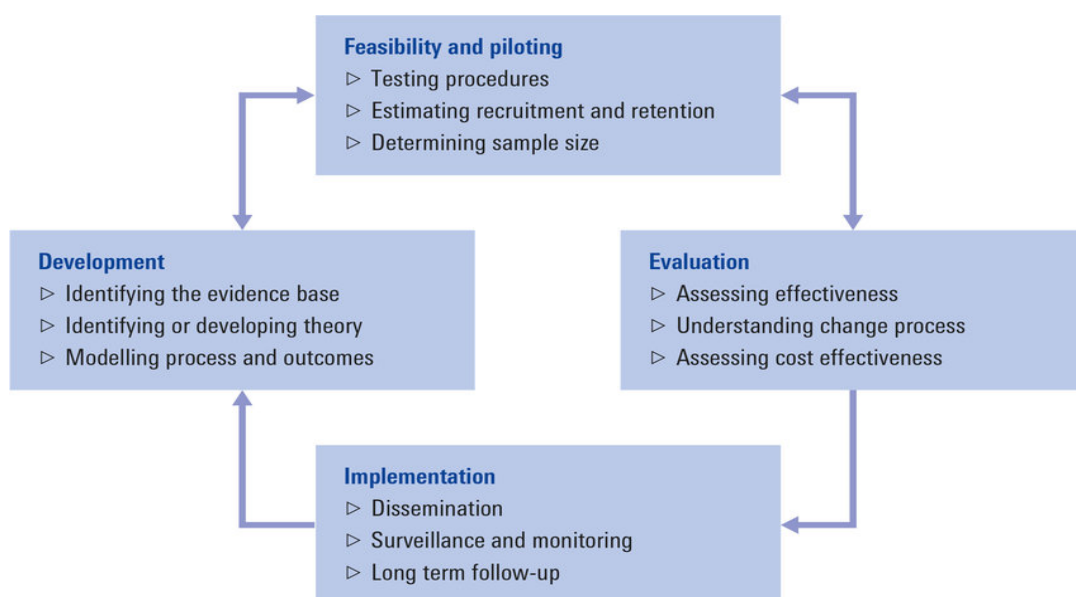


Figure 3-2 Key elements of the development and evaluation process

Source: Craig et al. (2008, p.6)

3.2.7.2 Behavioural Change Wheel (BCW)

A wide range of frameworks exist to classify behaviour change interventions, but none is comprehensive and conceptually coherent in designing effective interventions (Michie et al., 2011). Developing a behaviour change intervention, also known as complex

(O'Cathain et al., 2019), is an emerging field of enquiry; however, no appropriate process has yet been reported in the literature (Truelove et al., 2020; Connell et al., 2015). Guidance, such as the MRC framework for the development and evaluation of complex interventions (Craig et al., 2008), identifies the use of theory as a fundamental component of intervention development, but how theories should be used to inform methods is less clear (Connell et al., 2015). Thus, the framework must provide more explanation to researchers needing to develop complex interventions (O'Cathain et al., 2019). This study used the theoretically driven Behaviour Change Wheel (BCW) framework, developed by Michie et al. (2014), to theoretically underpin and develop an intervention to improve access and utilisation of healthcare services based on data from Studies 1 and 2. The BCW provides a useful and comprehensive framework for the development of interventions and greater control over intervention replication and assessment (Webb et al., 2016). The BCW aims to overcome this problem and synthesizes 19 frameworks of behaviour change with the COM-B model, which sits at the centre of BCW (Webb et al., 2016).

As suggested by the MRC (2008), behavioural change interventions should be based on evidence and should use a relevant and consistent theoretical framework to have the best chances of success (Webb et al., 2016). Furthermore, Glanz and Bishop (2010) identified that public health and health promotion interventions based on social and behavioural science theories are comparatively more effective than those lacking theoretical foundations. The selection of an appropriate theory or model should be logical, supported by previous research and used in similar programmes (Glanz et al., 2008). In addition, appropriate theories and models can assist to understand and explain behaviours, and demonstrate how effective strategies can be developed to change behaviours (Glanz and Bishop, 2010). Thus, the TDF and COM-B model have been used for Study 1 (qualitative phase) since these models offer a logical approach to behaviour change and have previously been used to design interventions to change the practice of healthcare professionals (Connell et al., 2015).

3.2.7.3 Theoretical Domains Framework (TDF) and the Capability, Opportunity, Motivation and Behaviour (COM-B) Model

The Focus Group (FG) and interview checklists were formulated through the lens of the TDF framework of behaviour change (Atkins et al., 2017). TDF provides a theoretical lens to understand how various factors, such as cognitive, emotional, social and environmental factors, influence healthcare behaviour (Atkins et al., 2017). This framework was used as the study aims to identify barriers and facilitators associated with PHC and MHC healthcare access and utilisation among rural Bangladeshi women. TDF

combines behaviour change theories into a single framework with 14 validated domains underpinned by psychological theories. The updated TDF includes 14 domains and 84 theoretical constructs (Atkins et al., 2017). The 14 domains were mapped onto the COM-B model (Figure 3-3) that consists of three key components including capability, opportunity and motivation (Alexander et al., 2014). The COM-B model exhibits that human behaviour (B) results from the interaction between personal, physical and psychological capabilities (C), to utilise social and environmental opportunities (O) via motivators (M) that are reflective (thinking with the head) or automatic (emotional-‘thinking’ with the heart) (Alexander et al., 2014). Research evidence supports the use of TDF and COM-B model to explore barriers and facilitators to changing behaviour to inform the choice of intervention components (Richardson et al., 2019; Phillips et al., 2015; Alexander et al., 2014).

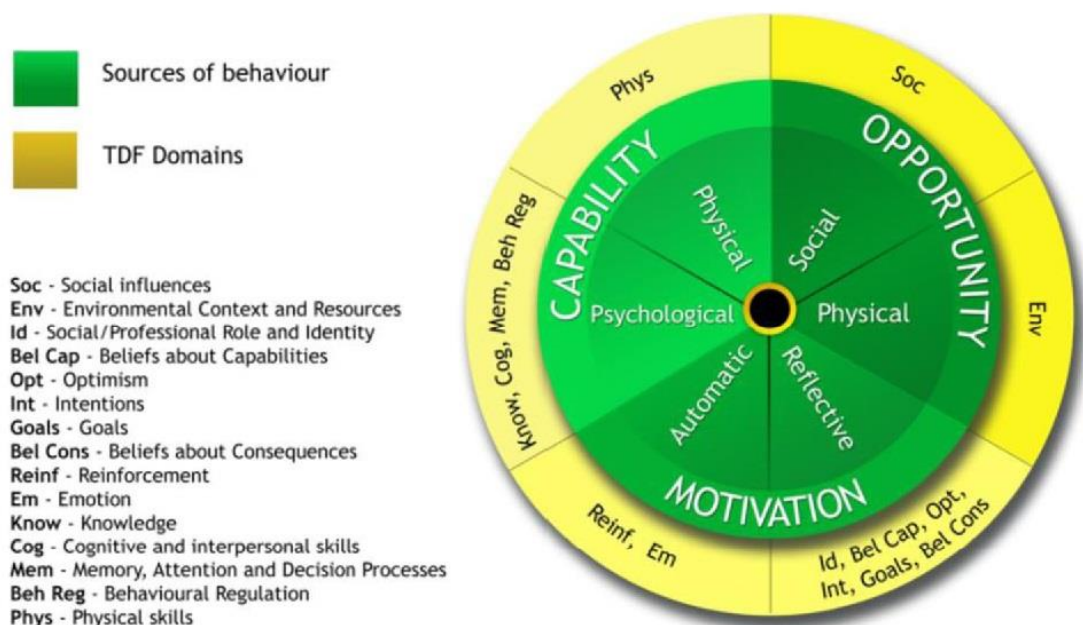


Figure 3-3 Map of the TDF to COM-B system

Source: Atkins et al. (2017, p.11)

3.2.8 Justification for the approach to data collection for Study 1

Study 1 of this MM study involves qualitative data collection. Several approaches are employed to collect qualitative information from participants, including field observation, document, and FG and interview (Creswell and Poth, 2018; Patton, 2002). Field notes are gathered by observing as a participant and observer (Creswell and Poth, 2018), and it requires the ‘five senses’ of the observer to collect data (Angrosino, 2007). The observation method involves both participant and nonparticipant strategies. In the documentation approach, a researcher relies on secondary sources, such as a journal,

diary, memos, autobiographies and photographs, to gather information. FG and interview are generally conducted as unstructured and open-ended (Creswell and Poth, 2018). FG and interview approaches are employed to gain rich insight into attitudes and behaviours, and participants are encouraged to respond (Allen, 2017).

Comparing four approaches, the FG and interview approaches were found suitable for Study 1 for several reasons. The FG and interview approaches were appropriate to answer the research questions of the PhD study as compared to observation and documentation because the study aim involved exploring experiences, barriers and facilitators to access and use of healthcare services by rural women. In addition, an interviewer can collect information from a group or an individual with direct interactions with the participants, which helps them to understand the nuances of the conversation, whereas the interactions remain passive when the observer needs to observe the situation in a non-participative way and the researcher collects facts from the literature (Creswell and Poth, 2018). Furthermore, FGs and interviews do not take as long as observations to collect information. In addition, FG and interview data are more authentic because they come from direct contact with participants rather than from documentation. Finally, FG and interview data can be collected face-to-face or virtually, but the digital process of observation has not yet been established (Creswell and Poth, 2018).

3.2.8.1 Focus groups

FGs can be used in any research paradigm as a qualitative data collection method (Fallon and Brown, 2002). The aim of a FG is not to achieve consensus among participants or engage in debate, but rather to share each participant's perspective in a social environment (Allen, 2017). However, FGs are more commonly used in the interpretative paradigm (Morgan, 1996) as participants are encouraged to talk to each other, rather than asking each person to answer a question in turn (Kitzinger, 1995). FGs are often used to explore the knowledge and experience of participants, as well as the questions, ways and causes of their thinking (Kitzinger, 1995). This is consistent with fundamental qualitative research hypotheses that support the internal perspective.

3.2.8.2 Suitability of focus group method with research philosophy and research approach

In the process of pragmatism, this study incorporated a constructivist worldview to underpin the qualitative data. Constructivism works from a dual perspective: (i) responses of the participants are shaped by social interaction with others and (ii) personal views (Creswell and Plano Clark, 2011). Hence, using a FG as a data collection method fitted with the perspective of responses being shaped by social interaction. For

Study 1, female participants aged 16-49 were purposively selected for FGs from the selected villages in rural Bangladesh to gain an in-depth understanding of their experiences, barriers and facilitators to accessing and using PHC and MHC services.

3.2.8.3 Suitability of the focus group method with female participants

FGs have been successfully conducted with women in previous studies to identify issues related to primary and maternal healthcare services in Bangladesh and South Asia (Begum et al., 2018; Sharma et al., 2018; Nisar et al., 2016; Alam et al., 2015; Azmat et al., 2012; Afsana and Rashid, 2001). The suitability of the FG in exploring salient attitudes and beliefs lies in the ability to provide a practical way to access participants' experiences, attitudes, views, knowledge, feelings and motives about various health and social issues as well as actions through a moderated interaction (Hayward et al., 2004; Morgan, 1996). The FG method is ideal with women as it provides a friendly environment (Gray-Vickrey, 1993) and facilitates access to the cultural and social norms of groups by enabling insight into cultural and social processes of both belief formation and the role of expression of beliefs in peer groups (Morgan, 1997). Finally, the FG technique facilitates the disclosure and validation of group attitudes and thinking while generating data (Fallon and Brown, 2002). This reveals both the meanings that people read into a discussion point and how they negotiate those meanings (Lunt and Livingstone, 1996).

3.2.8.4 Focus group sampling and composition

In order to select participants for a FG project, it is often more useful to think in terms of minimising sample bias. FGs are frequently conducted with purposively selected samples (Morgan, 1997). Purposive sampling is one of the techniques used in qualitative research to identify and select information-rich cases (Patton, 2002).

No consensus was reached to determine the optimal size of the FG. Too small a group may diminish the lively debate taking place, whereas too large a group can be difficult to manage (Fallon and Brown, 2002). Taking these considerations into account, between four and eight is suggested as the ideal number of group participants (Fallon and Brown, 2002; Kitzinger, 1995). However, practically it is important to over-recruit to allow for no-shows; the common rule of thumb is to over-recruit by 20% (Morgan, 1997). So, considering the practical situations, Morgan, (1997) suggested a range of 6 to 10. In this PhD project, the number of participants in the FG was specified to be between 6 and 10 so that the impact of FG discussion can be overcome if someone does not attend.

Determining the number of groups along with the size of the group is also important to achieve saturation. That the project should consist of three to five groups comes from a claim by Morgan (1997) that the point at which additional data collection no longer

generates new understanding indicates the ideal number of groups. In this project, a total of three FGs with rural women were conducted by a female moderator from two villages. Based on the literature (Morgan, 1997), three FGs were thought to be enough to reach data saturation.

3.2.9 The need for semi-structured, in-depth interviews

Whilst the FGs provide some insights in a group setting, it is known that participants may exaggerate, minimise or even withhold experiences, depending on the social context of the FG (Hollander, 2004). Morgan (1997) suggested that FGs must be backed up by other methods such as semi-structured, in-depth interviews in exploratory research to explore specific opinions and experiences in more depth. From the literature review, it was apparent that husbands and HPs had an influence on the healthcare-seeking behaviour of women in rural communities. Therefore, a more individual, in-depth approach to understanding the healthcare access of rural women of these groups was required. In addition, since it was not possible to undertake the fourth FG due to the COVID-19 lockdown, women from this group were individually interviewed. Thus, semi-structured interviews were undertaken with women, husbands and HPs to support and add to the FG data collected from women.

3.2.9.1 Semi-structured, in-depth interviews

The research interview is characterised as a verbal interactional exchange where the interviewer attempts to elicit information or expressions of opinion or beliefs from another person (Mason, 2002). Therefore, the encounter attempts to gain an understanding of the participants' perspectives on their lives, experiences or situations expressed in their own words from their point of view (Punch, 2013). Semi-structured interviews are commonly used in qualitative research and are the most frequent qualitative data source in health services research (DeJonckheere and Vaughn, 2019).

The interview takes many forms on a continuum, such as structured, semi-structured and unstructured (O'Reilly, 2005). Structured interviews contain predetermined questions, and these are asked in a set format and order as a way of ensuring standardisation and maximising the reliability and validity (Bryman, 2012; O'Reilly, 2005; Patton, 2002), whereas unstructured or informal interviews rely on the natural flow of interaction and conversation (O'Reilly, 2005; Patton, 2002). The semi-structured interview contains elements of both aforementioned styles. In this process, the interviewer remains free to build a conversation within a particular subject area, wording a question spontaneously and establishing a conversational style (Patton, 2002). Therefore, a semi-structured interview process was selected to gather data for this study.

3.2.9.2 Suitability of semi-structured, in-depth interviews with research philosophy and research approach

In the process of pragmatism, this project incorporated the constructivist worldview to underpin the qualitative data. Constructivism works from a dual perspective: (i) responses of the participants are shaped by social interaction with others and (ii) personal views (Creswell and Plano Clark, 2011). Hence, semi-structured interviews are associated with the perspective of personal views in constructivism. For Study 1 of this research (the qualitative part), HPs and husbands were purposefully selected for interviews from the selected villages in rural Bangladesh to gain a detailed understanding of their experiences, barriers and facilitators to accessing and using PHC and MHC services for women.

3.2.9.3 Suitability of semi-structured, in-depth interviews with women, healthcare providers and husbands

Interviews were successfully conducted with women, HPs (Akhter et al., 2016; Khanam et al., 2016; Nisar et al., 2016) and husbands (Vidler et al., 2016; Simkhada et al., 2014) in previous studies to identify issues related to PHC and MHC services in Bangladesh and South Asia. The semi-structured format of the interview allowed women, husbands and HPs to answer more on their own terms than a structured interview would have done, but still provided a structure for comparability over that of the unstructured interview by ensuring that the main questions as per the TDF guidance were discussed, a strategy recommended by Fielding (1993).

3.2.10 Justification of the approach to data collection for Study 2

Study 2 employed the nominal group technique, a consensus approach, to collect data. Consensus approaches have been increasingly used in healthcare research over the past 50 years to facilitate effective group decision making (Waggoner et al., 2016; Halcomb et al., 2008). There are three main consensus methods in use by researchers: the Delphi technique, consensus development conference and nominal group technique.

3.2.10.1 Delphi technique

A Delphi technique is one of the consensus methods that allows group interactions through questionnaire surveys. In 1953, this technique was developed by the Rand Corporation as a tool to gain opinions from expert groups (Donohoe et al., 2012) and to use a series of staged quantitative questionnaires with individual feedback to each participant (McMillan et al., 2016). Participants are asked to rank their responses at all stages and then reconsider their positions in the light of group trends (displayed to

participants as the average response of the other participants) until opinions converge to a consensus, usually after the third or fourth round of questionnaires (Donohoe et al., 2012; Novakowski and Wellar, 2008).

The advantages of this Delphi method over other methods are: (i) the relative anonymity (Table 3-1), (ii) the closeness of participants to each other is not mandatory and (iii) the opportunity for participants to provide an equal response to items (Donohoe and Needham, 2009; Novakowski and Wellar, 2008). However, there are some disadvantages, the most important being the risk of group conformity. For example, given that the average vote is centred on one area of a Likert scale, participants may feel social pressure to change their judgment to 'fit in' with the majority. This phenomenon is termed 'normative social influence', and to avoid negative consequences such as social disapproval, or in situations in which the proper response is not clear, people will often look to others as a source of information to make their decisions (Bolger and Wright, 2011). This method can also be time-consuming and relatively laborious for participants to repeat the survey, leading to the risk of participant attrition over time (Keeney et al., 2011; Donohoe and Needham, 2009). For the present study, it was important to hear participants' reasoning behind their prioritisation decisions. In addition, repeated communication via post or email written methods may have been more challenging to some participants than communicating their ideas in a face-to-face setting.

3.2.10.2 Consensus Development Conference

The Consensus Development Conference (CDC) is an organised meeting of experts in a given field. This particular approach is commonly used in healthcare research to develop a consensus because it allows a multidisciplinary approach to solving a problem or creating a policy (Waggoner et al., 2016).

As the face-to-face interaction is associated with this method, there were seen to be some advantages for the current study, such as the synthesis of the best available information, maintaining the validity of the consensus and delivering rapid results (Table 3-1). However, this method was deemed to be too time consuming and expensive for the current study because of the logistics associated with forming an event and obtaining a moderator and locations to hold the conference itself (Bowling, 2009). Furthermore, there is a possible introduction of bias due to overly vocal panel members (Waggoner et al., 2016).

3.2.10.3 Nominal Group Technique

The Nominal Group Technique (NGT) was developed by Delbecq and Van de Ven (1971) and is where participants in a group setting are invited to develop and suggest

ideas/solutions in response to a specific question and to rank them (Waggoner et al., 2016). The NGT generally comprises four steps: generating ideas, recording ideas, discussion and ranking (Moore, 1987). The NGT has been employed in multiple fields of social sciences and education, and it has also been used to examine the suitability of healthcare interventions (Waggoner et al., 2016).

Table 3-1 shows that the NGT process is a highly structured format that promotes equal rates of participation and weighs the input from all participants and minimises the process loss and inefficiencies of unstructured and interactive group meetings (Miller et al., 2000; Delbecq et al., 1975). In addition, the NGT allows a comparison to be made between members of the group of participants (Cormican and Dowling, 2021). It also avoids the control of influential participants in a group setting and the quick decision making process, which enables participants to consider the importance of solutions/ strategies and ensures group cohesiveness during the workshop (Waggoner et al., 2016; Cantrill et al., 1996).

However, some potential limitations of the NGT method are that the process is expensive to organise (Waggoner et al., 2016), difficult to administer, and requires an experienced leader (Cantrill et al., 1996).

Table 3-1 Advantages and disadvantages of the Delphi, CDC and NGT

Advantages	Delphi	CDC	NGT
The anonymity of participants	Yes	No	Yes
Not easy for dominant participants to control	Yes	Unknown	Yes
Includes face-to-face social interaction and discussion in a friendly environment	No	Yes	Yes
Encourages minority concerns/opinions to be voiced	Yes	Yes	Yes
Avoids “quick” decision-making	Yes	No	Yes
Generates a high number of ideas/comments and prioritizes them	Yes	Yes	Yes
Provides support to allow identification of problems	No	No	Yes
Allows measurement of the importance of ideas/ items to individuals	Yes	No	Yes
Disadvantages			
Introduction of bias due to overly vocal members of the panel	No	Yes	No
Time consuming and labour intensive for participants	Yes	Yes	No
Risk of group conformity	Yes	No	No
Expensive to organise	No	Yes	Yes
Difficulty of administration	No	Yes	Yes
Need for an experienced leader	No	Yes	Yes

(Adapted from McMillan et al. (2016); Waggoner et al. (2016); Donohoe et al. (2012); Harvey and Holmes (2012); Bolger and Wright (2011); Keeney et al. (2011); Allen et al. (2004); Cantrill et al. (1996); Delbecq et al. (1975))

3.2.10.4 Justification for using the Nominal Group Technique

The NGT method was used in Study 2 as it had several advantages over the Delphi technique and CDC. Firstly, the NGT method is open to modification, a useful option in Study 2 as unlike the traditional NGT method (in which participants devise solutions to a proposed question using a round-robin method), these solutions had already been identified via the COM-B mapping process as described in Chapter 5. In Study 2, it was participants' individual ranking and preferences for solutions that were deemed most important. Secondly, the Delphi technique provides participant anonymity; however, there is a risk of response bias (Ryan et al., 2001). The NGT generates a large number of ideas and involves social interaction and discussion, while restricting normative pressure for conformity (Table 3-1) through the use of individual ranking (Cantrill et al., 1996). Thirdly, the Delphi technique is mostly used to develop guidelines (McMillan et al., 2016), whereas the NGT is developed to help group decision-making and is particularly helpful in generating ideas and priorities in situations where participants may have different views on an issue that little is known (McMillan et al., 2014). Fourthly, the benefit of being able to meet the NGT panel face-to-face was important in the current study in establishing collaborative relationships whereas it is uncommon in the Delphi technique. Also, the NGT study recruited some lay representatives from the female healthcare service users along with other participants to have their voices heard. Lay people may feel more comfortable participating in a face-to-face meeting, than in a relatively complex survey (McMillan et al., 2016) and in a conference setting (Waggoner et al., 2016). Finally, the NGT unlike the CDC is not time consuming and expensive to undertake (Harvey and Holmes, 2012; Potter et al., 2004). This was a practical consideration of using the NGT as the study involved very busy participants such as healthcare professionals and the workshop venue such as the hospital conference room with limited availability. In addition, the venue was free to use.

However, a potential limitation of the NGT method is that the researcher determines the cut-off score at which the group consensus is reached. To reduce any potential bias, the degree of conformity to an affirmative group consensus was determined prior to data collection in consultation with the supervisors to ensure the validity of the data.

3.2.11 Transcribing and translation of the focus group, interview and workshop data

3.2.11.1 Transcribing

The transcribing process includes the transcription of qualitative data from studies 1 and 2. Study 1 involves FG and interview data, and Study 2 includes workshop data. Data

were transcribed verbatim with exactly the same words as were used originally. Verbatim transcription and careful accounting of participants' gestures during interviews are key to measuring the reliability, validity and authenticity of the qualitative data collection (Maclean et al., 2004; Seale and Silverman, 1997). Verbatim transcription is clearly useful in facilitating data analysis by bringing researchers closer to their data, developing audit trails of data analysis by supervisors, and demonstrating rigour (Halcomb and Davidson, 2006). However, the data transcription process is open to a range of human errors, including misinterpretation of content, class, and cultural differences and language errors (Maclean et al., 2004; Easton et al., 2000). Such complexity adds significant costs to the research process with regard to time and resource consumption (Wellard and McKenna, 2001). Even the emergence of modern technologies such as voice recognition software has not been able to produce considerable reductions in the use of resources (Maclean et al., 2004). The use of written field notes taken during or immediately after an interview has been reported to be superior to the exclusive use of audio-recordings, which are subsequently transcribed verbatim (Wengraf, 2001; Fasick, 1977). The importance of writing memos and field notes captures the thoughts and interpretations of a researcher during the process of listening to the audio-recordings (Wengraf, 2001). It was therefore planned to undertake both digital audio-recordings and field notes of the FGs, interviews and workshops during data collection to avoid the limitation of a single transcribing technique.

Data transcription following FGs and interviews was done by both the female lead interviewer accompanied by female research assistants and the PhD student (the researcher). As the female lead interviewer accompanied by female research assistants conducted the focus group and interview with the female participants, they were asked to transcribe data of that portion. In addition, I (the PhD researcher) transcribed the interview and workshop data with participants. Transcribing own interview data is always beneficial for interviewers. This is because interviewers have first-hand knowledge of their involvement in the interview process, expertise in the interview content, and the benefits of participating in verbal and nonverbal interactions with the participants (Halcomb and Davidson, 2006).

In order to manage data, a reflexive, iterative process of data management developed by Halcomb and Davidson (2006) was used as it increased representation of values and beliefs in research and ensured a theoretically sound process of data management in Studies 1 and 2 of this MM research. The data management process included six specific steps: (i) audio-taping of interview and concurrent note taking, (ii) reflective journalising immediately after an note taking i.e. reviewing field notes and expanding initial impressions to ensure that reflections remain fresh, (iii) listening to the audiotape and

amending/revising field notes and observations, (iv) preliminary content analysis, (v) secondary content analysis and (vi) thematic review (Halcomb and Davidson, 2006).

3.2.11.2 Translation

The term translation has been defined as a process where “the meaning and expression in one language (source) is tuned with the meaning of another (target) whether the medium is spoken, written or signed” (Crystal, 1991, p.346). Although there is a lack of consistency in terms of the translation process, the purpose of translation is to achieve the equivalence of meanings between two different languages (Regmi et al., 2010). A few methods and techniques, such as Brislin’s (1970) classic model, and a combined technique of back-translation method and bilingual technique (Jones et al., 2001), have been developed for the translation process in cross-cultural research. The combined technique, developed by Jones et al. (2001), includes a group approach to the back-translation method and bilingual technique. Although a combined technique has been developed following the development of Brislin’s (1970) classic model, it is not a simple process. For instance, this translation process includes several stages and each stage requires a group of people to be included (Cha et al., 2007). In addition, the required number of translators increases as the process is continued, and the researcher cannot estimate how many bilingual translators will be engaged (Cha et al., 2007). Therefore, in this study, Brislin’s (1970) classic model (Figure 3-4), an iterative process model, was adapted to translate and back-translate data as this study involves cross-cultural issues. Brislin’s classic model (1970) of translation and back-translating instruments is considered to be the best method for cross-cultural research (Jones et al., 2001). According to this model, in the initial stage two independent people who were bilingual were engaged. One bilingual expert translated the instrument from the source language (Bengali) into the target language (English). This process is also called forward-translation (McDermott and Palchanes, 1994). In this study I, as the researcher, was the first bilingual translator as I had first-hand knowledge from my involvement in the interview process (Halcomb and Davidson, 2006). The second bilingual expert blindly (i.e. without access to the original language version) back-translated the transcript to the source language (Brislin, 1970). In this case, a person of Bangladeshi origin having a master’s degree in English language was engaged as Brislin (1970) suggested that a translator should be the person who has satisfactory proficiency in English. According to Brislin (1970), if any discrepancy in meaning is found in the back-translated version when compared to the original, the terms which are in question are retranslated and again blindly back translated by another bilingual expert. In this case, a second person of Bangladeshi origin having a master’s degree in English language was engaged. The final version of the English text was ensured with the help of supervisors who are native

English speakers. This iterative process was repeated until no error in meaning was found (Brislin, 1970).

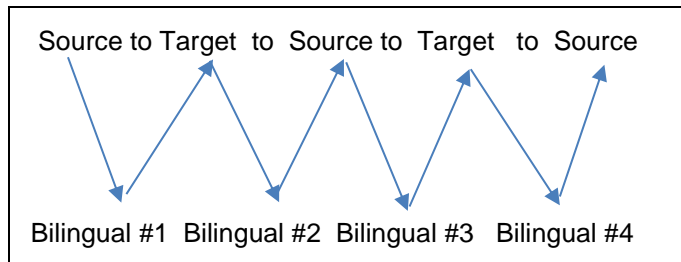


Figure 3-4 Brislin's Translation Model

Source: Jones et al. (2001)

3.3 Rigour

Rigour includes reflection on data quality. The careful preparation, training of research assistants, supportive supervision and data management ensured data quality (Collumbien et al., 2012). While it is never completely possible to avoid the external influence of a researcher, steps were taken to ensure that any potential researcher bias or influence did not impact upon the views and perceptions of participants. It is easy to understand that the similarities between what the participants of this study shared and what healthcare research had already covered were inevitable. However, care was taken to remain open to all possibilities during transcribing, coding and analysing the data. In conducting any research study, the researcher must have an overview of the data they need to collect and the population under study; this knowledge is essential to be able to collect data in a standardised manner (Rwegoshora, 2014). To reduce the subjectivity of research findings, potential biases can be negated by receiving secondary advice and independent contributions from a multidisciplinary research team (Rwegoshora, 2014). The research supervisory team, as experienced researchers, objectively checked the coding interpretations in order to avoid bias or influence of any potential researchers or previous findings (Tinker and Armstron, 2008).

3.4 Chapter summary

This chapter discussed the MM design upon which the studies presented in the next chapters are based. It provided the rationale for the choice of a MM design. Theoretical frameworks and models were also outlined. The appropriateness of data collection approaches for Studies 1 and 2 was justified. This chapter also demonstrated the process of data transcription and rigour. Chapter 4 will discuss the findings from FGs and interviews.

Chapter 4 Study 1: Exploring experiences, barriers and facilitators to accessing and utilising primary and maternal healthcare services by rural women

4.1 Introduction

This chapter focuses on identifying the first two objectives: (i) exploring the knowledge and experiences of primary and maternal healthcare services by women in rural Bangladesh; and (ii) identifying factors that influence uptake, access to and utilisation of primary and maternal healthcare services by women in rural Bangladesh. A description of the methods and approaches used in Study 1 is provided. The chapter describes a qualitative study which involved undertaking three focus groups and five interviews with female participants, 18 interviews with healthcare providers and eight interviews with male participants (husbands). The study was underpinned by the Theoretical Domains Framework (TDF) being used to inform the interview schedule and guide analysis of the data, which includes the Framework Analysis that consists of five step by step processes developed by Ritchie et al. (2013). The qualitative findings of Study 1 are presented in five main themes. The discussion section subsequently includes the interpretation of the key findings and comparisons of them with the broader literature, and future research direction. Finally, the chapter summarises the key findings.

4.2 Methods

4.2.1 Settings

Accessing and utilising PHC and MHC services from primary level healthcare centre services is difficult for some populations such as women who reside in particularly remote rural regions (Haque et al., 2016). In 2014, rural women (26%) in Bangladesh were less likely than urban women (46%) to have made the WHO recommended four or more antenatal visits (NIPORT et al., 2016). The current study here was undertaken at *Batiaghata Upazila*, a local administrative division under Khulna district in Bangladesh, where most of the women were deprived of getting primary and maternal healthcare services from all primary level healthcare centres (The correspondent of Khulna, 2015). Two maps are provided below, indicating the study area in Bangladesh and the specific study area in Khulna (Figure 4-1). This part is chosen as it is a coastal belt of Bangladesh and cyclone affected region. Therefore, the healthcare condition of this region is not as good as in other parts of Bangladesh.

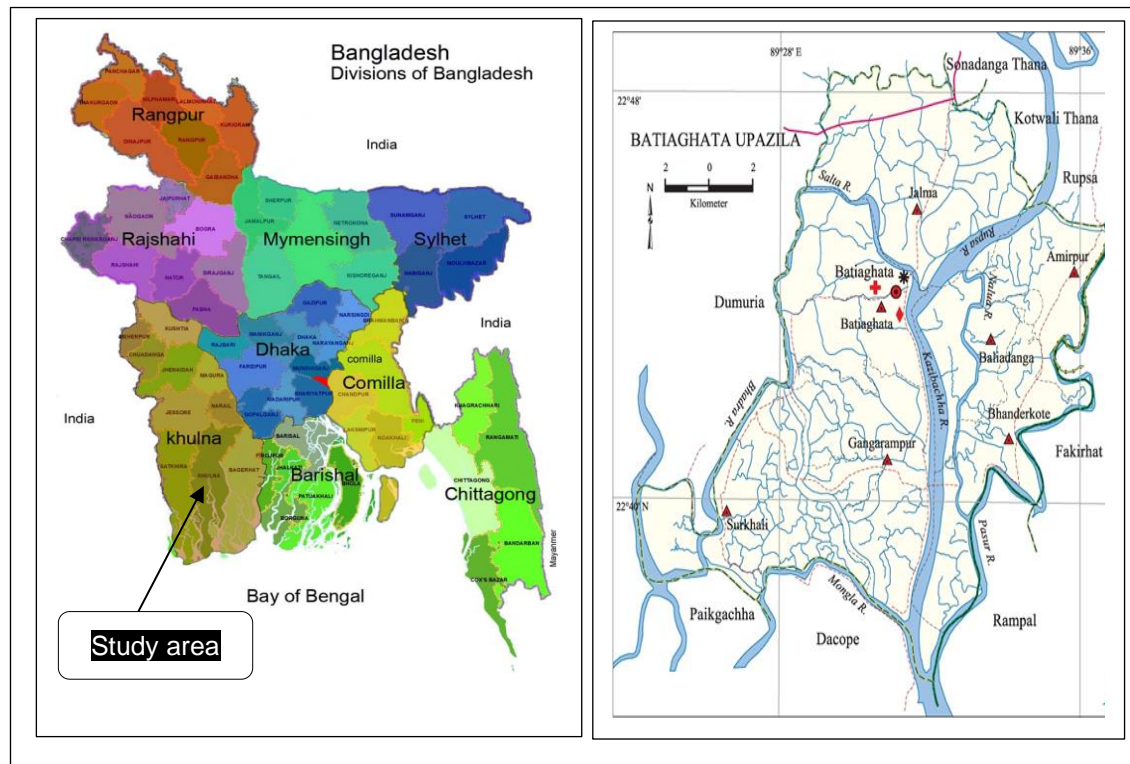


Figure 4-1 Maps of Bangladesh and the study area

4.2.2 Sample size and sampling strategy

In qualitative research, no single rule exists for determining sample size from the study population (Patton, 2002), and sample size usually depends on data or theoretical saturation (Holloway and Wheeler, 2010; Miles and Huberman, 1994). Approximately 66 participants including women, husbands and HPs were expected to participate in this qualitative study. Table 4-1 presents the distribution of participants for Focus Groups (FGs) and interviews.

Three common approaches for qualitative sampling have been developed (Ritchie et al., 2013): theoretical, convenience and purposive sampling. In theoretical sampling units are selected based upon their potential contribution to theory (Glaser and Strauss, 1967), convenience is used where the sample is known and homogeneous, and purposive sampling is used when the sample characteristics are known and diverse (Ritchie et al., 2013; Bryman, 2012). In this study, purposive sampling over the other two approaches was chosen. This is because, the aim of purposive sampling was not theory generation like theoretical sampling, and a sample of heterogeneous participant groups was drawn keeping in mind a research aim, which was not possible for convenience sampling (Ritchie et al., 2013; Bryman, 2012). For this qualitative study, participants were purposively selected for FGs and interviews from the study area based on their age, sex, professions and locations. In principle, purposive sampling is one of the widely used techniques in qualitative research to identify and select information-rich cases (Patton,

2002). Four FGs were scheduled to be undertaken; however, the researcher had to arrange interviews instead of the fourth FG as a result of the COVID-19 restrictions ([section 4.2.3.2](#)). A total of three FGs and 10 interviews were expected to be conducted with women aged 16-49 from the two selected villages (Birat and Surkhali) (Table 4-1). Although sample sizes for data saturation cannot be pre-determined in qualitative research, it is evident that data saturation can be achieved in three FGs and 10 interviews (Hennink et al., 2020). In this study, the age was 16-49, due to 16.1 being the average age at first marriage of women (NIPORT et al., 2016) and up to 49 years to include those of women with reproductive healthcare issues along with MHC. This age range was chosen to explore primary and maternal healthcare access and utilisation information from rural women of the society. Moreover, other participants, such as (a) eight husbands from the selected two villages; and (b) 18 HPs including (i) six doctors and nurses from Batiaghata Upazila Health Complex (UHC), (ii) four Sub-Assistant Community Medical Officers (SACMOs) and pharmacists from Union Family Welfare Centres (UFWCs), (iii) two Family Welfare Visitors (FVWs) from UFWCs, and six Community Healthcare Providers (CHCPs), Health Assistants (HAs) and Family Welfare Assistants (FWAs) from Community Clinics (CCs) were approached to take part in the study. Husbands and HPs were chosen to compare the results with data from the women.

Table 4-1 Distribution of sample selection

Method	Name of location	Number of samples	Unit of analysis	Sample selection
Women aged 16-49				
FG Interview	<ul style="list-style-type: none"> • Village1: Birat Ward1 Ward2 • Village2: Surkhali Ward1 Ward2 	FG1=10 FG2=10 FG3=10 Interview=10	Women aged 16-49	Purposive
Husbands				
Interview	<ul style="list-style-type: none"> • Villages: Birat and Surkhali 	Eight (Total villages were two and four participants from each)	Husbands of the female participants	Purposive
Healthcare Providers (Doctor/Nurse/SACMO/Pharmacist/CHWs)				
Interview	UHC: Batiaghata upazila	Six (Six participants from the UHC)	Doctors and nurses	Purposive
Interview	UFWCs: Amirpur and Surkhali unions	Four (Total UFWCs were two and two participants from each)	SACMOs and pharmacists	Purposive

Interview	UHFwCs: Amirpur and Surkhali unions	Two (Total UHFwCs were two and one participant from each)	FVWs	Purposive
Interview	CCs: Birat and Surkhali	Six (Total CCs were two and three participants from each)	CHCP, HAs and FWAs	Purposive

4.2.3 Ethical issues

4.2.3.1 Recruitment of participants

Approval for Study 1 was obtained from the School of Healthcare Research Ethics Committee, University of Leeds (Ref no: HREC 19-001) to undertake FGs and interviews with rural women, husbands and HPs. Following University ethical approval, permission was obtained from the Upazila Health and Family Planning Officer (UHFPO), Batiaghata, Khulna, Bangladesh in order to engage HPs as participants and to undertake interviews.

As the PhD student was a male researcher, and the research would involve recruiting and interviewing female participants, a female interviewer and two female facilitators were engaged to undertake FGs with women.

The women, who were recruited for potentially participating in the FGs, were identified by the community health workers (CHWs) at village CCs in the selected regions. As the CHW responsible for the primary healthcare services in villages, they would know the potential female participants. For the FGs, potential female participants were approached by the CHW and verbally informed about the study and provided with an information sheet (see [Appendix F](#) for an example of the participant information sheet for the female participants). The potential participants were given a two-day time frame to allow them to ask questions about the study and reflect in order to decide whether to take part. The researcher then obtained informed consent ([Appendix G](#)) and clarified the research process verbally and communicated about the nature of their participation in the study. Informed written consent was obtained from the participants once they agreed verbally to take part in this study.

In addition, husbands recruited with the help of the participating women from the FGs. Once the FG was undertaken, the female lead interviewer asked the female participants, if they wished, to give an information sheet to their husband. Once the female participants had provided the details about their husbands, for those who were interested in taking part, the researcher verbally introduced the study to the potential male participants when they attended the village community clinic. They were given two days to decide whether to take part in the study. The consent form and contact information,

including a mobile phone number, were also provided to them. After the initial contact with potential male participants at the community clinics, the researcher attended the same community clinic to collect consent forms. In addition, the UHFPO assisted the researcher by nominating the HPs, including doctors and nurses, paraprofessionals and CHWs. Afterwards, the researcher approached and invited the nominated HPs to take part into the study.

Participants were informed of the time, date and place of each FG and interview, and that they had the right to withdraw their consent at any time prior to the completion of the FG/interview. However, if they wished to withdraw after the FG/interview, they had to do this within two weeks. The interview was conducted on a single occasion for each participant.

4.2.3.2 Disruption of the study due to COVID-19 and changes required

Study 1 was affected by the COVID-19 pandemic in mid-March 2020 in Bangladesh. Therefore, data collection involving face-to-face interviews with the female participants of one FG, and the male participants and HPs for 16 of the 26 in-depth interviews was put on hold. The researcher waited a month in the hope that the situation would stabilise, but further lockdown measures were put in place. Under the circumstances, the data collection method plan for the remaining interviews was changed to be conducted via the telephone/skype/zoom. Following the approval of the School Ethics Committee at the end of May 2020, the researcher resumed data collection with the rest of the participants in June 2020.

Since consent from all participants was taken pre-pandemic, the mobile phone numbers of all participants had been gained. Consent and all interviews were audio-recorded. The researcher undertook the interviews with the female participants without direct contact with them (as culturally appropriate); the female lead interviewer was not able to do these as she was asked not to work due to lockdown measures.

4.2.3.3 Confidentiality and data protection

Pseudonyms, which were known only to the researcher, were assigned to maintain the anonymity of participants. Furthermore, all identifiable personal data were excluded from interview transcripts and the thesis report. Electronic data, such as audio records of interviews, transcripts and scanned copies of research documents (i.e., completed consent forms and papers related to ranking and assessing solution process), were kept in a password protected OneDrive computer storage provided by the University.

4.2.4 Data collection

4.2.4.1 Development of the interview guide for focus groups and interviews

Qualitative data to explore participants' experiences, barriers and facilitators were gathered through FGs and interviews with women, and interviews with husbands and HPs (Creswell and Plano Clark, 2011). The FG and interview guides were developed using the TDF framework (Atkins et al., 2017), see [Appendix H](#). Open-ended questions helped to obtain detailed information on the access to and utilisation of healthcare services. Afterwards, the guides were prepared for use in the local language of Bengali before going into the field. The female interviewer and research assistants conducted FGs with women, and the researcher conducted interviews with women, husbands and HPs.

4.2.4.2 Participant selection

Participants were purposively selected for FGs and interviews from the study area, Batiaghata upazila of Khulna district in Bangladesh, based on their age, sex, professions and locations. The FG/interview data were collected from three groups of participants: (i) women, (ii) husbands and (iii) HPs. The FG with women aged 16-49 years were organised by locations. A total of three FGs were conducted from two villages. In addition, a total of 31 participants, including women, husbands and HPs for interviews were purposively selected from upazila, unions and villages.

4.2.5 Qualitative data analysis

Qualitative data from FGs and interviews were analysed based on the TDF framework using the five steps of Framework Analysis (FA) (Ritchie et al., 2013). Data from each transcript were coded and assigned initial 'code names' after reading the entire dataset. Data were imported into NVivo 12. An additional step was taken to match code names to themes represented by the 'domains' within the TDF. This required the researcher to reread data within the codes, then allocate the codes to the appropriate domains. It is essential to reread data as the data coded under one code name may be categorised into two or three different domains within the TDF. All codes could be applied to at least one domain. In addition, themes were adjusted and refined several times after discussion with the supervisors.

4.2.5.1 Rationale for choosing framework analysis

Several approaches can be used to analyse qualitative data; for example, interpretative phenomenological analysis (IPA) (Smith et al., 2009), thematic analysis (TA) (Braun and Clarke, 2006) and FA (Ritchie et al., 2013). IPA is used for analysing lived experiences,

and this approach allows the analysis of a small amount of data (up to 8 interviews), and sampling tends to be broadly homogenous (Smith et al., 2009). Another type of approach is TA, where data can be systematically organised to develop themes to address the overall research question (Braun and Clarke, 2006). However, this approach has been criticised for lacking depth, fragmenting the original data, being subjective and lacking transparency, which can cause difficulties in maintaining rigour (Arifin et al., 2019; Nowell et al., 2017; Smith and Firth, 2011).

FA addresses the shortcomings of TA (Ritchie et al., 2013) and IPA. Although FA shares some similarities with the TA, it has an added step, summary and display, which shows transparency and associations between the stages of analysis (Nowell et al., 2017; Ritchie et al., 2013). Also, unlike IPA, FA fits well with the large size of sample of the study and is not bound by an epistemological position, giving it freedom and flexibility, which aims to best fit the specific goals of a particular body of research (Ritchie and Spencer, 1994). FA was specifically designed to facilitate systematic analysis of qualitative data and to summarise and classify data within a thematic framework. This analysis process is being increasingly used within the health sciences showing its potential as a significant analytic approach (Parkinson et al., 2016). It provides a guidance and enables a case and theme-based approach to data analysis (Gale et al., 2013; Smith and Firth, 2011). Central to the analytical processes in the framework approach is a series of interconnected stages that allow the researcher to move back and forth across the data until a coherent account emerges (Ritchie et al., 2013). Given the large and somewhat unwieldy nature of the data set (three FGs and 31 interviews), an approach that would balance depth with breadth of data was required.

For this PhD study, FA compared to other approaches was deemed suitable because it emphasises how both *a priori* issues and emergent data driven themes should guide the development of the analytic framework. This was something that fitted the aims of the study, in that there were certain predefined areas the researcher wished to explore but the desire was also to remain open to discovering the unexpected. FA was designed to help manage relatively large sets of qualitative data and the NVivo qualitative data software programme is compatible with FA, which was important when thinking about how the researcher would work together with his supervisors. The collection of large amounts of data for the study encouraged the use of computer assisted qualitative data analysis software (CAQDAS). One CAQDAS package, NVivo 12 (QSR International, 2018), is fully integrated with FA which increased the appeal of this analysis (Parkinson et al., 2016) and the software assisted in coding, cross-referencing, storage and data retrieval. The transparency of the analysis process can be improved by using NVivo as it leaves a clear audit trail, so analytic decisions and interpretations can easily be traced

back to the raw data (Parkinson et al., 2016). Finally, this tool helps to produce framework matrices for data summary and display. Although framework categories were determined *a priori* and comprised the TDF domains from the FG and interview topic guide, lower order themes, which emerged within the domains were also examined as the data analysis progressed.

4.2.5.2 The process of carrying out framework analysis

The process of data analysis consists of labelling and sorting out data based on themes in a framework matrix in the data management process. All transcribed transcripts were uploaded into the NVivo 12 data management programme for analysis. Data from FGs and interviews were anonymised. There are five stages of FA outlined by Ritchie et al. (2013): (i) familiarisation, (ii) initial thematic framework, (iii) indexing and sorting, (iv) reviewing data extracts and (v) data summary and display. The details of each stage are explained below:

4.2.5.2.1 Familiarisation

The earliest stage of FA involved reading and immersion in the data in order to get an overview of the material. This overview was related to the richness, thickness, depth and diversity of the data. Familiarisation involved listening to tapes, and reading transcripts and observational notes. At this stage, the researcher (SC) carefully read the verbatim transcripts while reflecting on the purpose of the study, and retaining memos of central ideas, recurrent and emergent issues deemed valuable to the participants. The researcher independently coded the text and developed the working analytical framework of the FGs and interviews (see examples of illustrative extracts from the data in Table 4-2). Transcripts and coding frameworks were checked by the supervisors (MH and GM). Discrepancies were discussed between the researcher and the supervisors. Data were then lifted from the text and placed under the headings of the thematic analytical working framework (the reviewing data extracts stage) after which key features were analysed, thus subtracting meaning, developing associations and explanations within context.

Table 4-2 Initial codes relating to the healthcare access and uses of women, with example quotations

Initial codes	Extract from transcripts
Culture of not making appointments	'Moderator: Do you make any appointment before going to the health centres? Participant 3: Appointment? No, I don't know any system of it. I directly go to the CC and take medicines from there.

	Participant 4: I go to the UHC and then wait in front of the room of a doctor whom I want to visit. Afterwards, when they call, I enter into the room.' (FG1)
Natural disaster and seasonality	"It is difficult to get services during natural disasters and the rainy season. The roads become muddy and slippery, and some places remain disconnected. I can't walk down the street and have to stay home without care." (FG2, P1)
Inability of identifying the role of CHCP	'Participant: There is a doctor in the CC, and they provide basic treatment; so, I don't go other places. Interviewer: Who is a doctor? Could you please tell me the designation? Participant: The head of this clinic, hmm...the CHCP.' (Interview2, female participant)

4.2.5.2.2 Initial thematic framework

The second step of the framework is the process of constructing an initial thematic framework. The aim of this framework is to organise the data (Ritchie et al., 2013). For the development of this framework, the list of final codes was grouped to form themes and subthemes representing different aspects of rural women's access and utilisation of primary and maternal healthcare. A visual representation of the thematic framework was done with the help of the 'mind map' programme of NVivo, where the codes were sorted to form themes. These were shared with the supervisors and finalised following discussion. An example of a thematic map for the theme 'lack of awareness and understanding' is shown in Figure 4-2.

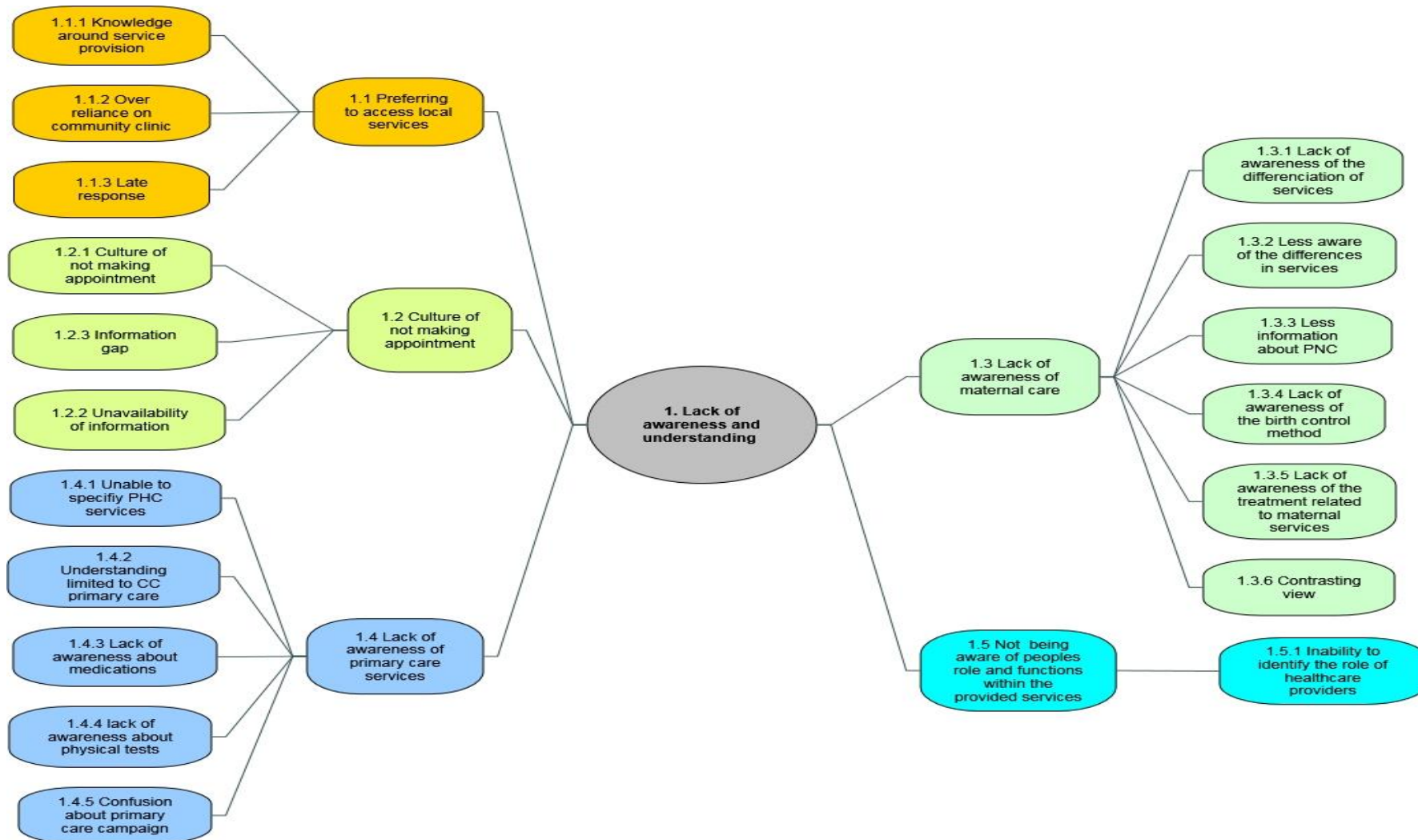


Figure 4-2 Thematic map of the lack of awareness and understanding in healthcare services by Bangladeshi rural women

4.2.5.2.3 Indexing and sorting

In the third stage of framework analysis, the main purpose of indexing is to organise the transcript into the framework categories (Ritchie and Spencer, 1994). Indexing shows which theme or subtheme is being referred to within a specific section of the data (Ritchie et al., 2013). The process of indexing or coding involved applying the coding framework to all interview transcripts. The codes are called nodes in NVivo terminology (QSR International, 2018). The researcher worked through the transcript text, highlighting an important part of the text and assigning its appropriate category (or categories) from the framework. This process was achieved in NVivo by dragging and dropping sentences, phrases or paragraphs in the relevant nodes. A traceable link to the original source of the data is maintained in NVivo, helping to maintain an analysis trail and transparency. An extract from NVivo has been added to depict the link of the highlighted text (centre of the Figure 4-3) with code called 4.2.3 Long waiting time (green stripe in the right-hand panel).

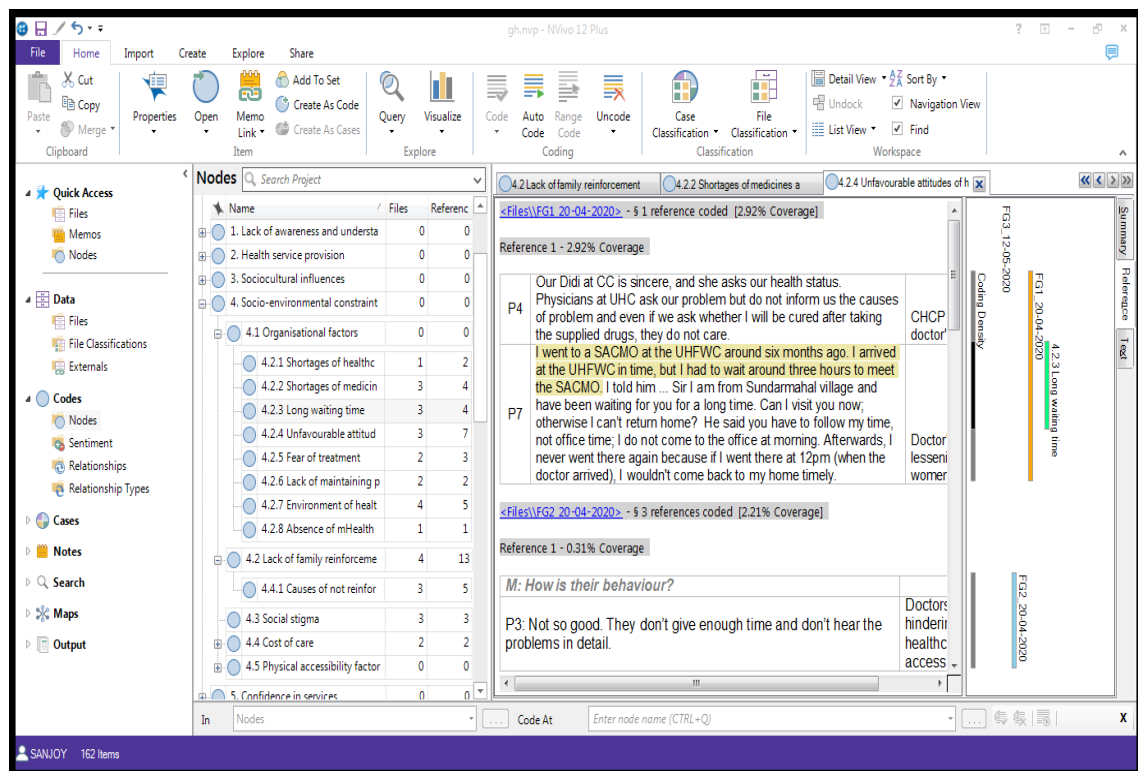


Figure 4-3 The process of indexing using NVivo

The sorting stage followed the indexing step. Sorting is an attempt to reconcile selected data clustering because a single subject or theme can be discussed at different points during data collection (Ritchie et al., 2013). Thus, the purpose of sorting the data is to focus on each topic in turn so that the detail and distinctions that lie within can be unfolded (Ritchie et al., 2013). In this study, necessary data have been sorted by cutting and pasting in Microsoft Word and placing the relevant data extracts in a new 'thematic'

document. Also, the focus on not losing the source element during the data change was given because the NVivo software was used, which retained the link to the original location.

4.2.5.2.4 Reviewing data extracts

This is the fourth stage of the framework analysis and it allows the refinement of the data after an initial application. The refinement process was achieved by reading a considerable amount of the indexed data to consider its coherence. In addition, it was examined to see if important themes were missing from the framework, if themes needed sub-division or merging.

4.2.5.2.5 Data summary and display

The final stage was data summary and display. This starts with the construction of framework matrices in NVivo, where each 'cell' was automatically populated by the coded material, which allows the analyst to move back and forth between different levels of abstraction and facilitate both cross-case and within cases analyses (Miles and Huberman, 1994). The coded entries in the framework cells were then summarised, keeping as close as possible to the original context and retaining the words of the participants. A separate matrix was developed for each theme and subthemes were allocated in columns and cases were in rows. The first column of the matrix was reserved for case identification in which demographic or other characteristics were entered. The theme-by-theme approach was applied to summarise all the data relating to a specific theme. According to Ritchie et al. (2013), the merit of this approach is to enable the researcher to have deep immersion in the subject matter and to get a more refined understanding of its content and variation. Data were then summarised by case and by subtheme and the summary entered in the appropriate cell. All materials were carefully reviewed before putting into each cell and if a particular subtheme was missing data from a transcript, the cell declared 'no data' (n/d). Specifically, consistencies, variations or differences in accounts of healthcare access and utilisation of women were identified across the matrix. Narratives and illustrative quotes were extracted to capture and highlight participants' voices (using words, phrases, quotes expressing experiences related to knowledge, experience, barriers and facilitators of healthcare). Finally, the matrix was exported to Excel sheets and shared with supervisors for review (see [Appendix I](#) for an example for Theme 1 presented in section 4.3.3).

4.3 Findings

4.3.1 Demographic characteristics of participants

Participants' demographics are presented in Table 4-3. Data collection was undertaken between January and June, 2020, through FGs and interviews – face-to-face and virtual via telephone. FGs and interviews were organised by location. The FGs lasted between 65 and 110 minutes and interviews between 35 and 65 minutes.

A total of 23 females participated in three FGs (10 participated in FG1, seven in FG2 and six in FG3). In addition, five women participated in interviews. The level of education of the majority of participants was primary and secondary, and a major proportion of them were housewives.

Eight male participants, husbands of the female participants, were also interviewed from two different villages of the Batiaghata Upazila in Bangladesh. Of the eight husbands interviewed, most (six) were engaged in labour and business; the remaining three were a van puller, student and service holder. The average age of husbands was around 39, and most participants had a secondary level of education.

As illustrated in Table 4-3, 18 HPs were interviewed representing three different health centres at the primary healthcare level of Bangladesh: UHC, UHFWC and CC. The HPs represented: (i) doctors (3) and nurses (3) working at the Batiaghata UHC; (ii) SACMO (2), FWV (2), pharmacist (1), family planning inspector (FPI) (1) and FWA (2) working at Shurkhali and Amirpur UHFWCs; and (iii) CHCP (4) working at village CCs. The average age of HPs was around 36, and there were 10 females and 8 males. Most participants completed the tertiary level of education. Most FG and interview participants were married, and their religious denominations were Islam and Hinduism.

Table 4-3 Demographic characteristics of the participants

Method	Location	Age	Sex	Marital status	Education/ qualification	Occupation/ designation	Religion
Women							
FG1 (N=10)	Village 1	16-49	Female	Married (N=9), Unmarried (N=1)	Primary (N=5), Secondary (N=3), Higher (N=2)	Housewife (N=8), Service (N=2)	Islam (N=5), Hinduism (N=5)
FG2 (N=7)	Village 1	16-49	Female	Married (N=7)	Primary (N=4), Secondary (N=3)	Housewife (N=6), Service (N=1)	Islam (N=5), Hinduism (N=2)
FG3 (N=6)	Village 2	16-49	Female	Married (N=5), Unmarried (N=1)	Primary (N=3), Secondary (N=3)	Housewife (N=4), Student (N=2)	Islam (N=6)
Interview1	Village 2	45	Female	Married	Primary	Housewife	Islam
Interview2	Village 2	30	Female	Married	Higher	Housewife	Hinduism
Interview3	Village 2	27	Female	Married	Higher	Housewife	Islam
Interview4	Village 2	35	Female	Married	Secondary	Housewife	Islam
Interview5	Village 2	26	Female	Married	Higher	Housewife	Hinduism
Husbands							
Interview1	Village 1	50		Married	Secondary	Labourer	Islam
Interview2	Village 1	42		Married	Primary	Business	Islam
Interview3	Village 1	48		Married	Secondary	Van puller	Islam
Interview4	Village 1	40		Married	Secondary	Business	Hinduism
Interview5	Village 2	24		Married	Higher	Student	Islam
Interview6	Village 2	38		Married	Secondary	Labourer	Islam

Interview7	Village 2	42		Married	Secondary	Business	Islam
Interview8	Village 2	30		Married	Higher	Service	Hinduism
Healthcare providers							
Interview1	UHC	40	Male	Married	Higher/ MBBS	Doctor1	Hinduism
Interview2	UHC	40	Female	Married	Higher/ FCPS	Doctor2	Islam
Interview3	UHC	30	Female	Married	Higher/ MBBS	Doctor3	Hinduism
Interview4	UHC	33	Female	Married	Higher/ Diploma in Nursing and Midwifery	Nurse1	Islam
Interview5	UHC	50	Female	Married	Higher/ Diploma in Nursing and Midwifery	Nurse2	Hinduism
Interview6	UHC	56	Female	Married	Higher/ Diploma in Nursing and Midwifery	Nurse3	Hinduism
Interview7	UHFWC1	57	Male	Married	Higher/ Medical Diploma	SACMO1	Islam
Interview8	UHFWC2	50	Male	Married	Higher	SACMO2	Islam
Interview9	UHFWC1		Female	Married	Higher	FWV1	Hinduism
Interview10	UHFWC2	27	Female	Married	Higher	FWV2	Hinduism
Interview11	UHFWC1	40	Male	Married	Higher	Pharmacist	Hinduism
Interview12	UHFWC1	35	Male	Married	Higher	FPI	Islam
Interview13	UHFWC1	54	Female	Married	Secondary	FWA1	Islam
Interview14	UHFWC2	30	Female	Married	Higher	FWA2	Hinduism
Interview15	CC1	35	Female	Married	Higher	CHCP1	Hinduism
Interview16	CC2	40	Male	Married	Higher	CHCP2	Hinduism
Interview17	CC3	36	Male	Married	Higher	CHCP3	Hinduism
Interview18	CC4	38	Male	Married	Higher	CHCP4	Hinduism

4.3.2 Themes corresponding to the TDF framework

Data analysis started with inductive coding to generate themes related to needs and experiences of women's healthcare access and utilisation that arose from the data, followed by grouping emerged themes into categories in relation to the TDF. A total of five themes were identified from the findings of the three participant groups, including women, husbands and HPs, which were mapped to specific TDF domains and then data were synthesised in five broad themes. Themes corresponding to all TDF domains were presented in Table 4-4. Detailed findings and original quotes are presented under the final theme headings.

Table 4-4 Themes and summary of the evidence corresponding to the TDF domains

Theme	Evidence	TDF domain
1. Lack of awareness and understanding of women and their husbands in PHCC services	The lack of awareness and understanding of women receiving healthcare services shows that they do not fully know how to access and use the services. Women have a limited understanding of the treatment undertaken. It is also observed a lack of awareness of both PHC and MHC services. In addition, husbands were sometimes unable to support their wives because they were not aware of all services offered by PHCCs and did not have enough understanding of the importance of the healthcare of their wives.	Knowledge + Skills
2. Capabilities and confidence in accessing and utilising healthcare services	Women's previous service using experience and regular contact with HPs enable them to get healthcare services. In contrast, fear and shyness hindered women to do physical examinations and share physical problems with HPs. Husbands due to shyness are sometimes unable to support their wives to get maternal care.	Skills+ Beliefs about capabilities+ Optimism+ Beliefs about consequences+ Emotion+ Behavioural regulations
3. Sociocultural barriers and facilitators to women's healthcare access and utilisation	Social constraints begin in a family when women are not always encouraged by their husbands or other family members to attend health services, therefore restricting healthcare access. Superstitions, religious taboos, the presence of male HPs and social stigma hinder women accessing care. In addition, the emphasis on traditional family norms and senior advice sometimes has a negative impact on husbands' support for their wives. Conversely, family support, neighbourhood connection and media information facilitated women seeking care.	Social/professional role + Reinforcement + Environmental context and resources + Social influences+ Emotion

4. Organisational barriers and facilitators to women's healthcare access and utilisation	Women often faced barriers to get services due to facing organisational barriers, such as poor health centre environment, shortages of medicines and tests, inadequate staff and early closure of the facility. Women were dissatisfied with the poor attitude of HPs, lack of privacy and inequality in provision they faced. In addition, women's healthcare utilisation was affected when preventive and childbirth services were underestimated by HPs. Also, lack of planning was observed among HPs when health issues were less focused in any meeting, and specific goals were deemed unnecessary to be formally assessed and achieved. However, some organisational services, such as home and satellite services for MHC and free medicines for both PHC and MHC, enable women to access and use services.	Knowledge+ Skills + Sole/professional role+ Beliefs about capabilities+ Beliefs about consequences+ Intentions+ Goals+ Memory, and attention and decision process+ Environmental context and resources
5. Environmental barriers to women accessing care	The physical environment including distance, poor roads and transportation, and natural disaster and seasonality were major local obstacles to access PHCCs by rural women.	Environmental context and resources

4.3.3 Theme 1: Lack of awareness and understanding of women and their husbands of PHCC services

This theme consists of findings from the perspective of female, male and HP participants that comprises five subthemes: preferential access to local services, culture of not making appointments, lack of awareness of the role of primary healthcare services, lack of awareness of the maternal healthcare services, and husbands' lack of awareness and understanding of their wives' specific healthcare needs. Findings of this theme are aligned with two TDF domains (see Table 4-4).

4.3.3.1 Preferential access to local CC services

The findings suggest that female participants lacked knowledge and understanding about healthcare service provision of local community clinics. For example, one female participant during one interview expressed that:

Our CC can provide all types of services related to my health and I [laughing] stay well after getting services from there (Interview5, female participant).

However, the capacity of CC services was limited in practice, and the statement above was somewhat challenged by the following CHCP statement made during one interview.

I can do some tests to check sugar level, blood pressure, height and weight, and sometimes haemoglobin and albumin phosphate. We don't provide pregnancy strips here; they [female] buy it from the outside. The medicine we provide doesn't cover all needs of a patient; it only covers the primary needs of the patient (Interview15, CHCP).

Female participants reported that they would largely rely on a CHCP in the rural CC as a first point of call, irrespective of their health status. One FG participant said:

I directly go to the CC and take services when I need to seek treatment (FG2, P4).

The participants did not appear to understand when it was necessary to visit the UHC or UHFWC to avail themselves of primary and maternity care services. They visited CC first even if they faced a major problem. When the women's health condition deteriorated and the CC services could not meet the demand, they sometimes moved to the UHC.

We sometimes go straight to the UHC when health conditions are in crisis (FG1, P4).

[Pause] Sometimes, we directly go to see a UHC doctor when the treatment is unavailable at CC (FG1, P4).

It was found that even though a woman reported feeling very unwell on the day of the CC closure, they waited to see the CC healthcare provider the next day. Moreover, family members of women encouraged them to go to the CC and seek treatment. One husband

shared that he also took his wife to a village CC as a first point of call to seek treatment and then took necessary steps according to the advice of a CHCP.

... if my wife falls in sick...I bring her to the CC at first, and if the CHCP suggests me to take her to Batiaghata UHC, then I would take her there (Interview4, husband).

4.3.3.2 Culture of not making appointments

Compared to more urban areas of Bangladesh, in rural Bangladesh, female participants reported being unaccustomed to having to make appointments before seeing a doctor or healthcare provider. Narrating the experiences, two participants of the FG1 said:

Appointment? No, I am not used to make any appointment. I directly go to the CC and take medicines from there (FG1, P3).

I go to the UHC and then wait in front of the room of a doctor whom I want to visit. Afterwards, when they call, I enter into the room (FG1, P1).

One participant during a semi-structured interview shared that she never made any appointment, and when she was asked to explain the reason, she replied: .

[Pause] I don't know how to make an appointment. I don't know their phone number (Interview1, female participant).

This there was an information gap around the need to make appointments. One interview participant further added that her family also did not know the system of appointment, and she had not thought about the necessity.

I don't know and even my family members don't know how to make an appointment. Also, all rural women go to the UHC directly and take the treatment. I never asked anybody whether the UHC offers any appointment system to visit a doctor (Interview2, female participant).

When an HP was asked during one interview, if there was any appointment system, he replied:

The 'first come, first served' process is usually followed. However, community women are advised to call me to avoid any queues and get services more smoothly than during busy times. My phone number is also written on the notice board. [Pause] Unfortunately most women visit this clinic without any notification (Interview8, SACMO).

The consequence of not making an appointment resulted in rural women having to wait a long time to see a UHC doctor.

When I go to see a UHC doctor, I must wait for hours. I can't reach to the UHC before 11am, and it consequently becomes late to receive visiting token because many nearby patients to the centre reach early than me. The UHC doesn't have any system of calling (making appointment) before going to the centre. Thus, I always don't go there (Interview5, female participant).

The lack of an appointment system also affected HPs' service delivery. HPs reported that women sometimes attending as a group made the health centre environment noisy, which distracted HPs. A FWV during one interview said:

... patients visit the UHFVC based on their wishes. They sometimes come in a group with their peers and don't want to wait. They sometimes shout, which makes the environment noisy (Interview10, FWV).

Corroborating this view, a pharmacist further added that when the workload became high due to the presence of increasing numbers of women and those accompanying them, service delivery was sometimes delayed, and consequently the pharmacist faced some unwanted behaviour.

Sometimes family members of patients [accompanies] scream because of the service delay... (Interview11, pharmacist).

Most rural female participants are not accustomed to making appointments to see HPs from PHCCs. The consequences of not making appointments were: workload for HPs, increased health centre noise level and delays in service delivery.

4.3.3.3 Lack of awareness of the role of primary healthcare services

The female participants reported understanding treatments provided by CCs because CHCPs ensured an awareness of the simpler tests, such as diabetes, blood pressure etc., prior to and post-test. However, more complicated investigations were difficult for UHC doctors to explain to participants. One female participant during FG1 said:

I met a UHC doctor to recover from high fever. The doctor advised me to give a blood sample to a pathologist, but I did not know why the blood was taken. The day after the test, I met the doctor with a report, and he told me that I didn't have any serious problems (FG1, P5).

The female participants also reported that they were aware of the types of PHC services offered locally, but when they were asked about the provision, they were unable to specify any services provided by the UHC. A female participant during FG1 just mentioned 'all' rather than anything specific, saying:

Moderator: Are you aware of the types of primary care services that are offered by UHC?

Participant 1: The UHC offers all types of services...

Moderator: Can you mention specific types of these services?

Participant 1: hmm...all (FG1, P1).

One female participant during the interview reported being confused about where the awareness campaign for women was arranged by the CC. She used the word 'suppose' and several times stopped talking (indicated with [pause] in the transcript) that indicates

she did not have the exact information about care. She also indicated the campaign related to only one disease.

Participant: Our CC recommends preventive services as primary healthcare.

Interviewer: How do they advise?

Participant: hmm...[pause] they ask women to come to certain places and listen to advice.

Interviewer: Where? Who does attend to advise rural women?

Participant: hmm...suppose...a school yard. The doctor and other healthcare workers come and talk about how to wash hands to avoid diarrhoea.

Interviewer: Does the advice only apply to diarrhoea?

Participant: Yes (Interview2, female participant).

The female participants sometimes appeared not being aware of the HP role and functions within the provided services for primary care. For example, one female participant during the interview2 mentioned the word 'doctor' several times referring to the CHCP of a village CC.

Participant: There is a doctor in the CC, and they provide basic treatment; so, I don't go other places.

Interviewer: Who is a doctor? Could you please tell me the designation?

Participant: The head of this clinic, hmm...the CHCP (Interview2).

In summary, the female participants often could not fully understand complicated tests and services offered by the UHC. They were also not aware of the CC campaign, and HP role and functions related to PHC. The next subtheme will discuss women's awareness of MHC services.

4.3.3.4 Lack of awareness of existing maternal healthcare services

Some female participants in FG2 were not aware of the treatment related to ANC services provided by the CC or thought it was not necessary to ask the CHCP for the treatment:

Participant 5: hmm...always we can't understand every service. When I was pregnant, I came to this CC and was immunised several times, but I didn't know the actual cause.

Moderator: Haven't you asked your CHCP?

Participant 5: No, I didn't ask as I only knew it (immunisation) was necessary to take during the gestation period. All things are given for our wellness, what can we ask them?

Participant 4: I can understand the treatment what our CC provides, but I can't ask the doctor for the explanation of any physical tests.

Others reported being afraid to ask the healthcare provider for tests. (See [section 4.3.4.3](#) for more details about fear related to services).

However, there was a different perspective concerning the understanding of physical tests. One female participant understood the test results taken during the birth of her child, though this may have been related to her background in higher study.

Yes, my blood was tested, and ultrasonography was done to check the position of the child before childbirth. The doctor also told me about the test results (Interview2, female participant).

Regarding PNC, all female participants (seven) during FG2 were not able to identify in any detail the services offered by PHCCs. However, two participants shared general information about the CC when they were asked about what services PNC include:

Weight measurement (FG2, P3).

They provide hexisol (hand rub) and vitamin capsule (FG2, P5).

Furthermore, women gained free family planning support from the UHC, but they had little understanding about the availability of services offered.

I don't know exactly how many types of family planning services exist there (UHC), but I take oral pill (FG2, P1).

In addition, some participants did not appear to identify the role and functions of the HPs within the provided services. The findings show that there was a general lack of awareness and understanding of MHC services among rural female participants and confusion about who provided what services. For example, rural participants, who were pregnant, reported that they did not visit their UHFWC as they thought services during a home visit by the FWA covered MHC services:

...we do not usually visit UHFWC as an FWA from the UHFWC visits our village and provides almost the same maternal services provided on spot (FG1, P2).

Through fieldwork observation, it was observed that the FWA from UHFWC only provides care related to ANC during home visits, whereas the UHFWC offered a wider range of on-the-spot healthcare provision (e.g., ANC, PNC, basic investigation, medicines, etc.). Women's inability to understand services relates to knowing the full range of services from the UHFWC.

Moreover, the female participants thought union and community healthcare providers were also the doctors because healthcare providers checked up and provided medicines. Some female participants in FG2 shared:

Participant 3: ...we get services here (CC) one day in a month. A doctor comes and issues the pregnant women a card.

Moderator: Does the UHC doctor visit CC?

Participant 2: No. From the union health centre.

Participant 1: Yes. Union health workers come here to provide healthcare services. Parineeta Didi (a female family welfare assistant) comes here from the union health centre. She will come again tomorrow (FG2).

During FG discussion, it was apparent that the female participants were less aware of the differences in service provision between two provider centres. For example, some female participants during FGs believed that UHC and UHFWC offered the same services, but in reality, it was different. Rural UHFWC emphasised maternal health services in addition to primary services for rural women, and maternal care includes both on-the-spot service and home visits, whereas the UHC did not offer any home visits for the same care.

We don't go there (UHFWC) regularly. But I know they offer almost same care and medicines that are offered from the UHC (FG2, P1).

The lack of awareness of female participants regarding MHC was identified when they were shown that they (i) were not aware of ANC, PNC and family planning services; (ii) did not understand the role and functions of HPs; and (iii) were not aware of differences in service provision.

4.3.3.5 Husbands' lack of awareness and understanding of their wives' specific healthcare needs

This theme incorporates two sub-themes: lack of awareness of the services offered by PHCCs, and lack of understanding of the importance of primary and maternity care. These sub-themes also include several categories.

4.3.3.5.1 Lack of awareness of the services offered by PHCCs

Most husbands knew that treatment related to PHC and MHC were offered by PHCCs. However, they did not know specific types of treatment and which PHCC offered what services. Thus, their lack of awareness and being unfamiliar with the existing services did not allow them to get involved in their wives' maternal healthcare.

I can't remember the services offered by CC for my wife as I am unfamiliar to such type of services (Interview1, husband).

I don't know all the services, but I can say some of those that are being given to my wife (Interview2, husband).

One male participant during one interview mentioned that they did not know the reasons why men should come for MHC services with their wives.

ANC services are provided for women, why need to come men! unless to carry the baby; that is also preferred to be done by our sister or mother (Interview5, husband).

The HPs mentioned that husbands usually come with their wives during childbirth and only a few come for ANC and PNC.

I find few husbands come to assist their wives to seek ANC and PNC services. They [husbands] usually go to the UHC during labour and childbirth of their wives (Interview9, FWV).

The lack of education was found to be a common problem for most of the husbands and for this reason they were unable to support their wives.

I with my wife always don't go to the UHC as I cannot understand what the doctors prescribe. Also, I don't know the place of tests that makes me embarrassed, and consequently, I need help (Interview3, husband).

The statements above show that husbands may not be aware of the services offered by PHCCs due to the lower level of education and lack of communication between spouses. They may also attend the UHC during childbirth as this process is a more stressful event than other maternal services, such as ANC and PNC.

4.3.3.5.2 Lack of understanding of the importance of primary and maternity care

Husbands within all the villages reported that it was important for wives to visit PHCCs. However, most husbands were not aware of where their wives sought treatment in primary care. Some husbands only accompanied their wives when the care required was related to the UHC.

I know and accompany my wife when she visits Batiaghata UHC; otherwise, I don't know where she goes (Interview1, husband).

I don't know when my wife visits the UHC or other health centres (Interview2, husband).

In addition, husbands had some understanding of the importance of PHCC services.

Yes, it was really helpful. Due to their advice, my wife is now healthy (Interview1, husband).

Of course, visiting PHCCs can meet a patient's demand. The guardians [in-laws] of the house go there [PHCCs] with my wife and get information about care... If you speak to them, they might talk to you. I remain busy due to my work. They visit the doctor and tell me the things that are required to be done (Interview2, husband).

The consequence of not understanding the importance of services delayed their wives engaging in maternal services.

...I did not know about the necessity of antenatal care for my wife. When I went to CC with my six-month pregnant wife, the CHCP informed us about the services available for pregnant mothers, and then we attended CC once a month (Interview3, husband).

When husbands were asked why they did not know about the importance of their wives' healthcare utilisation, they replied that it was not always their responsibility to know. Even

husbands never thought that there might be important preventive advice for wives related to MHC.

If my wife regularly visits CC during pregnancy, she gets some medicines to stay healthy (Interview5, husband).

Importance...hm they may have tests such as diabetes and blood pressure that is necessary to measure to keep control during pregnancy (Interview3, husband).

The lack of husbands' understanding about the healthcare importance for their wives was related to husbands' lack of involvement in their wives seeking care.

4.3.4 Theme 2: Capabilities and confidence in accessing and utilising healthcare services

The theme of capabilities and confidence in healthcare service access and utilisation includes three subthemes: self-health management techniques of women, lack of intrapersonal skills, and lack of women's self-confidence. Findings of this theme are aligned with seven TDF domains (Table 4-4).

4.3.4.1 Health self-management techniques of women

Rural women developed their health self-management techniques in two ways: (i) utilising previous service using experience and (ii) making regular contact with HPs. The experience of rural women using PHCC services helped them to use the subsequent services provided by similar centres. Narrating the experiences, one FG female participant said:

I am not a newcomer in the CC. I have started coming to CC since my first pregnancy-around 10 years ago. Thus, I know everything available here (FG1, P1).

Some FG and interview female participants shared that regular contact with HPs and participation in CC meetings helped them to know about the services.

I maintain contact with the CHCP and FA so that they can share with me any new information related to my health (FG2, P2).

As I go to CC continuously, I can know the functions of equipment and for this reason I don't face any problems (Interview2, female participant).

Participation in meetings also helped women to ask health-related issues and share their problems. During the meeting with the HPs, women asked the HPs to advise them on preventive healthcare so that they could maintain their health. Women also said that they can ask HPs to take steps so that shortages of medicine can be minimised.

... I think we need to maintain the advice of a doctor... or CHCP. Also, we should sometimes request our CHCPs or physicians to advise us on health issues and

then we will get some updated information. For example, a doctor came to CC yesterday and informed us about coronavirus. He advised us to drink extra water and clean our hands before consuming any kind of food (FG2, P4).

Suppose in our CC, we don't get necessary medicines all time and then we can ask our CHCP to increase the supply of medicines immediately (Interview5, female participant).

Since I regularly visit CCs, I know the service providers that helps me to share my problems (Interview2, female participant).

The excerpts above show that women can get proper services through health self-management techniques, such as applying previous experience with the services and having regular contact with HPs. However, these techniques were related only to getting CC services.

4.3.4.2 Lack of intrapersonal skills to use healthcare services

Unlike previous capabilities, the lack of intrapersonal skills sometimes reduced the capability of the female participants to access and use of PHCC services. The lack of intrapersonal skills includes lack of remembering, literacy and inability to travel alone.

The female participants sometimes did not appear to remember the date of visiting a physician at CC for pregnancy care. One participant during one FG said:

A guest physician visits CC once a month and offers mainly maternity counselling. I can't always remember the date of visiting the physician. This opportunity is open to us once a month. If I miss once, I must wait until next month (FG2, P3).

HPs added that the key challenge for women was their lack of remembering treatments. Sometimes women forgot the dose for taking medications although it was written on the prescription.

...we prescribe certain medications and advise women taking these before a meal or twice or once a day, but they mix-up their medications despite clearly stating them in their tickets. ...most of them return to us and say they have forgotten. So, we must use alternative techniques to make them clear, for example, one mark means one or two marks means twice (Interview6, Midwife).

During one FG, one female participant shared the consequence of forgetting the date of visiting the UHC.

Last time, I missed the date of VIA test at the UHC and wrongly went there one day before the exact date. [pause] I then returned home again and didn't go back to the UHC due to tiredness (FG2, P6).

Furthermore, the inability to remember CHCP advice by the female participants hinders them engaging in CC maternity services. Moreover, women, who had low level of literacy, could not understand the services properly.

My problem is I can't read a prescription and documents related to treatment made by a doctor. So, I always need the help of another person. That is why, I don't always visit a doctor (Interview1, female participant).

In addition, women in Bangladesh do not generally go outside alone. Moreover, if a long distance is involved, women cannot travel without the help of others, which sometimes impedes them from visiting PHCCs when necessary. During one interview, one female participant shared:

I don't usually go out alone. Hmm... I can go to the nearest CC but going to the UHFCW or UHC is not easy for me because I don't know the roads and places in the village (Interview1, female participant).

Moreover, the women, who knew the location of PHCCs, could not always go there easily as they were unable to ride vehicles. During FGs and interviews, female participants said:

We don't have a good public transport system. Like most of the males in our village, my husband has a bicycle, and he can travel anywhere. I am a female; I can't ride a bicycle. Thus, I can't move to anywhere anytime that hinders timely access to the facility (FG2, P7).

No female from my family used to ride a bicycle or motorbike. In addition, the dress, saree and borka, we wear is not suitable to ride. Thus, we need to depend on hired vehicles (Interview3, female participant).

It is clear from the findings that women's healthcare access and utilisation were hindered by their forgetfulness about appointments, lack of understanding of services due to educational level, and inability to travel.

4.3.4.3 Women's lack of self-confidence in seeking treatment

Another barrier is women's lack of self-confidence in seeking treatment, which affects their healthcare access and use. The lack of women's self-confidence is evident shown by their fear and shyness related to seeking treatment. Women, due to fear and shyness, sometimes could not access and utilise the PHCC services. Women's fear was associated with the physical tests. Some women were anxious about specific tests and their interaction with medical staff.

When I see a doctor, I feel a bit worried because they can advise me to have a blood... hmm ... urine test. I feel pain when injection is pushed in my body, and I can't see my blood. Also, if the test indicates anything wrong, further investigation may be needed which further aggravates my anxiety (FG1, P4).

I don't feel fear when I see a CC or UHFWC healthcare provider for both primary and maternal healthcare as the treatments don't apply to any complex physical examination. However, I was worried to see a UHC doctor during my last childbirth as I had to go through many tests before childbirth. I was sent to a different room where everyone was unknown, which was a terrible experience for me. I never want to meet a doctor for childbirth again (Interview3, female participant).

Fear was also associated with women's inability to discuss their physical problems with doctors.

No, I... am scared and hesitate to talk to a doctor. My husband then helps to tell my problems to the doctor (FG2, P6).

In most cases, I cannot share with a doctor my problems in a face-to-face condition because when I come into a doctor's room, I forget everything. Then my husband assists (FG2, P1).

Along with fear, shyness was also a major problem for women to get services. Women sometimes could not share their problems with a doctor as they felt shy to express.

... I have genital problems... that prevents me having sex with my husband. Now, how do I share this with a doctor? I feel hesitant and ashamed. So, I asked my husband so that he could share my problem with a doctor (FG2, P5).

In some cases, women feel uncomfortable to avail themselves of MHC services. One nurse during one interview said:

When I ask a woman to unbutton her blouse during ECG (electrocardiogram), she feels uncomfortable. In the case of VIA (Visual Inspection with Acetic Acid) test, we have to perform a visual inspection and then women also feel uncomfortable and do not want to perform the test... (Interview4, Nurse).

Moreover, shyness was also related to husbands of the female participants and for this reason they could not always support their wives to seek services. Husbands reported they felt discomfort going to the clinic with their wives because they might be embarrassed if their friends saw them. Also, they felt discomfort to discuss when the issue is only related to the female. Husbands during interviews said:

I don't go with my wife to see a CHCP, but the female persons of the household go with her. I don't go as I am young and if any of my friends see me on the way of going CC with my wife can tease me badly (Interview1, husband).

Always I cannot visit PHCCs with my wife. My wife and CHCP are female, and they discuss their issues, therefore I hesitate to enter the room of the CHCP (Interview5, husband).

Thus, fear and shyness were key barriers for women accessing care. Shyness also prevents husbands from supporting their wives seeking care.

4.3.5 Theme 3: Sociocultural barriers and facilitators to women's healthcare access and utilisation

The theme consists of two subthemes: sociocultural constraints and sociocultural supports related to access and utilisation of healthcare services by Bangladeshi rural women. The subtheme of sociocultural constraints relates to the sociocultural factors that hinder access to and utilisation of healthcare by rural women. Conversely, the sociocultural supports include the support of family, neighbour and media that enable women to access healthcare. This theme comprises the findings of five TDF domains (see Table 4-4).

4.3.5.1 Sociocultural constraints

This subtheme consists of seven categories: lack of family reinforcement for primary care, intergenerational continuity and the role of in-laws, superstitions related to women's maternity care, religious taboos to the uptake of birth control techniques by women, gender of the healthcare providers, social stigma and family norms preventing husbands to support wives.

4.3.5.1.1 Lack of family reinforcement for primary care

Most female participants sometimes faced less support from their family members to seek primary care. Narrating the experiences, one FG female participant said:

Sometimes we can't share our problems with our family members, and they don't even consider if we share. For example, a while back I had a serious headache, and then shared with my family members, but they told me it was a normal problem and would naturally subside within two days (FG1, P4).

Some female participants were not happy with the behaviour of their husbands and mother-in-law. FG women shared their memories with regret.

Our husbands... say not to visit the UHC. Even if our CHCP refers us to visit the UHC, we are not sometimes allowed to go there without convincing our husbands. Why should we convince our husbands? Shouldn't they understand that their wives may face difficulties and for this reason, they want to visit the UHC? Bad luck Apa (referring to the female moderator) ...bad luck. If we ask to go to the UHC, they excuse of the shortage of money...hmm...and so many excuses (FG3, P1).

... My mother-in-law did not receive a test for cervical cancer and when I shared with her about our CC service for cervical cancer screening, she scolded and discouraged me from taking the test. That is why, I could not have that test (FG1, P2).

Nearly all husbands also acknowledged that they could not always manage time to accompany their wives.

I work every day and stay busy with my business. I even work on Friday and Saturday [holidays] too. For this reason, I cannot always accompany my wife to seek treatment ... (Interview3, husband).

Sometimes female participants faced physical torture from their husbands when they asked their husbands to take them to the health centres.

My husband doesn't cooperate me at all for seeking treatment, and he slapped me last time when I told him to take me to the UHC (FG2, P7).

In rural Bangladesh, a culture of polygamy (a family consisting of one husband and more than one wife) is common in some places. Women faced a challenge in seeking treatment when their husband was shared with another woman.

I can't even convince my husband to accompany me to visit UHC if I'm sick. My husband recently married again and is always busy with her care (FG3, P2).

An interview with one UHC doctor revealed that the patriarchal attitude of society sometimes hinders women to seek treatment in Bangladesh.

We are living in a patriarchal society where men are superior to women, and this tendency is more prevalent in rural societies compared to urban. When any female member of a family gets sick, her problem is not always taken seriously. To some extent, women do not share their problems with other family members as they think their problems will not be a priority issue (Interview1, doctor).

In summary, women did not always get support from their families. This was due in most cases to the lack of attention paid to women by family members, the stress of husbands' work and a patriarchal attitude of the society.

4.3.5.1.2 Intergenerational continuity and the role of in-laws

Family members, including mothers-in-law and sisters-in-law, discouraged a lot about women's pregnancy care and childbirth at facility centres. As in-laws did not use the facilities that women were now getting, they thought it was unnecessary for women to visit health centres. One female participant during her interview shared that her mother-in-law insisted that she seek a traditional healer that the mother-in-law had experienced, to maintain their identity and intergenerational continuity.

... My mother-in-law doesn't want me to visit a doctor. She always tells me her own experience of pregnancy and childbirth in her days. She never attended any health centres for maternal services. If she had any problems, she relied on Kabiraji treatment (a kind of traditional treatment). She now tells me to see a Kabiraj and to follow the Islamic way of life (Interview3, female participant).

Sometimes the mother-in-law in the Muslim families also prevented women from taking vaccines to avoid pregnancy complexities. In-laws were reported by the female

participants in the FGs to react about the eating behaviour during their pregnancy and childbirth. Two female participants of the same FG said:

My mother-in-law asked me during my pregnancy why do you need to eat so much? I had childbirth when I was working in the paddy field. I ate no extra foods and had a normal baby delivery. Why do you need to visit a CC? (FG1, P3)

When I had a caesarean baby, my senior sister-in-law told me, do you know why you are in the hospital now? You ate too much as the city doctor advised you to eat. It is their policy that they will receive money when you have your surgery (FG1, P7).

4.3.5.1.3 Superstitions related to women's maternity care

Superstitions in rural Muslim families were sometimes challenging to pregnancy care. The pregnant female participants had a very difficult time due to the fear of superstitions. Narrating the experiences, both FG and interview participated female participants said:

My family members help me to go out to visit HPs during pregnancy, but it is limited to daytime only. Hmm...I had severe pain during my first pregnancy...umh...not related to labour... and it was at evening. But my family members didn't take me then to the hospital as going outside for a pregnant mother during the night was considered to be vile for the family and bad for the foetus in our village. (Tearing...and wiping with her saree) I had a very terrible night that I can still remember and the next day my husband took me to a UHC physician (FG2, P1).

My father-in-law said it is not good for a baby and family to share pregnancy issues with outsiders. Also, as a Muslim female, I can't talk to an outside male. If I urgently need to go to PHCCs, I must accompany my husband and wear a burkah (Interview4, female participant).

The Hindu female participants were also affected by superstition. Hindu families in some 'religious sects' tend not to eat certain protein-related foods such as meat or fish because they believe that living a vegetarian life during pregnancy will keep the foetus safe. The healthcare providers always advise the Muslim and Hindu patients to avoid family superstitions. One UHFWC SACMO during one interview shared:

Some... Hindu pregnant women visit UHFWC for ANC check-ups. During pregnancy, they don't consume meat, fish, eggs, and even some pulses and consequently, they suffer from low weight. Then I advise them to avoid dietary rules and take extra foods that can reduce your nutritional deficiencies; otherwise, both you and your child will suffer (Interview8, SACMO).

In essence, the common barriers to maternity care of women were related to the restrictions of in-laws and family superstitions.

4.3.5.1.4 Religious taboo to the uptake of birth control techniques by women

Adherence to religious faith is commonly considered for the well-being of humans. However, it sometimes becomes controversial when the ideology of religion goes against the modern concept of healthcare. The FG and interview data revealed that the female participants who lived rurally faced some religious barriers to the uptake of birth control techniques. For example:

I may not take oral pill, or my husband doesn't use condom as a family planning strategy because my mother-in-law and husband both said it was not in their family practice. If I want to control the pregnancy by taking contraceptives, Allah will be unhappy. Controlling the pregnancy is a task of gunnah (offence) (FG2, P3).

My husband is a Hujur (Islamic priest), and he says, in Islam it is haram (not allowed) to control population willingly. If you die of taking the implant, nobody will attend at your burial (FG3, P3).

The HPs also thought that some religious obligations such as the restriction of following the HP health advice by female participants becomes a barrier to access healthcare. Females are the common victims in this case as mostly superstitions are imposed by the society in the name of religion.

...Some patients shared me that their husbands attended the mosque and then the Imam (priest) threatened them by asking why their wives often needed to be taken to the hospital to get modern services of family planning. In the past, it was not common, people followed Iman (the ethics of Islam), but now it has decreased a lot (Interview9, FWV).

The barrier also came from a mother-in-law, and the participant explained:

My mother-in-law is dead against taking a pill to control pregnancy. She says, why have you stopped having children? You will die (Interview1, female participant).

However, some women took birth control pills, which they kept in a secret place.

I keep the pills of birth control in my bubu's (senior sister) house because if my husband knows it, he won't allow me to stay in the house. So, I always go to the bubu's house at evening and take a pill...(FG3, P1).

When the moderator asked what they would you say if their husband asked why they were not conceiving for a long time, the woman had to falsely reply to her husband.

[laughing] Apa, you have asked me a good question. Yes, my husband asked me, and I told him that I had some physical problems and that's why I wasn't conceiving (FG3, P1).

The consequence of taking birth control was not always satisfactory for women. If women faced any problems after taking birth control techniques, they were badly treated by the family.

The family does not seriously take all types of illness. [Pause] Mainly illness was related to the birth controlling. I faced huge bleeding after having an implant for the first three months and when I informed my husband, he said are you kidding? Also, when I felt discomfort with the implant, I sometimes took a rest after cooking. My mother-in-law didn't like it and said you are feigning? I then went to the UHFWC and shared my problems with a FWV and then she advised me to change the implant and to take a three-month injection as an alternative method (FG3, P2).

In brief, women in Muslim families face religious restrictions for adopting the modern concept of birth control. Using a birth control technique is considered a taboo and for this reason if anyone wants to do so, she needs to maintain her privacy, convince her husband and face criticism.

4.3.5.1.5 Gender of the healthcare providers

Another social issue is the gender of HPs, which is related to undertaking treatment of the rural Bangladeshi women. The female participants were found to be more interested in seeking treatment from the female HPs. Most FG female participants expressed that having a female physician was always better for pregnancy care and family planning issues as they could express all physical problems to the doctor and allow them to touch their body. Speaking about this, two female participants during FGs said:

If a female physician is available, it's always better for us because we can feel free to tell her about our pregnancy problem. If an investigation is needed, we may consent without hesitation for a female doctor to touch our organs instead of a male (FG1, P4).

A female doctor is more helpful than a male as being a female, she clearly understands everything related to birth control techniques (FG2, P1).

Women also experienced hesitation with the treatment of some primary care problems, especially related to their internal issues.

Shame sometimes occurs when we meet a male physician to talk about physical problems. For example, I was embarrassed when I met a male doctor at UHC because my problem was related to irregular menstruation (FG1, P5).

I was suffering from uterine problems for eight months, but I could not express it to a male doctor (FG2, P1).

In contrast, some participants shared that they did not face any problem to see a male HP, particularly when the problem was not maternal:

...there is no problem to see a male doctor when the problem is related to fever, cough or diabetes (FG1, P10).

It is not a problem if a female or male doctor is available as I think the service will be the same for all cases. If I can tell my problem to a doctor, there will be no problem ...disease is a disease, it shouldn't be separately identified by the gender

of a doctor. Problems must be shared with a doctor, and I didn't face any problem to share my problems with a male CHCP (Interview4, female participant).

When women could not share their physical problems with a male HP, they faced delayed treatment or had to change the place of treatment from the primary level health centres to the secondary level. Some female participants during FGs shared:

Problems related to breast and menstruation are not possible to discuss with a male physician. We sometimes face these problems and then go to the UHC and wait for a female doctor (FG3, P2).

Around two years ago...right hmm... I was feeling pain in my left breast [pause] and went to the UHC to see a female doctor. But I couldn't find any female doctor and was unable to disclose to a male physician at UHC. Later, I went to a female doctor at Khulna medical (district level hospital) and then got my solution (FG2, P6).

Thus, delayed treatment for women is the result of not seeing a female HP. The problem of sharing women's private health issues with a male HP is more problematic when the issue is maternal care.

4.3.5.1.6 Social stigma-the hidden threat of sharing illness

Sometimes women with an illness were unable to share their problems with people in their community as they were afraid of being stigmatised.

If I met a doctor at UHC, people in the neighbourhood would ask why I went to Batiaghata. They think I might be suffering from a major disease; otherwise, I would not go to the UHC. If people know my problem, they simply can't accept it. Because of this, sometimes we don't visit the UHC (FG1, P5).

The consequence of being stigmatised might be the reason that women may be reluctant to attend the UHC services or even the fear of being divorced.

This is common because if my relatives or neighbours find out that I have a problem with my private parts, they may take it differently. So, it's better to keep silent and get treatment from the CC if it's possible. If we go to CC, no one will suspect as we regularly visit there. However, if we go to the UHC, people around us ask why I went there (FG1, P4).

My neighbour was divorced because she was unable to conceive due to some physical problems. Although her family and relatives knew about the problems, they didn't take her to a doctor and ignored her. Also, they influenced her husband to remarry, hoping for a baby. So, we sometimes don't share our problems with husbands...(Interview3, female participant).

In summary, sharing information about illness is a challenge for women because women, who have an illness, may be more likely to be stigmatised in rural Bangladesh.

4.3.5.1.7 Family norms preventing husbands to support wives

Most joint families (a family that consists of three or more generations and their spouses who live together in a single house) in rural Bangladesh have a norm of following elders' advice for decision-making. Although the elders' decision sometimes contradicts modern ideas of treatment, husbands cannot always ignore their decision to support their wives with modern treatment. They are accustomed to protecting family hierarchy. Speaking about family norms, two husbands expressed that:

Always I can't fix my wife's healthcare needs by ignoring my mother. She accompanies my wife to seek CC care. If my mother cannot travel, she then asks me to accompany my wife. Hm...my elder brother followed mother's advice during pregnancy and childbirth care for his wife, and now I am following the same tradition (Interview8, husband).

Most childbirth in our family is arranged at home and I therefore cannot ask my family members to take my wife to the UHC for childbirth (Interview6, husband).

Speaking about family socialisation, one husband from another village expressed:

...few males in our community accompany their wives to health centres. Mostly parents and elderly women manage the healthcare of pregnant women in our village (Interview1, husband).

This subtheme concludes that family norms affected the support of husbands for their wives' maternal care.

4.3.5.2 Sociocultural supports

Although women face several constraints in seeking healthcare services, they receive some support in using PHCC provided healthcare services. This subtheme includes three categories: family support, neighbourhood connection and mass media influence to access and utilise healthcare services by women.

4.3.5.2.1 Family support

Family members were reported not only to encourage, but also accompany rural women seeking PHC and MHC services. Some rural women expressed that husbands usually accompany them while visiting PHCCs.

... my husband came with me to seek antenatal care at CC. In addition, if I need to visit the UHC, my husband encourages and goes with me (FG1, P7).

My husband takes me to UHC doctors immediately after I fall in sick. If he doesn't stay at home, my mother-in-law calls upon a doctor. Some days ago, I was vomiting, my mother-in-law came and asked me to take medicines (FG2, P4).

Corroborating these views, interviews with husbands revealed that they were active in supporting their wives to seek treatment. If husbands sometimes could not accompany their wife, they managed to get somebody else to accompany them to attend PHCCs.

I take my wife to the doctor immediately if she becomes sick.... I bring her CC at first, and if they suggest me to take her to Batiaghata UHC, then I would take her there (Interview4, husband).

This is my duty to take my wife to PHCCs. If I cannot accompany her, I try to manage to get somebody else to go with my wife at PHCCs (Interview8, husband).

Husbands also played a lead role in seeking treatment for their wives, such as hiring transport, managing money and making contact with the facility. Also, most husbands shared that they made joint decision with their wives to seek treatment. Husbands were also concerned about access and use of maternity services for their wives.

If she [my wife] faces physical sickness, I don't feel mentally well. I then take her to the CC (Interview2, husband).

I always prayed to God so that my wife would have a risk-free childbirth (Interview8, husband).

Furthermore, some female participants, who attended the FGs, shared that their in-laws help them to record the appointment date for ANC visits and monitor whether medicines were taken timely by women. In addition, women did not feel fear during physical tests if their family members accompanied them at PHCCs.

The presence of a family member while taking blood for the UHC lab test reduces my tension (FG1, P2).

The quotes above illustrate that the role of husbands and other family members were supportive of women to seek treatment. This support was mostly related to MHC, which can be classified into three areas: (i) accompanied support, (ii) leading the support, and (iii) emotional support. However, the support of family members was mostly related to maternal care.

4.3.5.2.2 Neighbourhood connection

Like family members, neighbours play a pivotal role assisting rural Bangladeshi women to access and utilise healthcare services. Rural women made connections with neighbours based upon their marital and pregnancy status. Women often used to visit CCs with their neighbours.

The women, who are my neighbours with children or pregnancy conditions, visit CCs. They ask me if I want to join them. We often go to CCs together (Interview3, female participant).

The women, who attended the focus groups, reported to take the same types of birth control techniques that were taken by their neighbours. There was also a culture of sharing the birth control among rural women. Thus, women knew which birth control their neighbour used and its effects before taking this.

I took the same oral pill as a birth control technique that was taken by my neighbour. I asked my neighbour if she faced any physical problems after taking the pill. When she said that she didn't face any problem, I took the same oral pill (FG1, P5).

The excerpts above indicate that rural women receive support from their neighbours to share and use birth control.

4.3.5.2.3 Mass media influence

Mass media, including television and radio broadcast MHC related information. Rural women are being inspired by media content, such as local songs and dramas, to know the location of healthcare centres and proper time of contacting with HPs. Two female participants during one FG and interview stated:

Now we sometimes watch the television that contains visual information of when to visit nearby clinics during pregnancy. We now know we should have at least four times ANC contact with a CHCP. It helped me a lot to visit our CC (FG2, P3).

We don't have any television, but we listen to the radio where some folk dramas and songs are broadcast about pregnancy care. These programmes include sources of mothers' nutritious food and their regular healthcare needs from CCs, which inspired me accessing CCs (Interview2, female participant).

Access to the available local mass media made women aware about accessing CC maternal healthcare.

4.3.6 Theme 4: Organisational barriers and facilitators to women's healthcare access and utilisation

The term organisational refers here to the issues related to the health centres where healthcare services are provided for rural women. This theme includes two subthemes: organisational constraints and organisational supports. This theme comprises the findings of nine TDF domains (see Table 4-4).

4.3.6.1 Organisational constraints

The subtheme of organisational constraints focuses on the PHCC related factors, which impede rural women's healthcare access and utilisation. This subtheme includes twelve categories: health centre environment, inadequate supply of medicines and tests, health workforce crisis, long waiting time, closure of the facility, inequality in provision, attitude of the healthcare providers, lack of privacy, less focus on preventive care, 'jack of all trades, master of none', HP lack of planning and unaffordable costs.

4.3.6.1.1 Health centre environment

The issue of the health centre environment was commonly raised by all participants in relation to PHCCs. The environmental problems which women encounter when visiting PHCCs, such as the physical condition of health centres and limited washing, toilet, seating and fan facilities, were barriers to using services.

Women in the FGs shared that the condition of the CC infrastructure was too poor to always be able to provide continuity of services by the CHCP. The CHCP needed to continue services from the home during the rainy season as the old CC building was submerged in rainwater. In addition, women could not find a place to sit. The lack of waiting rooms for patients was also common at UHFWCs.

The condition of our CC infrastructure is not good. It's an old building. During the rainy season, our Didi continues her services from her house as rainwater enters the old building. We can't find a place to sit on. If more than five people come together, they need to stay outside (FG1, P9).

Our UHFWC seating arrangements are not good. They have no waiting room. If we visit the UHFWC, we must stay outside, and it gets tough even in the sun and rain (FG3, P2).

Along with the female participants, HPs had the same opinion about the physical condition of CCs.

The condition of the CC building is fragile. I can't fix a table. I have to lay the patients on the floor during check-ups... It's also very risky to enter the building during the monsoon. I need to use an umbrella to protect from the rainwater. It's risky for both patients and me to continue services (Interview13, CHCP).

Rural women were not satisfied with the CC toilet facilities. Some CCs did not have usable toilets, and some had toilets, which were too dirty to use. Sometimes, it was reported that women coming from far away could not clean themselves due to the non-availability of CC washing facilities.

We come to CC from the long distance. ...Hmm...when we reach to the centre, we usually feel sweaty and thirsty. Also, during the rainy season, our feet become muddy. We need to wash our face, hands and feet, but the CC doesn't provide washing facility. If we need to use water, we rely on the outside deep-tube-well near to a mosque, but outsiders simply don't accept it (FG2, P4).

The opinion of HPs about the health centre environment supported the above views of the female participants. HPs faced poor water supply along with frequent power cuts in their PHCCs. It was also common that toilets were unclean, and some centres did not have any facilities. Along with toilets, PHCC surfaces and surroundings were not clean. These issues adversely affected HPs to continue their services to women. Speaking about the uncleanliness of UHFWC, one of the SACMOs during interview said:

UHFWC is a garbage centre of this area... People litter within the boundaries of our health centre and you can even smell urine. The water is also stagnant inside the UHFWC where the mosquito lays eggs. Thus, we feel discomfort to continue services (Interview7, SACMO).

The findings suggest that the unhygienic PHCC environment both hindered women from seeking services and HPs from providing services.

4.3.6.1.2 Inadequate supply of medicines and tests

The inadequate supply of medicines and tests in PHCCs was another dimension of the organisational factors that was prominent in the narratives provided by the female participants, husbands and HPs.

The female participants during FGs and husbands during interviews described that the shortage of medicine was common in PHCCs. Lack of antibiotics often led to supply problems and all kinds of medicines were not available by the end of the month, which discouraged women from visiting PHCCs. Speaking about this, the female participants and their husbands shared:

Sometimes we see medicine scarcity in PHCCs. UHC doctors prescribe some medicines, which we need to buy from outside due to its scarcity (FG2, P6).

...Our CHCP provides medicines, but some necessary medicines are not available. ...They provide medicines today and finish it by tomorrow. That is why we don't always go to the CC (Interview3, husband).

The views about the shortages of medicine were supported by HPs. For example, HPs identified that they were not always able to supply necessary drugs that hindered the uptake of services by the female patients. One of the female FWAs from UHFWC shared:

...available stock of medicines of UHFWCs cannot meet the needs of all women for ANC (Interview11, FWA).

The shortages were not only related to medicines, but also to providing physical tests and childbirth facilities. Findings from one interview with husbands revealed that some tests related to pregnancy and childbirth were not offered at the UHC and, consequently, patients needed to visit other facilities.

The services offered by the CC for my wife are good, but for physical tests she needs to go to the UHC. But some tests are not offered by the UHC and then she needs to visit the district level hospital. Also, UHC does not offer caesarean childbirth and preventive care is not available at all (Interview1, husband).

The quote of the husband above was in line with HPs. The uptake of maternal services by the female patients was hindered when the UHC doctors or nurses were unable to offer some tests and the facility-based caesarean childbirth. Speaking about the shortages of tests, one of the UHC doctors said:

In some cases, I feel impeded. If there is risk during labour of a woman, I cannot try for a normal birth, but rather a caesarean. But we are not equipped for a caesarean birth at our UHC. Then I have to refer her to the district level hospital. I have to send some patients with serious conditions such as miscarriage or internal bleeding to go out for ultrasonography as we presently don't offer any test for it (Interview3, doctor).

The consequence of the shortage of medicine and tests was related to HPs being unable to continue to provide services to rural women. Lack of confidence in services was raised by all HPs as they could not get enough medicines and equipment to provide and perform treatment, which resulted in them feeling ineffective to assist patients. Moreover, some HPs broached the topic of the inability to invite pregnant women for C-section as the UHC labour room was only ready for assisting local births of women and for this reason, patients might feel alienated from health centres.

... we are not equipped to provide caesarean childbirth. For this reason, some pregnant women do not show much interest to come here for childbirth purposes (Interview1, doctor).

Overall, all study participants, including women, husbands and HPs, identified that utilising healthcare was a challenge for women due to inadequate medications, tests and services.

4.3.6.1.3 Health workforce crisis

Interviews with HPs revealed that the shortage of healthcare workforce was a common problem at PHCCs and for this reason, existing staff were sometimes unable to provide services smoothly.

The prime barrier here (CC) is manpower. Usually, every CC should have at least three staff...But sadly, this CC has no permanent HA or FWV...I as a CHCP need to manage all activities. Rural women are deprived of the family planning services due to the absence of an FWV (Interview14, CHCP).

Moreover, the impact of staff shortages led to work stress for the existing staff. Rural women usually came to the market once a week and went to the UHC at the same time. Thus, the timing of UHC visits by rural women in the area was mostly on the weekly 'bazaar day'. The culture of rural women doing two things together made the UHC healthcare professionals extra busy because they did not get any extra help to provide services on busy days:

...on weekly bazaar day, a lot of patients come. They tend to complete two tasks at a time, but the UHC doesn't have enough staff to support extra patients (Interview3, doctor).

These quotes provide evidence that the lack of staff affected the delivery of PHCC services.

4.3.6.1.4 Long waiting times

Another organisational constraint was the long waiting time for receiving healthcare services. The female participants shared that HPs were not present at UHFWCs at times. Sometimes, women travelling from a distance needed to wait a long time to see a HP, making women less interested in getting the services available. Speaking about waiting a long-time at the UHFWC, one female participant said:

I visited a SACMO at the UHFWC around six months ago. I timely reached the UHFWC, but I had to wait around three hours to meet the SACMO. I told him ... Sir I have come from far away (almost 30km away) and have been waiting for you for a long time. Can I visit you now; otherwise, I can't return home? He replied, you must follow my time, not office time; I do not come to the office in the morning. Afterwards, I never went there again because if I need to wait until 12pm (when the doctor arrives), I won't have enough time to return home safely (FG1, P7).

Women in other FGs expressed a similar view when they had to wait a long time to see a UHC doctor. There was concern about when they would be getting home after a long journey.

Time is a big issue for us. Last time, I went to the UHC, and the doctor didn't come until mid-day. I waited for three hours; they do not always perform their duties properly. So sometimes I get frustrated and think that if I go to the UHC and don't get a doctor on time, when will I get home? My elderly mother-in-law can't take care of my kids, it's an extra tension (FG3, P3).

This subtheme concludes that HPs were not punctual enough to provide services, and therefore women were deprived of receiving timely services.

4.3.6.1.5 Early closure of the facility

Women sometimes had to travel long distances on poor roads to visit PHCCs, (see [section 4.3.7.2](#)), but the PHCC closed early, and the situation was worse during the coronavirus pandemic. Thus, uncertainty about the facility being open for patients was always a concern. Discussing her experience, one female participant said:

Our CC does not regularly open amid the coronavirus pandemic. If it is open, all staff don't come. Now they work on a rota basis. That's why we can't visit the person we need. Also, we don't get the medicine properly as the supply of medicine is not enough now (Interview1, female participant).

Moreover, another problem of women not visiting the UHFWC was that they were unable to arrive at the centre on time because the UHFWC did not offer long opening hours and that prevented them visiting the centre.

We usually can't visit our UHFWC. The UHFWC closes at 2pm regularly and even sometimes earlier; so, we can't get to the centre in time from our home. It takes around four hours to go. If we want to visit UHFWC, we are female...hmm...we

need to finish household activities with childcare first and then we can start journey. Thus, we don't always have enough time to plan our trip (FG1, P1).

Village women also had less opportunity to get emergency treatment from the UHFWC and CC. These centres did not remain open for 24 hours a day. Thus, women either needed to search for alternative services or had to wait for the reopening time.

We don't get any emergency treatment from our CC. CC services are not available in the afternoon and at night. Also, this centre remains fully closed on Friday. Therefore, if any woman faces any emergency health problem on Thursday, she either needs to travel to the district hospital or wait until Saturday. Moreover, CCs remain non-functional, if a CHCP attends a meeting or is on leave (Interview3, female participant).

The early closure of the facility was mostly related to UHFWCs and CCs. The facility remains closed when HPs cannot reach the facility in time and services are not always offered, thereby limiting access to women, especially those who travel a distance.

4.3.6.1.6 Inequality in service provision

The findings from the interviews with HPs revealed the inequalities that rural women face when using services provided by PHCCs. These were associated with using drugs and beds at health centres.

A few local powerful people sometimes come to our UHFWC and tell us to provide medicines even though these are not necessary. The unnecessary supply of medicines causes shortages of medicines that affect the provision of services to rural patients (Interview7, SACMO).

A UHC nurse also shared the same concern about inequality about the use of beds.

A pregnant mother with her husband came to our UHC to get childbirth support. We then didn't have enough vacant beds, and she was asked to use a floor bed that other patients usually do when the demand is high. Her husband forced me and the doctor on duty to manage a bed quickly for his wife; otherwise, he would take action...Eventually we had to manage a bed by convincing an admitted patient. We were sorry for the admitted patient, but she understood and told us, it's alright and I have no problem using the surface (Interview5, nurse).

The findings suggest that the inequality in services prevails due to the misuse of power of the local people, which affects healthcare services for rural women.

4.3.6.1.7 Attitude of healthcare providers

Another issue related to the healthcare access to women is their concerns about the attitude of HPs. FG with female participants revealed that they were satisfied with the services provided by CCs. For example, one FG female participant mentioned:

We are happy with our CC services because we have received free medication and can share our problems to a CHCP without hesitation that they listen attentively (FG3, P2).

However, female participants sometimes experienced unfriendly attitudes by the UHC and UHFWC healthcare providers that discouraged them to visit these centres. The UHC physicians only asked about the health problems of women, and they often did not inform women about the cause of their problem. Even if women asked whether they would be cured after taking the prescribed drugs, the physicians appeared not to care. They were not always present during the labour of pregnant women. In addition, female participants were afraid to ask anybody about the absence of a doctor or nurse.

I had a normal childbirth at our UHC. My baby was born at midnight without the presence of a doctor on duty. Only one nurse was present upon request. But a doctor is supposed to attend during the childbirth (Interview3, female participant).

When the interviewer asked the female participant why she did not ask the reason for the absence of a duty doctor during the labour, the participant replied:

...we are from a poor family, and nobody cares about us (Interview3, female participant).

Female participants sometimes faced mistreatment not only from doctors but also from nurses during maternal care.

P1: When I had childbirth at the UHC, a nurse... scolded me as I couldn't operate postpartum therapy to control abdomen pain.

M: What did she tell?

P1: [Laughing with the distress of mind] hmm...all I can remember she identified me as a village ghost, knows nothing. Why are you here? Your presence increased our workload.

M: Haven't you complained?

P1: No, I didn't do it for fear. And my husband told me not to do anything as if we complained, we wouldn't get the service (FG2, P1).

Female participants sometimes were not satisfied with the behaviour of SACMO at UHFWC. They did not get services and medicines properly. Speaking about the attitudes of SACMO, one FG participant said:

The SACMO says, don't you have a CC in your village? Why are you here? Who has sent you here? Your CC is better than the UHFWC. Go go go... (FG2, P1).

Along with female participants, husbands sometimes faced difficulty to support their wives to access care as the absence of HPs without notice was common.

I cannot always meet the CHCP when I visit a CC. Sometimes they come in late at CC and sometimes they don't come without notification (Interview1, husband).

The HPs agreed that sometimes they could not maintain a good attitude towards patients; they suggested it was a big challenge as they needed to manage many patients every day.

I would never say I can always show positive attitudes towards patients. Sometimes I feel annoyed when a huge number of patients come to see me and then it becomes difficult to be patient (Interview1, doctor).

The female participants and their husbands were not always satisfied with the attitudes of UHC and UHFWC healthcare providers.

4.3.6.1.8 Lack of privacy

The female participants complained that health centres could not always protect their privacy. Women have consultations with HPs where other women are present and can hear the discussion.

...when I meet with a CHCP or doctor, other patients can hear my discussion. I then sometimes can't share all health problems with them (CHCP/Doctor) (FG2, P1).

Women felt embarrassed when they were treated in front of other patients.

... sometimes a CHCP injects drugs into our body in an open room. Often other patients including men enter the same room and can see us. It's really bothering as some parts of our body remain uncovered during the injection. It's required to have a curtain...hmm...or if we were asked to enter in a separate room, it would be better (FG3, P2).

The female participants broached the lack of privacy when visiting PHCCs and expressed their dissatisfaction with the lack of privacy management.

4.3.6.1.9 Less focus on preventive care

Most HPs emphasised curative services compared with prevention. Some preventive advice was provided during maternal care and were mostly related to pregnancy services. Speaking about the experiences, one UHC doctor during one interview said:

Maternity care includes mainly ANC. In the first trimester, I advise women about what type of work they can do, prescribe medicine and provide free medicines. In the second trimester, I advise medicines, food chart, and travel and work rules. Finally, I suggest preparing for childbirth. If patients come from far, I suggest them to admit at least one week before. Furthermore, follow-up after childbirth and vaccination are also provided. I also need to work with an unplanned pregnancy and sometimes an abortion (Interview3, doctor).

Expressing the main reasons for HPs not providing preventive services as lack of time, and prevention being less important, HP participants from UHFWC and CC stated:

Prevention is good, but we can't always provide it to all patients. Some counselling services are provided to pregnant women. I need to manage time if I focus on preventive service. You have people dying at your door because they cannot get in (Interview8, SACMO).

In our CC, patients come for medicines and tests. If we advise on prevention, women don't follow. That's why we focus on healing services in most cases (Interview16, CHCP).

The findings above suggest that preventive care by HPs may not be available for two reasons: (i) insufficient understanding about the importance of prevention and (ii) having a busy schedule.

4.3.6.1.10 'Jack of all trades, master of none'- expressing the lack of HP competency in treatment

HPs had common issues about having the skills for a particular service. Most HPs had general competence but were not experts in specific conditions; it seemed they were 'jack of all trades, master of none'. The lack of competency or skills of HPs in certain treatments has sometimes affected their capability to deliver care in local healthcare services for women. For example, UHFWCs and CCs did not have any skilled HPs for local childbirth management, and only one gynaecologist was serving at the UHC. Sometimes it was difficult for her to deal with so many female patients and when she was on leave, nurses or midwives only managed childbirth locally. Some HPs were also not concerned about their lack of skill. These HPs thought the lack of skill was a simple issue, which did not affect the local healthcare services.

No person is full of skill. Every person lacks certain skills, and they are doing their job, so I have some...so what? I am continuing [service] with it (Interview15, CHCP).

Moreover, the lack of HP skills was identified in relation to engaging the female participants in treatment. This barrier was related to all PHCC providers. For example, one doctor during one interview addressed:

As woman engagement is an important issue when it comes to providing services, it's almost difficult for me to reach out to all of them (Interview2, doctor).

Furthermore, most union and community healthcare providers did not think it was necessary to orientate women about the services they provided. Sometimes female participants were not asked to take a seat when seeing a HP.

Because of the busy schedule and the provision of medication and counselling, we are sometimes unable to provide patients with a place to sit and know how they are passing days (Interview16, CHCP).

A lack of HP expertise was found not only in providing specific services but also in how to engage female patients in treatment.

4.3.6.1.11 HP lack of planning in service provision

This subtheme discusses which factors led to a lack of planning by HPs and how these hindered healthcare services provided to rural women. The culture of discussing with a colleague about how to improve services was limited to the UHC healthcare providers. However, HPs from UHFWCs and CCs were not used to sharing their limitations with their colleagues, which led to a lack of planning to meet the needs of local residents.

Meetings are sometimes arranged to discuss the condition of women with colleagues when FWA like me cannot understand the condition of women properly. But we don't have any fixed schedule for arranging a meeting to share with colleagues about how to improve the condition of women (Interview11, FWA).

I sometimes discuss with my colleagues but at present, my colleagues are not present. They are working at union no. 3. I hire them from there to provide services for this CC (Interview14, CHCP).

In addition, there was no formal health needs assessment. The excerpt below shows that HPs did not have any formal plans to decide which primary and maternal services should be provided for women. HPs mostly took the decision based on the women's health condition.

Mainly we observe the symptoms of a patient and then try to advise based on our knowledge. We also discuss with our colleagues particularly with the FWV what services to provide so that patients can be benefited. If we think we are unable to treat patients with our existing facilities, we refer them to the nearest hospitals (Interview7, SACMO).

The lack of a formal health needs assessment may be the result of skills lacking by HPs in this sector, therefore hindering women to get proper treatment.

Furthermore, a lack of specific goals was related to a lack of planning by HPs. All HPs during the interviews shared that they did not have any specific goals about the services, which are being offered such as meeting the need of the patients or for more effective services to improve PHC and MHC service provision.

Goals...no hmm not like this. As I am working here (UHFWC), it is my responsibility to provide the services. Patients come to see me, and I provide them with medication and advice (Interview10, FWV).

Together, the results show that the lack of planning of HPs in the provision of services has been identified in relation to three issues: (i) lack of group discussion to improve services, (ii) no formal health needs assessment and (iii) lack of specific goals.

4.3.6.1.12 'Unaffordable' costs—even in so-called 'free' services

The final barrier within the organisational constraints is costs associated with care. The female participants were provided with some free services from PHCCs. They enjoyed free services for both check-ups and medicines. During one FG, a participant said:

Most UHFWC check-ups for pregnant women include blood pressure and weight tests. They also offer free iron and calcium tablets (FG2, P6).

However, all the costs associated with care were not free. The cost of care incorporates some of the cost associated with the payment of drugs and travel, and sometimes informal payments were made for seeking services. The female participants shared that as they were from a low-income family, they could not always afford the cost of care. Women sometimes needed to buy medicines which they could not afford.

...the economic crisis...makes it difficult for us to access health centres. We need to work outside to support our family. So, how do we manage money for healthcare? When we go to see a doctor, they prescribe a lot, and it requires much money to buy medicines (FG1, P4).

Finances were a constant barrier to healthcare services for many, and this barrier was mostly related to getting the UHC treatment. The female participants were more likely to visit the nearby CC and, in some cases, UHFWC rather than the UHC further away from their homes. Thus, it was difficult for the female participants, who had little money, to manage expenses related to travelling to the UHC and lab tests. The situation became worse for the female participants who were not involved with income generating activities because sometimes they did not get assistance from their husbands. One participant during a FG said:

We don't know how much we have to spend when we go to the UHC for treatment. We get some free drugs, but lab tests are not free. We also have to pay for travel expenses. My husband is a petty trader and almost unable to afford the UHC treatment because we need to take care of our family, including children and in-laws (FG2, P3).

The cost of healthcare also became more expensive when the UHC did not offer all tests and for this reason patients needed to travel another place.

When I was admitted to the UHC for childbirth, the doctor advised some emergency tests, such as blood and ultrasonography. Only blood test was undertaken at the UHC because this centre presently doesn't offer ultrasonography. Thus, I had to move to a city private clinic for the test of ultrasonography. It was a burden for us to bear the cost of test and travel (Interview3, female participant).

Corroborating the views of the female participant above, a UHC doctor said:

The UHC patients mostly come from remote villages. Their household income is inadequate, which affects their health budget. Women sometimes avoid going for physical tests even if they are advised to do so. Some women are unable to buy the full dose of the prescribed medication (Interview1, doctor).

Furthermore, the use of PHCCs for childbirth was sometimes associated with some nurses or midwives demanding for money or materials for their services, which was an unexpected and additional burden for poor families.

Although a UHC nurse assisted in my childbirth, my husband had to pay her some money and a saree (a long cloth) as a gift, which was difficult to give for our family (Interview3, female participant).

Both the female participants and HPs found that finding money to seek treatment was a heavy burden for most women. This burden is doubled when husbands have to meet the illegitimate demands of some HPs for childbirth.

4.3.6.2 Organisational support

Although PHCCs had many shortcomings to supply and provide services to the women, some PHC and MHC services were being provided. The primary care services of the UHFWC and CC include the services for general health problems and three minor physical tests, such as checking for diabetes, blood pressure and weight by paraprofessionals or CHCPs. These services helped facilitate women in accessing and using PHCCs. The women shared their views about CC primary care.

Primary care at CC includes general health problems, such as sneezing, fever, coughing, hm...high pressure, pain... primary problems, are treated here initially. [pause] I forgot to tell you, here is a test with a diabetes stick (FG1, P4).

I usually go to the UHFWC for checking diabetes levels, blood pressure and weight... (Interview4, female participant).

Compared to the other two centres, the UHC offered better primary care services to women in Bangladesh. For example, the UHC has the facility of doctors or nurses, and women can see them to seek treatment. Also, more pathological tests than UHFWC and CC were offered to diagnose diseases.

We can see a doctor for the services of high fever, serious aches or injuries that are not available at CC or UHFWC. The UHC also offers X-ray and other investigations... (Interview5, female participant).

In addition, the service offered by PHCCs include maternal healthcare alongside primary care. The female participants revealed that women visited CC and UHFWC to identify whether they were pregnant and to use maternity services, which were available. Furthermore, rural women used the facility-based childbirth, ANC and PNC services offered by the UHC.

Normal childbirth services are offered at UHC as there are doctors and nurses who attend during birthing (FG2, P4).

Responses of women from FGs and interviews revealed that PNC services were very minimal. PNC services were offered to new mothers.

...CC provides PNC services for a new mother and her newborn (FG2, P6).

Moreover, there were some remote services provided by the UHFWC and CC for rural women. Findings from one FG found that services were sometimes provided by a FWA once a month for pregnant mothers who lived in remote areas and could not visit CCs or UHFWCs.

Sometimes, our FWA comes to our house during pregnancy period to advise how to avoid risk and provide some medicines, such as iron tablets, vitamin...hm...like this (FG2, P1).

Conversely, interview data revealed that the UHFWC healthcare providers engaged women through the satellite services to access and use services. They arranged an *uthan baithak* (the courtyard meeting) at the central position of a village where all women were invited at a certain time. HPs also motivated women by highlighted their rights to use maternal services. Physical problems of women were listened to by HPs and then they were advised.

FWVs and FWAs come to our village once in a month or once every two months to arrange an uthan baithak with married women. They discuss pregnancy care, for example, what to eat extra and what to do or not to do during pregnancy. They invite husbands and in-laws to advise about pregnancy care of women. They also provide birth control pill to married women (Interview4, female participant).

Women were also provided some support services by PHCCs. In this study, support services included the services that motivated women to get involved with care. Women were provided with some free medicines and check-ups from all PHCCs in rural Bangladesh.

We get free check-ups and medicines from CC. So, I don't need to think about monetary support from the family (FG1, P6).

It's really good as the UHC provides us with medicines. If anyone falls sick, we go there and get free treatment (FG3, P1).

Supporting this view, HPs shared that rural woman mainly visited health centres to receive cost-effective but essential services.

They (women) can get primary medicines for free, and pregnant women can get antenatal and post-natal check-ups from our village centre, they can check their weight, height and blood pressure (Interview16, CHCP).

The support service also included the system of referral. Some of these added benefits included special attention and timely medicines and check-ups. Two female participants said:

If the CHCP refers us, the UHC doctors check-up us with attention (Interview4, female participant).

We get timely check-ups and medicines if we can show the reference slip provided by a CHCP (FG1, P6).

Finally, women were mostly satisfied with the attitudes of CC healthcare providers compared to those of UHFWC and UHC healthcare providers. Women reported that CC healthcare providers asked them to take a seat and were attentive to listen to their health problems. HPs also provided the necessary physical tests and medicines. CC healthcare providers also visited homes of women during their pregnancy and took care of them. Participants reported that the CC healthcare providers behaved like a family member and encouraged women to receive timely services. One interview participant said:

They ask us about what we need. If they have the medicines available, they provide us. If they don't have, they promise to provide us when a new shipment of medicine arrives. They are very friendly (Interview1, female participant).

Like the women, husbands were also satisfied with the attitude of CC healthcare providers, which motivated them to accompany their wives for their appointments. As a result, women frequently visited CCs and received services.

Thus, the organisational support for rural women includes several primary and maternity services, including free medicine and testing, childbirth facilities, satellite services, referral arrangements and respectful care.

4.3.7 Theme 5: Environmental barriers to women's healthcare service access

It was often a challenge for women to reach PHCCs for PHC and MHC services due to local environmental or geographical factors, and these are categorised into three subthemes: distance, poor roads and transportation, and natural disaster and seasonality. Findings of this theme are aligned with the one TDF domain (Table 4-4).

4.3.7.1 Distance to the facility

Distance was a common problem preventing rural women from visiting particular UHC/UHFWC facilities. Narrating about distance, a female participant said:

I can easily visit CC, but if I want to visit the UHC and UHFWC, I need to manage the whole day. The UHC is around 20 kilometres away from my home and I need

at least two hours to arrive by local transport and another two more hours to return. For this reason, we cannot think of going to these places always (Interview3, female participant).

Distance was not only problem for women, but also for their husbands in accompanying their wives to attend healthcare services:

I need around two hours to arrive at the UHC from my house and consequently, I always cannot accompany my wife (Interview6, husband).

HPs were in agreement about distance being an issue for women who lived rurally. HPs perceived that rural women were unable to timely attend the UHC due to being a long-distance away.

I think distance is a key issue, along with other challenges, for women not finally connecting to the UHC. Some villages are far from the UHC and people in those places need plenty of time to travel. So, women are sometimes frustrated to visit the UHC and instead rely on the nearest CC (Interview3, doctor).

In summary, distance of the facility made it difficult for women to visit the UHC and UHFWC and for husbands to accompany their wives.

4.3.7.2 Poor road networks and transportation

Along with distance, poor roads are a major problem for rural women in accessing PHCCs, especially when seeking maternity care. Female participants stressed the impact of poor roads.

Broken roads can lead to miscarriage.., it becomes risky for a pregnant mother. If we had a childbirth facility at CC, it would have been easier for us (Interview5, female participant).

...the road is not in good condition. Hence, we get so tired and lose strength before we reach the facility (FG3, P6).

Corroborating the view, one of the FWVs from UHFWC said:

...many women from remote villages cannot always visit our UHFWC to seek for treatment as the roads become muddy during the rainy season. Moreover, pregnant women face the problem of jerking when they pass uneven roads by local vehicles (Interview10, FWV).

A difficulty in getting transportation was a major hindrance to using PHCC facility for PHC and MHC, mostly for women who did not reside within a walking distance of the facilities. The primary means of transportation in these rural communities are pedal van, easy bike (tricycle) and local trawler, and these are usually not available in large numbers.

Managing timely transportation is difficult because there are not enough vehicles in rural areas and even those that do exist cannot reach our homes to carry us to health centres due to broken and narrow roads (FG, P5).

We need to travel by local transport, and it is not always possible to manage during an emergency and, consequently, we can't travel UHC at night; that increases my tension (Interview6, husband).

Women travelling to UHC/UHFWC was also associated with causing panic. They were afraid of local trawlers sinking and as a result, they tried to avoid the waterway to visit the UHC for childbirth. Speaking about this barrier, two female participants said:

Every year one trawler sinks in the river that causes panic among the people and consequently, we are afraid to cross the river and try avoiding this way (FG2, P4).

I went to the district level hospital instead of our UHC for childbirth. The distance of the district hospital is twice that of our UHC. Although it is a long journey to visit a district hospital, we can avoid crossing a river. It was risky during my pregnancy to cross the river by a local trawler; so, I didn't choose UHC (FG2, P2).

The present findings confirm that the poor roads and transportation lessen the opportunity for women to access the UHC and UHFWC for maternal care.

4.3.7.3 Natural disasters and seasonality

Natural disasters, such as cyclones and heavy rain during the monsoon, are common problems for not visiting PHCCs experienced by village women in Bangladesh. Women cannot go out during cyclones and rain. One female participant referred to the difficulty of visiting the UHC and UHFWC during these times for both primary and maternal care.

It is difficult to get services from the UHC and UHFWC during cyclones and the rainy season. The roads become muddy and slippery, and some places remain disconnected. I can't walk down the street and have to stay home without care (FG2, P1).

Participants' experiences following a recent cyclone were also shared:

A recent cyclone called Amphan hit our area and as a result our villages were cut off from the city for about a week. During that time floodwaters overflowed the roads that disrupted the local communication system. The river became turbulent and then it was risky to cross the river. The local trawler could not carry people through strong winds and flood waters. For this reason, we stayed at home and prayed to God so that we could not have to go to the UHC and UHFWC (Interview5, female participant).

I can't manage time to take my wife to seek for treatment during and after cyclones as I remain busy to repair the damage (Interview8, husband).

In summary, natural disasters and seasonality were identified as barriers to women accessing healthcare services when they faced travel difficulty due to heavy rains and strong winds.

4.4 Discussion

4.4.1 Summary of findings

In this study, the TDF (Cane et al., 2012) was used to explore (i) knowledge and experiences of primary and maternal healthcare services among women in rural Bangladesh and (ii) factors which influence the uptake, access to and utilisation of primary and maternal healthcare services among women in rural Bangladesh. The first theme answered the first objective of the study, and the second to fifth theme answered the second research objective. The combination of FGs and interviews enabled the collection of qualitative data from participants in three groups: rural women, their husbands and HPs. The TDF was used to guide the interview schedule, provided a “lens” for the study and a framework for data analysis. Key barriers included:

- lack of knowledge of healthcare services
- lack of confidence in treatment
- lack of support from husbands and other family members
- superstition
- gender of the HPs
- inadequate health centre infrastructure
- shortages of healthcare staff
- inadequate medicines and tests
- lack of preventive care
- unaffordable costs
- distance and poor roads.

Key enablers included:

- experience of using the facility
- family and neighbourhood support
- free medicines and treatment
- local childbirth facility and remote services.

This research using the TDF provides the first comprehensive map of barriers and enablers to access and use of PHC and MHC services by rural Bangladeshi women. These barriers and enablers are discussed under five specific themes and placed within the context of the wider literature.

4.4.1.1 Lack of awareness and understanding of women and their husbands in PHCC services - need for awareness building solutions

Although WHO and UNICEF (2018b) in 'A vision for primary healthcare in 21st century' highlighted the importance of having knowledge related to PHC services for women to ensure appropriate services and achieve SDG3, the existing literature has not focused on this issue, especially with regards to a Bangladeshi perspective. The current empirical research reveals that rural Bangladeshi women's access and utilisation of PHC and MHC services from PHCCs were hindered by their lack of knowledge and understanding of the services offered to them. The findings of the study are consistent with studies conducted in other parts of the world, such as Pakistan (Maheen et al., 2021), Germany (Mattern et al., 2017), the United States (Spleen et al., 2014) and Saudi Arabia (Amin et al., 2009), but not in agreement with a study conducted in Mozambique where women's knowledge of maternity services was not found to be associated with the use of ANC services (Gong et al., 2019). The lack of knowledge and understanding in the current study identified issues of preferential access to services, a culture of not making appointments, lack of awareness of the existing primary and maternity care, lack of intrapersonal barriers, and husbands' lack of awareness and understanding of their wives' healthcare needs. Women were more likely to visit the CC as the first point of call even in cases of emergency without considering the service provision offered. However, CCs in Bangladesh are limited in its provision of emergency treatment, emergency medications, logistical support, maintenance and supervision (Riaz et al., 2020; Normand et al., 2006). In addition, although there was an opportunity to make a phone call before coming to PHCCs, women did not use the telephone services. Women were also not aware of the role and functions of PHC and MHC service providers and were not aware of differences in types of services being provided. These issues are an under-researched area in the wider literature.

Furthermore, this study reveals husbands' lack of awareness and understanding of their wives' specific healthcare needs. Husbands were also unable to understand the specific types of PHCC services and the importance of these services for their wives. It is difficult to engage men in maternal education and health centre services for their wives because men in many cases do not come into contact with the health service (Davis et al., 2016). For these reasons, the husbands were often unable to support their wives in seeking treatment.

The lack of understanding and awareness of PHC and MHC services by women and their husbands may be related to their low levels of education and lack of information about these services. This knowledge gap may restrict women from accessing and using PHC and MHC services, and husbands from supporting their wives to receive services. Several studies highlighted that sharing health service information with women and men can improve health outcomes (Lusambili et al., 2021; Rao and Shokeen, 2021; Bishwajit

et al., 2017; Davis et al., 2016). Therefore, increasing community awareness and providing health service information is important for targeting behaviour change so as to improve women's access to and use of healthcare services.

4.4.1.2 Capabilities and confidence in healthcare services - need for motivation and training

Capabilities and confidence in accessing and using healthcare services includes some personal attributes of women and their husbands that prevent and enable women to access healthcare services. In accessing healthcare, women used their capabilities such as the application of knowledge obtained from previous experience of using services. In addition, their regular contact with HPs helped them to understand the services and share the problems they faced. These relationships between healthcare users and providers were considered a key factor for quality of care because they could positively impact health outcomes (Johnson, 2019). However, the findings also indicated that regular contact with rural women was limited to CC healthcare providers instead of UHC and UHFWC. There may be some reasons for this, for example, the nearest location of CCs, power relationship and familiarity. Rural women can share their problems with CC healthcare providers without hesitation because they do not have as much power as UHC doctors, and they are also known to the villagers.

In contrast to their capabilities, women's lack of self-confidence in treatment affected their healthcare access and utilisation. This lack of self-confidence is the result of their attributes, such as fear and shyness related to seeking treatment, and this finding has similarities to a Norwegian study (Mbanya et al., 2020). Fear and shyness among women were associated with physical tests. Shyness was an obstacle not only to women accessing and using healthcare services but also for their husbands in supporting wives receiving maternity care, and is in line with a study undertaken in Uganda (Kabagenyi et al., 2014). The lack of support by men during women's maternity care may be due to the lack of communication between couples and existing gender norms - reproductive health is considered only a 'woman's issue' (Miltenburg et al., 2017). This study's findings suggest raising community awareness and understanding so to increase active support of family members.

4.4.1.3 Sociocultural barriers and facilitators to women's healthcare access and utilisation - need to develop culturally appropriate strategies

In the present study, key sociocultural facilitators for rural women accessing and utilising healthcare services included support from family, neighbours and mass media. Family

support mainly comes from husbands and in-laws for accessing services. In the literature review chapter, only men's support for using birth control by women was revealed. However, this study goes beyond previous studies in terms of exploring several types of family, neighbour and media support for both primary and maternity care, which can be classified as accompaniment support, leading support, emotional support and health information support. Family and neighbourhood support was also a significant factor in several of the studies undertaken in other countries (Dalal et al., 2022; Moyer et al., 2014), where support was only identified for maternity care. Strong family ties and social relationships with neighbours in rural Bangladeshi settings can help women to seek care from PHCCs.

Conversely, FG and interview participants identified several sociocultural barriers, which include lack of family encouragement for primary care, intergenerational continuity and the role of in-laws, superstitions related to maternity care, religious taboo, gender of HPs, family norms and social stigma, for access to and use of healthcare services by rural women. The findings are aligned with previous studies in Asia and Africa (Dalal et al., 2022; Shah et al., 2018; Bohren et al., 2014; Moyer et al., 2014); however, these studies were only related to pregnancy care and childbirth. Sociocultural barriers can delay the treatment of rural women and, as a result, it may become a threat to their lives. Restrictions regarding the movement of women to health centres during emergencies may cause delays in seeking timely care (Omer et al., 2021; Khan et al., 2020).

Lack of support by family members including husbands and in-laws appear to adversely affect access and utilisation of PHC and MHC services by women. Furthermore, family norms of maintaining the decision of elders often hinders husbands from supporting their wives in a timely fashion. The consent of family members was necessary for rural women to make significant decisions in her life, from family planning to her choice of consulting with a suitable HP (Sripad et al., 2019). It may be the fact that rural people are not aware of the importance of modern treatment. In addition, rural people, compared to urban, do not receive a lot of media exposure about the importance of women's health, which can improve health behaviour in general (Bishwajit et al., 2017). The current study found that the gender of HPs hinders women from accessing care when they have to see a male doctor about a maternity issue. This can be interpreted as the ideology of purity and shame, which is so important for the status of Bangladeshi women that they feel hesitant to share their physical problems directly with a male HP (Hossen and Westhues, 2011; Rozario, 1995).

Cultural restrictions on women accessing the facility are another barrier noted in the study. Superstitions contributed to the preference of rural families for women to consult a traditional HP instead of a modern HP. Religious taboos also inhibited women from

using a birth control technique. The strong influence of superstitions and taboos on women's maternity care practices is consistent with previous research by LMICs, including Bangladesh (Nisha et al., 2021; Raman et al., 2016; Roberts et al., 2016). Thus, it is suggested that the existence of superstitions and taboos be considered when developing interventions for improving healthcare access and use of healthcare by rural Bangladeshi women (Nisha et al., 2021). Since religious or community leaders are often considered as respected and trusted individuals in rural communities, they can be involved in providing modern healthcare information to rural communities which can be an effective way to reduce superstitions that delay access to healthcare services (Nisha et al., 2021).

Since sociocultural practices greatly influence PHC and MHC services by rural women, it is necessary to consider these issues when determining future intervention development. Therefore, healthcare information, to be effective, must be presented in a culturally and regionally appropriate format that is useful to rural women, their family members and HPs.

4.4.1.4 Organisational barriers and facilitators to women's healthcare access and utilisation - need for infrastructure development, training and motivation

The theme of 'Organisational barriers and facilitators to women's healthcare access and utilisation' compared to the other themes covers more issues. Organisational supports include free medicines, tests and consultations for both primary and maternity care. Rural women can also use facility-based childbirth at UHC. In addition, some community programmes, such as family and satellite services, are organised for maternity care in rural areas.

On the other hand, organisational constraints include 12 health centre related issues, such as health centre environment, inadequate supply of drugs and tests, health workforce crisis, long waiting times, closure of the facility, inequality in provision, lack of privacy, attitude of HP, lack of preventive care, lack of HP skills, HP lack of planning and unaffordable costs. Women and HPs were highly dissatisfied with the PHCC environment, most of which include poor condition of the facility, uncleanliness, and lack of washing and waiting rooms. These findings confirm those of earlier studies, conducted in LMICs (Bohren et al., 2014; Mannan, 2013), where inadequate infrastructure and lack of cleanliness of the facility were identified as associated with poor quality of care. It is suggested to restructure the environment of health centres to increase healthcare utilisation by women.

In addition, previous studies identified negative HP attitudes, which commonly entailed verbal abuse and rudeness (Okonofua et al., 2017; Mannava et al., 2015). The current study revealed the same results, and the stress due to HPs' heavy workload was identified as the main cause of poor attitude. Poor attitude can demotivate rural women to access PHCCs. Thus, strategic approaches would be useful to build the right number and quality of staff to meet the population of women seeking maternity care (Okonofua et al., 2017). Another issue is the lack of HP-provided preventive treatment for rural women. Two reasons, including lack of understanding of the importance of prevention and workload, prevented HPs from providing preventive care in rural Bangladesh. It is therefore suggested that HPs should emphasise the importance of preventive care for rural women.

Furthermore, rural women in Bangladesh also reported that their healthcare services were affected when they did not receive sufficient medicines and timely treatment due to inadequate staffing. These are also common problems of rural health service provision in developing countries (Chinyakata et al., 2021; Ntoimo et al., 2019; Bohren et al., 2014). Efforts should be made to provide adequate staffing, sufficient equipment and necessary medicines in PHCCs to ensure quality of care.

Furthermore, barriers to the use of services by rural women were associated with inequality in service provision, lack of privacy, long waiting times and lack of planning. All factors, except inequality in service provision and lack of HP planning, were consistent with previous studies in Africa (Chinyakata et al., 2021), Nigeria (Ntoimo et al., 2019) and LMICs (Bohren et al., 2014). In most cases the lack of training of healthcare providers is an issue. In addition, the inaccessibility of specific rooms and the lack of ongoing maintenance of the facilities could be related to the lack of privacy issue. However, there is a need to further investigate the reasons why HPs cannot maintain the privacy of female patients. Interestingly, the current findings from the HP interviews revealed two new issues: inequality in service provision and lack of HP planning. South African studies (Silal et al., 2012; Harris et al., 2011) highlighted inequalities in healthcare services, in terms of costs associated with care and geographic regions. However, the current study found that rural women were confronted with discriminatory childbirth services due to the exercise of power by local people. Motivation sessions with local people can be organised to reduce power abuses.

Consistent with prior studies in LMICs (Maheen et al., 2021; Ntoimo et al., 2019), this study demonstrates that rural women's local childbirth was hindered by the lack of HP skills. Also, the findings suggest that HPs were unable to involve rural women in treatment. In addition, the lack of HP planning was observed when there was no discussion about improving women's health, no formal assessment of health needs and

no specific goals. It may be related to the lack of accountability of HPs. Thus, the findings suggest that HPs should be trained in the development of competence and responsibility.

4.4.1.5 Environmental barriers to women's healthcare services - need for restructuring the local environment

The final issue is related to the physical inaccessibility of healthcare centres. Female participants during FGs and interviews expressed that distance, poor road conditions and lack of vehicles, natural disasters and seasonality were significant barriers for them in accessing health centres. Similar findings have been reported in other developing countries where poor road and transportation inhibited women from accessing health centres (Maheen et al., 2021; Rizkianti et al., 2021; Akter et al., 2020; Bohren et al., 2014; Yao et al., 2013). However, physical inaccessibility was related to the UHC and UHFWC, but not to the CC, as there were generally easily accessible. Importantly, the present study revealed two new barriers, natural disasters and seasonality, which have adversely affected rural women's access to healthcare centres and have not been explicitly highlighted previously in the literature. Current investigations also illustrate that rural women refused to have maternity care such as facility-based childbirth from the UHC due to physical inaccessibility and were sometimes unable to visit the UHC and UHFWC, preventing them from seeing a doctor. Studies underpinned by the TDF, support the positive effects of environmental restructuring such as reconstructing roads on changes in health behaviour (Wilkie et al., 2018; Chauhan et al., 2017). Therefore, rural environmental restructuring, such as reconstruction of roads and construction of bridges, although ambitious, could be effective in improving access to primary and maternal healthcare for rural Bangladeshi women.

4.4.2 Future direction of the research

Barriers and facilitators were mapped onto the TDF domains suggesting potential barriers to women accessing and using healthcare services that could be targeted to develop behaviour change interventions. Further mapping of barriers and facilitators to the COM-B components is needed to identify which barriers require to be changed, and then to identify intervention components to develop a behaviour change intervention guided by the BCW (Michie et al., 2014). Identifying potential solutions to address barriers and prioritising solutions as intervention components for selecting a target solution will be further needed. Thus, a long list of solutions based on the findings of Study 1 will be developed in the mapping and identification Chapter 5 to be prioritised in the subsequent Study 2 (Chapter 6) through the Nominal Group Technique (NGT).

4.4.3 Strengths and limitations

The strength of this study lies in its design, including its methods, data analysis and steps taken to ensure rigour. The study selected and interviewed participants who were the potential healthcare users, supporters and providers, thereby ensuring that the information provided was authentic. In addition, the rigorous application of qualitative methods, such as FGs and interviews, allows an in-depth understanding of the phenomena, and the use of both face-to-face and telephone interviews enabled the researcher to draw from the experience of the participants in the local settings of Bangladesh. The detailed description of the context and findings presented in this study will improve its transferability to other contexts. Also, the FG moderator and facilitator were women who created a relaxed atmosphere. The women, who participated in the FGs, considered the moderator as one of them, so there was a strong relationship built on trust and mutual respect, and this could encourage open and honest responses. Furthermore, the FG method enabled the researcher to collect information from a group perspective on the one hand and the interview method on the other hand from an individual perspective. The engagement of multiple methods leads to a more valid, reliable and diverse construction of reality (Golafshani, 2003). Finally, the findings of this study were triangulated using the perspective of different stakeholders, which allowed the identification of similarities and differences between shared information.

This study also has some limitations. First, since it is a qualitative study, the findings cannot be statistically generalised. Although statistical generalisation is not the aim of qualitative research, theoretical generalisation and transferability are adopted in qualitative research (Polit and Beck, 2010; Seale, 1999). Therefore, some concepts of this study could be transferred to other contexts, including Bangladesh. Second, the recruitment process through which rural women were selected by CHCPs who were known to the participants, which could lead to selection biases. Fourth, the views of rural women during FG may have been influenced by the presence of other members of the group. However, special efforts were made to organise groups by gender and location, and the moderator and facilitator were trained to organise FGs in an equal and value-free way. Fifth, the absence of visual cues might occur during telephone interviews, which could lead to data loss and undermine data quality (Novick, 2008). Some compensations for data loss were considered, such as intonation (Opdenakker, 2006), and hesitations and sighs (Sturges and Hanrahan, 2004).

4.4.4 Reflections on using the TDF

Several strengths and limitations were identified in the use of the TDF to inform the research design for Study 1. With regard to strengths, the use of the TDF was useful in exploring multiple barriers and facilitators to access and use of healthcare services by

rural women that could otherwise be ignored in research. Furthermore, the TDF constructs guided the coding of qualitative data and development of themes for analysis. Another strength is that the findings of this study can be used to inform a future study seeking to prioritise potential solutions, which in turn could be used to inform a complex behaviour change intervention. The use of TDF confirms the use of a common language to specify the targeted behaviour change domains and contributes to the accumulated field of implementation science (Michie et al., 2011).

However, there were some limitations to using the TDF. The first limitation of using the TDF, which was also discussed by other authors (Maxine, 2016; Phillips et al., 2015), is that the framework seemed to be overlapping between the domains. Also, the researcher having a sociological background, made it difficult at times to understand the difference in meaning between some TDF constructs. Thus, the most frequent challenge was taking time to use the TDF. The second limitation relates to approaching the data with an informed but potentially restricted viewpoint (Hsieh and Shannon, 2005). When focusing on FGs and interviews, it could have excluded different perspectives outside of the TDF domain. Some strategies were set up to consider the limitations mentioned. For example, as the data analysis progressed, the initial coding scheme was constantly revised and refined. Also, continuous delving into audio recordings and transcripts enabled me to find unrelated data and to confirm that the participants' accounts were key to the analysis. The final limitation is associated with mapping some of the same findings to more than one domain, which further complicated the challenge of coding data. However, discussions were held with the supervisors to improve my understanding of theoretical constructs within the domains and the actual data.

4.5 Chapter summary

In summary, this chapter comprises knowledge and experience, and several factors in terms of barriers and facilitators to women's access and use of healthcare in PHCCs. FG and interviews were based on, and analysis was underpinned by, a validated theoretical framework which incorporates constructs from behavioural science. Barriers and facilitators were mapped onto the TDF domains, suggesting potential barriers to women accessing and using healthcare services that could be targeted to develop behaviour change interventions. Synthesising the findings into five broad themes has illustrated that women's access and use of PHC and MHC services were hindered by their lack of knowledge and experience, lack of capabilities, and sociocultural, organisational and environmental constraints. Knowledge and experience of PHC and MHC services were identified in the theme of lack of awareness and understanding of women and their husbands in PHCC services. The female participants, due to their lack

of awareness and understanding of the services, were not fully able to access and utilise healthcare services, they relied on the services of the local community clinic as a first point of call, and did not have the knowledge about the tests, treatment and HP role and functions. Moreover, husbands were sometimes unable to support their wives in seeking care because they could not understand the role of the services and the importance of treatment related to primary and maternal healthcare required for their wives.

The barriers to women accessing healthcare services include the findings from four aspects: (i) capabilities and confidence (ii) sociocultural, (iii) organisational and (iv) environmental. The lack of women's capabilities and confidence in treatment become evident due to forgetfulness and literacy, inability to travel, fear and shyness. The sociocultural constraints in the third theme include issues related to familial, religious, social and economic factors. For example, women do not always get support from family members, mostly husbands, to access PHCCs for both primary and maternal healthcare. The lack of reinforcement is related to minimal attention paid to women's health issue, and husbands' long-term work stress and patriarchal attitude. Also, women cannot take birth control pills due to religious restrictions and share their physical problems with community members for fear of stigma and doctors being male. In addition, the cost of tests and travelling sometimes hindered women getting treatment. Organisational constraints, including unhygienic PHCC environment, shortage of medicine and tests, long waiting times, lack of privacy, closure of the facility, inequality in provision, lack of staff, and lack of HP skills and planning in service provision hindered women to use healthcare facilities. Finally, women could not timely access PHCCs due to environmental factors, such as distance, poor roads and transportation, and natural disaster.

Conversely, women's healthcare is facilitated with some capability, sociocultural and organisational factors. For instance, women's capability to access services is enhanced by applying experiences of using services and regularly connecting with HPs. Furthermore, women's access to PHCC services becomes easier when they get support from their husbands and in-laws, and gain information from neighbours and the media. Finally, some organisational supports, such as free check-ups and medications, and remote services, helped women to use MHC services. Thus, the number of barriers to accessing and using women's healthcare services is more than the number of facilitators. The next chapter will highlight the mapping and identification of the intervention components.

Chapter 5 Mapping and identification of intervention components

5.1 Introduction

This chapter maps the barriers and facilitators identified from the findings of Study 1 and identifies the intervention components. In doing so, the identified barriers and facilitators will be mapped onto the COM-B in order to identify where changes need to be made. Then the potential solutions, as intervention components to address the barriers and facilitators, will be outlined. Subsequently, a 'long list' of potential solutions following the feasibility assessment process will be made. This initiative will inform the prioritisation practice in Study 2 (Chapter 6), in order to develop an intervention entity. Finally, a summary of the chapter will be provided.

5.2 Process of developing the access and utilisation intervention

The process of developing the access and utilisation (AU) intervention follows the BCW guidelines outlined by Michie et al. (2014). The BCW process contains three stages; how these stages were applied to inform the development of the AU intervention is presented in Figure 5-1. However, this chapter includes a description of stage 1 and an outline of potential solutions from stage 2, which are highlighted in bold (Figure 5-1). This emphasis is because a need was identified to undertake a separate Study 2, in order to prioritise the potential solutions for stage 2. In addition, the remaining BCW steps were identified based on the top priority solutions identified in Study 2. Thus, the remaining steps of stage 2 and stage 3 are included in Chapter 6.

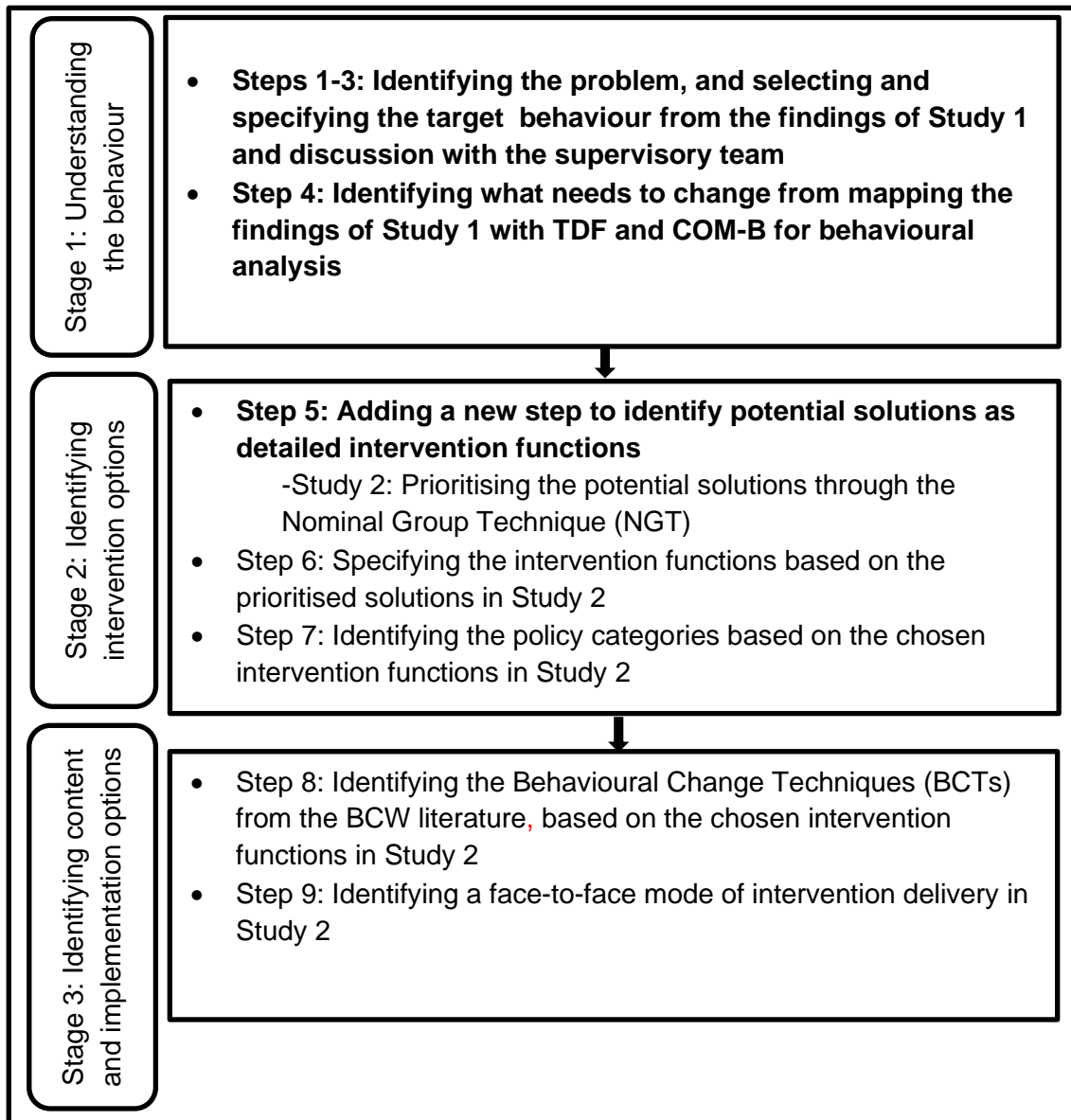


Figure 5-1 Flow diagram to inform the development of AU intervention

5.3 Application of the BCW stages to inform intervention development

5.3.1 Understanding the target behaviour (stage 1)

Stage 1 of the BCW process includes the following four steps.

5.3.1.1 Defining the problem and selecting the target behaviour (steps 1-2)

The findings of Study 1 were discussed amongst the supervisory team, using their expertise to interpret the findings and define the research problem in behavioural terms. Therefore, defining in behavioural terms, improving rural Bangladeshi women's access,

and their utilisation of primary and maternity care services, were chosen as the target behaviour.

5.3.1.2 Specify the target behaviour (step 3)

This step is concerned with specifying the context in which the behaviour occurs. The step involves: (a) stating who needs to perform the behaviour; (b) what the person needs to do differently to achieve the desired change; (c) where and when they need to do it; (d) how often; and (e) with whom. Based on Study 1, details are provided using the specification criteria, as indicated in Table 5-1. Rural women, with the support of their husbands and healthcare providers, can improve their access and utilisation of primary and maternal healthcare services.

Table 5-1 Specifying the target behaviour

Specification criteria	Details
Target behaviour	Accessing and utilising healthcare services
Who needs to perform the behaviour?	Women, husbands and PHCC healthcare providers
What does the person need to do differently to achieve the desired change?	<ul style="list-style-type: none"> • Women need to improve their understanding of how to access and utilise to primary and maternity healthcare services • Women need to improve their social support networks • Husbands need to improve their understanding of support needed to improve access and utilisation of primary and maternal healthcare services for their wives • Healthcare providers need to improve their skills in order to improve access and utilisation of their healthcare services by rural women
When will they do it?	During the PHCC visit
Where will they do it?	PHCCs (UHC/UHFWC/CC)
How often will they do it?	During the PHCC visit
With whom will they do it?	Alone/with family members/ community/PHCC staff

5.3.1.3 Identifying what needs to change: mapping the barriers and facilitators identified in Study 1 onto the COM-B (step 4)

In this stage, the COM-B model of behaviour change was used to provide an understanding as to which of the three behavioural components (capability, opportunity,

motivation) would need to change for the target behaviour (increasing access and utilisation of primary and maternity healthcare services) to occur. Mapping empirical findings to COM-B provides more insight about the target behaviour (Michie et al., 2014). This stage involved mapping the barriers and facilitators identified from Study 1 to the relevant COM-B components (Michie et al, 2014). The list of 32 barriers and facilitators, which were mapped to the TDF in Chapter 4 ([Table 4-4](#)), was identified in Table 5-2 to map with COM-B components. This action would result in further behavioural clarification, in order to identify potential behaviour change components. The barriers and facilitators have been mapped onto all COM-B components in Table 5-2 to identify and describe what needs to change at an individual, social or organisational level, in order to achieve the desired changes in the women's behaviour. The 'physical capability' component was not mapped as Study 1 data did not identify any physical skills/strengths. Table 5-2 demonstrates that most barriers were identified for change in order to make the target behaviour more likely to occur, whereas some facilitators were not identified for change because they existed to facilitate women accessing and using healthcare services. For example, the experience of women using a CC healthcare services and their regular contact with a CHCP further helped them to access and use the healthcare services of the same facility. Therefore, these factors were considered less important regarding the need for change.

5.3.2 Identifying intervention options (stage 2)

5.3.2.1 Identify potential solutions as detailed intervention functions (step 5)

A new step (potential solutions) under stage 2 was added to address the barriers and facilitators, which were targeted to be changed (Table 5-2). Thus, stage 2 of the AU intervention development process started by outlining the potential solutions, which are the details of intervention functions. In some cases, one solution is identified to address more than one barrier related to women's healthcare access. Thus, identified barriers with similar COM-B components were grouped together to address those barriers with one solution. For example, the solution of:

'Providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services'

addresses both religious taboos to the uptake of birth control techniques by women and family norms that prevent husbands from supporting their wives accessing healthcare services. These issues were mapped to the social opportunity component (Table 5-2).

Table 5-2 Barriers and facilitators corresponding to COM-B, and potential solutions

Barriers/ facilitators identified in Study 1	COM-B mapping (step 4)	Is there a need for change?	Potential solutions to address barriers (step 5)
Lack of awareness and understanding of women and their husbands in PHCC services			
<ul style="list-style-type: none"> • Preferential access to local services 	Psychological capability	Change needed	<ul style="list-style-type: none"> • Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance
<ul style="list-style-type: none"> • Culture of not making appointments 		Change needed	<ul style="list-style-type: none"> • Providing information to increase women's knowledge and awareness of the importance of making appointments for healthcare visits
<ul style="list-style-type: none"> • Lack of awareness of the services offered by PHCs 		Change needed	<ul style="list-style-type: none"> • Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women
<ul style="list-style-type: none"> • Lack of understanding of the importance of primary and maternity care 		Change needed	
Capabilities and confidence in health management			
<ul style="list-style-type: none"> • Experience and regular CC contact of women facilitate them to use the PHCC 	Automatic motivation	No change needed as women are making regular contact with HPs, which are helpful accessing services	<ul style="list-style-type: none"> • Not applicable (NA)
<ul style="list-style-type: none"> • Fear and shyness of women 		Change needed	<ul style="list-style-type: none"> • Increasing women's self-confidence in their ability to express physical problems and reduce fear of access to health centre

<ul style="list-style-type: none"> Shyness of husbands 		Change needed	<ul style="list-style-type: none"> Increasing husbands' self-confidence in their ability to support their wives' health needs
<ul style="list-style-type: none"> Women's lack of remembering and literacy 	Psychological capability	Change needed	<ul style="list-style-type: none"> Providing education to women to reduce their intrapersonal barriers
<ul style="list-style-type: none"> Lack of healthcare providers' skills 		Change needed	<ul style="list-style-type: none"> Providing training for healthcare providers to increase their skills in local services
Sociocultural barriers and facilitators			
<ul style="list-style-type: none"> Lack of family support to seek treatment 	Social opportunity	Change needed	<ul style="list-style-type: none"> Raising community awareness and understanding to increase active support of family members
<ul style="list-style-type: none"> Religious taboos to the uptake of birth control techniques by women 		Change needed	<ul style="list-style-type: none"> Providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services
<ul style="list-style-type: none"> Traditional norms preventing husbands to support wives 		Change needed	
<ul style="list-style-type: none"> Social stigma 		Change needed	<ul style="list-style-type: none"> Raising community awareness to minimise social stigma, so that villagers can understand illness is a normal process
<ul style="list-style-type: none"> Gender of the healthcare providers 		Change needed	<ul style="list-style-type: none"> Encouraging women to see healthcare providers who may not be female
<ul style="list-style-type: none"> Neighbourhood connection 		No change needed as the neighbourhood connection works well	<ul style="list-style-type: none"> NA
<ul style="list-style-type: none"> Media influence 		No change needed as media works well	<ul style="list-style-type: none"> NA
Organisational barriers and facilitators			

<ul style="list-style-type: none"> • Less focus on preventive care 	Psychological capability	Change needed	<ul style="list-style-type: none"> • Emphasising the importance of preventive healthcare by healthcare providers
<ul style="list-style-type: none"> • Health centre environment 	Physical opportunity	Change needed	<ul style="list-style-type: none"> • Improving the PHCC environment by the Ministry of Health, such as construction or repairing old buildings and management of toilet, water and sitting arrangements
<ul style="list-style-type: none"> • Inadequate supply of drugs and tests 		Change needed	<ul style="list-style-type: none"> • Improving the supply of drugs and tests and taking measures by PHCCs against illegal demands of staff to ensure adequate supply of these drugs and reduce the cost of care
<ul style="list-style-type: none"> • Cost of care 		Change needed	
<ul style="list-style-type: none"> • Closure of the facility 		Change needed	<ul style="list-style-type: none"> • Taking steps so that UHFWC and CC stay open for longer hours per day
<ul style="list-style-type: none"> • Long waiting times 		Change needed	<ul style="list-style-type: none"> • Encouraging healthcare providers to arrive at health centres promptly
<ul style="list-style-type: none"> • Lack of staff 		Change needed	<ul style="list-style-type: none"> • Increasing the number of staff by the Ministry of Health
<ul style="list-style-type: none"> • Attitude of the healthcare providers 	Reflective motivation	Change needed	<ul style="list-style-type: none"> • Creating a welcoming environment and a shared care plan
<ul style="list-style-type: none"> • Lack of privacy 		Change needed	<ul style="list-style-type: none"> • Maintaining dignity, privacy and respect for women during consultations
<ul style="list-style-type: none"> • Inequality in provision 		Change needed	<ul style="list-style-type: none"> • Provision of equitable services regardless of the patient's class
<ul style="list-style-type: none"> • Lack of group discussions by healthcare providers to improve services 		Change needed	<ul style="list-style-type: none"> • Increasing team meetings about the problems healthcare providers face with their colleagues

<ul style="list-style-type: none"> No formal health needs assessment by healthcare providers 		Change needed	and start formal health needs assessment of women to improve planning in service provision
<ul style="list-style-type: none"> No specific goals of healthcare providers 		Change needed	
<ul style="list-style-type: none"> Irregular courtyard meetings 	Social opportunity	Change needed. Although the service exists, the frequency of meetings was not maintained	<ul style="list-style-type: none"> Raising awareness in the broader community about needs and rights related to healthcare
Environmental barriers			
<ul style="list-style-type: none"> Poor roads and transportation 	Physical opportunity	Change needed	<ul style="list-style-type: none"> Constructing village roads by the local authorities to increase rural women's access to PHCCs
<ul style="list-style-type: none"> Natural disaster and seasonality 		Change needed	<ul style="list-style-type: none"> Making a bridge on a river or arranging a ferry by the local authorities can increase PHCC access by rural women

5.3.2.2 Assessing the feasibility of potential solutions

Developing the AU intervention with all potential solutions identified in Table 5-2 may not be immediately feasible in the local setting of Bangladesh. In this case, a four-step criteria model, developed by Michie et al. (2014), was adopted to assess the feasibility of implementing the potential solutions. In addition, since the four-step criteria does not include a criteria related to the practicality of developing interventions with solutions in the local setting, a new step, '*ease of developing the AU intervention with solutions*', was added to the four-step criteria. Hence, the total assessment criteria totalled five: (i) ease of developing the AU intervention with solutions - with what degree of ease will the solution be considered to change the behaviour in the local setting; (ii) impact of solution to change behaviour - the likely impact if the behaviour is changed; (iii) likelihood of behaviour changing - how easy is it that the behaviour can be changed; (iv) spillover score - how likely it is that the behaviour will have a positive and/or negative impact; and (v) measurement score - how easy it will be to measure the behaviour. Each criterion has also been rated as very promising, promising, unacceptable but worth considering and unacceptable, as suggested by Michie et al. (2014). Table 5-3 shows that some solutions met all assessment criteria, while others did not. Some solutions are highly promising for changing behaviour, but the development of AU intervention with these solutions seems to be a challenge in the local setting. For example, although creating physical opportunities, such as reconstructing the PHCC buildings, roads or making bridges, may be very promising to increase access and use of healthcare services by rural women, these solutions are likely to be difficult to consider in order to change target behaviour. A previous study shows that some challenges, such as: (a) conceptualising, (b) operationalising, and (c) measuring locality effects on healthcare, reduced researchers' focus on developing specific geographical/structural interventions to improve community health (Macintyre et al., 2002). This outcome is because the development of interventions with these solutions requires major decisions by the local governments and MOHFW because of the budget/costs involved. Thus, the solutions, which did not meet all assessment criteria were not considered for prioritisation practice in Study 2.

Table 5-3 Feasibility assessment of potential solutions by the criteria

Potential solutions to address barriers and facilitators	Criteria to assess solutions				
	Ease of developing the AU intervention with solutions	Impact of solution to change behaviour	Likelihood of changing behaviour	Spillover score	Measurement score
Lack of awareness and understanding of women and their husbands in PHCC services					
<ul style="list-style-type: none"> Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance 	Promising	Very promising	Very promising	Promising	Promising
<ul style="list-style-type: none"> Providing information to increase women's knowledge and awareness of the importance of making appointments for healthcare visits 	Promising	Very promising	Very promising	Promising	Promising
<ul style="list-style-type: none"> Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women 	Promising	Very promising	Very promising	Promising	Promising
Capabilities and confidence in health management					
<ul style="list-style-type: none"> Increasing women's self-confidence in their ability to express physical problems and reduce fear of access to health centre 	Promising	Very promising	Very promising	Promising	Promising
<ul style="list-style-type: none"> Increasing husbands' self-confidence in their ability to support their wives' health needs 	Promising	Very promising	Very promising	Promising	Promising
<ul style="list-style-type: none"> Providing education to women to reduce their intrapersonal barriers 	Unpromising but worth considering (It requires budget,	Very promising	Promising	Promising	Unacceptable (It will not be easy to measure the

	capability and motivation of women.)				impact of education on health behaviour.)
<ul style="list-style-type: none"> Providing training to healthcare providers to increase their skills in local services 	Unpromising but worth considering (It requires budget, capability and HP motivation.)	Very promising	Promising	Promising	Promising
Sociocultural barriers and facilitators					
<ul style="list-style-type: none"> Raising community awareness and understanding to increase active support of family members 	Promising	Very promising	Promising	Promising	Promising
<ul style="list-style-type: none"> Providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services 	Promising	Very promising	Very promising	Promising	Promising
<ul style="list-style-type: none"> Raising community awareness to minimise social stigma so that villagers can understand illness is a normal process 	Unpromising but worth considering (It requires capability and motivation of community members.)	Very promising	Promising	Promising	Unpromising but worth considering (It is not easy to measure the positive impact of awareness campaigns on all members of the community.)

<ul style="list-style-type: none"> Encouraging women to see healthcare providers who may not be female 	Promising	Very promising	Very promising	Promising	Promising
Organisational barriers and facilitators					
<ul style="list-style-type: none"> Emphasising the importance of preventive healthcare by healthcare providers 	Promising	Very promising	Very promising	Promising	Promising
<ul style="list-style-type: none"> Improving the PHCC environment by the Ministry of Health, such as construction of new or repairing old buildings and management of toilet, water and sitting arrangements 	Unpromising but worth considering (It requires time, budget and feasibility assessment.)	Very promising	Promising	Promising	Very promising
<ul style="list-style-type: none"> Improving the supply of drugs and tests and taking measures by PHCCs against illegal demand of staff to ensure adequate supply of these drugs and reduce the cost of care 	Unpromising but worth considering (It requires budget and rules that depend on the decision of PHCCs and MOHFW.)	Very promising	Promising	Promising	Promising
<ul style="list-style-type: none"> Taking steps so that UHFWC and CC stay open for longer hours 	Unpromising but worth considering (Increasing opening hours of the facility is not practicable now as it	Very promising	Promising	Very promising	Promising

	requires making decision by the MOHFW.)				
• Encouraging healthcare providers to arrive at health centres promptly	Promising	Very promising	Very promising	Promising	Promising
• Increasing the number of staff by the Ministry of Health	Unpromising but worth considering (Increasing staff of the facility is not practicable now as it requires making decision by the MOHFW.)	Very promising	Promising	Very promising	Promising
• Creating a welcoming environment and a shared care plan	Promising	Very promising	Very promising	Promising	Promising
• Maintaining dignity, privacy and respect for women during consultations	Promising	Very promising	Very promising	Promising	Promising
• Provision of equitable services regardless of the patient's class	Promising	Very promising	Very promising	Promising	Promising
• Increasing team meetings about the problems healthcare providers face with their colleagues and start formal health needs assessment of women to improve planning in service provision	Promising	Very promising	Very promising	Promising	Promising
• Raising awareness in the broader community about needs and rights related to healthcare	Promising	Very promising	Very promising	Promising	Promising
Environmental barriers					

<ul style="list-style-type: none"> Constructing village roads by the local authorities to increase rural women's access to PHCCs 	<p>Unpromising but worth considering (Environmental reconstruction is now not feasible because it requires budget and decision-making by the MOHFW and the local government.)</p>	<p>Very promising</p>	<p>Promising</p>	<p>Promising</p>	<p>Unpromising but worth considering (It is not easy to measure the positive impact of environmental reconstruction on the community members.)</p>
<ul style="list-style-type: none"> Making a bridge on a river or arranging a ferry by the local authorities can increase PHCC access by rural women 	<p>Unpromising but worth considering (Environmental reconstruction is now not feasible because it requires budget and decision-making by the MOHFW and the local government.)</p>	<p>Very promising</p>	<p>Promising</p>	<p>Promising</p>	<p>Unpromising but worth considering (It is not easy to measure the positive impact of environmental reconstruction on the community members.)</p>

5.3.2.3 Development of a ‘long list’ of solutions

A list of 15 potential solutions, which met all the assessment criteria, is highlighted in Table 5-3. Afterwards, a ‘long list’ of the 15 highlighted solutions was developed for prioritisation practices in Study 2 to develop intervention(s) (Table 5-4). This list contains solutions related to all COM-B components and suggests that: (a) increasing awareness and understanding about healthcare provision, (b) providing local opportunities, and (c) encouraging women to visit their local healthcare facility would result in women increasing their access and utilisation of healthcare services.

Table 5-4 Long list of potential solutions for prioritisation practices

Capability: Increasing awareness and understanding of services	
1.	Providing information on the range and type of primary and maternity care services available to women and their families in rural Bangladesh so as to minimise inappropriate attendance
2.	Providing information to increase women’s knowledge and awareness of the importance of making appointments for healthcare visits.
3.	Providing information to increase husbands’ understanding about the benefits of primary and maternity services which are being provided to women.
4.	Providing information to raise women’s and their husbands’ awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services
Motivation: Motivation to attend healthcare services	
5.	Increasing women’s self-confidence in their ability to express physical problems and reduce fear of access to health centres
6.	Increasing husbands’ self-confidence in their ability to support their wives’ health needs
7.	Encouraging women to see healthcare providers who may not be female
8.	Encouraging healthcare providers to arrive at health centres promptly
Opportunity: Support for women	
9.	Raising community awareness and understanding to increase active support of family members
10.	Raising awareness in the broader community about needs and rights related to healthcare
Opportunity: Organisational issues	
11.	Emphasising the importance of preventive healthcare provided by healthcare providers
12.	Increasing team meetings about the problems healthcare providers face with their colleagues and start formal health needs assessment of women to improve planning in service provision
13.	Provision of equitable services regardless of the patient class.

14.	Creating a welcoming environment and a shared care plan
15.	Maintaining dignity, privacy and respect for women during consultations

5.3.2.4 Need for prioritisation of potential solutions

Potential solutions to address the barriers and facilitators were identified by the researcher. At this stage it seemed necessary to involve some local stakeholders, such as: (i) healthcare professionals, (ii) policy makers and (iii) female healthcare service users, to utilise their views to prioritise the identified solutions in order to develop an effective intervention. Thus a prioritisation practice through the NGT, with a panel of local stakeholders, was undertaken in Study 2.

5.4 Chapter summary

The list of barriers and facilitators to healthcare access and utilisation by rural women, as identified from the findings of Study 1, was mapped to the COM-B components for behavioural analysis, informed by Michie et al. (2014). This process helped to determine where changes were needed and a list of possible solutions to deal with those changes. In addition, a 'long list' of potential solutions following the feasibility assessment process was presented to take forward into Study 2. The next chapter will describe Study 2, where the NGT was used to prioritise potential solutions to develop the AU intervention(s).

Chapter 6 Study 2: Prioritising potential solutions: a Nominal Group Technique

6.1 Introduction

This chapter presents Study 2, which was undertaken to prioritise potential solutions. It provides the background, aim and rationale for Study 2 and then will outline: the methodology, participant recruitment process, ethics approval, data collection and data analysis. The findings will be discussed, outlining: a shortlist of the solutions identified; an assessment with the APEASE criteria; and a priority list of the solutions. The reasons for selecting the solutions from the qualitative data are provided in the section dealing with the priority list, as a way to support and contextualise the justification of individual final priorities. Following the findings section, the discussion of the study is described. Finally, a summary of the chapter will be provided.

6.2 Background

The study background is detailed in Chapter 1 ([section 1.3](#)).

6.3 Introduction to Study 2

Study 2 of this mixed methods research was used in part to design a behavioural change intervention using the Behavioural Change Wheel (BCW) framework (Michie et al., 2014). The BCW incorporates three stages and nine steps.

Stage 1 starts with defining the problem(s) in behavioural terms. In terms of defining the problem, the key barriers and facilitators identified in Study 1, through FGs and interviews, were: (i) knowledge and experiences of rural Bangladeshi women's access to and utilisation of PHC and MHC services, and (ii) factors affecting access to and utilisation of PHC and MHC services by rural Bangladeshi women. Key themes and subthemes that emerged from the data analysis are discussed in Chapter 4. Afterwards: (a) the locations in which the behaviours occur, (b) the target individual or group related to the behaviour and (c) what needs to change through the behavioural analysis were identified and mapped in Chapter 5.

Furthermore, stage 2 in Chapter 5 started with generating a long list of potential solutions, identified as '*detailed intervention functions*' to address the barriers and facilitators, which were targeted as '*needing to be changed*'. With a view to doing this, a list of potential solutions following the behavioural analysis with the COM-B was developed from Study 1 to address the areas of concern. For example, the issue of

increasing rural women's awareness and understanding about PHC and MHC services was identified as a priority.

Study 2 corresponded with stage 2 of the BCW process to prioritise the identified potential solutions. A total of 15 solutions grouped into four key areas were identified in Chapter 5 (Table 5-4), and these needed to be considered for inclusion as being important to improving access to and use of PHC and MHC services by rural Bangladeshi women.

Using the Nominal Group Technique (NGT), this study sought to prioritise and explore the potential solutions and target behaviours from the 'long list' of target behaviours developed to address the barriers to accessing and utilising PHC and MHC services by rural Bangladeshi women. Setting priorities is important in public health research, as doing so allows practitioners to determine: (a) what evidence is relevant to implement, (b) how best to do this, and (c) where the greatest gains can be made in addressing barriers to change (Buckley et al., 2013). More specifically, in this study, identifying potential solutions to address the noted barriers can help legislatures, law makers, policy creators and others to pinpoint which solutions may merit the greatest attention in order to initiate healthcare improvements for rural women in Bangladesh (Olsen, 2019). Therefore, the NGT method was used to look at the 'long list' of 15 potential solutions identified and developed from the findings of Study 1 and then work with an expert group to prioritise those solutions. Using the NGT approach, one solution should emerge through consensus which would enable a future intervention to be developed.

6.4 Aim

The aim of this NGT was to develop a consensus in prioritising the potential solutions from the long list of solutions identified in stage 2 of the BCW intervention process (Chapter 5; [section 5.3.2.3](#)), based on the findings from Study 1.

6.5 Identifying the content of an intervention

Following the '*less is more*' principle of intervention design (Michie et al., 2014), a short list of the potential solutions from the long list was undertaken through the NGT process. Addressing too many problems can be confusing for participants, potentially causing overload of information and choice fatigue (Bawden and Robinson, 2009; Botti and Iyengar, 2006). Therefore, two workshop sessions were run to prioritise potential solutions. In the first round of workshops, the participants selected and ranked the top five solutions, followed by assessing these using the APEASE criteria: (a) affordability, (b) practicability, (c) effectiveness/cost-effectiveness, (d) acceptability, (e) side-effects/safety and (f) equity. The second round of workshops of the NGT aimed to rank

a shortlist of potential solutions and target behaviours specifically: (i) who will perform the behaviour; (ii) what the individual needs to do differently to perform the behaviour; and (iii) when they will do this. This list enabled the researcher to develop and identify the contents of an intervention focusing on improving access to and use of PHC and MHC services by rural women, including potential solutions.

6.6 Methods

6.6.1 Settings

The setting of Study 2 is described in Chapter 4 ([section 4.2.1](#)).

6.6.2 Study design

Study 2 was a part of a mixed methods research design. Guided by the findings of Study 1, the current Study 2 employed the NGT, a consensus method, to tease out the potential solutions from the barriers and facilitators identified for facilitating healthcare access and use by women in rural Bangladesh.

6.6.3 Participants

Potential participants were approached to provide a broad, bottom-up, perspective to consensus building to provide the participants with a voice in decision making (Eby, 2021). Participants for the NGT were purposively sampled (Patton, 2002) for their expertise, power of decision making and experience of using services. It is evident that doctors and nurses are considered as skilled workforce members (WHO, 2015a). Those engaged in local health policy making include: (a) local government bodies and politicians, (b) NGO workers and (c) civil society members (Koehlmoos et al., 2009; Joarder et al., 2018). The women, who receive services from PHCCs, are considered as 'service users' (Mannan, 2013). Also, lessons from the previous MDGs suggest that participation of multiple stakeholders is important to attain SDGs for Bangladesh (Chowdhury, 2018). In order to maintain the group dynamic, the NGT workshop group consisted of participants from three categories: (i) healthcare professionals, (ii) local policy makers and (iii) healthcare service users. Healthcare professionals, such as doctors and nurses, were selected as they were considered to be experts in issues relevant to healthcare services. Local policy makers, such as the chairman and members of the local governments, were selected as they had the power to make decisions about healthcare services and knew what priorities should be given to improve healthcare services at the local level. Finally, rural Bangladeshi women were chosen as users or potential users of primary and maternal care services. Working with healthcare experts, policy makers and healthcare users to prioritise research topics was found to enhance

the effectiveness and suitability of interventions (Sharry et al., 2016). Therefore, Study 2 engaged experts, local policy makers and healthcare service users to prioritise potential solutions identified from the findings of Study 1. Although there is no recommended number of participants for NGT (Cantrill et al., 1996), there is a recent trend of recruiting 15 participants for the NGT for health research (Cormican and Dowling, 2021). Therefore, the study approached 15 participants to engage in the study and 13 agreed to participate with the remaining two not attending due to time constraints.

6.6.4 Justification for using the Nominal Group Technique

The justification for using the NGT is described in Chapter 3 ([section 3.2.10](#)).

6.6.5 APEASE criteria and priority setting matrix

The APEASE criteria were added as a new step within the NGT process to assess the suitability of the potential solutions identified during Workshop 1. The APEASE criteria were developed to assist researchers in designing and evaluating interventions (Michie et al., 2014). Once the participants completed Step 2 of the NGT process, by selecting the top five solutions, they were then asked to look at how their top five selections met the APEASE criteria with Yes/No responses in Step 3 of the NGT.

In addition, the priority of the potential solutions was set by the NGT panel. The members followed a 5-point scale in step 2 and a 3-point scale in step 5 of the NGT process. The matrix tool enabled participants to rate each solution scale ranging from 5 to 1 (5 = most important, 4 = important, 3 = moderate important, 2 = some important and 1 = least important) for step 2; and 3 to 1 (3 = most important, 2 = moderate important, and 1 = least important) for step 5. It should be noted that numerical scales have been successfully used previously to rate priority items (Potter et al., 2004).

6.6.6 Ethics approval

Approval for the Study 2 research was obtained from the School of Healthcare Research Ethics Committee, University of Leeds (Ref no: HREC 20-025) allowing the researcher to conduct NGT workshops with the 'NGT panel'. Following ethics approval, permission was granted by the Civil Surgeon, Khulna, Bangladesh for this researcher to engage healthcare professionals as participants and to undertake NGT workshops at Batiaghata Upazila Health Complex, Khulna.

The main ethical issues associated with this study were: (a) obtaining informed consent from participants, (b) ensuring the anonymity of participants, (c) confidentiality in handling data and (d) data protection. Information sheets ([Appendix J](#)) were provided to prospective participants to enable them to make an informed decision about participating

in the study. Participants were also given the opportunity to make further enquiries about the research. Those who agreed to participate were given a consent form ([Appendix K](#)) to complete.

6.6.6.1 Confidentiality and data protection

The confidentiality and data protection processes of the study are described in Chapter 4 ([section 4.2.3.3](#)).

6.6.7 Data collection

Two workshops, using the NGT process, were undertaken with healthcare professionals, local policy makers and female healthcare service users at the conference room of Batiaghata UHC. The list of background information of the participants, along with the ranking scales, were provided to the participants at the beginning of the workshops. The process of data collection involved following the NGT procedure.

6.6.7.1 NGT procedure

To conduct the workshops, the researcher acted as a moderator and worked with one facilitator, a sociology graduate from Khulna University in Bangladesh, to collect data from the expert panel.

This study adopted Moore's four-step process. According to Moore (1987), the NGT usually involves four essential steps for it to be successful; these steps are: (i) silent generation of ideas by each individual, (ii) round-robin recording of ideas, (iii) structured and time-limited discussion of ideas and (iv) selection and ranking of ideas (voting). However, it was deemed necessary to add three additional steps: (i) 'pre-step', (ii) assessing with the APEASE criteria and (iii) sharing the results. In the pre-step stage, the researcher welcomed participants and explained the aims of the project along with the total time they were likely to be involved and other necessary procedures (Potter et al., 2004). In earlier research, the pre-step was found to be perceived as a positive addition for undertaking successful NGT-based work (Olsen, 2019). Assessment of the recorded solutions with APEASE criteria was undertaken by the participants to select potential solutions for prioritisation. In addition, the final outcome was shared with the participants to keep them informed and the sharing of the final results was found to be a successful addition in a previous study undertaken by Sharry et al. (2016). In addition, some modifications in the first step were necessary as potential solutions were presented to the expert panel, instead of generating solutions by the expert groups. Thus, the heading of the first step was '*presenting solutions*'. The NGT process included two workshops and seven steps. Each workshop was undertaken in one day and was

completed in two and a half hours. Thus, the total workshops were undertaken in two days and completed in five hours. The details of the NGT process are outlined below in Table 6-1.

Table 6-1 Details of the NGT steps

Workshop 1	
Pre-step	<p><u>Purpose:</u> Introduction to the participants about the workshop aim and structure.</p> <p><u>Activities:</u> This step started with welcoming the participants and informing them about the aim of the workshop. There is no pre-step in the original guidance, but this step has been used in previous research (Olsen, 2019) because it has a number of advantages. For example, (i) it provides participants the opportunity to begin to think about their own contribution to the issue(s) (Boddy, 2012), (ii) allows time to ask questions and (iii) provides the opportunity to deal with any additional reasonable adjustments, such as interpreting services (Olsen, 2019). In addition, the pre-step needs to explain the time and procedures of the workshops. This stage lasted 35 minutes.</p> <p><u>Outcome:</u> Participants knew the aim and procedures of the workshop.</p>
Step 1: Presenting solutions	<p><u>Purpose:</u> Presentation of the long list (first list) of 15 potential solutions.</p> <p><u>Activities:</u> The NGT long list of 15 potential solutions (see Table 5-4 in Chapter 5) to address the barriers to access and utilisation identified through Study 1 was presented to the workshop participants in a written form. It was then read out to the groups and any participants' questions were answered. This step is an adaptation of Lomas' second step in the 'listening model' (Lomas et al., 2003). This stage lasted 35 minutes.</p> <p><u>Outcome:</u> Participants were oriented about the long list of potential solutions.</p>
Step 2: Recording solutions	<p><u>Purpose:</u> Participants to individually review the 15 potential solutions and select the potential solution, which they believed is most important to address at a local level and then rank the top five solutions.</p> <p><u>Activities:</u> The second stage of the NGT included selecting and ranking the solutions. The participants individually reviewed the 15 potential solutions and selected the top five solutions. Then they ranked them with 5 being the most important and 1 being the least important (see section 6.6.5 for the process). The moderator asked everyone to rank independently and to work silently. Afterwards, the moderator collated all ranking sheets and tallied the scores to make a combined list of the top five order of solutions. This stage lasted 40 minutes.</p> <p><u>Outcome:</u> Participants individually reduced the 15 potential solutions to a shortlist of five, which was ranked.</p>
Step 3: Assessing with the APEASE criteria	<p><u>Purpose:</u> Assessing the feasibility of the shortlist of five solutions.</p> <p><u>Activities:</u> In this stage, the moderator presented the shortlist of top five solutions to be assessed by the participants using the APEASE criteria independently (Appendix L). Prior to an assessment, the moderator explained the assessment process and why it was necessary to undertake it. Following the assessment process carried out by the participants, the moderator collated all assessment sheets from the participants. The final list was looked at again for prioritisation in step 5. Only the solutions that met the APEASE</p>

	<p>criteria were considered for the next discussion and final ranking steps. This step took 35 minutes.</p> <p><u>Outcome:</u> Participants made a final list of solutions that met the APEASE criteria.</p>
Workshop 2	
Step 4: Discussion	<p><u>Purpose:</u> Engaging discussion with the final list of solutions.</p> <p><u>Activities:</u> The moderator presented the final list of solutions which had been considered to meet the APEASE criteria. Participants were invited to seek verbal explanation or further details about any of the ideas that colleagues had selected that might not be clear to them. The moderator's task was to ensure that each person was allowed to contribute and that the discussion of all ideas was thorough, without spending too long on any single idea. It was important to ensure that the process was as neutral as possible, avoiding any judgment and/or criticism. This stage lasted 95 minutes.</p> <p><u>Outcome:</u> A final list of potential solutions was confirmed to be prioritised in the next step.</p>
Step 5: Voting and ranking solutions	<p><u>Purpose:</u> Prioritising the potential solutions in relation to the original list of solutions.</p> <p><u>Activities:</u> The workshop participants were asked to rank the top three solutions from the final list of five solutions. They were asked to rank the top three with a 3-point scale (see section 6.6.5 for the process) through consensus. This stage lasted 30 minutes.</p> <p><u>Outcome:</u> A priority list of the top three solutions was made.</p>
Step 6: Sharing the results	<p><u>Purpose:</u> Sharing the results.</p> <p><u>Activities:</u> Following the voting and ranking process, results in response to the list were prepared and then shared with participants. The rankings of the members were averaged to identify solutions that were clearly strong candidates and others that were clearly weaker. The moderator then shared the final selections with the participants. This stage lasted up to 30-45 minutes.</p> <p><u>Outcome:</u> The workshop ended by sharing the results with the participants.</p>

6.6.7.2 Consensus and managing power structure

The consensus during the NGT discussion step was defined as having been achieved when there were no further comments or suggestions from any of the participants against any solutions.

During the discussion step, the iterative process was followed to provide all participants with an opportunity to voice their opinions (Ho et al., 2018), but it did not allow one person to dominate the discussion. The process was also kept as 'value neutral' as possible, avoiding judgment and criticism (Harvey and Holmes, 2012). According to Delbecq et al. (1975), the role of the moderator in this stage should be to ask the group to avoid any arguments and to ensure that all ideas are discussed. Maintaining neutrality was not as difficult as first anticipated, although the group of 13 participants proved more challenging

because the workshops included both dominant and reticent personalities. Although the dominant participants were knowledgeable and keen to contribute, the moderator repeatedly sought the engagement of the quieter voices, and a reasonable balance was achieved. As all participants shared the common aim of improving rural Bangladeshi women's healthcare access, they were willing to discuss and negotiate with each other in order to arrive at what they believed were the best possible solutions. In addition, since the workshops provided an opportunity for participants to share and contribute to this aim, they felt they were part of the solution rather than the problem.

6.6.8 Data analysis

NGT uses a mixed methods approach (Corner et al., 2007) involving both qualitative and quantitative methods of data analysis.

6.6.8.1 Quantitative data analysis

The ranking from the nominal groups produced ordinal data. All quantitative data were entered into the Microsoft Office® Excel 365 spreadsheet and analysed by using descriptive statistics. Descriptive statistics, such as frequencies, percentages and means, were used to summarise and present the participants' demographic data and the prioritised solutions. Analyses were carried out on the full lists of responses to the solutions and the rank orders of priorities.

To present the quantitative data, two approaches were used: (i) a combined approach including the sum of the scores as well as frequency and (ii) a single approach include the summing of scores. The combined approach is used when more than one solution has an equal score, then the number of frequencies is used (Dewar et al., 2003). The combined approach was successfully used in an earlier study (McMillan et al., 2014) to rank solutions where more than one solution or strategy received the same importance score. A total importance score for each solution was calculated by summing the individual scores of the participants. In the study, as five solutions (i.e. solutions 4 and 15 scored 11 jointly, and 5, 9, and 11 scored 8 jointly) obtained the same score in the shortlist (Table 6-3), the highest frequency of a particular solution as suggested by McMillan et al. (2014); Dewar et al. (2003) was chosen to make an order. Therefore, this approach was followed in the study to create an order in the shortlist. However, the single approach, the method of summing a score, was only used for creating the combined priority list of the top three orders (Table 6-5), as there were no similar or duplicate scores of those solutions.

Furthermore, consideration was also given to the level of consensus employed in the priority list. There are no universally agreed rules of determining the level of consensus

or agreement in consensus methods, as that agreement depends on the number of participants involved and the research aim (Hasson et al., 2000). In this study, the definition of consensus of Loughlin and Moore (1979) was used which suggests that a 51% participant agreement level for selecting any solutions is effective and therefore acceptable.

6.6.8.2 Qualitative data analysis

The content analysis approach (Patton, 2002) was employed to analyse qualitative data. Content analysis of data enables verification of information collected in the meeting process (Potter et al., 2004). Qualitative data analysis of the audio recorded discussion that occurred during the NGT process was used to support and contextualise the justification of individual final priorities identified through the NGT process. As a result, the qualitative data was reported together with the quantitative part of the data in the findings section (see [section 6.7.4](#)). The qualitative data resulting from the workshops were transcribed verbatim by the researcher. The researcher listened to the Bengali audio recordings and transcribed these directly into English. Data were then entered in QSR NVivo (v12) to assist with organisation and analysis by using the content analysis approach. Data were inductively coded to identify preliminary concepts and themes. In doing so, line-by-line coding of transcripts was applied and codes were assigned to meaningful segments of texts. These preliminary findings were discussed with the supervisors to consolidate a list of themes and subthemes, to ensure they captured the range and breadth of the participants' reasons for their ranking decisions. Disagreements in coding were discussed and resolved. The average percentage of agreement for the coded variables was 100%. Cohen's kappa for agreement between the two assessors ranged from 0.78 (flat affect) to perfect agreement (Owen, 2012).

6.7 Findings

6.7.1 Demographic characteristics of study participants

As shown in Table 6-2, of the 13 participants, eight (62%) were female and five (32%) were male in the NGT workshops. Their mean age was 36 (SD=13.1). Four (31%) healthcare professionals (physicians and nurses), six (46%) local policy makers, including local politicians, religious authorities, teachers and NGO workers, and three (23%) rural female healthcare service users participated in the workshops.

Table 6-2 Demographic characteristics of the study participants

Pseudonym	Age	Gender	Profession
Healthcare professionals			
Ayesha	41	Female	Physician
Bristi	27	Female	Physician
Chitra	27	Female	Nurse
Dina	27	Female	Nurse
Local policy makers			
Eshan	72	Male	Union chairman
Farhan	42	Male	Political leader
Gita	43	Female	Teacher
Harun	34	Male	<i>Imam</i> (Muslim religious authority)
Ishwar	40	Male	<i>Purohit</i> (Hindu religious authority)
Jac	30	Male	NGO worker
Female healthcare service users			
Keya	26	Female	Housewife
Lisa	40	Female	Housewife
Mina	21	Female	Housewife
Mean age 36; SD=13.1			

6.7.2 Development of the shortlist of solutions of target behaviours

The participants individually chose the top five solutions after reviewing the 'long list' of 15 potential solutions to make a 'short list'. Table 6-3 shows the shortlist where 12 solutions were chosen by the participants in the first round of the workshop. Solutions were ranked based on their 'importance score' and the number of selections by participants. The first three (i.e. solutions 1, 3 and 14) of the top five solutions were ranked based on the importance score. However, the remaining two (i.e. solutions 4 and 15) were ranked based on the number of selections by participants, as they had an equal score of 11. When calculating the frequency, seven (54%) participants chose solution 4, compared to five (38.4%) participants for solution 15. This result means that solution 4 was ranked higher (i.e. 4) than solution 15 (i.e. 5). Thus, considering the ranking process, the five highest ranked solutions were: 1, 3, 14, 4 and 15. Interestingly, although the second ranked solution was chosen by a higher number of participants (10) than the first ranked solution (9), the total score was 27 points lower than the first one.

6.7.3 Assessing solutions with the APEASE criteria

As shown in Table 6-4, eight solutions met all APEASE criteria with 'Yes' responses from the combined list of solutions (see [Appendix L](#), for more details). A maximum of seven 'Yes' responses from the expert panel was recorded for solution 1 '*Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance*' and solution 13 '*Provision of equitable services regardless of the patient class*', followed by five 'Yes' responses for solutions 3 and 4, and four responses for solutions 11 and 15. The lowest 'Yes' responses (three) from the participants were jointly recorded for solutions 5 and 6.

Table 6-3 A shortlist from the long list of solutions

Order	Solution	Total score	Group of participants selecting solutions (Participants=13)			No of participants selecting solutions (%)
			HPs*=4 (%)	LPMS*=6 (%)	FHSUs***=3 (%)	
1	1. Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance	42	3 (75.0)	4 (66.7)	2 (66.7)	9 (69.2)
2	3. Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women	15	3 (75.0)	5 (83.3)	2 (66.7)	10 (77.0)
3	14. Creating a welcoming environment and a shared care plan	13	1 (25.0)	2 (33.3)	1 (33.3)	4 (31.0)
4	4. Providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services	11	3 (75.0)	2 (33.3)	2 (66.7)	7 (54.0)
5	15. Maintaining dignity, privacy and respect for women during consultations	11	0 (0.0)	2 (33.3)	2 (66.7)	5 (38.4)
6	13. Provision of equitable services regardless of the patient class	9	2 (50.0)	3 (50.0)	2 (66.7)	7 (54.0)
7	5. Increasing women's self-confidence in their ability to express their physical problems and reduce fear of access to health centres	8	2 (50.0)	2 (33.3)	1 (33.3)	5 (38.4)
8	11. Emphasising the importance of preventive healthcare by healthcare providers	8	1 (25.0)	2 (33.3)	1 (33.3)	4 (31.0)
9	9. Raising community awareness and understanding to increase active support of family members	8	1 (25.0)	2 (33.3)	0 (0.0)	3 (23.0)
10	6. Increasing husbands' self-confidence in their ability to support their wives' health needs	7	2 (50.0)	1 (16.7)	1 (33.3)	4 (31.0)

11	2. Providing information to increase women's knowledge and awareness of the importance of making appointments for healthcare visits	6	1 (25.0)	1 (16.7)	1 (33.3)	3 (23.0)
12	7. Encouraging women to see healthcare providers who may not be female	3	1 (25.0)	1 (16.7)	0 (0.0)	2 (15.4)

Note: HPs*=Healthcare professionals; LPMs=Local policy makers; and FHSUs***= Female healthcare service users**

Some solutions in the combined list of solutions did not meet the APEASE criteria and some obtained lower 'Yes' responses. The assessment made by the NGT panel shows that some participants considered that certain solutions were not affordable and practical for the researcher to implement, and in addition that some solutions were less effective, unacceptable and even unsafe for women. Affordability was identified as a major reason (25%) by the participants who did not positively assess some solutions. For example, solution 9 'Raising community awareness and understanding to increase active support of family members' did not meet any APEASE criteria as the main concern of participants was budget and its adverse effects.

Table 6-4 Final list of solutions meeting the APEASE criteria

Order	Solutions	Highest number of 'Yes'
1	Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance	7
3	Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women	5
4	Providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services	5
5	Increasing women's self-confidence in their ability to express their physical problems and reduce fear of access to health centres	3
6	Increasing husbands' self-confidence in their ability to support their wives' health needs	3
11	Emphasising the importance of preventive healthcare by healthcare providers	4
13	Provision of equitable services regardless of the patient class	7
15	Maintaining dignity, privacy and respect for women during consultations	4

6.7.4 Prioritising the potential solutions

Prioritising the potential solutions in relation to the original list of solutions was undertaken during workshop 2 of the NGT process. The *priority list* consists of seven key solutions from the *final list* with a maximum score of 32 and a minimum of three (Table 6-5). Table 6-6 illustrates each of these themes with reference to excerpts from the expert panel. In most workshop groups, consensus over research priorities was easily achieved. However, there were rare occasions when consensus was not reached. These

cases were documented in the analysis. The top three prioritised solutions are described below, along with factors derived from participants' narratives behind the prioritisation of solutions during the NGT process.

Priority #1: Solution 1 'Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance.'

The quantitative findings from the NGT workshops show that the highest priority solution identified by the NGT panel in the priority list was *'Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance'* (Table 6-5). This top ranked solution (#:1) obtained the highest vote to be prioritised by healthcare professionals, local policy makers and female healthcare service users. Solution 1 was by far the highest ranked solution with a score of 32 during ranking of the top three solutions, using a 3-point scale through consensus. Greater consensus for this solution was achieved during the final ranking, when 85% of participants ranked this solution in their top three. In addition, the highest priority area did not differ across groups, although there were some response differences in selecting solutions. For instance, all female healthcare users selected solution 1 as their highest priority, whereas the selection rate for the same solution by the local policy makers and healthcare professionals was 83% and 75%, respectively. It may be that the solution conveys a message directly related to women and their families compared to other groups participating in the NGT. It certainly addresses a persuasive way to overcome the challenges of access to appropriate healthcare facilities.

Group discussions with the NGT panel from the qualitative findings explored the rationale for prioritising solution 1. Two themes were identified from the content analysis: 'information needs' and 'lack of awareness-raising strategies' (Table 6-6). The first theme of 'information needs' was also related to lack of understanding of PHCC services by rural women, lack of women's interest to know the services and increasing women's healthcare access. Greater attention was given to 'information needs', as a lack of understanding of the services was identified by all groups of participants as the most common barrier to rural women accessing appropriate primary and maternity services. For example, healthcare professionals and local policy makers identified that women could not identify the right place of treatment and for this reason, they were sometimes denied primary and maternal services. In addition, although CC services were limited to basic services, female participants relied heavily on those services because they were less aware of the services provided by the local CC. This was also reflected in a quote

made by a female participant: '*...I personally met community clinic health workers to get all types of pregnancy related services*' (Keya, a female healthcare service user). In addition, the women's lack of interest in accessing services was identified by some local policy makers and the issue of increasing women's access to health centres with the right healthcare information was also raised as a reason for participants to prioritise solution 1.

The second theme, 'lack of awareness raising strategies', was mostly raised by the local policy makers. This is because they are engaged in local awareness raising campaigns, and the strategies related to healthcare information were poor in the villages. This is exemplified in the following quotation:

Our government is working in a true sense, but campaigns to create local awareness are not enough. Some NGO workers come to me for permission in order to provide health related information for the short term, but I think it should be for the long term. We should inform not only them [women] but also their family members about the treatment facilities available. If they do not know about the service, how can they go to [Upazila] Health Complex or CC? (Eshaan, a local policy maker).

Thus, it is clear that information need and lack of awareness raising strategies were major reasons for participants prioritising solution 1.

Priority# 2: Solution 3 'Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women.'

'Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women' was the second highest priority. This 2nd ranked solution reached a 62% consensus agreement between three groups of participants (Table 6-5). Most healthcare professionals compared to the other two groups voted enthusiastically for this solution. It might be that healthcare professionals regularly observed the rural husbands' role in supporting their wives during treatment.

The reasons behind choosing this solution were identified from the content analysis of the data. Two themes were explored from the analysis: 'support for the treatment' and 'information needs'. The support for treatment included three subthemes: (i) joint decision-making, (ii) financial assistance and (iii) support in seeking treatment. A group of participants, especially the healthcare professionals, thought providing information to increase husbands' understanding was necessary as they raised the point that, with a few exceptions, husbands in a rural patriarchal society like Bangladesh play a key role in making decisions of getting healthcare services for their wives. The societal norm was

also supported by all groups of participants during the discussion. Female participants also emphasised that rural women needed to rely on their husbands for financial assistance to meet the cost of treatment. Moreover, there was a benefit of informing husbands about the services, because if husbands were aware of the services available from PHCCs, they could support their wives in seeking treatment at the nearby health centres.

In addition, some participants thought that it was necessary to provide information to husbands, as they felt the husbands' lack of awareness of service provision was hindering any increase in the rates of women's access to healthcare. Participants often justified this priority by reflecting on potential causes for their case: *'...I can remember, when my wife was pregnant, I was worried about the place of childbirth. Then I came here [UHC] to know whether local childbirth services were covered'* (Jac, a local policy maker).

The discussion above represents that husbands' support and information needs were important for participants to choose solution 3 as their second priority.

Priority# 3: Solution 11 'Emphasising the importance of preventive healthcare by healthcare providers.'

Solution 11: *'emphasising the importance of preventive healthcare by healthcare professionals'* obtained the third rank. Interestingly, solution 11 ranked third in the current priority list, while this had the eighth position in the shortlist (Table 6-3). More than 50% consensus agreement was also observed for selecting the solution in the priority list (Table 6-5).

Table 6-5 A combined priority list of the top 3 orders of solutions from the final list

Order	Solution	Total score	Group of participants selecting solutions (Participants=13)			No. of participants selecting solutions (%)
			HPs*=4 (%)	LPMs**=6 (%)	FHSUs***=3 (%)	
1	1. Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance	32	3 (75.0)	5 (83.3)	3 (100.0)	11 (85.0)
2	3. Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women	13	3 (75.0)	3 (50.0)	2 (67.0)	8 (62.0)
3	11. Emphasising the importance of preventive healthcare by healthcare providers	11	2 (50.0)	3 (50.0)	2 (67.0)	7 (54.0)
4	4. Providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services	8	2 (50.0)	3 (50.0)	0 (0.0)	5 (39.0)
5	13. Provision of equitable services regardless of the patient class	6	1 (25.0)	2 (32.0)	1 (33.3)	4 (31.0)
6	5. Increasing women's self-confidence in their ability to express their physical problems and reduce fear of access to health centres	6	1 (25.0)	1 (16.0)	1 (33.3)	3 (23.1)
7	15. Maintaining dignity, privacy and respect for women during consultations	2	0 (0.0)	1 (16.0)	1 (33.3)	2 (15.4)

Note: HPs*=Healthcare professionals; LPMs**=Local policy makers; and FHSUs***= Female healthcare service users

Major reasons for choosing solution 11 were related to the theme of '*preventive healthcare benefits*' (Table 6-6). The theme was also related to three subthemes: (i) preventing the possibility of getting sick, (ii) health improvement and (iii) reducing the cost of treatment. Many participants thought that preventive care should take precedence over other types of care as "prevention is better than cure." Participants were mostly concerned about the maternal healthcare of rural women, due to the lack of appropriate preventive healthcare support from PHCCs. They thought preventive services for women would reduce the chances of them being ill. A female healthcare professional during the workshop said:

...preventive healthcare for preventable issues, such as maintaining proper weight, regular exercise and other steps, is very poor among women in rural Bangladesh. These practices can significantly reduce women's chances of being ill, especially during pregnancy or after childbirth (Ayesha, a healthcare service provider).

However, healthcare professionals yearned as they were always unable to provide preventive services to women because they did not have enough time and staff.

Another issue identified was that some female participants felt that if they were taken under preventive healthcare services, their health would be monitored regularly by healthcare professionals, which would improve their health condition. In addition, participants raised the issue of costs associated with treatment. Some rural women were unable to meet the costs associated with treatment. Thus, preventive healthcare can be an alternative way to provide services that are inexpensive for rural dwelling women.

Hence, solution 11 was prioritised as third of the top three solutions because the discussion during workshops increased participants' understanding that preventive care would: (i) reduce the risk of illness, (ii) improve women's health and (iii) reduce the cost of treatment.

Table 6-6 Excerpts from transcripts illustrating the rationale for prioritising solutions by the NGT panel

Solution priority	Theme/area of concern	Subtheme	Illustrative quotation
<p>Priority #1: Solution 1 providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance</p>	<ul style="list-style-type: none"> • Information needs • Lack of awareness-raising strategies 	<ul style="list-style-type: none"> • Lack of understanding of PHC by rural women • Lack of interest to know the services • Increasing women's access to health centres • Lack of awareness-raising strategies 	<p>'... the most common problem is women don't know the right place to access because they are not aware of the services' (Eshan, a local policy maker).</p> <p>'Women cannot take birth control technique because some women don't know about the facilities...' (Dina, a healthcare professional).</p> <p>'...some women never try to know where the services are provided, as it is their second priority issue' (Harun, a local policy maker).</p> <p>'Information is required to increase our access to the right healthcare centres' (Lisa, a female healthcare service user).</p> <p>'Our government is working in the true sense, but campaigns to create local awareness are not enough. Some NGO workers come to me for permission in order to provide health related information for the short term, but I think it should be for the long term. We should inform them [women] first, not only them, but also their family members about the treatment facilities available. If they do not know about the service, how can they go to [Upazila] Health Complex or CC?' (Eshan, a local policy maker).</p>
<p>Priority# 2: Solution 3 providing information to increase husbands' understanding about the benefits of primary and maternity services</p>	<ul style="list-style-type: none"> • Support for treatment • Information needs 	<ul style="list-style-type: none"> • Joint decision making • Financial assistance • Support in seeking treatment 	<p>'I think husbands are the main decision makers for the treatment of their wives, so they need to be aware of the services of women...' (Bristi, a healthcare professional).</p>

<p>which are being provided to women</p>		<ul style="list-style-type: none"> • Husbands' lack of awareness of service provision 	<p>'Husbands mostly take a decision in our patriarchal society and for this reason, they should know the benefits of the healthcare services provided to women' (Ishwar, a local policy maker).</p> <p>'... I have to say that if I need money, my husband gives me money for treatment purposes' (Mina, a female service user).</p> <p>'If husbands know about the benefits of services, they can take us immediately to the centre' (Lisa, a female service user).</p> <p>'...I can remember, when my wife was pregnant, I was worried about the place of childbirth. Then I came here [UHC] to know whether local childbirth services were covered' (Jac, a local policy maker).</p>
<p>Priority# 3: Solution 11 Emphasising the importance of preventive healthcare by healthcare providers</p>	<ul style="list-style-type: none"> • Preventive healthcare benefits 	<ul style="list-style-type: none"> • Prevent the possibility of getting sick during pregnancy • Health improvement • Reduce high medical cost 	<p>'... These practices [preventive healthcare] can significantly reduce women's chances of illness, especially during pregnancy or after childbirth' (Ayesha, a healthcare service provider).</p> <p>'If we have preventive healthcare regularly, it will improve our health as doctors can monitor us' (Keya, a healthcare service user).</p> <p>'Rural women are poor. They don't have the affordability to buy medicine, so preventive treatment can be helpful for them' (Farhan, a local policy maker).</p>

6.8 Identifying intervention options (stage 2, continuation from Chapter 5, [section 5.3.2](#))

6.8.1 Specifying intervention functions (step 6)

In this chapter, three solutions as intervention functions have been prioritised and these are specified with relevant intervention functions guided by the BCW (Michie et al., 2014). Intervention functions consist of nine broad categories of means by which an intervention can change the target behaviour (Atkins et al., 2017). From the nine intervention functions described in the BCW Guide, three were specified, which were relevant to the top three solutions prioritised in step 5 of the NGT process: Education, Training and Persuasion (Table 6-7).

Table 6-7 Specifying intervention functions

Top three prioritised solutions	Specific intervention functions
Priority #1: Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance	Education Persuasion
Priority# 2: Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women	Education Persuasion
Priority# 3: Emphasising the importance of preventive healthcare by healthcare providers	Persuasion Training

6.8.2 Identifying policy categories (step 7)

Policy categories are “decisions made by authorities that help to support and enact the interventions” (Michie et al., 2014 p.134). Frequently used policy categories against the selected intervention functions were firstly identified from the literature (Michie et al., 2014, and then these were assessed with the APEASE criteria (Table 6-8). The assessment highlights identified several policy sections more than once for different intervention functions. In this setting: (a) legislation, (b) regulations and (c) fiscal measures were considered to be unacceptable and/or unrealistic. The policy categories which met the APEASE criteria are shaded darker in Table 6-8.

Table 6-8 Identification of the policy categories to support the AU intervention

Candidate intervention functions (Step 6)	Frequently used policy categories	Does the policy category fit the APEASE criteria?
Education/Persuasion	Communication/Marketing	Yes
	Service provision	Yes
	Guidelines	Yes
	Regulations	No (not practicable or acceptable)
	Legislation	No (not practicable or acceptable)
	Training	Service provision
	Guidelines	Yes
	Regulations	No (not practicable or acceptable)
	Legislation	No (not practicable or acceptable)
	Fiscal measures	No (not practicable or affordable)

Following the assessment, three policy categories: (i) communication/marketing, (ii) service provision and (iii) guidelines were identified.

6.9 Identifying content and implementation options (stage 3)

6.9.1 Behavioural Change Techniques (BCTs) (step 8)

BCTs are “an active component of an intervention designed to change behaviour” (Michie et al., 2014 p.145) and are considered to be more specific than intervention functions. As reported in the guidance literature (Michie et al, 2014), the most frequently used BCTs associated with the chosen intervention functions (education, training and persuasion) have been identified in Table 6-9. The APEASE criteria was then applied to the chosen BCTs to identify the most appropriate. The BCTs which met the APEASE criteria were shaded darker in Table 6-9.

Table 6-9 Identification of BCTs to support the AU intervention

Intervention functions chosen in step 6	Frequently used BCTs	Do the BCTs fit the APEASE criteria?
Education	2.2 Feedback on behaviour	No (Monitoring evaluative feedback on behaviour was considered to be impractical)
	2.3 Self-monitoring of behaviour	No (Establishing a specific method to record the behaviour was considered unacceptable)

	2.7 Feedback on outcome(s) of the behaviour	Yes (Monitoring performance measuring was considered to be practical)
	5.1 Information about health consequences	Yes
	5.3 Information about social and environmental consequences	Yes
	7.1 Prompt/cues	No (Not applicable)
Persuasion	2.2 Feedback on behaviour	No (Monitoring evaluative feedback on behaviour was considered to be impractical)
	2.7 Feedback on outcome(s) of the behaviour	Yes (Monitoring performance measuring was considered to be practical)
	5.1 Information about health consequences	Yes
	5.3 Information about social and environmental consequences	Yes
	9.1 Credible source	Yes
	15.1 Verbal persuasion about capability	Yes
Training	2.2 Feedback on behaviour	No (Monitoring evaluative feedback on behaviour was considered to be impractical)
	2.3 Self-monitoring of behaviour	No (Establishing a specific method to record the behaviour was considered unacceptable)
	2.7 Feedback on outcome(s) of the behaviour	Yes (Monitoring performance measuring was considered to be practical)
	4.1 Instruction on how to perform a behaviour	Yes
	6.1 Demonstration of the behaviour	No (It may be effective but not affordable)
	8.1 Rehearsal	No (Not applicable)

Following the assessment, six BCTs (2.7 Feedback on outcome(s) of the behaviour, 4.1 Instruction on how to perform a behaviour, 5.1 Information about health consequences, 5.3 Information about social and environmental consequences, 9.1 Credible source, and 15.1 Verbal persuasion about capability) were found to be the most appropriate.

6.9.2 Mode of delivery (step 9)

Once the BCTs have been identified, decisions are required to be made about their delivery to the target recipient (Michie et al., 2014). The mode of delivery that met the APEASE criteria was the only option considered (Table 6-10). Face-to-face communication was selected as an appropriate mode of delivery for this intervention, because it was familiar to the rural communities involved and the mode also met the APEASE criteria. In addition, strategies, such as providing leaflets and/or posters and/or verbal persuasion, were chosen to deliver interventions.

Table 6-10 Identification of the mode of intervention delivery

Mode of intervention delivery				Do the modes of intervention delivery meet the APEASE criteria?
Face-to-face	Individual/ group/community (strategies: providing leaflets and/or posters/verbal persuading)			Yes
Distance	Population level	Broadcast media	Television	These modes of intervention delivery are less relevant as communities are unlikely to have access to phones, computers or be exposed to other forms of media.
			Radio	
		Outdoor media	Billboard	
			Poster	
		Print media	Newspaper	
			Leaflet	
	Digital media	Internet		
		Mobile phone app		
	Individual level	Phone	Phone helpline	
			Mobile phone text	
Individually accessed computer programme				

Thus, as a part of the intervention design process, face-to-face interaction at the individual, group or community level, as an appropriate mode of providing interventions, was identified.

6.10 Discussion

The study prioritised the top three from the long list solutions to develop intervention to increase healthcare access and utilisation by women, of which the first two solutions relate to providing health-related information and the third emphasises the importance of preventive care.

A high level of agreement was received between the groups that '*Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance*' was the top priority solution to develop interventions. The Beijing Platform for Action (1994) also emphasised the provision of accessible, available and affordable health information to women, so that they can access PHC and MHC services (UN Women, 2014). This study is similar to other studies conducted in Bangladesh (Das et al., 2017), Pakistan (Abdullah and Zakar, 2019) and India (Ali and Chauhan, 2020), where the need to disseminate available health service information was identified as a way to increase potential users access and utilisation of healthcare services.

Another priority area was providing information to increase husbands' understanding about the benefits of primary and maternity services, which are being provided to women. Husbands' understanding of their wives healthcare facilities and options is necessary to reduce the barrier of their support to women, particularly in the paternalistic culture of Bangladesh. This area is similar to other studies (Tokhi et al., 2018; Midhet and Becker, 2010), which highlighted the importance of men's engagement in healthcare education for women's access to care.

The third priority area emphasised the key issue of preventive care. This priority area is consistent with other health prioritisation research from Tanzania (Makundi et al., 2005). In this current research, cost-effectiveness was identified as one of the reasons for choosing preventive services for women; a focus which was also highlighted in several other studies (Mathur, 2018; Dominicus and Akamatsu, 1990).

6.10.1 Implications

Poor knowledge of existing health information is associated with several concerns, including: (a) riskier behaviours, (b) poor self-management, (c) more hospitalisation sessions and (d) costs (WHO, 2013a). Thus, the WHO (2021a) emphasised that the health status of individuals and communities can be improved by increasing their knowledge related to the healthcare services available to them. It is also evident that there was an association between health information and positive health outcomes of women in developing countries (Lynch and Franklin, 2019). Positive maternal health outcomes were also identified when husbands were aware of the local PHCC services available to their wives (Rahman et al., 2018).

Furthermore, preventive healthcare intervention was suggested, especially for countries with low-income settings. With the emphasis on the importance of preventive care, the Bangladesh government, with the support of the WHO, has launched a multi-sectoral action plan for the prevention of NCDs, which cause 68% of all deaths in Bangladesh

(MOHFW, 2018). Gilmore and McAuliffe (2013), in a systematic review, found that the preventive care intervention was successful in improving the health status of people in developing countries. Thus, the preventive healthcare intervention can be considered to develop a behaviour change intervention.

6.10.2 Strengths and limitations

There were many advantages of using the NGT for the study. Firstly, the NGT process and tools were modified with the specific purpose of prioritising solutions with the panel. Researchers are known to adapt techniques, criteria, tools and processes to suit their research aims and context (Rankin et al., 2016). The methodology enabled this researcher to obtain useful quantitative and qualitative data regarding participants' use, experiences, and preferences relating to healthcare provision for women in rural Bangladesh. It also allowed the participants to prioritise the solutions through a democratic process. Secondly, the involvement of stakeholders at every stage of the process was important. Involvement of participants likely to receive the end-stage intervention is important when developing, evaluating and implementing complex interventions (Nilsen et al., 2006). Key stakeholders, such as lay female service users, were involved, in both studies. In Study 1 barriers to accessing and using healthcare services by rural Bangladeshi women were explored and in Study 2, they offered and discussed their individual views regarding possible solutions. Consultation with service users is likely to result in material that is more readable, relevant and understandable to patients (Nilsen et al., 2006). Indeed, there was evidence during the NGT discussions that participants found the list of solutions relevant to their lived experiences. As a result, they were able to freely engage in the discussion to improve understanding and coherence.

Thirdly, a mixed group of participants were engaged to consider different views from multiple angles, an initiative that also helped to make a cross-group comparison of choosing solutions. Finally, the benefit of being able to meet experts face-to-face was important in establishing collaborative relationships consistent with the methodological principles informing the NGT.

However, the study includes some limitations. Although the modified NGT process enabled priorities to be identified, the NGT panel consisted of 13 participants and, therefore, should not be considered as representative of the entire population. Also, as only information related to hospitals and clinics in one location (upazila) were included, the priority topics we identified may not be generalisable nationwide. However, this study does provide a starting point for further research and should be used as such. More time for discussion could have led to slightly different priorities. However, when asked how

long the meeting was, most participants indicated that the meeting was a little longer. Finding a balance between sufficient time for discussion, and reducing the burden on participants with busy schedules, is a challenge and should be considered in future research prioritisation exercises.

6.11 Chapter summary

In Study 2, the NGT method was used to reach consensus and prioritisation of the potential solutions with the NGT panel, such as healthcare professionals, local policy makers and healthcare service users. This activity was based on the findings identified in Study 1. In quantitative findings, the identified prioritised solutions were numerically represented, making a hierarchy order so that priority actions can be addressed to provide services to deal with the healthcare needs of the rural Bangladeshi women. In the shortlist, 12 out of 15 solutions were chosen, followed by 8 from the shortlist selected by assessment using the APEASE criteria. Afterwards, the top three solutions (i.e. 1, 3 and 11) were identified in the priority list. Although some variations were observed in the top five rankings within the group in the shortlist, there was no difference in the priority rankings for selecting the top three in the priority list. These solutions reached a 51% level of agreement between the three groups of participants. Possible reasons coming from the discussion stage of the NGT process, presented as themes and subthemes of selecting solutions, were identified from the qualitative content analysis. Four themes were derived from the excerpts of the NGT panel during the discussion stage: (i) information need, (ii) lack of awareness-raising strategies, (iii) support for treatment and (iv) the benefits of preventive healthcare. 'Information need' and 'lack of awareness-raising strategies' were two possible reasons for participants to select solution 1. Solution 3 in the shortlist was selected by the participants due to the necessity of support for treatment and information. The theme of preventive healthcare benefits was deemed relevant to the solution 11 selection, as preventive healthcare was perceived as being able to reduce maternal complications. Additional benefits were (a) the reduction of costs associated with treatment and (b) facilitating improvements in women's health status. Although there were some limitations to the use of NGT, this approach was found suitable to choose the top priority solution from the list of potential solutions for developing the desired behaviour change intervention.

Chapter 7 Towards an access and utilisation intervention for rural Bangladeshi women: development of a logic model

7.1 Introduction

This chapter addresses the fourth objective of the study outlined in [section 1.7](#). This chapter presents the development of a logic model to demonstrate how the proposed access and utilisation intervention intends to improve PHC and MHC services by rural Bangladeshi women. This chapter provides the rationale and aim. The process of developing the logic model, guided by the UK Medical Research Council framework (Craig et al., 2008), is then described in three stages: (i) previous evidence, (ii) identifying theory and (iii) modelling process and outcomes. Finally, a summary of the chapter is provided.

7.2 Rationale

In South Asia, community-based interventions are used to inform community women about services relating to PHC and MHC services (Sharma et al., 2020). The WHO's Bangladesh health strategy recognises that local community-based interventions could improve women's access to healthcare services (WHO, 2007). Engaging the local community is central to community-based interventions (WHO, 2020), which empower women into making health-related decisions and are seen as a cost-effective tool for sustaining behaviour change (Sharma et al., 2020; Tobe et al., 2019). Community-based interventions, which provide information and promote awareness about primary and maternal care in a group setting are preferable for improving women's access to health services (Lassi et al., 2010). More appropriate information relating to specific needs and assets can be generated through community involvement and participation (Afifi et al., 2011). Given the importance of improving healthcare access for women living in rural locations, the government of Bangladesh has initiated some community-based interventions. However, the MOHFW jointly with the WHO suggested that in order to accelerate progress, effective interventions are required to address the rise in the uptake of healthcare services (WHO and MOHFW, 2015).

There is a need to develop theory-informed interventions to make interventions effective (Craig et al., 2008). The multidimensional relationships between the key stakeholders of this study, such as women, their families and HPs, require an evidence-based systematic process to be followed in order to provide support for this target group of population. However, there is a paucity of theoretically-based interventions and knowledge of how to integrate an appropriate theory into the process (Moore and Evans, 2017; Moore et

al., 2015). In doing so, the guidance of a broader framework such as the MRC framework (Craig et al., 2008) was followed to develop the behaviour change intervention. In addition, since the MRC framework does not have any established choice of frameworks or methods, the BCW (Michie et al., 2014) framework was specifically used as it adopts a step by step process to accumulate information and behaviour change techniques as active ingredients of every behaviour change. The BCW framework adds “flesh on the bones” of the MRC guidance, specifically where the use of theory is recommended to develop interventions (Atkins and Michie, 2015, p.165). Therefore, the BCW framework was used to assist with the development phase of the MRC framework.

Following the BCW framework, several barriers related to rural women’s access to and use of PHC and MHC services were identified in Study 1, and potential solutions were addressed in Study 2 to increase access and use of healthcare services by rural women. It was then necessary to identify essential components related to the development of the access and utilisation (AU) intervention and demonstrate how it will work further. This process allows for a common goal for change between the researcher and the community (Norris and Pittman, 2000). This goal can then be translated into an action plan that guides the development of the intervention. Notwithstanding the discussion on this discourse, the development of a logic model through a process or plan is rarely discussed in the literature (Afifi et al., 2011; Kaplan et al., 2006). Logic models can be useful in identifying the relationships between the components of developing the AU intervention and its intended outcomes.

7.2.1 Aim

The overarching aim of this Chapter is to develop a logic model based on the findings from Studies 1 and 2 in order to show how the AU intervention is intended to work for improving healthcare access and utilisation by rural Bangladeshi women.

7.2.2 Justification of the approach to develop a logic model

Several approaches exist in the literature for designing theory-driven interventions. Three main approaches are being used by health researchers: (i) social network analysis, (ii) agent-based modelling and (iii) logic model (Table 7-1). Social network analysis (SNA) is used to understand the dynamics of complex social systems and the potential impact of changes. SNA has a relatively long history in public health and has been used to understand the dynamics of smoking among peers and identify intervention points to stop smoking uptake among young people (Campbell et al., 2008). However, some processes, such as data visualisation using nodes and codes in a diagram, and the concept of change through a programme are not clear in the SNA process, as shown

in Table 7-1 (Hogan et al., 2007). In agent-based modelling, individuals represent active agents, whose interactions form and are formed, by the function of the simulation system in which they live (Moore et al., 2018). For example, a modelling process to see the likely nature of social contagion can be developed by shifting the position of an alcohol bar in any area (Gorman et al., 2006). However, agent-based modelling, which arguably offers the greatest congruence with a system perspective, has not been widely used in public health intervention development (Speybroeck et al., 2013). Finally, logic models are visual tools that demonstrate an overall programme theory, describing and linking the programme's input/resources, activities, outcomes and impact (Funnell and Rogers, 2011; Kellogg Foundation, 2004). They are helpful in developing common understandings of basic mechanisms and assumptions, and focusing on the key aspects of uncertainty (Moore et al., 2018). They are especially important in integrated care plans as deciphering the underlying pathway and deciding which individual components of these complex interventions contribute to the outcomes can be challenging (Threapleton et al., 2017). The limitation of a logic model is its insufficiency to depict the complexity because sometimes qualitative description alone cannot represent the complexity of the intervention (Greenwood-Lee et al., 2016).

Table 7-1 Approaches to modelling interventions

Approaches	Descriptions of method	Applications to intervention development	Limitations
Social network analysis (Hawe and Ghali, 2008; Hogan et al., 2007)	<ul style="list-style-type: none"> • Modelling the social integration structure within a whole bounded social network; • Social structure is analysed based on the information provided about individual interaction network. 	<ul style="list-style-type: none"> • Identification of a key point of influence, and individuals whose behaviour can disproportionately affect the functioning of the whole system. 	<ul style="list-style-type: none"> • Not easy to read the visual representation; • Little emphasis on showing how a programme involves change.
Agent-Based modelling (Moore et al., 2018; Greenwood-Lee et al., 2016; Speybroeck et al., 2013; Gorman et al., 2006)	<ul style="list-style-type: none"> • Computer-based simulations of the consequences of changing a discrete feature of a complex system for the function of the entire system; • Individuals represent as active agents whose relations are influenced by the function of the simulated system they inhabit. 	<ul style="list-style-type: none"> • Increase of understanding of the effects of introducing change to discrete events within systems such as shifting a key feature of the location; • Formation of a theory of the likely nature of non-linear change processes and unintended effects. 	<ul style="list-style-type: none"> • Model is not simple; • Outputs are very sensitive to the validity of assumptions about the starting points of the system.
Logic model development (Kellogg Foundation, 2004)	<ul style="list-style-type: none"> • Developing a shared understandings of underlying processes and assumptions, and focusing research on a key aspect of uncertainty. 	<ul style="list-style-type: none"> • Specification of the process of key intervention functions; • Graphical representation of the causal logic of interventions. 	<ul style="list-style-type: none"> • Complexity cannot always be understood through a qualitative description.

7.2.2.1 The justification for using the logic model

Although there is no consensus on the best choice among these approaches, logic models appeared as the most relevant option to plan the behaviour change intervention for several reasons. Firstly, since the goal of the study was to improve healthcare access and use by rural women, a tool was selected that was more specific to improving the quality of care. Logic models are suggested when planning an intervention to illustrate how a programme will create change (Moore, et al., 2015; Centers for Disease Control and Prevention, 2003), whereas SNA emphasises the network of relationships (Hawe and Ghali, 2008). Secondly, data used in a logic model diagram is easier to understand (Kellogg Foundation, 2004), whereas comprehending the network data and agent-based model data in graphs is not very easy (Afzal et al., 2022) as it requires specialist knowledge, thereby limiting an intuitive interpretation (Hogan et al., 2007). Finally, creating a logic model, when developing an intervention, may improve the chances of success because it outlines a shared understanding of the programme with stakeholders and identifies the key uncertainties so that these can be addressed early on (Yip et al., 2021; Funnell and Rogers, 2011; Kellogg Foundation, 2004). By contrast, uncertainty is not determined in both SNA and agent-based modelling, and success is determined through computer simulation in agent-based modelling, which limits the effectiveness of the intervention (Greenwood-Lee et al., 2016; Moore et al., 2015). Thus, considering these issues, logic models were deemed appropriate for the proposed intervention.

7.3 The process of a logic model development

Although there was updated guidance for the MRC framework (Skivington et al., 2021), it did not explicitly show as clearly as the earlier version (Craig et al., 2008) of the stages of intervention development. In addition, since the study began in 2018 in light of the earlier version, it was difficult to follow the updated version of the MRC framework. Therefore, the process of logic model development adopted the three phases guided by the original MRC framework (Craig et al., 2008). As the model aims at presenting how the intervention will work in the rural community setting of Bangladesh, the development phase of the MRC guidance was chosen. Developing the complex intervention is positioned in the development phase of the MRC framework for developing and evaluating complex interventions (Craig et al., 2008). Figure 7-1 shows the stages of the development phase of the MRC framework and activities for developing the model. The full version of the framework is presented in Chapter 3 (Figure 3-2).

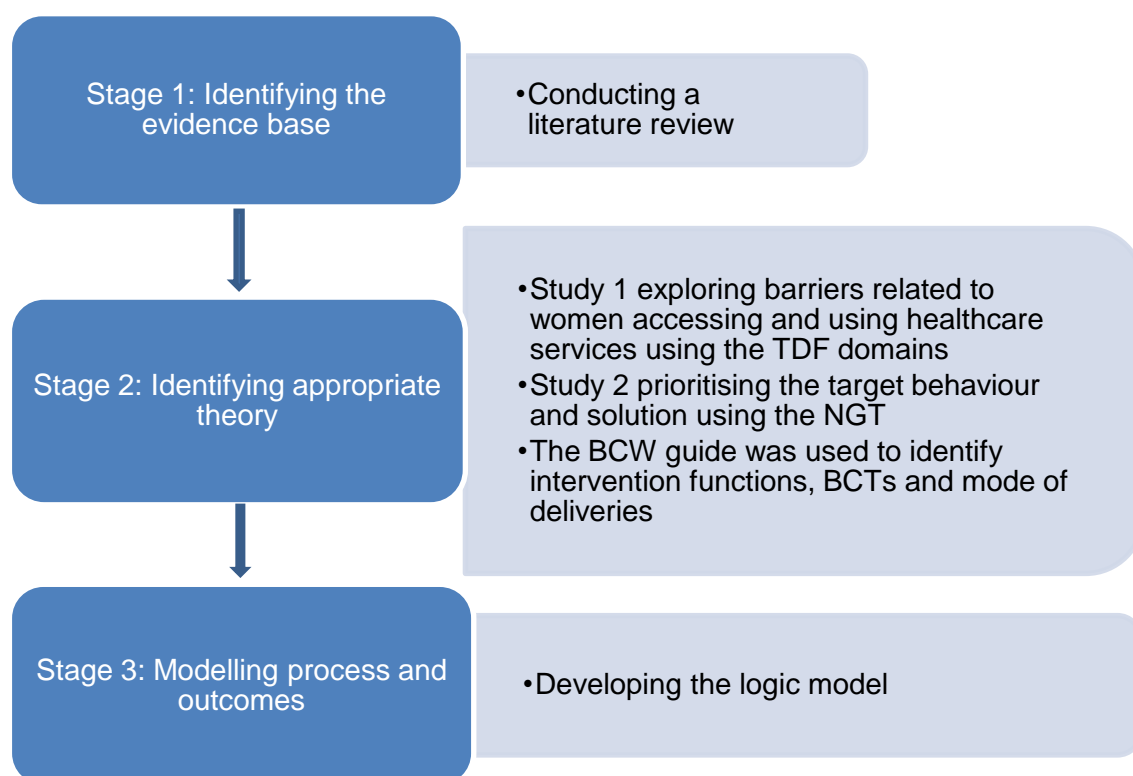


Figure 7-1 Stages and activities in the development of the logic model

7.4 Application of the MRC framework to develop a logic model

Three stages of the development phase of the MRC framework is described in more detail below.

7.4.1 Earlier evidence of existing interventions

The first stage of developing a logic model includes published studies, which focus on existing interventions. Following the MRC guidance (Craig et al., 2008), the review aimed at identifying existing interventions and the range of methods or approaches used in delivering interventions in Bangladesh. The findings of the review were based on 12 papers (Haque et al., 2022; Alam et al., 2020; Rahman et al., 2019; Sharma et al., 2018; Harris-Fry et al., 2016; Zaman et al., 2016; Rahman et al., 2016; Taleb et al., 2015; Clarke et al., 2014; Quayyum et al., 2013; Darmstadt et al., 2010; Amin et al., 2001), which were found to be appropriate. All the papers included in the review were based on primary results, except for one systematic review (Sharma et al., 2018).

Bangladesh has witnessed a relatively substantial expansion of maternal health interventions by both the government and NGOs in rural areas (Quayyum et al., 2013; Amin et al., 2001). Community-based interventions were implemented in some rural parts of Bangladesh, and these were found effective to improve maternal care, including ANC, childbirth and PNC (Rahman et al., 2019; Quayyum et al., 2013). However, a

substantial proportion of childbirth still occurs at home (Taleb et al., 2015), suggesting that gaining understanding and support from the community to promote safe childbirth is of high priority. In addition, limitations were related to the inability to attribute the change in knowledge, awareness and practice related to maternal care.

Several key messages were identified from the range of community-based interventions, which included: (i) maternal healthcare related education (Haque et al., 2022; Sharma et al., 2018; Taleb et al., 2015; Quayyum et al., 2013; Darmstadt et al., 2010); (ii) increasing awareness of danger signs during pregnancy, childbirth, post-childbirth and healthcare rights (Rahman et al., 2019); (iii) awareness of birth preparedness; participatory learning action with women's group involving local women (Harris-Fry et al., 2016); and (iv) awareness campaign for primary care-developing interventions for NCDs, such as diabetes, cancer, etc. (Zaman et al., 2016). However, the provision of information appropriate to PHC and MHC services was minimal. In addition, whereas intervention development for improving MHC was very evident, only one paper (Zaman et al., 2016) focused on developing an intervention to improve PHC.

Furthermore, several intervention delivery techniques were identified from the previous studies, which can be categorised into five types, as shown in Table 7-2. Intervention delivery through courtyard and home visits was suggested the most to increase women's access and adherence to such community-based healthcare facilities. In addition, support services such as CHWs accompanying the pregnant women, and financial support for women to purchase medicine and paying the travel costs were identified. In most of the cases, multiple techniques were mentioned in order to implement interventions.

Table 7-2 Categories of intervention delivery techniques

Intervention delivery technique	Source
Courtyard or group meetings	Haque et al. (2022); Alam et al. (2020); Rahman et al. (2019); Harris-Fry et al. (2016); Rahman et al. (2016)
Home visits	Haque et al. (2022); Sharma et al. (2018); Taleb et al. (2015); Clarke et al. (2014); Darmstadt et al. (2010); Amin et al. (2001)
Clinic or hospital services	Zaman et al. (2016); Quayyum et al. (2013); Amin et al. (2001)
Support services-accompanying and financial	Quayyum et al. (2013)
Others- campaign through radio and celebrating the day	Zaman et al. (2016)

The people involved with the mode of intervention delivery mostly included CHWs, local women or peers. Some studies have included only women as a target intervention group, while others have emphasised the inclusion of women, their family members and the community. Only two studies (Rahman et al., 2019; Taleb et al., 2015) designed interventions based on a theoretical framework, whereas most studies did not emphasise any underlying theoretical background.

Although the review reported that some interventions are working in Bangladesh, the key question remains as to whether these interventions have resulted in a corresponding increase in access and utilisation to healthcare services by rural women. A large proportion of rural people were still less aware of the PHC and MHC services provided for rural women (Yaya et al., 2017). The proposed AU intervention will address the gap to improve access to PHC and MHC services by rural Bangladeshi women. Given the importance of existing interventions in rural settings, the current study adopted the idea of providing health-related service information with some modifications. Interventions promoting the raising awareness of services available to the target group would be appropriate within rural Bangladeshi communities (Perkins et al., 2019). The AU intervention will incorporate both the provision of appropriate health-related service information by CHWs and sharing success stories of PHC and MHC services by peers in the setting of courtyard meetings. Although providing health information by CHWs in Bangladesh was reported a great deal, engaging peers in intervention deliveries were minimally mentioned in the context of Bangladesh. However, peer support interventions are considered as an established approach (Fisher et al., 2017) and were found successful in developed (Anderson et al., 2021) and developing countries (Nixdorf et al., 2022). The systematic review conducted by Sharma et al. (2018) suggested that any programmes that were integrated with multiple interventions would be successful in improving maternal health outcomes in South Asia.

7.4.2 The underpinning theory

The underpinning theory refers to the articulation of key intervention components and their relation, the mechanism of actions and how these might influence the context (Skivington et al., 2021). Here, the BCW framework was the underpinning theory, in which a process of data collection took place in Studies 1 and 2, which included FGs and interviews with key stakeholders, that is, women, their husbands and HPs (see Chapter 4), and NGT workshop data with the NGT panel (Chapter 6). Engaging stakeholders in the process is also a practice recommended by the MRC framework (Craig et al., 2008). The barriers guided by the TDF were identified in Study 1, which were used as a basis for developing the AU intervention and correspond to the problem

component of the logic model. In Study 2, a consensus method such as the NGT was undertaken with the expert panel to prioritise the solution on which the AU intervention guided by the BCW was developed. The overall data collection process of Studies 1 and 2 promoted the development process of the logic model.

7.4.2.1 Choosing intervention functions

Intervention functions consist of nine broad categories of means by which an intervention can change the target behaviour (Atkins et al., 2017). From the nine intervention functions described in the BCW framework, three were chosen which were relevant to the top priority solution identified in Study 2 to be implemented, namely Education, Persuasion and Enablement (see Table 6-7 in Chapter 6).

7.4.2.2 Behaviour Change Techniques (BCTs)

Although theories provide a framework for understanding how behaviours are targeted in the intervention change, BCTs constitute the active content of interventions (Lakshman et al., 2014). BCTs work as a mechanism of actions to change the behaviour of the target intervention group. BCTs were selected which are informed by the theoretical basis of this community-based intervention. To develop approaches for the change of behaviour, the Taxonomy of BCTs developed by Michie et al. (2013) was used. Six BCTs were identified in Chapter 6 (Table 6-9) as relevant in this context and were linked to the intervention functions identified in the previous step. In addition, based on the intervention design and to strengthen the process, six additional BCTs from the Taxonomy of BCTs (Michie et al., 2013) (1.1 Goal setting (behaviour); 1.2 Problem solving; 1.3 Goal setting (outcome); 1.4 Action planning; 3.1 Social support (unspecified) and 3.2 Social support (practical)) were found relevant to be included in the logic model. Therefore, a total of 12 BCTs were included in the logic model.

7.4.3 Modelling the process and outcome of the logic model

At this stage of the intervention development, emphasis is placed on the modelling process of intervention and its outcomes based on the guidelines of the MRC framework after taking into account the evidence and related theories. The MRC guidelines recommend the use of logic models to describe the theory of the intervention (Skivington et al., 2021; Craig et al., 2008). This study adopted the Kellogg Foundation's (2004) guide for the theory logic model, which consists of six components: (i) the problem, (ii) assets and community needs, (iii) the desired results, (iv) influential factors (v) strategies and (vi) assumptions. This process is a sequential and iterative process to develop a theory logic model (Emond et al., 2021). Based on the guide and iterative process, the logic model is presented in Figure 7-2. In this context, the logic model describes the

causal pathway by detailing the operation of intervention, the expected effects of its constituent parts, the functions they fulfil and the mechanisms that produce these effects (Craig et al., 2008). The components of the logic model are described below.

7.4.3.1 Identification of intervention problem and solution

The intervention of the target problem or barrier to rural women accessing and using healthcare services and the top prioritised solution were described in Chapter 6 ([section 6.7.4](#)).

7.4.3.2 Identification and description of inputs

Inputs or assets are the resources or aspects needed to implement the local intervention. A list of inputs was included in the logic model (Figure 7-2), and they are as follows.

- (i) Human resources will include stakeholders, such as CHWs, local peers, workshop facilitators and the researcher;
- (ii) Material resources will include workshop materials and leaflets that contain healthcare services information;
- (iii) Physical resources will include courtyards of the Batiaghata upazila where the intervention meeting will be arranged, and an office room of Khulna University in Bangladesh where data will be analysed;
- (iv) Technical resources will include mobile phones, laptops, printers and internet for making virtual communication via email, Skype and Microsoft Teams; and
- (v) It will be a cost-effective project as the intervention will be delivered in a face-to-face situation rather than creating technological apps or websites with their associated costs. However, the intervention needs money for purchasing some electronic equipment and its implementation, and it is planned to write to national and international funders to get funding for the project.

7.4.3.3 Identification and description of strategies

Two programme strategies will comprise the AU intervention: identification of BCTs and the mechanism of activities. BCTs were chosen based on the intervention functions, and relevant BCTs and their modes of delivery are outlined in Chapter 6 ([section 6.9](#)).

Mechanisms of actions will be planned from providers and beneficiary perspectives as it is suggested in the MRC framework that mutual collaboration of stakeholders or the target populations is the key to the success of developing an intervention (Skivington et al., 2021; Craig et al., 2008). Key activities from the intervention providers' side will be considered as: (i) recruitment of participants or beneficiaries, (ii) meeting with participants and (iii) facilitation activities. In addition, the beneficiary perspective includes

four actions: (i) following information, (ii) taking an active role in healthcare decisions, (iii) maintaining supportive relationships and (iv) providing timely feedback.

The intervention activities will be delivered to the intervention groups of women and their families by the facilitators who are known to the community members, such as CHWs and local peers. The facilitators will arrange courtyard meetings with rural women and their family members from the community that will be organised at a designated place, usually a person's house in a village. CHWs will be engaged as key persons to provide health-related information as they know the available services and have influencing powers to motivate women to seek care and their family members to support women to get services (Kumar et al., 2008). It is evident that women in areas assigned to receive a community-based intervention with CHWs had decreased illnesses and complications related to maternal care such as pregnancy complications or childbirth (Lassi et al., 2010). In addition, peers, the females of the same village or community, who know and use the services provided by PHCCs for them, will be involved as they could share their success stories with the target intervention groups. Peers in communities have an important role to play in changing women's healthcare practices (Sharma et al., 2020). Peer support interventions are an established approach and several studies have proven the effectiveness of peers in educating women in order to improve their health condition (Harris-Fry et al., 2016; Clarke et al., 2014). Several peer support models have been described, such as peer mentorship and peer-led group programmes (Public Health England, 2015; Heisler, 2007). In this study, a peer-led group programme was chosen as peers were considered to be ideal for working with CHWs to share information in a community.

7.4.3.4 Outputs and outcomes of the proposed intervention

The desired outputs of the intervention were identified in the logic model as (i) a list of recruited participants, (ii) a schedule for arranging meetings with participants (iii) motivational discussions with participants, (iv) counselling with rural women and family members (husbands, in-laws) and (v) awareness raising tools such as leaflets. These outputs were targeted towards the participation of women, their family members, CHWs, facilitators and the researcher.

The three main outcomes that are the focus in the logic model (Figure 7-2) will increase knowledge, social relationships and confidentiality among women. Outcomes related to knowledge are intended to increase the capability of both women to seek treatment and their family members to support women for seeking treatment. Social relationship outcomes are planned to provide social and emotional support for women, supporting women's communication needs and supporting women's and their family members'

participation in activities. Finally, capability outcomes will be aimed at boosting rural women's confidence to seek care, family members' confidence to support women and the ability of rural women to maintain a daily routine. The outcomes highlight the importance of a comprehensive and collaborative approach to meet the individual needs of women and their families. To achieve these outcomes, it is important that stakeholders will work together while developing strategies to support women to seek appropriate healthcare services.

7.4.3.5 Assumptions and external factors

Finally, the assumptions listed in the logic model were formulated based on the strategies. Three assumptions were listed in the model that could explain why the chosen strategies could lead to the intended outcomes; these are as follows:

- (i) In rural Bangladesh, community-based interventions led by CHWs and peers have been shown to be useful in increasing healthcare access to services for women. It will be a collaborative and flexible process;
- (ii) BCTs have been developed in response to women's and family members' needs in order to facilitate access to PHC and MHC services by increasing their knowledge, social relationships and confidence; and
- (iii) After receiving information and attending activities in the courtyard meetings, women will be able to access appropriate PHC and MHC services and family members will be able to support women to seek care. This is because these meetings can inform and raise awareness among women and family members about the services available to them.

In addition, some external factors were deemed as most relevant to the behaviour change intervention shown in the logic model, which included: (i) access to technology in villages, (ii) major social, media and political influences and (iii) medical or health issues. These factors can influence the outcomes of the intervention.

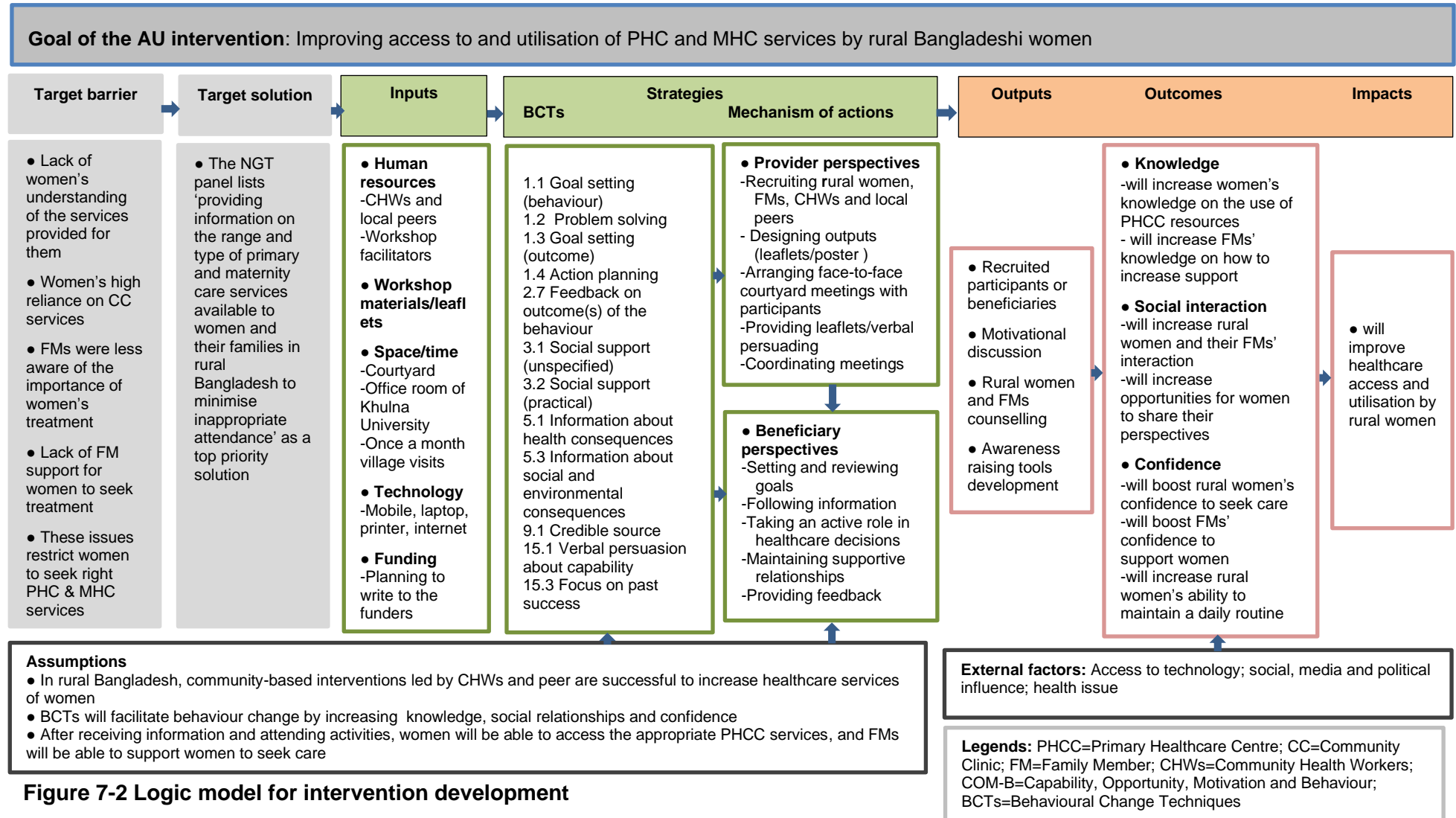


Figure 7-2 Logic model for intervention development

7.5 Chapter summary

The logic model, guided by the MRC framework (2008), presents a set of actions for the future development of the AU intervention. The framework included three stages of developing interventions: earlier evidence of the existing interventions, underpinning theory, and modelling the process and outcomes. In the first stage, although there was discussion of community-based interventions in the literature, the theory-driven interventions were less evident. In the theory utilisation stage, barriers related to healthcare access and use of rural women were explored based on the TDF domains. The target barriers were related to inappropriate health centre attendance of rural women resulting from the lack of knowledge of women and their family members about the services available to women. With a view to addressing the problem, a solution such as providing health service-related information to rural women and their family members was prioritised. Subsequently, relevant intervention functions, such as education, persuasion and enablement, as well as 12 BCTs were identified following the BCW framework. These theory-driven techniques were then targeted to be delivered in person with the intervention groups, such as rural women and their family members, in courtyard meetings by the CHWs and peers. Finally, the modelling process commenced, following the identification of key intervention components. Identified components were then visualised in a model showing interconnections within a system. In addition, the outcomes of this AU intervention presented in the model were targeted at increasing the knowledge, relationships and confidence of the target groups, thereby increasing their access to and use of PHC and MHC services. Having the theoretical insights and stakeholder involvement, the underlying assumptions indicated the effectiveness of the intervention, yet some socioeconomic and political factors can impede the effectiveness if potential steps are not considered in advance. The following chapter provides the discussion and conclusion of whole research.

Chapter 8 Discussion and Conclusions

8.1 Introduction

The overall aim of this study was to explore the experiences, barriers and facilitators to accessing and utilising primary and maternal healthcare services among women in rural Bangladesh. The aim was achieved through a mixed methods approach, incorporating both qualitative and quantitative information. The four objectives and how these were specifically achieved are illustrated in Table 8-1.

Table 8-1 The study objectives and how these were achieved

Objective	How the objective was achieved
(i) To explore knowledge and experiences of primary and maternal healthcare services among women in rural Bangladesh;	This objective was achieved through a qualitative investigation in Study 1 where FG and interview methods were used to collect data, and findings are presented in themes in Chapter 4 .
(ii) To identify factors that influence access to and utilisation of primary and maternal healthcare services among women in rural Bangladesh;	This objective was achieved through a qualitative investigation in Study 1 where FG and interview methods were used to collect data, and findings are presented in themes in Chapter 4 .
(iii) To prioritise solutions from the list of solutions identified based on the Study 1 findings to develop a behaviour change intervention;	This objective was achieved through Study 2 where the NGT workshops were conducted to collect both quantitative and qualitative data, and findings are presented in Chapter 6 .
(iv) To develop a logic model based on the findings from Studies 1 and 2 to improve primary and maternal healthcare among women in rural Bangladesh.	This objective was achieved by developing a logic model guided by the MRC framework and is presented in Chapter 7 .

This final chapter will present an integrated discussion of the key findings of Studies 1 and 2 to provide the basis for the policy recommendations and conclusion. The chapter starts with a project summary, including the project overview and about Studies 1 and 2. This chapter then presents an integrated discussion of the key findings of the two studies conducted. This is followed by a discussion of the contribution of knowledge, policy implications, strengths and limitations, reflexivity and dissemination of findings. The chapter ends with an outline of the conclusions drawn from the study.

8.2 Project summary

8.2.1 Project overview

The study aimed to explore experiences, barriers and facilitators to accessing and utilising primary and maternal healthcare services among women in rural Bangladesh. This aim was addressed through empirical and theoretical investigations. Through using qualitative FG and interview methods and drawing on psychological theory such as the TDF, it was aimed at identifying barriers and facilitators to access and use of healthcare services by women from the perspectives of women, husbands and healthcare providers. In addition, potential solutions to address barriers were prioritised through the NGT process to develop an intervention. Furthermore, following a theory-based MRC framework, a logic model was developed to show how the intervention will work.

8.2.2 Study 1 (Chapter 4)

Study 1 includes the following specific objectives:

- To explore knowledge and experiences of primary and maternal healthcare services among women in rural Bangladesh;
- To identify factors that influence access to and utilisation of primary and maternal healthcare services among women in rural Bangladesh;

These objectives were achieved through a qualitative investigation in Study 1. This study included FG and interview methods, which were used to collect data from women, their husbands and HPs. FG and interview data were thematically analysed using the framework analysis. The findings are presented in five themes: (i) lack of awareness and understanding of women and their husbands in PHCC services, (ii) capabilities and confidence in accessing and using healthcare services, (iii) sociocultural barriers and facilitators to women's healthcare access and utilisation, (iv) organisational barriers and facilitators to women's healthcare access and utilisation and (v) environmental barriers to women's healthcare service access. The first theme answers the first objective and the second to fifth themes answer the second objective.

8.2.3 Study 2 (Chapter 6)

The objective of Study 2 was to prioritise solutions from the list of solutions identified based on the findings of Study 1 to develop a behaviour change intervention. Barriers to access and use of healthcare services by women were mapped to the COM-B in order to identify whether change is necessary (Chapter 5). Afterwards, a list of potential solutions as intervention functions were developed to be prioritised. The research then continued with Chapter 6 which includes Study 2 where the NGT was used to prioritise potential solutions identified in Study 1. The NGT workshops for Study 2 were undertaken with healthcare professionals, local policy makers and female healthcare services users. The NGT workshops include both quantitative and qualitative data, where

quantitative data was statistically analysed, and qualitative data was analysed using the content analysis. The three most important solutions were chosen on the priority list as these solutions reached a level of agreement of 51% between the three groups of participants. The top three solutions were related to proving health-related information and emphasising preventive care.

8.3 Integration of the key findings

The purpose of integration of the key findings of Studies 1 and 2 are complementarity (McCrudden et al., 2021; Greene et al., 1989) as the findings of Study 2 expand and enhanced the findings of Study 1 to broadly understand access and utilisation of healthcare services by women. Integration is depicted through a joint display of key findings of Studies 1 and 2 provided in Table 8-1. Although the methodological integration started in mapping (Chapter 5) through identifying the potential solutions based on the findings of Study 1 prioritised in Study 2, the integration of the findings of Studies 1 and 2 is provided in this discussion section.

8.3.1 Knowledge gap and information need

There was evidence that rural women were highly reliant on community clinic services regardless of its ability to provide appropriate care (Table 8-1). Women also did not fully understand the tests and services, which were offered by the UHC. This lack of knowledge can sometimes prevent women from receiving the services of a doctor. This healthcare knowledge gap was evident as a challenge not only for rural Bangladeshi women, but also for women in Norway (Mbanya et al., 2020; Mbanya et al., 2019). Discussions with the NGT panel in Study 2 revealed two potential causes for the knowledge gap of rural Bangladeshi women: (a) lack of women's understanding and interest to know about the services and (b) lack of information dissemination policy by the local government. The government of Bangladesh has made some policies to disseminate healthcare-related information to the population through healthcare centres; however, these policies are not fully functional (Murshid and Haque, 2020). Therefore, based on the study findings and current policies of the government, there is a need for healthcare-related information to increase appropriate access to care by women.

In addition, to address the knowledge barrier, evidence from Study 2 suggested a solution, *'Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance'*, which achieved the highest consensus (85%) by the NGT panel. Healthcare information can improve patient awareness and achieve better health results (Clarke et al., 2015) and make a positive experience with the healthcare system

(Mbanya et al., 2020). Furthermore, education, verbal persuasion and enablement were identified as specific intervention functions (Michie et al., 2014). A logic model was developed in Chapter 7, where the mechanism of actions, such as face-to-face courtyard meetings with women and their family members about the range and type of PHC and MHC services, was proposed to be included.

Furthermore, the knowledge gap related to the culture of not making appointments was identified. Women, in this study, reported being unaccustomed to having to make appointments before seeing a doctor or healthcare provider. They even did not know the procedure of making appointments. Therefore, they sometimes visited health centres in a group, which made the health centre environment noisy, and this created work stress for the healthcare providers. Furthermore, women's healthcare access barrier was not only related to their own attributes but also related to their family members such as husbands. Husbands, who lived in rural locations, were not always aware of the importance of their spouse getting treatment from primary healthcare centres. Findings from Study 2 suggests solution 3, *'Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women'*, which was the second highest priority to increase access and use of healthcare services by women.

8.3.2 Intrapersonal barriers and motivation strategies

Barriers were also related to the capabilities and confidence in accessing and using healthcare services. Due to women reporting fear and shyness at attending healthcare services, this prevented them from using the services on offer (Table 8-2). Fear can have adverse impacts on a person's quality of life, so it is essential to identify and eliminate these important obstacles to pave the way for the best health and overall well-being of the individual (O'Laughlin et al., 2021; Appukuttan, 2016). Women also could not share their physical problems with a doctor due to shyness. There are no clear guidelines in the current Bangladeshi health policy on how to reduce intrapersonal barriers for women; however, these can be managed through behavioural interventions (McMurtry et al., 2016). Participants in Study 2 suggested a solution, *'Increasing women's self-confidence in their ability to express physical problems and reduce fear of access to health centres'*, to address the barriers. Although this solution ranked sixth, it conveys direction on how to increase self-confidence. Women can be motivated to increase their self-confidence.

8.3.3 Sociocultural influence and awareness raising

The sociocultural influence identified in Study 1 was one of the main barriers to women accessing healthcare services. There appeared to be a lack of support from family

members for pregnant women, throughout the pregnancy and during labour. Furthermore, women did not get the support of family members to seek treatment when they felt unwell. This family refusal to support women is possibly due to cultural reasons. For example, some religious obligations such as taking birth control, as advised by the doctor, resulted in women not accessing healthcare. In rural Bangladesh young husbands are also accustomed to following decisions of the senior family members. Thus, traditional family norms such as healthcare decisions being made by the senior members (father) restricted young husbands in taking a timely decision about their wives' treatment. The delay in seeking timely care is considered to be the consequence of imposing cultural restrictions on women's movement to health facilities during emergencies (Omer et al., 2021; Khan et al., 2020). Like the intrapersonal barriers, the current Bangladeshi NHP does not have a specific practice to reduce sociocultural influence on women. To overcome these barriers, findings from Study 2 suggest *'providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services'*. Several strategies, such as education, verbal persuasion, and sharing folk songs and drama, can be used to raise community awareness (Michie et al., 2014).

8.3.4 Organisational barriers and need improving the quality of care

Organisational barriers consisted of a number of issues in Study 1. Quality care is disrupted if the healthcare system does not function smoothly (Okonofua et al., 2017; Mannanva et al., 2015; Bohren et al., 2014). Women were provided minimum preventive care by HPs due to their work stress and lack of emphasis on preventive care (Table 8-1). However, emphasis is currently placed on preventive care in developing countries like Bangladesh to reduce the increasing rates of NCDs, such as heart disease, cancer and diabetics (GED and BPC, 2020b). Participants in Study 2 identified several important issues for preventive care of rural women. These issues included (i) reducing the possibility of being sick, (ii) improving health and (iii) cost-effectiveness. Therefore, solution 11, *'Emphasising the importance of preventive healthcare by healthcare providers'*, was prioritised in the top three solutions in Study 2 to overcome this barrier.

Furthermore, inequality has been identified as a great challenge for Bangladesh's healthcare system (Murshid and Haque, 2020; Islam and Biswas, 2014). Study 1 highlighted that inequality in the provision was common in the health facility. Resource poor patients rather than local patients, who were powerful, were sometimes denied a bed. To address this barrier, findings from Study 2 suggested the provision of equitable services regardless of the class of patients. In addition, women also reported that the

poor attitude of HPs and lack of privacy discouraged them from using the facility. The combined priority list in Study 2 suggested maintaining dignity, privacy and respect for women during consultations to reduce inequality. Thus, training on a regular basis with HPs need to be arranged to change attitudes.

The lack of the necessary financial resources is one of the major problems facing the health system in Bangladesh. The health sector budget in Bangladesh is always neglected. The government's health sector budget for this fiscal year 2022-23 has been set at 5.43% of the total budget (Sujan, 2022), which is almost three times less than the Abuja declaration (15%) (African Union, 2001). In addition, there is no specific strategy to increase total health expenditure in the current NHP of Bangladesh (Murshid and Haque, 2020). The consequence of this inadequate financing was reflected in the narratives of the participants in Study 1. For example, a poor health centre environment, inadequate supply of drugs and tests, and out-of-pocket expenses were reported as major challenges for women seeking care. Thus, it is necessary to invest sufficient money to improve the environment of the facility and increase the supply of drugs and equipment for a better functioning facility.

8.3.5 Environmental barriers and restructuring the environment

In the environmental issue, the findings from Study 2 revealed that the condition of poor roads and transportation, and natural disaster and seasonality were major problems for rural women in accessing PHCCs. Poor roads and unavailability of vehicles were also identified as barriers to women in accessing healthcare services in Pakistan (Maheen et al., 2021) and Indonesia (Rizkianti et al., 2021). Therefore, reconstruction of rural roads and bridges is required, which would be effective for rural women in Bangladesh to be able to access PHC and MHC services. However, no data were added from the findings of Study 2. This environmental issue requires a lot of financial services to improve things for people who live in rural areas.

Table 8-2 Joint display of findings with integration from Studies 1 and 2

Key findings of Study 1 (Qualitative)		Key findings of Study 2 (Quantitative)		Analytical integration
Summary	Exemplar quote	Solution priority	Consensus agreement	
Theme 1: Lack of awareness and understanding of women and their husbands in PHCC services				
<p><u>Preferential access to local CC services</u></p> <p>Women were highly reliant on CC services regardless of its ability to provide. Women also did not fully understand tests and services, which primary and maternity services provided and specific campaigns related to primary care (e.g., a vaccine for cervical cancer) and maternity care (e.g., antenatal care) offered by UHC. This lack of knowledge may restrict them from receiving HP treatment.</p>	<p>'We sometimes go straight to the UHC when health conditions are in crisis' (FG1, P4).</p> <p>'[Pause] Sometimes, we directly go to see a UHC doctor when the treatment is unavailable at CC' (FG1, P4).</p> <p>'Hmm...always we can't understand every service. When I was pregnant, I came to this CC and was immunised several times, but I didn't know the actual cause' (FG2, P5).</p>	Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance	85%	<ul style="list-style-type: none"> • In the findings of Study 1, women reported lack of awareness and understanding in services. • The findings of Study 2 expanded the findings of Study 1 by showing a solution of providing healthcare services information. • This solution was agreed by the majority of the participants and it means that the solution identified was the top most priority to increase healthcare access by women.
<p><u>Husbands' lack of awareness and understanding of their wives' specific healthcare needs:</u></p>	'ANC services are provided for women, why need to come men! unless to carry the	Providing information to increase husbands' understanding about the benefits of primary and	62%	<ul style="list-style-type: none"> • Husbands' lack of awareness was explored as a barrier for their

<p>Husbands were not always aware of the importance of their spouses getting treatment from primary health centres. Therefore, wives did not always get support from their husbands to attend a healthcare centre.</p>	<p>baby; that is also preferred to be done by our sister or mother' (Interview5, husband).</p> <p>'I with my wife always don't go to UHC as I cannot understand what the doctors prescribe. Also, I don't know the place of tests that makes me embarrassed, and consequently, I need help' (Interview3, husband).</p>	<p>maternity services which are being provided to women</p>		<p>wives in treatment in findings of Study 1.</p> <ul style="list-style-type: none"> • The findings of Study 2 expanded the findings of Study 1 by showing a solution of providing information. • This solution was agreed by 62% participants, and it means that increasing husbands' awareness was considered highly necessary to increase their wives' healthcare access.
<p>Theme 2: Capabilities and confidence in accessing and utilising healthcare services</p>				
<p><u>Lack of women's self-confidence in treatment</u>: Fear and shyness of women prevent them from using the services offered. Women's fear was often associated with the physical tests and shyness about having intimate examinations</p>	<p>'When I see a doctor, I feel a bit worried because they can advise me to have a blood... hmm ... urine test. I feel pain when injection is pushed in my body, and I can't see my blood. Also, if the test indicates anything wrong, further investigation may be needed which further aggravates my anxiety' (FG1, P4).</p> <p>'When I ask a woman to unbutton her blouse during ECG (electrocardiogram), she feels uncomfortable. In the case of VIA (Visual Inspection with Acetic Acid) test, we</p>	<p>Increasing women's self-confidence in their ability to express their physical problems and reduce fear of access to health centres</p>	<p>23.1%</p>	<ul style="list-style-type: none"> • Fear and shyness of women were identified from the findings of Study 1 as barriers to utilise services, and the findings of Study 2 added a solution of increasing self-confidence to overcome the barrier.

	have to perform a visual inspection and then women also feel uncomfortable and do not want to perform the test...' (Interview4, Nurse).			
Theme 3: Sociocultural barriers and facilitators to women's healthcare access and utilisation				
<p><u>Religious taboos and traditional family norms:</u></p> <p>Religious obligation was observed on taking birth control techniques by women. Also, certain family norms such as elder decision restricted young husbands from making a timely decision about their wives.</p>	<p>'I may not take oral pills, or my husband doesn't use condom as a family planning strategy because my mother-in-law and husband both said it was not in their family practice. If I want to control pregnancy by taking contraceptives, Allah will be unhappy. Controlling the pregnancy is a task of <i>gunnah</i> (offence)' (FG2, P3).</p> <p>'Most childbirth in our family is arranged at home, and I therefore cannot ask my family members to take my wife to the UHC for childbirth' (Interview6, husband).</p>	Providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services	39%	<ul style="list-style-type: none"> The findings of Study 1 indicated that religious and family norms were barriers, and the findings of Study 2 expanded the previous findings by adding a solution of awareness raising strategies. This solution was agreed by 39% of the participants that means a good number of participants thought religious taboos and traditional family norms needed to be changed to increase access of healthcare services by women.
Theme 4: Organisational barriers and facilitators to women's healthcare access and utilisation				

<p><u>Less focus on preventive care:</u> Healthcare providers were reported to provide minimum preventive care to women due to work stress and lack of emphasis on preventive care.</p>	<p>'Prevention is good, but we can't always provide it to all patients. Some counselling services are provided to pregnant women. I need to manage time if I focus on preventive service. You have people dying at your door because they cannot get in' (Interview8, SACMO).</p>	<p>Emphasising the importance of preventive healthcare by healthcare providers</p>	<p>54%</p>	<ul style="list-style-type: none"> • The findings of Study 1 identified a lack of preventive care for women. • The findings of Study 2 expanded the previous findings by adding a solution of emphasising preventive care. • This solution reached over 50% consensus, meaning that preventive care was deemed highly necessary to increase women's access to healthcare.
<p><u>Inequality in service provision:</u> There was a perception among rural women that high-income patients and/ or local politically affiliated patients were provided faster healthcare services than those with lower incomes and/ or no political affiliation.</p>	<p>'A few local powerful people sometimes come to our UHFWC and tell us to provide medicines even though these are not necessary. The unnecessary supply of medicines causes shortages of medicines that affect the provision of services to rural patients' (Interview7, SACMO).</p>	<p>Providing equal services regardless of the patient class</p>	<p>31%</p>	<ul style="list-style-type: none"> • The findings of Study 1 revealed that healthcare services were provided based upon the social class of people. • The findings of Study 2 expanded the previous findings by adding a solution of providing equal services to increase healthcare access by women.

<p><u>Poor attitude of HPs and lack of privacy:</u> It was reported that the attitude of HPs was not always supportive of women. Also, women experienced consultations with HPs where there was a lack of privacy and others could overhear the consultation which made women feel embarrassed.</p>	<p>'...we are from the poor family, and nobody cares about us' (Interview3, female participant).</p> <p>'I cannot always meet the CHCP when I visit CC. Sometimes they come in late at CC and sometimes they don't come without notification' (Interview1, husband).</p> <p>'...when I meet with a CHCP or doctor, other patients can hear my discussion. I then sometimes can't share all health problems with them (CHCP/Doctor)' (FG2, P1).</p>	<p>Maintaining dignity, privacy and respect for women during consultations</p>	<p>15.4%</p>	<ul style="list-style-type: none"> • The findings of Study 1 revealed a lack of privacy impeding women to utilise services. • The findings of Study 2 expanded the previous findings by adding a solution of maintaining dignity and respect to increase healthcare access by women.
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8.4 Contribution to knowledge

This is one of the very few mixed methods studies (Banik, 2017; Islam and Odland, 2011), which has been conducted investigating healthcare access and utilisation by rural Bangladeshi women. Some of the key barriers identified in this study have been found in previous studies (Begum et al., 2018; Choudhury and Ahmed, 2011; Afsana and Rashid, 2001). Only one study focused on the lack of knowledge of women related to maternal care (Begum et al., 2018). This study identified several issues related to the lack of knowledge of women and their husbands. These issues included preferential access to local services, culture of not making appointments, lack of awareness of the role of primary and maternal care, and husbands' lack of awareness and understanding of their wives specific needs. From previous literature, findings concerning women's capability and self-confidence in accessing care was limited to identifying the concept of fear and shyness (Choudhury and Ahmed 2011; Afsana and Rashid, 2001), whereas this study showed how a lack of intrapersonal skills, such as not remembering about services and appointments, literacy levels and the inability of travelling alone reduced the capability of women from accessing and using PHCC services. In addition, this research provides an improved understanding of the previously narrowly described sociocultural influences on healthcare access and utilisation by women. This study has expanded on some previous sociocultural barriers, including family norms, intergenerational continuity, superstitions, religious taboos and social stigma to women accessing and using healthcare services, by including new information. For example, this study showed that the decision of family elders prevented rural young husbands from supporting their wives' healthcare, which has not been previously identified in the concept of family norms. Two facilitators, including family support and neighbourhood connection (see [section 4.3.5.2](#)) added new information to this area demonstrating how women were being supported to seek care.

In the organisational aspect of healthcare access and utilisation by women, some barriers were identified in the previous literature, such as low-quality care, lack of staff, discriminatory services (Kabir et al., 2022; Rawal et al., 2021; Begum et al., 2018; Morgan et al., 2018; Banik 2017; Morgan) and maltreatment (Begum et al., 2018; Choudhury and Ahmed 2011; Afsana and Rashid, 2001). However, this study has added to this literature by identifying additional barriers, such as a poor health centre environment, long waiting times, early closure of the facility, lack of privacy, less focus on preventive care and lack of planning in service provision by HPs. In addition, the study contributes to the area of organisational facility, for example, the courtyard programme for maternity services provided by PHCCs is highlighted as an emerging facility-based issue from this research.

Finally, two geographical barriers, such as distance and transportation, were reported in the previous literature (Banik, 2017; Nisar et al., 2016; Khanam et al., 2016; Finlayson and Downe, 2013; Islam and Odland, 2011), while natural disasters and seasonality were additional barriers to women seeking PHCC services.

This research has confirmed that increasing access and utilisation of PHC and MHC services by women is a complex behaviour, influenced by multiple factors, including lack of knowledge, self-confidence, sociocultural influences, organisational and environmental factors. Mapping these to the TDF, COM-B and BCW to inform intervention development was a novel aspect of this study. This is the first study from Bangladesh that has used the NGT to prioritise solutions as detailed intervention functions to address barriers to access and use of PHC and MHC services. This study has provided information about the top priority solutions that can be used to develop a targeted AU intervention to increase access and utilisation of PHC and MHC services by women. The chances of the future intervention being successful are improved because specific intervention functions, policy categories, BCTs and mode of delivery were identified. The logic model presented in the final chapter also demonstrates how the intervention will work to change the target behaviour. This increases the probability of a successful intervention being developed in the future through taking into account this research.

8.5 Policy implications and recommendations

8.5.1 Implications for policy and practice

The findings in this thesis have implications for existing policy and practice in Bangladesh. Findings from Study 1 revealed several barriers to women accessing and utilising healthcare services. The findings can be used by policy makers to understand in-depth the existing barriers to women's healthcare access and use at multiple levels, such as individual, sociocultural, organisational and environmental. Thus, the findings can be used to inform the work of MOHFW and NGOs in Bangladesh.

The MOHFW is working to raise community awareness of the PHC and MHC services provided by PHCCs (MOHFW, 2019a; Mercer et al., 2004); however, the present study revealed a lack of awareness among women and their husbands about the existing healthcare services and the value of services, respectively. It means that previous awareness raising strategies are not fully functional. The findings of this study will be the important when developing future awareness campaigns. Working to raise awareness of women and their husbands about the services provided by PHCCs can be beneficial in increasing access to and use of healthcare services. In addition, some sociocultural

issues identified in the study which may hinder access to and use of healthcare services by women, and hinder husbands' support to their wives while seeking care. Therefore, this study can inform the current awareness raising programmes of the government to take into account existing issues.

The 4th Health, Population and Nutrition Sector Programme (4th HPNSP) (MOHFW, 2017) and the National Strategy for WASH for Healthcare Facilities (2019-23) (MOHFW, 2019c) of Bangladesh are working to strengthen the healthcare system and ensure service quality in order to achieve the SDG3 targets. The study identified several organisational barriers, which were mostly related to poor infrastructure of the facility, lack of staff, medicine and equipment, lack of HP skills, lack of preventive and emergency care, poor HP attitude and lack of HP plan for treatment. This study provides important information on how the current multiple barriers influence the operation of rural healthcare services. Therefore, policy makers while planning to improve healthcare services should think of ways of incorporating the issues identified in the study. Most importantly, planners can get information from this research about existing organisational obstacles, and then budgetary planning should be reflective of local problems. Since existing barriers may affect the performance of the healthcare system, it is recommended that each country should develop its health financing strategy to solve existing health organisational problems (WHO et al., 2017).

Another policy implications were the environmental barriers in accessing the healthcare centres by women. Thus, there is a need for environmental restructuring in the local area of Bangladesh. The study findings inform the Ministry of Road Transport and Bridges (MORTB) and local government about the importance of environmental restructuring to enable rural women to access healthcare centres.

Finally, a list of solutions to address barriers and their prioritisation was undertaken in the presence of the local healthcare experts, policy makers and healthcare users. Engaging stakeholders are also current practices for the SDG implementation at the international and local levels. In order to achieve the SDG3 targets, Bangladesh's current 8th Five Year Plan (8FYP) (GED and BPC, 2020a) has focused on a number of strategies, which are consistent with the solutions identified in Study 2 of this thesis. However, the 8FYP emphasis is on strategies to improve the healthcare situation in general but not specific to the rural level. In this thesis, specific solutions were developed to increase access and use of rural healthcare services by women. Therefore, this study could inform the present plan to work with PHCCs to improve the healthcare situation of rural women who were one of the key target groups of the government (GED and BPC, 2015).

Finally, this study has policy implications for health-related awareness raising activities of NGOs in Bangladesh. For example, data is provided about priorities, which should be addressed to improve and extend healthcare services of NGOs. This study also reports on inadequate staffing, medicines and laboratory support as barriers to the continuation of services for PHCCs, which is a result of insufficient budget allocations by the government. NGOs with government support can work to increase the financial support from donors such as INGOs to improve healthcare services in Bangladesh.

8.5.2 Policy recommendations

Several policy recommendations are derived from this study. As the findings have important policy implications stated above, specific recommendations are made for actions to increase access and use of healthcare services by women. The recommendations are as follows:

- Since a lack of knowledge of women and their husbands was reported in the available healthcare services, the first set of recommendations would require improving the health service-related understanding provided by PHCCs among women and their husbands. From this observation, interventions can be considered. The findings of Study 2 show that an education intervention to provide health service-related information to women and their husbands may increase the appropriate attendance of women to the facility and the support of husbands needed by women during treatment.
- A lack of capabilities and confidence by women in accessing and using healthcare services was identified. The lack of capabilities and confidence of women was explored in terms of their intrapersonal skills, such as lack of memory and literacy, inability of travelling alone, fear of physical tests, and shyness to share health problems. These issues could be addressed through the community awareness campaign by PHCCs to:
 - motivate women to avoid fear related to physical tests and to feel comfortable sharing physical problems with HPs; and
 - motivate husbands to feel comfortable supporting their wives in getting healthcare services.
- Some sociocultural issues have been reported as barriers to rural women accessing and using healthcare services. These barriers included lack of support from families to seek treatment, traditional family roles, religious taboos and social stigma. Therefore, the community awareness campaign by PHCCs should be related to:

- encouraging rural husbands and other family members so that they reinforce and join women to seek for treatment;
 - raising awareness among husbands about some delayed decision of senior family members and religious taboos so that these cannot be barriers for them to support their wives while seeking care; and
 - raising awareness among community people to minimise social stigma so that villagers can understand illness is a normal process.
- Furthermore, the highest number of barriers revealed from the organisational factors included: poor health centre environment, lack of healthcare staff, and drugs and tests, long waiting times, early closure of the facility, lack of privacy, less focus on preventive care and lack of planning in service provision by HPs. Based on the findings of this study, it is suggested that the MOHFW should consider:
 - the construction and/or repairing of health centres along with the arrangement of modern facilities and the maintenance of the hygienic health centre environment in order to reduce access barrier and to enable provision of care; and
 - the recruitment of enough healthcare staff in line with the recommendation of WHO (2016). The current health workforce in Bangladesh is low and estimated to be less than 1 per 1000 in Bangladesh (MOHFW, 2019), which was identified in this thesis as a barrier to providing uninterrupted services. Given the situation, the MOHFW should take steps to recruit health workers according to the resulting “SDG index threshold” of 4.45 health workers per 1000 populations in order to meet the universal health coverage and SDGs (WHO, 2016a).

In addition to these, it is suggested that the MOHFW and PHCCs can initiate the following steps to improve HPs’ competence and confidence:

- arrangement of training with HPs to improve their understanding and skills, especially for childbirth services;
- encouragement of HPs to provide preventive care to rural women along with curative services;
- arrangement of at least one monthly group discussion of HPs with their colleagues at all PHCCs to improve patients’ healthcare and taking steps for starting formal health needs assessment to meet the need of the local patients; and
- motivating HPs to eradicate inequality in provision.

- The final barrier is related to the environmental barriers, which included distance, poor road networks, and natural disasters and seasonality. It is suggested that the MORTB in Bangladesh and local government should consider environmental restructuring:
 - the construction of village roads to ensure safe and timely reach to the facility; and
 - the construction of a bridge or arrangement of a ferry for women to safely and timely reach to the facility, especially during monsoons and calamities.

8.5.3 Recommendations for future research

The following issues for future research are recommended to expand the current study.

- The development of interventions to change behaviour to increase access and use of healthcare services by women is an important area of research for the future. The 4th HPNSP regulated by MOHFW (2017) also supports the health-related behaviour change intervention on a priority basis. While developing interventions, key stakeholders should be involved in codesigning with women, their husbands and healthcare providers who will use the intervention. Based upon the thesis findings, a co-design research study with key stakeholders that would address women's knowledge and skill gaps could be developed and tested.
- More research is also needed to explore what policy makers are doing to resolve the barriers associated with increased access and use of healthcare services by rural women.
- The study has confirmed that the TDF can be used to explore barriers and facilitators to access and use of PHC and MHC services in the local context of Bangladesh. This has provided information that can be used to develop a future intervention to increase healthcare access and utilisation by women. This framework can be applied in the future in Bangladesh, South Asia and LMICs to explore qualitative information related to other healthcare issues.
- Finally, this study shows how the MM study can be developed by employing several methods, such as FG and interview, and theories and models, such as the TDF and COM-B. The present study could be replicated in other parts of Bangladesh, where possible using a local community-based design. This would inform the national and subregional scenario on PHC and MHC services for women, which are rooted in the local context.

8.6 Strengths and limitations of the exploratory sequential MM designs

The strengths and limitations of Studies 1 and 2 of this MM study were discussed in Chapters 4 and 6. This section focuses on several strengths and limitations of the overall exploratory sequential MM design employed in this thesis.

The sequential nature of the exploratory MM design (Creswell and Plano Clark, 2018) made it easier to describe, implement and report the entire project. Furthermore, based on the findings of Study 1, this design process enabled to inform Study 2. This allowed us to develop a list of solutions to be prioritised in Study 2 in order to develop an intervention, which can be followed by other researchers. Another key strength was the participation of several stakeholders, which enabled the use of multiple views when integrating empirical findings. Being explicit about how the first study is used to inform the subsequent and agglomerating the views of multiple participants increase the validity of the MM study (Creswell et al., 2011). Furthermore, the guidance of the MRC framework (2008) made it easier to develop a theory-driven logic model for the AU intervention, which is more likely to be effective to increase access to and use of PHC and MHC services by women. Finally, since the qualitative and quantitative data were integrated, the value of this study is expected to be high. This is because, the study not only depicts barriers to healthcare access and use by women from the qualitative data but also presents the relevant solutions from the quantitative data. When the quantitative and qualitative data are integrated, the value of the MM study significantly enhances (Bryman, 2012; Creswell and Plano Clark 2011).

However, there was a limitation associated with the MM design employed in this thesis. For example, this MM study was time consuming as it was first necessary to undertake data analysis for Study 1 to develop the data collection instrument for Study 2. Also, since the studies were conducted in Bangladesh, local permission was obtained in Bangladesh, which required a significant amount of time to start data collection.

8.7 Reflexivity

Reflexivity is the 'recognition of the influence a researcher brings to the research process' (Kuper et al., 2008, p.689). For example, this process entails sensitivity to the influence of the researcher's position, values and intellectual biases, which influence choices in the study, such as the research topic, research questions and data collection methods (Kuper et al., 2008; Mays and Pope, 2000). In addition, it assesses the impact of the social characteristics of the researcher, such as gender, ethnicity and social status, on the data collected, and the potential influence of political context, such as power relations

and social distance between researchers and participants in the research process. With regards to this, I now explain my positionality and reflection on the research process for the whole thesis.

With regard to my position in the research process, it is necessary to acknowledge that this has changed very profoundly during the PhD period. As a researcher, I started with a theoretical orientation using theories or models from the field of health sociology, which was well suited to my bachelor and masters education in Sociology. However, choosing the TDF, a behaviour change theory suggested by my supervisors, in this study was necessary to investigate barriers and facilitators to women's healthcare access, and to develop the components of the AU intervention. My previous sociology background helped me to understand and use this framework as it is a synthesis of 33 theories including social theories (Atkins et al., 2017). In addition, my previous orientation to quantitative approach failed to understand multiple realities, prompting me to choose a mixed methods approach to understand the holistic information. This transition has been both challenging but worthwhile as it has enabled me to capture new dimensions in the research findings and identify limitations in previous attempts to understand rural Bangladeshi women's healthcare access behaviour.

In Study 1, I had both insider and outsider positions for data collection. McNess et al. (2015) suggested that the insider-outsider continuum is useful to challenge the binary definitions that may not be appropriate in an increasingly complex research environment. This dual position is also compatible with the pragmatist philosophy. Being a male researcher, my position was outsider to the FG participated female participants in Study 1. Thus, for Study 1, I did not conduct FGs with the female participants to comply with cultural norms. One female moderator and two female facilitators were engaged to undertake face-to-face FGs with the female participants. My role was to monitor the process of data gathering and checking whether the information was documented appropriately. I joined the research team at the study location, but I did not enter the room where the FGs were being held with the female participants. In contrast, I was an insider to the interview participants as my nationality, ethnicity, culture and language were same with them. I conducted individual face-to-face and telephone/Skype/Zoom interviews with the female participants, husbands and HPs. Since I did not have direct contact with the female participants, I conducted telephone/Skype/Zoom interviews with them as this was considered culturally appropriate. I discussed the study via the telephone with all participants prior to their interviews to build rapport. To support reflections on how this and additional factors influenced the study, I kept a reflexive journal throughout the data collection and analysis phases.

My positionality in Study 2 was insider as my personal attributes, such as nationality, ethnicity, cultural and linguistic characteristics were similar to those of the workshop participants. For Study 2, I carried out face-to-face workshops with the NGT participants, including (i) healthcare professionals, (ii) local decision makers and (iii) female healthcare service users. The question was how to make sure that the female healthcare service users felt comfortable and not coerced in their choices when they were sitting with the local healthcare professionals and policy makers during Study 2 NGT workshops. I observed during Study 1 that rural women were accustomed to meeting together with HPs during monthly courtyard meetings in a village. In addition, local policy makers were known to them. Thus, they were approached to take part in Study 2 workshops. The female healthcare service users did not feel discomfort or coerced while sitting with other NGT group members as their participation and responses were spontaneous.

To maintain the power relationship between the female moderator/the male moderator and the interviewer (the researcher), and the participants in Studies 1 and 2, a rapport-building process, including techniques, such as self-disclosure, active listening and empathy, (Karnieli-Miller, 2009) was followed in order to gain access to the intimate experiences of the FG, interview and workshop participants. In addition, to ensure parity, opportunity and participation, the moderator during the NGT ensured whether the participation of all participants was equal. The voices were heard one by one. Also, all participants were asked to do a prioritisation exercise.

Good cooperation was received from the participants. On my part, there was a tendency to occasionally fall back to seeking information about healthcare service access rather than focusing on the techniques of social enquiry. Sometimes, I used probing questions if I wanted to explore motivations, lived experiences and reasons for particular behaviours. Since I am from the same ethnic group as the participants, we communicated well and understand cultural etiquette. It is still debatable whether researching people from the same culture or ethnic group is appropriate (Srinivas, 1979). There is always the danger of not noticing things that are quickly noticed by an outsider (Bernard, 2006). Therefore, I was aware that my gender, social status and ethnicity could have influenced how I asked or interpreted some of the findings.

The impact of working with a research assistant during NGT workshops to address potential solutions to the NGT panel and controls needs to be acknowledged. By having the support of a research assistant, enabled the NGT workshop to run more smoothly. Previous experience with FGs or interviews, intensive training and the use of structured NGT steps facilitated the process. Furthermore, the close supervision of workshops and spot checks of the responses ensured the workshops worked well.

8.8 Dissemination of the findings

The preliminary findings of this thesis have been disseminated by participating in poster presentations and oral conferences. The findings from the literature review were presented in posters at the School Postgraduate Research Conference and Leeds Doctoral College Showcase in 2019, University of Leeds, and at the WRDTP 10th annual conference in 2021, University of Sheffield. Furthermore, an oral presentation based upon the findings of literature review have been presented at the United International University in 2020, Dhaka. In addition, a virtual talk based on the findings of Study 1 was given at the 9th World Sustainability Forum, Switzerland, in 2021 ([Appendix M](#)). The findings will be further disseminated through publication in public health and social science journals, and publicised so that the findings can reach as many people involved in women's healthcare issues as possible.

8.9 Conclusions

This thesis provides the findings of a novel mixed methods study informed by the theory of behaviour change and the MRC framework of complex interventions (2008), into identifying barriers and facilitators to increasing PHC and MHC access and utilisation by women in rural Bangladesh. This thesis provides a deeper insight into previously reported findings and also provides some findings that have not been reported on before. A key finding demonstrating the lack of awareness of the available healthcare services for women, which impedes them in seeking appropriate care. Husbands' lack of awareness of the importance of services provided for women was also identified, which impedes them from supporting their wives in seeking care. Women showed a lack of capability and confidence in accessing healthcare, while they had some intrapersonal barriers, such as fear of physical test, shame of sharing physical problems, inability to read prescriptions and travel alone to attend health centres. Some sociocultural factors, such as lack of family support, religious obligations, family norms and gender of healthcare providers were identified, which had influence on women accessing care and husbands supporting their wives to seek care. Access to and use of primary and maternal healthcare services were also hindered by organisational factors, which were counted as the highest number of issues. Key factors were related to the poor infrastructure conditions of PHCCs, the lack of medicine and equipment, the lack of preventive and emergency care, and the poor attitude of HPs. Finally, some environmental factors, such as distance, poor road conditions, natural disasters and seasonality, were identified as barriers to access healthcare services by rural women.

To address the barriers, a list of solutions were identified in Study 1, and these were then prioritised through a consensus process in Study 2. The top priority solution was related

to raising awareness among women and their families of the available healthcare services for women.

The identification of behavioural components for change to occur which runs through this thesis from Study 1 to the discussion is another unique feature of this PhD. Although previous studies have used TDF to identify factors that may affect healthcare services for rural women, this is the first study conducted to have applied this theory to the rural healthcare setting. In addition, mapping these factors to the BCW has provided meaningful information about the BCTs, policies and mode of delivery, which can usefully inform the development of a behaviour change intervention to increase access and utilisation of healthcare services by women. The development of an intervention underpinned by a theory and empirical work increases its likelihood of success and implementation.

The logic model in this thesis depicts how the proposed AU intervention through the relevant BCTs and mechanism of actions is expected to increase access to and use of PHC and MHC services by women. The thesis also informs the work of MOHFW and NGOs to improve the situation of healthcare services in Bangladesh. The MOHFW should work with other ministries and NGOs to increase healthcare access and use by women. In addition, it contains valuable information to meet the SDG3 in Bangladesh.

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Appendices

Appendix A: Goals of the Bangladesh NHP 2011

Sl.	Goals
1.	Providing basic health instruments to the mass people of Bangladesh and developing nutritional status with public health according to the principles of constitution and international advice.
2.	Ensuring standard and easily accessible health services to the people, particularly rural, urban-poor and vulnerable people.
3.	Establishing a community clinic for every 6000 inhabitants in order to ensure primary healthcare for all.
4.	Prioritising emergency healthcare services.
5.	Reducing child and maternal mortality rate so that it can reach the optimum target by 2021- a time of celebrating of nation's golden jubilee.
6.	Highlighting and mobilising family planning programme, reproductive and primary healthcare services in order to achieve the replacement level of fertility by 2021.
7.	Taking satisfactory initiative for child health management and ensuring secured maternity services in every villages as far as possible.
8.	Ensuring free acceptability of family planning services among low-income earners.
9.	Ensuring gender equality in healthcare services.
10.	Ensuring highest utilisation of ICT in order to systematise health treatment with all health management.
11.	Ensuring required instruments of treatment and number of health staffs in public health centres and increasing service quality with the improvement of health management.
12.	Improving quality of healthcare and controlling fee for treatment and study in private health centres including medical college, training institute, clinic, hospital and diagnostic centres.
13.	Modernising each level of health education, such as medical study, nursing, medical technology and training of health assistants.
14.	Confirming mutual effort of public and private sectors related to public health and treatment.
15.	Continuing and strengthening immunisation programme in order to prevent diseases.
16.	Confirming the rights of citizen to get health information.
17.	Ensuring easily access to emergency medicine and controlling price of it.
18.	Monitoring health burden due to climate change and inventing new technology to mitigate health impact of climate change.
19.	Upgrading alternative medicines, such as homeopathic, ayurvedic and uninani.

Appendix B: Search terms with Medline

RQ1: What are the determinants of healthcare access and utilisation of women in Bangladesh?

PICO

Population/problem	Intervention	Comparison	Outcome1	Outcome2
Women and Bangladesh	Determinants	No	Healthcare access	Healthcare utilization
Women or female and Bangladesh* or India or Pakistan or Nepal or Bhutan or South Asia or developing countr* or low-and middle-income countr*	determinant* or factor* or social determinant* or economic determinant* or political determinant* or cultural determinant* or sociopolitical determinant*		healthcare access* or health care access* or community health care* or antenatal care* or postnatal care* or primary health care* or medical care*	healthcare* utili#ation or health care utili#ation or health care application* or health care employment* or health care practice* or health care operation*

Database(s): **Ovid MEDLINE(R)** 1946 to March Week 3 2019

Search Strategy:

#	Searches	Results
1	Socioeconomic Factors/ or "Social Determinants of Health"/	147050
2	(determinant* or factor* or social determinant* or economic determinant* or political determinant* or cultural determinant* or sociopolitical determinant*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	4963777
3	1 or 2	4963777
4	Health Services Accessibility/	68094
5	"Delivery of Health Care"/	83248
6	"Patient Acceptance of Health Care"/	41578
7	(healthcare access* or health care access* or community health care* or antenatal care* or postnatal care* or primary health care* or medical care*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	137587
8	(healthcare* utili#ation or health care utili#ation or health care application* or health care employment* or health care practice* or health care operation*).mp.	10459

	[mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	
9	3 or 4 or 5 or 6 or 7	306298
10	Women/	14429
11	(women or female).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	8271973
12	9 or 10	8271973
13	Bangladesh/	9564
14	(Bangladesh* or India or Pakistan or Nepal or Bhutan or South Asia or developing countr* or low-and middle-income countr*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	247065
15	12 or 13	247065
16	8 and 11 and 14 and 15	5973
17	limit 16 to (english language and female and full text and humans and "all adult (19 plus years)" and english and medline)	592

Link: <http://ovidsp.dc1.ovid.com/sp->

3.33.0b/ovidweb.cgi?S=KGDFFPGJNJACMGNFKPDKEGGJJDAFAA00&Main+Search
+Page=1

Appendix C: Quality appraisals of studies included for literature review

Table C-1 Appraisal tools for quantitative cohort studies (Y= yes, N= no, C= can't tell)

Author, year, country	1. Did the study address a clearly focused issue?	2. Was the cohort recruited in an acceptable way?	3. Was the exposure accurately measured to minimise bias?	4. Was the outcome accurately measured to minimise bias?	5. (a) Have the authors identified all important confounding factors?	5. (b) Have they taken account of the confounding factors in the design and/or analysis?	6. (a) Was the follow up of subjects complete enough?	6. (b) Was the follow up of subjects long enough?	7. What are the results of this study?	8. How precise are the results?	9. Do you believe the results?	10. Can the results be applied to local population?	11. Do the results of this study fit with other available evidence?	12. What are the implications of this study for practice?	Total score (%) and quality
1. Chakraborty et al., 2003, Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Exposure has impact on outcome	Very precise	Y	Y	Y	Y	12 (100.0) High
2. Khanam et al., 2016 Bangladesh	y	y	y	y	y	C	y	y	Exposure has impact on outcome	Precise	y	y	y	y	11 (92.0) High

Table C-2 Appraisal tools for quantitative cross-sectional studies (Y= yes, N= no, C= can't tell)

Author(s), year, country	1. Did the study address a clearly focused issue?	2. Is the research method (study design) appropriate for answering the research question?	3. Is the method of selection of the subjects (employees, teams, divisions, organisations) clearly described?	4. Could the way the sample was obtained introduce (selection) bias?	5. Was the sample of subjects representative with regard to the population to which the findings will be referred?	6. Was the sample size based on pre-study considerations of statistical power?	7. Was a satisfactory response rate achieved?	8. Are the measurements (questionnaires) likely to be valid and reliable?	9. Was the statistical significance assessed?	10. Are confidence intervals given for the main results?	11. Could there be confounding factors that haven't been accounted for?	12. Can the results be applied to your organisation?	Total score (%) and quality
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3. Adhikary et al., 2017, Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	12 (100.0) High
4. Amin et al., 2010 Bangladesh	Y	Y	Y	C (No information about sampling bias is included.)	Y	C (This paper does not contain any information about pre-study considerations of statistical power.)	Y	Y	Y	Y	Y	Y	10 (83.0) High
5. Anjan et al, 2013, India	Y	Y	N (This paper does not present why survey was chosen and how questionnaire was formulated.)	C (No information about sampling bias is included.)	Y	C (This paper does not contain any information about pre-study considerations of statistical power.)	C (This paper does not contain any information about response rate.)	Y	N (Only descriptive statistics was used.)	N	N	Y	5 (42.0) Poor
6. Arokiasamy and Pradhan, 2013 India	Y	Y	Y	Y	Y	C	Y	Y	Y	N	Y	Y	10 (83.0) High
7. Hajizadesh et al. 2014, Bangladesh	Y	Y	Y	C (No information about sampling bias is included.)	Y	C (This paper does not contain any information about pre-study considerations of	Y	Y	Y	N (No CI has been used but P value is used with %.)	Y	Y	9 (75.0) Good

						statistical power.)							
8. Hameed and Avan, 2018, Pakistan	Y	Y	Y	Y	Y	C (Pre study considerations of statistical power related information is missing.)	C (Information about satisfactory response is missing.)	Y	Y	Y	C	Y	9 (75.0) Good
9. Huda et al., 2018 Bangladesh, Nepal & Pakistan	Y	Y	Y	C	Y	C (Pre study considerations of statistical power related information is missing.)	Y	Y	Y	Y	C	Y	9 (75.0) Good
10. Huq et al., 2018, rural area, Bangladesh	Y	Y	Y	C (No information about sampling bias is included.)	Y	Y	Y	C (The basis of questionnaire making was not clear)	Y	Y	Y	Y	10 (83.0) High
11. Islam and Masud, 2018 Bangladesh	Y	Y	Y	C	Y	C	Y	Y	Y	Y	Y	Y	10 (83.0) High
12. Kamal et al. 2015, Bangladesh	Y	Y	Y	C (No information about biasness is described.)	Y	C (Pre study considerations of statistical power related information is missing.)	Y	Y	Y	Y	Y	Y	10 (83.0) High
13. Khatun et al. 2017,	Y	Y	Y	C (No informatio	Y	Y	C (No information	Y	Y	Y	Y	Y	10 (83.0)

Bangladesh				n about biasness is described .)			about biasness is described.)							High
14. Paul and Rumsey, 2002, Bangladesh	Y	Y	Y	C (No information about biasness is described .)	Y	C (Pre study considerations of statistical power related information is missing.)	C (No information about biasness is described.)	Y	Y	N (Although CI was not included, odd ratio has been applied.)	Y	Y	8 (67.0) Good	
15. Rahman et al. 2018, Bangladesh	Y	Y	Y	Y (Recall bias has been reported.)	Y	C (This paper does not contain any information about pre-study considerations of statistical power.)	Y	Y	Y	Y	Y	Y	11 (92.0) High	
16. Rahman et al. 2012, Bangladesh	Y	Y	Y	C (No information about biasness is described .)	Y	C (Although this study was done based on national data, the sample size based on pre-study consideration was not outlined here.)	Y	Y	Y	Y	Y	Y	10 (83.0) High	
17. Rahman, 2009	Y	Y	Y	C	C	C	Y	Y	Y	N	Y	Y	8 (67.0)	

Table C-3 Quality appraisal for Randomised Control Trail (RCT) studies (Y= yes, N= no, C= can't tell)

Author(s), year, country	1. Did the study address a clearly focused issue?	2. Was the assignment of patients to treatments randomised?	3. Were all of the patients who entered the trial properly accounted for at its conclusion?	4. Were patients, health workers and study personnel 'blind' to treatment?	5. Were the groups similar at the start of the trial?	6. Aside from the experimental intervention, were the groups treated equally?	7. How large was the treatment effect?	8. How precise was the estimate of the treatment effect?	9. Can the results be applied to the local population, or in your context?	10. Were all clinically important outcomes considered?	11. Are the benefits worth the harms and costs?	Total score (%) and quality
21. Gazi et al. 2014, Bangladesh	Y	Y	Y	Y	Y	Y	A higher proportion of the women in endline compared to baseline used MHC services and birth control techniques.	The interventions improved several important RH indicators	Y	Y	N	8 (89.0) High
22. Rob and Alam, 2014, Bangladesh	Y	Y	Y	C (This paper does not include such type of information.)	Y	C (This paper does not include such type of information.)	Services of ANC, childbirth, and PNC were measured. The facility using rate increased by 23%% in 14 months following the intervention facilities.	Performance-based incentive has the potential for utilising services.	Y	Y	C (This paper does not include such type of information.)	6 (67.0) Good

Table C-4 Quality appraisal for qualitative studies (Y= yes, N= no, C= can't tell)

Author(s), year, country	1. Was there a clear statement of the aims of the research?	2. Is qualitative methodology appropriate?	3. Was the research design appropriate to address the aims of the research?	4. Was the recruitment strategy appropriate to the aims of the research?	5. Was the data collected in a way that addressed the research issue?	6. Has the relationship between researcher and participants been adequately considered?	7. Have ethical issues been taken into consideration?	8. Was the data analysis sufficiently rigorous?	9. Is there a clear statement of findings?	10. How valuable is the research?	Total score (%) and quality
23. Afsana and Rashid, 2001, Bangladesh	Y	Y	Y	Y	Y	Y	C (No ethical statement is reported)	Y	Y	High	8 (89.0) High
24. Akhter et al., 2016, Bangladesh	Y	Y	N (In methodology, this paper shows of using MM, but only qualitative data were analysed and discussed.)	Y	Y	Y	Y	Y	Y	High	8 (89.0) High
25. Alam et al, 2015, Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Y	High	9 (100.0) High
26. Azmat et al. 2012, Pakistan	Y	Y	Y	Y	Y	Y	C	Y	Y	High	8 (89.0) High
27. Begum et al. 2018, Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Y	High	9 (100.0) High
28. Choudhury and Ahmed, 2011, Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Y	High	9 (100.0) High

29. Hossain et al, 2016, Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High	9 (100.0) High
30. Khatun et al. 2016, Bangladesh	N	Y	Y	Y	Y	C	N	Y	Y	Y	High	7 (78.0) Good
31. Morgan et al, 2018, India	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High	9 (100.0) High
32. Nisar et al. 2016, Pakistan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High	9 (100.0) High
33. Rahman et al., 2016, rural, Bangladesh	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	High	8 (89.0) High
34. Rawal et al., 2021, Bangladesh	Y	Y	Y	Y	Y	Y	C	Y	Y	Y	High	8 (89.0)
35. Schular et al., 2001, Bangladesh	Y	Y	Y	Y	Y	Y	C	Y	Y	Y	High	8 (89.0) High
36. Shahjahan and Kabir, 2006, Bangladesh	Y	Y	Y	C	Y	C	N	Y	Y	Y	Good	6 (67.0) Good
37. Sikder et al., 2011, Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High	9 (100.0) High
38. Simkhada et al., 2014, Nepal	Y	Y	Y	Y	Y	Y	C	Y	Y	Y	High	8 (89.0) High
39. Vidler et al., 2016 India	Y	Y	Y	Y	Y	C	Y	Y	Y	Y	High	8 (89.0) High

Table C-5 Quality appraisal for mixed methods studies (Y= yes, N= no, C= can't tell)

Author(s), year & country	Screening questions		1. Qualitative studies					2. Quantitative studies					3. Mixed methods studies					Total score (%) and quality	
			S1. Are there clear research questions?	S2. Do the collected data allow to address the research questions?	1.1. Is the qualitative approach appropriate to answer the research question?	1.2. Are the qualitative data collection methods adequate to address the research question?	1.3. Are the findings adequately derived from the data?	1.4. Is the interpretation of results sufficiently substantiated by data?	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?	2.1. Is the sampling strategy relevant to address the research question?	2.2. Is the sample representative of the target population?	2.3. Are the measurements appropriate?	2.4. Is the risk of nonresponse bias low?	2.5. Is the statistical analysis appropriate to answer the research question?	3.1. Is there an adequate rationale for using a mixed methods design to address the research question?	3.2. Are the different components of the study effectively integrated to answer the research question?	3.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?		3.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?
40. Jennings et al., 2021, Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	C (nonresponse bias is not reported)	Y	Y	Y	Y	Y	Y	Y	16 (94.1) High
41. Banik, 2016 Bangladesh	Y	Y	Y	Y	Y	Y	Y	Y	N (The study did not clarify how 160 samples were	Y	C	N (There was no explanation to judge if	Y	Y	Y	Y	N	N	13 (76.0) Good

									representative. Also, it was not clear if any selected respondent declined to respond.)			descriptive statistics are appropriate for the design and research question.)						
42. Edmonds et al. 2012 Bangladesh	Y	Y	Y	Y	Y	Y	C (This paper did not focus qualitative data analysis as qualitative phase was used to set of discrete decision criteria and then used to create question.)	Y	Y	Y	Y	Y	Y	Y	N (This paper did not focus divergences and inconsistencies as qualitative phase was used to set of discrete decision criteria and then used to create question.)	Y	15 (88.0)	High
43. Islam and Odlund, 2011 Bangladesh	Y	Y	Y	Y	Y	Y	N (Data interpretation was not mainly based on	Y	Y	Y	Y (This papers shows that multivariate analyses was	Y	Y	Y	N (This paper separately analysed results for	N (This paper only shows the differences in results	14 (82.0)	

45. Kabir et al., 2022, International	Y	Y	Y	Y	Y	NCD preparation was inadequate to cope with the growing NCD burden	Very precise	Y	Y	Y	8 (100.0) High
46. Sharma et al., 2018, South Asia	Y	Y	Y	Y	Y	Facility-based childbirth increased among educated mothers compared to low educated	Very good	Y	Y	C	7 (88.0) High

Appendix D: Characteristics of the included studies

Author, year, region, country	Aims	Study design	Sampling method	Participants	Type of healthcare service	Main focus and significant findings
1. Adhikary et al., 2017, rural-urban, Bangladesh	To measure the level of patients' satisfaction across different types and levels of healthcare facilities and to determine which factors influence this satisfaction level.	Quantitative (survey)	Purposive	Women and men N=2207	PHC and MHC	<ul style="list-style-type: none"> Patients, who attended private facilities, were most satisfied (73%) than those attending government-run facilities (52%). Certain factors, including convenient opening hours, privacy and cleanliness facilitated women to choose private facilities.
2. Afsana and Rashid, 2001, rural, Bangladesh	To determine how to improve existing BHC services and create a new model of service delivery.	Qualitative (interview, FG and informal discussion)	Purposive	Women aged 20-40 and TBAs Total=46	MHC-childbirth services	<ul style="list-style-type: none"> Accepting childbirth in a healthcare facility by rural women is still low. Most women during complications only attended the BHC, where services were limited. Barriers, including cost, fear and the stigma of an 'abnormal' birth prevented women taking services from the BHC.
3. Akhter et al. 2016, mixed, Bangladesh	To present findings from the qualitative study highlighting barriers and facilitators for obtaining emergent blood from the perspectives of HPs, attendants and unlicensed blood brokers.	Qualitative (interview and KII)	Purposive and snowball sampling	Hospital directors, managers, providers, blood bank authorities, unlicensed blood	MHC- safe blood transfusion	<ul style="list-style-type: none"> The new online BIMA system could facilitate blood transfusion processes at any time for poor patients at a low cost. However, service providers and service users were heavily dependent on a network of

				brokers, and patients' relatives. N=64		unlicensed blood brokers for the necessary blood.
4. Alam et al, 2015, rural, Bangladesh	To understand community preparedness for IFA supplementation early in pregnancy and to inform the design of a large-scale trial of early introduction of IFA supplementation in rural Bangladesh.	Qualitative (interview, KII, FG and observation)	Stratified purposive and opportunistic sampling	Pregnant women, older women, fathers, doctors, TBA, female college students N=91	ANC	<ul style="list-style-type: none"> • Women, who took IFA tablets during pregnancy, felt better. • Women believed that the IFA increased blood volume, resulting in foetal nutrition and compensation for blood loss due to childbirth. • However, a culturally informed perceived barrier was the belief that IFA supplementation will increase foetus size, leading to birth complications, hospitalisation, caesarean section and financial burden for the family.
5. Amin et al., 2010, rural, Bangladesh	To examine the socioeconomic differentials in health-seeking behaviour.	Quantitative (survey)	Purposive	Women N=3498	MHC-PNC	<ul style="list-style-type: none"> • Mothers, who were in the highest wealth quintile, were more likely to use modern trained providers for ANC, birth attendance, PNC and child healthcare compared to those in the poorest quintile ($p < 0.01$).
6. Anjan et al., 2013, rural, India	To formulate the policies which will ensure rational and scientific use of national resources.	Prospective cross-sectional (survey)	Not clear	Women N=656	MHC-ANC	<ul style="list-style-type: none"> • Around 40.70% pregnant women used medicines from the facility and 37.5% had knowledge about expiry date of medicines.

						<ul style="list-style-type: none"> The village TBA was known to 66.76% of pregnant women, but only 17.68 % availed this services.
7. Arokiasamy, and Pradhan, 2013, mixed, India	To identify individual, household and community level determinants of healthcare access by women.	Cohort study (survey)	Multistage sampling	Women	MHC-ANC	<ul style="list-style-type: none"> Inequalities in MHC access was observed among rural women. Women's education was an individual level and household economic status was a strong interpersonal level determinant for ANC utilisation.
8. Azmat et al., 2012, mixed, Pakistan	To establish the socio-demographic profile of clients, determine their preferred method of treatment, explore their perceptions of the barriers to accessing post-abortion services and to understand the challenges faced by reproductive health volunteers (RHVs).	Qualitative (FG and interview)	Random	Women and RHVs N=91	MHC-Post-abortion care	<ul style="list-style-type: none"> Nonsurgical, instead of surgical, treatment for incomplete and unsafe abortions was preferred because it was perceived to 'cause less pain', 'easy to employ' and 'having fewer complications'. Post-abortion care was decided based upon the household economic status.
9. Banik, 2016, rural-urban, Bangladesh	Finding out physical, social and organisational access barriers to MHC services and exploring how these barriers caused three delays in healthcare seeking behaviour.	Mixed methods (survey, interview and FG)	Multistage sampling	Women N=160	MHC	<ul style="list-style-type: none"> Social barriers to MHC services included early marriage, perception of pregnancy and childbirth, and cost. Organisational barriers included lack of female healthcare staff, lack of guidelines and low quality services. Physical barrier included distance.

10. Begum et al. 2018, rural, Bangladesh	To explore the attitudes of both women and obstetricians towards caesarean section birth in a rural area of Bangladesh.	Qualitative (FG and interview)	Purposive	Women and obstetricians N=46	MHC-ANC	<ul style="list-style-type: none"> • Women from rural communities had a strong preference for normal vaginal childbirth. • Women had the erroneous view that episiotomy itself is a 'small caesarean'. • Primary healthcare providers and clinic agents (brokers) had a strong influence on the decision of women in choosing a health facility for childbirth.
11. Chakraborty et al., 2003, rural, Bangladesh	Examine the factors that influence the maternal health care services in Bangladesh.	Quantitative (survey)	Multistage random sampling	Pregnant women N=993	MHC	<ul style="list-style-type: none"> • Women's education, and husband's occupation have strong influence on healthcare utilisation.
12. Choudhury and Ahmed, 2011, rural, Bangladesh	To inform the programme interventions which would hopefully improve maternal morbidity and survival, and achieve the UN Millennium Development Goal 5.	Qualitative (interview)	Purposive	Women N=20	MHC-ANC, childbirth and postpartum care	<ul style="list-style-type: none"> • Financial constraints, and traditional beliefs and rituals delayed care-seeking. • Childbirth usually took place on the floor in the squatting posture and the attendants did not always follow antiseptic measures such as washing hands before conducting childbirth.
13. Edmonds et al., 2012, mixed, Bangladesh	To test the predictive value of women's self-identified criteria in place of birth decisions in the event of uncomplicated childbirth in a setting where facility based	Mixed methods (interview and survey)	Multistage sampling	Married women (18-49) N=246	MHC-FBS	<ul style="list-style-type: none"> • Planning to choose a childbirth place, perception of labour progress, and the availability of transportation during labour were found to be

	skilled birth attendants are available.					independent predictors of facility-based SBA utilisation by women.
14. Finlayson and Downe, 2013, mixed, LMICs	To inform the development of future ANC programmes through a synthesis of findings in all relevant qualitative studies.	Literature review-qualitative meta-synthesis	Systematic	Women N=1230	MHC-ANC	<ul style="list-style-type: none"> The synthesis of arguments describes a dissonance between the design of programmes and cultural contexts that can limit access and discourage return visits. It was hypothesised that centralised, risk-focused ANC programmes might be at odds with resources, beliefs and experiences of pregnant women who underused ANC services.
15. Gazi et al., 2014, mixed, Bangladesh	To assess changes in knowledge among married women of reproductive age on selected reproductive health issues and to explore their service utilisation patterns over the project period in selected low performing areas of Bangladesh.	Quantitative (survey)	Simple random sampling	Women N=19637	MHC and reproductive health-ANC, PNC and family planning	<ul style="list-style-type: none"> A higher proportion of the rural women in endline, compared to baseline, obtained contraceptive methods from the public sectors. Most women received ANC and PNC in endline compared to baseline. Most women were aware of maternal complications at endline.
16. Hajizadesh et al., 2014, rural-urban, Bangladesh	To provide a comprehensive analysis of trends in social inequalities in utilisation of ANC, FBD, and SBA in Bangladesh between 1995 and 2010.	Quantitative (survey)	Not clearly reported	Women N=22893	MHC-ANC, FBD and SBA	<ul style="list-style-type: none"> The inequality index suggested that wealth- and education-related inequalities for ANC declined by 9% and 6%, respectively. However, wealth- and education-related inequalities for the facility-

						based childbirth increased by 0.6% per year.
17. Hameed and Avan, 2018, rural-urban, Pakistan	To estimate the prevalence of mistreatment and types of mistreatment among women giving birth in facility- and home-based settings in Pakistan in order to address the lack of empirical evidence on this topic.	Quantitative (survey)	Systematic sampling	Women N=1334	MHC-childbirth	<ul style="list-style-type: none"> Approximately 97% of women reported experiencing at least one disrespectful and abusive behaviour from healthcare providers. The experience of maltreatment was higher among women with less empowered ($\beta = 0.11$, 95% CI 0.06, 0.16) and those who received TBA assistance than general doctors ($\beta = 0.94$, 95% CI 0.13, 1.75).
18. Hossain et al., 2016, rural-urban, Bangladesh	To investigate women's pregnancy decision making process, reasons for their denial of MR, the barriers they confront in obtaining MR, and where they go after denial of MR.	Qualitative (interview)	Purposive	Women N=20	MR services	<ul style="list-style-type: none"> Women had a lack of knowledge about the legal period limit for government-approved MR services. Women were initially denied services because they exceeded the legal pregnancy limit for the MR.
19. Huda et al., 2018, rural-urban, Bangladesh, Pakistan & Nepal	Examine the horizontal inequity in access to facility delivery in Nepal, Pakistan and Bangladesh, and identify the different need factors as well as other social determinants that can potentially explain such inequity in the use of the	Quantitative (survey)	Not reported	Women	MHC-childbirth	<ul style="list-style-type: none"> Pro-rich inequality was observed in using facility delivery services. Household socioeconomic condition, parental education, place of residence and parity emerged as the most important factors in accessing the facility-based childbirth.

	facility delivery services in these countries.					
20. Huq et al., 2018, rural Bangladesh	To describe predictors of health-seeking behaviour of TB patients.	Quantitative (survey)	Not reported	Men and women N=288	PHC-tuberculosis	<ul style="list-style-type: none"> • Tuberculosis detection was delayed due to low education of patients and lack of HP expertise. • Women were less likely to seek treatment.
21. Islam and Masud, 2018, rural-urban, Bangladesh	Examined the levels and determinants of frequency and contents of ANC visits in Bangladesh.	Quantitative (survey)	Stratified-cluster sampling design	Women N=4627	MHC-ANC	<ul style="list-style-type: none"> • High socioeconomic status, low parity, locality, planned pregnancies, media exposure, visiting skilled providers for ANC services and visit to public or NGO health facilities were related to women's ANC visits.
22. Islam and Odland, 2011, rural, Bangladesh	To examine factors associated with antenatal and postnatal care visits among the <i>Mru</i> , the most underprivileged Indigenous people in Bangladesh.	Mixed methods (survey and interview)	Purposive	Married women N=374	Maternal-ANC and PNC	<ul style="list-style-type: none"> • Both ANC (11.2%) and PNC (6.4%) visits among the <i>Mru</i> (indigenous) women were lower than the national level. • The main reasons for lack of accessing ANC and PNC services were travelling distance and transportation problems.
23. Jennings et al., 2021, rural, Bangladesh	To understand the factors which affect care-seeking and diabetes management.	Mixed methods (interview, FG, and survey)	Purposive and random	Men, women and local healthcare workers N=13684	PHC-diabetics	<ul style="list-style-type: none"> • Local diabetic services were affected by providers' lack of infrastructure and expertise. • Women were less likely to attend services for being dissatisfied with care providers.

24. Kabir et al., 2022	To synthesise evidence on the primary healthcare system's readiness for NCD preventing and managing.	Review-Descriptive and thematic synthesis	Systematic	Men and women	PHC-NCDs	<ul style="list-style-type: none"> Services of primary healthcare level are inadequate to deal with NCDs. A higher level of readiness was reported only for diabetic services.
25. Kamal et al., 2015, rural-urban, Bangladesh	To investigate the factors affecting the timing of ANC seeking among Bangladeshi women using the 2007 Bangladesh Demographic and Health Survey data.	Quantitative (survey)	Multistage cluster sampling	Women N=4905	MHC-ANC	<ul style="list-style-type: none"> Maternal age, women's education, residence, wealth index, pregnancy status and desire to have more children were important factors determining ANC services use.
26. Khanam et al., 2016, rural, Bangladesh	To identify the prevalence of antepartum and intrapartum complications and determinants of care seeking for these complications in rural Bangladesh.	Quantitative (survey)	Not reported	Married women N= 24,274	MHC-antepartum and intrapartum complications	<ul style="list-style-type: none"> Care seeking for both antepartum and intrapartum complications from a trained provider was significantly higher for women with higher household wealth status, higher literacy level of both women and their husbands, and for those living close to a health facility (<10 km).
27. Khatun et al., 2017, rural, Bangladesh	To examine gender differences in awareness of mobile phone use for healthcare services and knowledge of available mHealth services.	Quantitative (survey)	Random	Women and men N=4915	mHealth for PHC and MHC	<ul style="list-style-type: none"> A higher proportion of men have phones than women, regardless of their socioeconomic status. A greater number of men (38%), compared to women (25%), were more likely to be aware of utilising mobile phones for healthcare services.
28. Khatun et al., 2016, rural, Bangladesh	Not clear	Qualitative (interview)	Purposive	General public, students,	mHealth for both PHC and MHC	<ul style="list-style-type: none"> Inequality existed in using mHealth services based upon educational status.

				community leaders, school teachers, and formal and informal healthcare providers N=37		<ul style="list-style-type: none"> • Participants, who had access to mHealth services, were more likely to consult with a qualified doctor than those without access. • mHealth also saved time and cost.
29. Morgan et al., 2018, rural-urban, India	To explore barriers and facilitators to the provision of optimal obstetric and neonatal emergency care and to the implementation of simulation-enhanced mentorship in primary care facilities in Bihar.	Qualitative (interview)	Purposive	Nurse mentors N=20	Maternal-mentorship during services	<ul style="list-style-type: none"> • Physical resource shortages, the doctor-nurse hierarchy, corruption and violence against HPs were reported as barriers to the provision of healthcare. • Facilitators included improved skills and confidence among providers, training, establishment of strong mentor-mentee relationships, administrative support, and nursing supervision and feedback.
30. Nisar et al., 2016, rural, Pakistan	To explore facilitators and barriers to use of ANC services in rural and urban communities of two selected districts in Pakistan.	Qualitative (FG and interview)	Purposive	Pregnant women, mothers, doctors and lady health workers N=88	ANC	<ul style="list-style-type: none"> • Facilitators included availability of qualified HPs, trust in HPs, advice from family members, friends or lady health workers, availability of good quality services, and easy access to the health facility. • Financial limitations, perceived absence of any major health problems during pregnancy, difficulties in reaching the health

						facility, restriction from family members, household chores, no experience of previous care, and perceived unavailability of HPs were barriers to healthcare services.
31. Paul and Rumsey, 2002, rural, Bangladesh	To identify determinants of the use of medical centre and TBAs for delivery purposes in a rural area of Bangladesh.	Quantitative (survey)	Not clearly reported	Women and men N= 2334	MHC-childbirth	<ul style="list-style-type: none"> • Delivery complications, parental education and pre-natal care were associated with the use of modern healthcare resources.
32. Rahman et al., 2018, rural-urban, Bangladesh	To examine the association of reported complications around delivery and socio-demographic, healthcare and spatial characteristics of mothers with CS, using data from the latest Bangladesh Demographic and Health Survey.	Quantitative (survey)	Random	Women N=4,627	MHC-ANC and childbirth	<ul style="list-style-type: none"> • Factors like mother being older, obese, residing in urban areas, first birth, husbands' occupation, experience of ANC visits, seeking ANC from private providers, and delivering in a private facility were associated with higher rates of CS.
33. Rahman et al., 2016, rural-urban, Bangladesh	To investigate the association between maternal pregnancy intention and professional antenatal and delivery care utilisation.	Quantitative (survey)	Two-stage stratified cluster	Women N=4672	MHC-ANC	<ul style="list-style-type: none"> • Mothers, who experienced unwanted pregnancies, had a greater risk of not seeking professional ANC and childbirth care than those who had planned pregnancy.
34. Rahman et al., 2012, rural-urban, Bangladesh	To explore the association between maternal experiences of physical and sexual IPV and the use of reproductive health care	Quantitative (survey)	Stratified, multistage cluster sample	Married women N=2001	MHC-ANC	<ul style="list-style-type: none"> • About two of the four participants experienced physical IPV.

	services, using a large nationally representative data set from Bangladesh.					<ul style="list-style-type: none"> The mother's experience with IPV was associated with a low use of ANC.
35. Rahman, 2009, rural-urban, Bangladesh	To identify influential factors that are affecting maternal healthcare services and treatment seeking behaviour.	Quantitative (survey)	Not reported	Married women N=41549	MHC-ANC, PNC and childbirth	<ul style="list-style-type: none"> Education, economic status, mass media exposure and NGO affiliation increased women's MHC utilisation.
36. Rai, 2015, mixed, India, Bangladesh and Pakistan	To analyse the factors associated with utilisation of maternal healthcare services among Muslim women residing in each country.	Quantitative (survey)	Multistage cluster sampling	Women N= 145404	MHC-ANC	<ul style="list-style-type: none"> Factors, such as place of residence, women's education, partner's education, age at childbirth, parity and wealth quintile, were associated with the utilisation of MHC services by women.
37. Rawal et al., 2021, rural, Bangladesh	To examine barriers and facilitators of engaging CHWs for NCD services.	Qualitative (interview, KII, FG and Stakeholder Consultative Meeting)	Purposive	Policymakers, CHWs and stakeholders N=48	PHC-NCDs	<ul style="list-style-type: none"> Some NCD services were provided by CHWs, including screening, diagnosis, health education, etc. However, challenges included lack of NCD specific guidelines and inadequate systems-level support.
38. Rob and Alam, 2014, rural-urban, Bangladesh	To examine the impact of performance-based incentive for service providers at the institutional level to improve the quality of maternal health services.	Quantitative (survey)	Not clearly reported	Healthcare providers	MHC-ANC and PNC	<ul style="list-style-type: none"> The performance-based incentive for service providers intervention increased the quality scores of the facilities increased from 55% to 78% in 14 months with significant improvement in ANC, PNC counselling and institutional childbirth ($p < 0.01$).

39. Saha et al. 2015, rural-urban, Bangladesh	To examine the socioeconomic factors associated with recommended, intermediate, and no ANC visits in Bangladesh using a conceptual behavioural model for health care services utilisation for developing countries.	Quantitative (survey)	Stratified, multistage cluster sample	Women N=4672	MHC-ANC	<ul style="list-style-type: none"> • Different levels of ANC visits were associated with different determinants, for example, exposure to the media increased the likelihood of an intermediate compared to non-visitation, while desire for pregnancy increased the likelihood of the WHO recommended compared to intermediate visits.
40. Sarker et al., 2015, rural-urban, Bangladesh	Examine the associations of socioeconomic determinants of women aged 12–49 years with the CCs awareness and visitation.	Quantitative (survey)	Cluster sampling design	Married women N=17842	PHC and MHC	<ul style="list-style-type: none"> • Awareness and visitation of CCs were found to be positively associated with lower economic conditions, young age, and primary education.
41. Schular, Bates and Islam, 2001, rural-urban, Bangladesh	To assess how clients, communities and program staff are responding to the policy changes and adapting to the new program norms.	Qualitative (interview and observation)	Convenience and purposive	Women N=125	Reproductive health- family planning services	<ul style="list-style-type: none"> • Increased charges for services exacerbated people's confusion and resentment overpayment for services and the right of clients to receive free care. • Providers and clients found difficult to shed habits and assumptions surrounding the provision of specific methods, with some providers still feeling that women needed to be motivated to practice family planning. • Some clients fearing that providers induced them to use some methods.

42. Shahjahan and Kabir, 2006, rural-urban, Bangladesh	To assess males' perception, attitude, and knowledge on reproductive health matters.	Qualitative (FG)	Not clearly reported	Men N=38	Reproductive	<ul style="list-style-type: none"> Some sociocultural factors such as poor interaction between husbands and wives impeded spousal communication of reproductive health, which discouraged male to take their wives to health clinics.
43. Sharma et al., 2018, rural, Nepal	To explore details about the experiences of the male teachers and staffs of health care facility toward the factors influencing involvement of the husband during pregnancy, childbirth, family planning, and in other male and female reproductive health issues.	Qualitative (FG and KII)	Purposive	Healthcare providers and teachers N=20	MCH	<ul style="list-style-type: none"> Sociocultural and socioeconomic factors, such as patriarchal family structure, generation gap, male as income generator, female preference to access MCH services by themselves, religious factor, rural life and negative perceptions of society, prevented men from participating in MCH activities.
44. Sikder et al., 2011, rural, Bangladesh	To describe the healthcare decision-making process during severe acute obstetric complications among women and their families in rural Bangladesh.	Qualitative (interview)	Purposive	Women N=40	MHC-ANC	<ul style="list-style-type: none"> Women experienced delays in seeking timely medical care by decision makers, including husbands or other male relatives. Despite the dominance of husbands and male relatives in the decision-making process, women, who underwent induced abortions, made their own decisions about their healthcare and relied on female relatives for advice.

45. Simkhada et al., 2014, rural, Nepal	To analyse cost as a barrier to the uptake of ANC in rural Nepal amidst a variety of barriers and facilitators.	Qualitative (interview)	Purposive	Women, husbands, mothers-in-law N=50	MHC-ANC	<ul style="list-style-type: none"> • Cost was sometimes an obstacle for the resource-poor rural women to seek ANC services. • Costs include transportation costs, opportunity costs of being unable to work in the household and services-related costs (such as blood tests).
46. Vidler et al., 2016, rural, India	Describe the patterns and determinants of routine and emergency maternal health care utilisation.	Qualitative (FG and interview)	Purposive	Community leaders, male and female decision-makers, women, nurse & midwives, social health activists, doctors, senior health administrators N=347	MHC	<ul style="list-style-type: none"> • Barriers, including limited autonomy, poor access to and funding for transport for non-emergent conditions, perceived poor quality of healthcare facilities, and the costs of care prevented women from seeking care.

N.B. N=number

Appendix E: Summary of outcome from the literature

Categories	n	Categories	n
1. Determinants	15	Delay in decision-making	6
Socio-Demographic determinants	12	Sociocultural barriers	3
Marital age	5	Attitudes and beliefs	3
Maternal age	9	Rituals	1
Parity	8	Organisational barriers	13
Education of women	11	Gender dynamic	5
Occupation of women	5	Lack of quality healthcare	5
Religion	4	Discrimination of services	3
Interactive factors	12	Perceived fear of digital service	2
Education of husband	6	Financial barrier	9
Occupation	7	Maltreatment	5
Household wealth	10	Geographical barriers	12
Political determinants	3	Place of residence	7
Low decision-making ability	3	Distance	7
2. Experiences	15	Transportation	6
Fear of provided services	10	4. Facilitators	15
Misconception	4	Family support	3
Experience of women in healthcare services	10	NGO support and mass media exposure	9
Positive experience	5	Role of civil societies and NGOs	3
Negative experience	6	NGO involvement empowering women	4
3. Barriers	26	Exposure to mass media	6
Family barriers	9	Organisational facilitators	6
Absence of male participation	2	Healthcare centre support	4
Violence	1	Technological assistance	2

Appendix F: Study 1 Participant Information Sheet

School of Healthcare

**UNIVERSITY OF LEEDS****Needs, Experiences, Barriers and Facilitators to Access and Utilisation of
Primary and Maternal Healthcare Services among Rural Bangladeshi Women: A
Mixed Methods Study**Participant Information Sheet for Female Participants

My name is Sanjoy Kumar Chanda, and I am inviting you to take part in the above research study which is part of my PhD degree at University of Leeds, United Kingdom. Before deciding if you would like to participate, it is important for you to understand the purpose of the research and what taking part involves. Please read this information carefully and take your time before deciding whether to take part and if you have any questions, please contact me using the contact details at the end of this information sheet. If you wish, please discuss your involvement in this research study with your family. You need to clearly understand the risks and benefits of taking part in this study, so you can make a decision that is right for you. You do not have to take part in this research and a decision not to take part will not affect your healthcare access and utilisation in your community. You can change your mind about taking part in the study until two weeks after participation. Even if the study has started, you can still withdraw without giving us a reason.

What is the purpose of the project?

This study intends to investigate the barriers and facilitators to accessing healthcare services among women in rural Bangladesh. We know that that rural Bangladeshi women may have problems with accessing and using healthcare services, such as maternity care.

We would like to invite you to take part in our research study to help us in understanding more about how you access and use healthcare. A member of our research team will go through this information sheet with you to ensure you understand it and answer any questions you may have. If after that you are still unclear about anything please contact me using the contact details provided at the end of this information sheet.

Why have I been chosen?

You have been invited to participate in this study because you are a woman aged between 16-49 years. Other participants, such as men (husbands), healthcare professionals, paraprofessionals and community health workers (CHWs), will also be invited to participate in the study.

What does the study involve?

If you choose to participate in the study, you will be invited to attend a group discussion with other women, referred to as a focus group (FG). The FG will have between 6-10 women and will last approximately one hour and will take place in a private room at a mutually convenient location. The FG will be audio-recorded, and notes will be taken.

Do I have to take part?

No, taking part is completely voluntary. If you agree to take part, we will ask you to sign a consent form. You may withdraw your consent at any stage during or after the FG. If you decide to withdraw your information from the study, you will be able to do so until two weeks after participation. After two weeks, your information will be analysed and included in the development of findings of the study and cannot be withdrawn.

What are the possible advantages of taking part in the study?

There are no direct benefits to you from taking part in the study. However, the information obtained through FGs will help us to understanding the issues around community participation that are essential to improve maternal health, which will help us to develop appropriate service provision.

What are the possible disadvantages and risks of taking part?

There are no direct risks to you from taking part in the study. However, if at any point you feel upset the female interviewer, who will be leading the interview and the research assistants, who will be helping with the FG, have been trained and will provide support to anyone who is feeling upset or distressed at any time during or after the focus group.

If you are at any time uncomfortable during the FG and there is something you do not wish to share in the FG, you have the right not to do so and the female interviewer who is leading the FG will move on. You will also be free to leave the FG at any time and will be supported by the research assistant who will give you as much support as possible.

Use, dissemination and storage of research data

The data will only be used for the study purposes and will be disseminated through publication. The collected data from the study field will be properly secured and stored.

What will happen to my personal information?

All information about your participation in this study will be kept confidential. No names or identifying statements will be used in any report or presentation. Your name will be removed from the written version of the interview, which means only myself and my PhD supervisors (Dr Maria Horne and Professor Gretl McHugh) will have access to the audio recording of the interview, observation checklist, field notes and written version of the interview for the purpose of checking accuracy of the written version of the interview. The digitalised record of your interview will be deleted after writing a text from the interview and the written version of the interview will be stored as a password protected file on a password protected computer at the University of Leeds for a period of five years, after which, it will be permanently deleted from the device on which it is stored.

What will happen to the results of the research project?

Your responses and that of other participants will be analysed. Some direct quotes will be used from all participants' responses to illustrate the views of participants, but these will be anonymised and will not be associated to one particular participant. However, as a focus group is being used as a method of data collection, full anonymity cannot be guaranteed on behalf of the other focus group participants but all focus group participants will be asked to signed a confidentiality form to assist with ensuring that what is discussed in the focus group will remain in the focus group. The study findings will be used in the development of my PhD thesis and will also be published in scientific journals and be presented at conferences. If you wish, I will let you have a summary of the study findings.

What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

You will be asked to provide information about what your needs are in relation to primary healthcare services, the challenges you face in accessing healthcare services, what helps to access healthcare services and what healthcare services you have accessed and found useful.

Will my taking part in the study be kept confidential?

All information about your participation in the study will be kept confidential. Your personal details will be kept in a secure locked filing cabinet at the PhD suite in the School of Healthcare. There are no names on the FG guide/checklist, only identification numbers and these will be kept separate from personal details. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and

using it properly. The University of Leeds will keep identifiable information about you for 5 years after the study has finished.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. We will use the minimum personally-identifiable information possible to safeguard your rights. You can find out more about how we use your information by contacting the University Data Protection Officer via DPO@leeds.ac.uk.

The only people at the University of Leeds who will have access to information that identifies you will be people who need to contact you to carry out the study or audit the data collection process. The people who analyse the information will not be able to identify you and will not be able to find out your name or contact details. Your information will only be used by organisations and researchers to conduct research in accordance with the UK Policy Framework for Health and Social Care Research.

Who is organising/ funding the research?

The work is part of my PhD degree at University of Leeds, United Kingdom. This research is supported by the Prime Minister Fellowship of Bangladesh, a fellowship sponsored by the Government Innovation Unit of the People's Republic of Bangladesh.

Contact for further information

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Student ID	201277999
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Finally ...

A copy of this information sheet will be given to you along with a signed consent form. Thank you for taking the time to read through the information.

Version control

<i>Document type</i>	<i>Version #</i>	<i>Date</i>
Participant Information Sheet for female participants aged 16-49 years	2	21/11/2019

Appendix G: Study 1 Participant Consent Form

School of Healthcare



UNIVERSITY OF LEEDS

Participant Consent Form

Participant Identification Number:

<p>Title of the project: Consent to take part in Needs, Experiences, Barriers and Facilitators to Access and Utilisation of Primary and Maternal Healthcare Services among Rural Bangladeshi Women: A Mixed Methods Study</p>	<p>Please confirm agreement to the statements by putting your initials in the box below</p>
<p>I confirm that I have read and understand the information sheet dated xx/xx/xx explaining the above research project and I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.</p>	
<p>I understand that my participation is voluntary and that I am free to withdraw at any point during the focus group/interview without giving any reason and without there being any negative consequences without my medical care or legal rights being affected. In addition, should I not wish to answer any particular question or questions, I am free to decline.</p>	
<p>I understand that if I decide to withdraw my information from the study I will be able to do so until two weeks after participation. After two weeks, my information will be analysed and included in the study findings. I understand that should direct quotes be used, these will be anonymised and my confidentiality will remain intact.</p>	
<p>I understand that any information I provide, including personal details, will be kept confidential, stored securely and only accessed by those carrying out the study.</p>	
<p>I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.</p> <p>I understand that my responses will be kept strictly confidential.</p>	
<p>I understand that other genuine researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.</p>	
<p>I agree to take part in the above research project.</p>	

I agree that any anonymised data will be deposited and held in the Research Leeds Repository.	
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Name of participant		
Participant's signature		
Date		
Name of lead researcher		
Signature		
Date*		
<i>Document type</i>	<i>Version #</i>	<i>Date</i>
Participant Consent Form	2	28/10/2019

Appendix H: Focus groups and interview guides

Table H-1 Guide for Focus Group/Interview: Female Participants Aged 16-49

TDF domains	Discussion areas
1. Knowledge (awareness of the existence of something)	<ul style="list-style-type: none"> • Can you tell me if and how you use the Upazila Health Complex (UHC)/ Union Family Welfare Centre (UFWC)/ Community Clinic (CC)? If used, did you understand what treatment/care (e.g. physical examinations) was undertaken? • Are you aware of the types of primary and/or maternity services that are offered by UHC/UFWC/CC? • What is your view on the importance of using primary and or maternity services?
2. Skills (any ability or proficiency acquired through practice)	<ul style="list-style-type: none"> • How easy/difficult is it for you to access UHC/UFWC/CC primary and/or maternity services by yourself? Probe(s): What would prevent you from accessing these services? • What skills enabled you able to use the primary and/or maternity care services provided by UHC/UFWC/CC? Probe(s): What prevents you using these services?
3. Social/professional role and identity (a coherent set of behaviours and displayed personal qualities of an individual or a social or work setting)	<ul style="list-style-type: none"> • What do you consider to be your role in accessing UHC/UFWC/CC primary and/or maternity services? • Does having a female doctor instead of a male doctor influence or encourage you to access and use UHC/UFWC/UHC/CC primary care and/or maternity services? Probe(s): Can you tell me why this is important? How does this influence you?
4. Beliefs and capabilities (acceptance of the truth reality or validity about ability, talent, or facility that a person can put into constructive use)	<ul style="list-style-type: none"> • How confident do you feel about being able to access and use UHC/UFWC/CC primary care and/or maternity services? • How confident do you feel about being able to be involved in decisions about your healthcare at the UHC/UFWC/CC? Probe: Can you tell me more?
5. Optimism (the confidence that things will happen for the best, or that desired goals will be attained)	<ul style="list-style-type: none"> • How confident do you feel in the primary and/or maternity services offered and provided by UHC/UFWC/CC? • Were you confident in the primary care and/or maternity services that were provided to you? If so, why?

6. Beliefs and consequences (acceptance of the truth reality or validity about outcomes of a behaviour in a given situation)	<ul style="list-style-type: none"> • Can you tell about any positive and/or negative effects of using the primary care and/or maternity UHC/UFWC/CC services? Probe: any issues with your treatment/ or with any medicine you needed to take? Would you like to use this service again?
7. Reinforcement (increasing the probability of a response by arranging a dependent relationship or contingency between the response and the given stimulus)	<ul style="list-style-type: none"> • Do your family/husband encourage you to access/visit primary care and/or maternity UHC/UFWC/CC services, for example the doctor for a particular physical condition/illness? • Do your family/husband support you in accessing/using UHC/UFWC/CC services, for example the doctor for a particular physical condition/illness? Probes: Have you had any experience of being discouraged in visiting a doctor/paraprofessional/CHW/ primary care and/or maternity services because your family members do not use these services for a particular reason? (E.g. your mother-in-law might have/ might not have contacted a doctor during her own pregnancy, and now she influences you by telling you to visit/ not to visit a doctor).
8. Intentions (a conscious decision to perform a behaviour or a resolve to act in a certain way)	<ul style="list-style-type: none"> • Do you plan to change anything about using primary and/or maternity services that are offered by UHC/UFWC/CC? What changes are you thinking about?
9. Goals (mental representation of outcome or end states that an individual wants to achieve)	<ul style="list-style-type: none"> • What did you want to get out of the visit? • Did you achieve what you intended to get out of the visit? • Do you have any goals/objectives related to using the UHC/UFWC/CC? If so, what are they? Probe: Is it to avoid being ill (i.e. preventive)? Does this service meet your needs? Can you tell me more?
10. Memory, attention and decision process (ability to retain information, focus selectively on aspects of the environment and choose two or more alternatives)	<ul style="list-style-type: none"> • What helps you to remember to keep appointments at UHC/UFWC/CC primary care and/or maternity services?
11. Environmental context and resources (any circumstance or a person's situation, environment that discourages or encourages)	<ul style="list-style-type: none"> • Are there any things that make it easier for you to access and use UHC/UFWC/CC primary care and/or maternity services? (E.g. low cost, availability of doctor, receiving information, trust on government health system etc.)

<p>the development of skills and abilities, independence, social competence, and adaptive behaviour)</p>	<ul style="list-style-type: none"> • Are there any things that make it difficult for you to access and use UHC/UFWC/CC primary care and/or maternity services? (e.g. time, weather, location, money, lacking organisational chain, transport, social stigma, culture, lack of understanding, absence of male's participation, discriminant services etc.)
<p>12. Social influences (those interpersonal processes that can cause an individual to change their thoughts, feelings or behaviours)</p>	<ul style="list-style-type: none"> • How do the people that you live and socialise with influence you in accessing and using primary care and/or maternity UHC/UFWC/CC services? (family, peers, social groups). If so, in what way? • Do you see or know of other women who have accessed and used UHC/UFWC/CC primary care and maternal services? If yes, does that help you in using these services?
<p>13. Emotion (a complex reaction pattern, involving experiential, behavioural and psychological elements, by which the individual attempts to deal with personally significant matters or event)</p>	<ul style="list-style-type: none"> • How do you feel about visiting healthcare professionals? (e.g. comfort, fear) Probe(s): Do you worry what they might say? Find? Diagnose? • What is your experience of the attitudes and behaviour of healthcare professionals when you use UHC/UFWC/CC primary and/or maternity services?
<p>14. Behavioural regulation (anything aimed at managing or changing objectively observed, measured actions)</p>	<ul style="list-style-type: none"> • Can you tell me how your family, husband and other adults help you to access and use UHC/UFWC/CC primary and/or maternity services? • Can you tell me what else would help you to access and use primary care and/or maternity UHC/UFWC/CC services? • Think about when you were pregnant, how did you use the services at ANC, what was your contact with the doctor like during this time; where was your child (children) delivered?
<ul style="list-style-type: none"> • Is there anything else of relevance you feel needs discussing? 	

Table H-2 Guide for In-depth Interview: Healthcare Providers (Doctor/Nurse/paraprofessionals/CHWs)

TDF Domains	Interview questions
1. Knowledge	<ul style="list-style-type: none"> • What do you think influences women to access and use Upazila Health Complex (UHC) services? • What do you think are the barriers and facilitators of women accessing UHC services? • What do you think are the barriers and facilitators of women using UHC services? Probes: Does this influence you in how you provide these services for women? If so, how – provide examples. • What is your view on the importance of women accessing and using UHC services? • Can you tell me about the primary and maternity services that are provided by you?
2. Skills	<ul style="list-style-type: none"> • How do you engage women to access and use these services? • What training have you had for the health services you work for? • Do you feel you are lacking in any skill areas? If so, what would these be?
3. Social/ professional role	<ul style="list-style-type: none"> • What do you consider to be your role in relation to preventive healthcare? (screening record)
	<ul style="list-style-type: none"> • Do you discuss with your colleagues how to improve healthcare services for rural women?
4. Beliefs and capabilities	<ul style="list-style-type: none"> • How confident do you feel about being able to provide primary and/or maternal services for rural women? Probe: what would make you feel more confident? Do you feel equipped to deliver such services?
5. Optimism	<ul style="list-style-type: none"> • How confident do you feel in the existing UHC services provision for rural women? • How confident do you feel about rural women accessing and taking up these services on offer?
6. Beliefs and consequences	<ul style="list-style-type: none"> • Can you tell me about your experience of providing primary and/or maternal services? • Can you tell me if you would offer these services again? (in terms of benefits, cost effective, how received)
7. Reinforcement	<ul style="list-style-type: none"> • What enables you to continue providing these health services to rural women? (Well attended, cost effective, have the staff)
8. Intentions	<ul style="list-style-type: none"> • What makes you decide which PHC and/or maternal services to provide?

	<ul style="list-style-type: none"> • What makes you continue these services? • Is there a need to modify or change a service? If so, what are these?
9. Goals	<ul style="list-style-type: none"> • Do you have any specific goals to achieve in your primary care and/or maternity services provision? If so, what are they? (the need of patients, improve the quality, effectiveness)
10. Memory, attention and decision process	<ul style="list-style-type: none"> • What prompts you to make decisions about the primary care and/or maternity services you provide?
	<ul style="list-style-type: none"> • Who is usually involved in deciding what primary care and/or maternity services/care are provided for rural women? (Doctor, nurse) • What is your view of who should be involved?
11. Environmental context and resources	<ul style="list-style-type: none"> • Can you tell me about the things that make it easier for you to provide primary care and/or maternity health services? (E.g. a separate room, proper equipment, organisational chain, etc.)
	<ul style="list-style-type: none"> • Can you tell me about the things that make it difficult for you to provide primary care and/or maternity health services? (E.g. time, lacking equipment, lacking organisational chain, behaviour of patients or attendants, lacking skill, etc.)
12. Social influences	<ul style="list-style-type: none"> • Do you think your own behaviour influences access and use of services? • Who else is involved when you make a decision about a woman's primary health/maternity care? (Who do you think? – husband, family member, mother, mother-in-law)
13. Emotion	<ul style="list-style-type: none"> • Do you find that your personal views/opinion affects the decision that is made about women and their primary care and/or maternity care provided by your service? In what way? Provide an example. • Are you concerned about the availability of primary care and/or maternity services and women's access to primary care and/or maternity health services?
14. Behavioural regulations	<ul style="list-style-type: none"> • Can you tell me how you could help rural women access and use primary care and/or maternity health services? • What are the challenges/facilitators in providing these services?
Is there anything else you feel is of relevance that you want to say?	

Table H-3 Guide for In-depth Interview: Male Participants (Husbands)

TDF Domains	Interview questions
1. Knowledge	<ul style="list-style-type: none"> • Can you tell me if and how your wife uses/used the Upazila Health Complex (UHC)/Union family Planning Welfare Centre (UFWC)/Union Health Centre (UHC)/Community Clinic (CC)? If used, explore-further • Are you aware of the types of primary and maternity services that are offered by UHC/UFWC/CC? • What is your view on the importance of your wife using primary and/or maternity services? (Complications that might arise during pregnancy, prevention of ill health).
2. Skills	<ul style="list-style-type: none"> • How easy/difficult is it for you to support your wife in accessing UHC/UFWC/CC primary and/or maternity services? • What prevents you from supporting your wife in accessing and using these services? • What helps you to support your wife in accessing and using these services?
3. Social role	<ul style="list-style-type: none"> • What do you consider to be your role in supporting your wife in accessing UHC/UFWC/CC primary and/or maternity services? (treatment in case of illness?) Can you provide me with an example?
4. Beliefs and capabilities	<ul style="list-style-type: none"> • How confident do you feel about being able to access and support your wife in using UHC/UFWC/CC primary care and/or maternity services? • How confident do you feel in the primary and/or maternity services offered and provided by UHC/UFWC/CC? Probe: Can you provide an example?
5. Optimism	<ul style="list-style-type: none"> • How confident do you feel in the services offered and provided by primary and/or maternity services provided by UHC/UFWC/CC? • Did you feel confident in the services that were provided to your wife? If so, why? Can you provide an example?
6. Beliefs and consequences	<ul style="list-style-type: none"> • Can you tell me what you know about the benefits for your wife of using primary care and/or maternity provided by UHC/UFWC/CC? (concerns/ problems/would you use services again)
7. Reinforcement	<ul style="list-style-type: none"> • Do you encourage/support your wife to use primary care and/or maternity provided by UHC/UFWC/CC? E.g. visit a doctor for a particular physical condition? Probe: If yes, how do you encourage her?

	<ul style="list-style-type: none"> Do your family and other adults support your wife in accessing/using primary care and/or maternity provided by UHC/UFWC/CC? E.g. for example, visit the doctor for a particular physical condition/illness?
	<ul style="list-style-type: none"> Would you attend with your wife at appointments/visits to primary care and/or maternity at UHC/UFWC/CC? Probe(s): Usually/how often would you attend with her?
8. Intentions	<ul style="list-style-type: none"> Do you plan to change anything about supporting your wife in using primary and/or maternity services that are offered by UHC/UFWC/CC? What changes are you thinking about?
9. Goals	<ul style="list-style-type: none"> For what purpose did you visit UHC/UFWC/CC with your wife? Was this achieved? If no, why not? Do you have any goals/objectives related to supporting your wife in accessing and using primary care and/or maternity services provided by UHC/UFWC/CC? If so, what are they? Probes: Did this service meet your needs? Can you provide me with an example/tell me more?
10. Memory, attention and decision process	<ul style="list-style-type: none"> What helps you to remember to keep appointments with your wife at UHC/UFWC/CC primary care and/or maternity services? Who and how would you decide your wife needs access and use primary care and/or maternity provided by UHC/UFWC/CC?
11. Environmental context and resources	<ul style="list-style-type: none"> Are there any things that make it easier for you to support your wife in accessing and using UHC/UFWC/CC primary care and/or maternity services? (e.g. your accompany, low cost, availability of doctor, receiving information, trust on government health system etc.) Are there any things that make it difficult for you to support your wife in accessing and using UHC/UFWC/CC primary care and/or maternity services? (e.g. time, weather, location, money, lacking organisational chain, transport, social stigma, culture, lack of understanding, absence of male's participation, discriminant services etc.)
12. Social influences	<ul style="list-style-type: none"> How do the people that you live and socialise with influence you in supporting your wife in accessing and using UHC/UFWC/CC primary care and/or maternity services? (family, peers, social groups). If so, in what way? Do you see other men go to the health centres with their wives? If yes, does it influence you?
13. Emotion	<ul style="list-style-type: none"> Are you concerned about access and use of primary care and/or maternity services for your wife? What is your motivation in wanting to be involved in your wife's primary and/or maternity care?

	<ul style="list-style-type: none"> • Do you think your emotions affect the decisions you make about accessing and using healthcare services? What kind of emotions? In what ways?
14. Behavioural regulations	<ul style="list-style-type: none"> • What is your experience of the attitudes and behaviour of healthcare professionals when you use UHC/UFWC/CC primary and/or maternity services?
	<ul style="list-style-type: none"> • Can you tell me about any procedures/rules which need to be followed when you accompany your wife to UHC/UFWC/CC primary care and/or maternity services?
	<ul style="list-style-type: none"> • Can you tell me what else would help you to support your wife to access and use UHC/UFWC/CC primary care and/or maternity services?
Is there anything else you feel is of relevance that you want to say?	

Appendix I: Example of a framework matrix developed for Theme 1 in Study 1

<p>FG1</p>	<p><u>Knowledge around service provision:</u> Rural women mostly relied on a female HP in the rural CC regardless of their health status. They do not exactly know when to visit CC or UHC or UHFWC to take treatment for both primary and maternal care. In addition, women are not understanding the need for preventative healthcare services.</p> <p>'P4: We sometimes go straight to the UHC when health conditions are in crisis' (FG1, P1) (Note: P (first)=Participant, FG=Focus group, CC=community clinic and P (final)=Page number)</p>	<p>N/D (Note: Theme not discussed)</p>	<p><u>Lack of awareness of the differentiation of services:</u> Women were not aware of the aim of the home visit part of UHFWC service. Women thought services during home visit by the FWA covered all maternal services.</p> <p>'P2 Those of us, who do not live on the side of the river where UHFWC is located, do not usually visit UHFWC as an FWA from the UHFWC visits our village and provides almost the same maternal services provided on spot.' (FG1, P1)</p> <p>Observational note: <u>The FWA from UHFWC only provides basic care related to</u></p>	<p><u>Unable to specify UHC primary care services:</u> Women shared that they know the availability of services for primary care. However, when they were asked about the kinds of services, they can't specify any of the offered services by the UHC.</p> <p>'M Are you aware of the types of primary care services that are offered by UHC? P1 The UHC offers all types of services.... M Can you mention any specific type of services that are offered by the UHC? P1 hmm...all.' (FG1, P1)</p> <p><u>Understanding limited to CC primary care:</u></p>	<p>N/D</p>
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			<p><u>antennal care (ANC) during home visits, whereas the UHFWC offers diversity of care (e.g. ANC, PNC, basic investigation, medicines etc.) on spot. Women's inability of understanding services lessens to get the full range of services from the UHFWC.</u></p>	<p>Rural women can only understand the treatment for primary care administered by CC because CC investigations include simple and quick tests, such as diabetes test, blood pressure etc. Also, the CHCP makes women understand the process very well before and after the test. However, when the investigation becomes complicated, the average women don't understand and mostly rely on the doctor.</p> <p>'P5 I met a doctor at UHC when I was experiencing high fever. The doctor advised me to give a blood sample to a pathologist, but I did not know why the blood was taken. The</p>	
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				day after the test, I got the report from the desk and met the doctor again and then he told me I had no serious problems.' (FG1, P1)	
FG2	<p><u>Over reliance on CC:</u> Women relied heavily on CC care and sought UHC treatment when they had no other access. In addition, family members suggested that women go to CC and seek treatment.</p> <p>'M: How do you use UHC/UHFWC/CC? P4: I directly go to the CC and take services when I need. P2: hmm...we visit our community health centre first and then we meet the community healthcare provider (CHCP). If he (CHCP)[pause] refers to us to visit the UHC,</p>	<p><u>Culture of not making appointments:</u> In the rural environment of Bangladesh, women weren't accustomed to the culture of making an appointment before seeing a doctor or healthcare provider. This practice resulted in rural women wasting their time as they had to wait a long time at health centres.</p> <p>(Note: M=Moderator and P=Participant)</p> <p>'M: Do you take any appointment before going to the health centres?</p>	<p><u>Less aware of the differences in services:</u> Women shared that services between UHC and UHFWC were around same, but it was practically different. Rural UHFWC emphasised maternal health services in addition to basic services for rural women, and the maternal care includes both spot service and home visits, where there was no UHC home visit for the same care.</p> <p>'P1: We don't go there (UHFWC) regularly.</p>	N/D	<p><u>Inability to identify the role of healthcare providers:</u> All women couldn't identify the identity of the healthcare providers. They thought the community healthcare providers were also the doctor as s/he checked up and provided medicines.</p> <p>'M: What about maternal healthcare services at CC? P4: Vaccines and other services. P3: ... we get services here one day in a month. A doctor comes and issues the pregnant women a card.</p>

	<p>we then move to UHC. M: Do you go to the CC first, even if you face a major problem? P4: hmm...yes, normally we contact our CHCP first. P2: [Pause] Sometimes, we directly go to see a UHC doctor when the treatment is unavailable at CC. p1: If we want to go to the UHC with major health issue, hmm...we can't as our family members want us to visit nearby CC...' (FG2, P1)</p> <p>(Note: M=Moderator, P=Participant)</p>	<p>P3: Appointment? No, I don't know any system of it. I directly go to the CC and take medicines from there. P4: I go to the UHC and then wait in front of the room of a doctor whom I want to visit. Afterwards, when they call, I enter the room.' (FG1, P1)</p>	<p>But I know they offer almost same care and medicines that are offered from the UHC.' (FG2, P3)</p> <p><u>Less information about PNC:</u> All women from this group couldn't identify in detail about the offered postnatal care (PNC) services by UHC/UHFWC/CC. However, two women shared few general information about the CC.</p> <p>'M: What types of postnatal care services are offered to you from the CC? P3: Weight measurement. P5: They provide hexisol and vitamin capsule.' (FG2, P3)</p> <p><u>Lack of information about birth control methods:</u> Women</p>		<p>M: Does the UHC doctor visit CC? P2: No. From the union health centre. P1: Yes. Union health workers come here to provide healthcare services. Parineeta Didi (a female CHCP) comes here from the union health centre. She will come again tomorrow.' (FG2, P1)</p>
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			<p>took free family planning support from the UHC, but they had little understanding about the availability of services offered.</p> <p>'P1: I don't know exactly how many types of family planning services exist there (UHC), but I take oral pill.' (FG2, P3)</p> <p><u>Lack of awareness of the treatment related to maternal services:</u> A few women of this focus group even were not aware of the treatment related to maternal care provided by the CC. They didn't think necessary to ask the CHCP for the treatment. Some women were also afraid to ask when the healthcare provider was a doctor.</p>		
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			<p>'P5: hmm...all time we can't understand every service. When I was pregnant, I came to this CC and was immunised several times, but I didn't know the actual cause.</p> <p>M: Haven't you asked your CHCP?</p> <p>P6: No, I didn't ask as I only knew it was necessary to take during the gestation period. All things are given for our wellness, what do we ask them?</p> <p>P4: I can understand the treatment what our CC provides, but I can't ask the doctor for the explanation of any tests.</p> <p>M: Why can't you ask the doctor?</p> <p>P4: I am afraid to ask a doctor related to test.' (FG2, P2)</p>		
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FG3	<p><u>Late response:</u> Rural women did not usually go to the UHC until the health situation reached an emergency stage.</p> <p>'P1: For primary healthcare we come to the community clinic, however, if the case is urgent, we visit the UHC.' (FG3, P1)</p>	N/D	<p><u>Illogical differentiation of the potency of drugs supplied:</u> Women expressed inability to judge the potency of the drug. Although the same agency (Essential Drugs Company Limited (EDCL)-a government owned drug company) distributes medicines to all government health centres, women were not confident enough in CC medicine.</p> <p>'P4 I went to the UHFWC as the power of medicine is more in the UHFWC than our CC.' (FG3, P1)</p>	<p><u>Lack of awareness about medications:</u> Some women do not realise the effectiveness of certain medications and do not feel the need to ask their doctor.</p> <p>'P2 I only take medicines, but I don't know the specific functions of these. M Don't you ask your doctor what medicine is for what physical problem? P2 No, I only take medicines because doctors prescribe drugs to cure physical problems. They all do it for our betterment.' (FG3, P1)</p>	<p><u>Problem of identifying the role of FWV:</u> Women from this focus group expressed that she was visited by a doctor. But, no doctor provided services at UHFWC; only a FWV advised pregnant women.</p> <p>'P1 I went to the UHFWC...to get antenatal care...a female doctor comes, investigates pregnant women and provides medicines, such as iron tablet, vitamin, etc.' (FG3, p1)</p>
Interview1	A woman aged 45, who participated in an interview, also shared almost the same opinion as the FG women. She	<u>Unavailability of information:</u> The interview participant shared that she never took any appointment, and when she was	N/D	<p><u>Lack of awareness about physical tests:</u> Women are told about the tests provided by the community clinic</p>	N/D

	<p>sometimes visited UHC, but she went to CC on a regular basis. The woman never visited the UHFWC and did not know the location of it. She thought it was not necessary for her to visit UHFWC.</p>	<p>asked to explain the reason, she replied to the unavailability of information.</p> <p>NB: '[Pause] I don't know how to take an appointment. I don't know their phone number.' (Interview1, P1)</p>		<p>in the monthly meetings. They don't exactly understand the test results told by them. They do what the CHCP asks them to do after seeing the test results.</p>	
Interview2	<p><u>Over reliance on CC care:</u> A mother, who gave birth to a new baby at the age of 30, said she always received treatment from CC when she was pregnant. She had misconceptions about the healthcare provider because she thought CHCP knew everything related to pregnancy care and for this reason she relied upon more. Although she knew that the CC doesn't offer any physical</p>	<p><u>Information gap:</u> This participant further added that not only she but also her family doesn't know they system of appointment, and she also never thought about the necessity of it.</p> <p>'SC: Why do you not make appointments to see a doctor? Do they have any system for it?</p> <p>TP: I don't know and even my family members don't know</p>	<p><u>Contrasting view:</u> This participant shared a different perspective as she understood the test results taken during the birth of her child. It may be related to her education background as now she is studying at bachelor level.</p> <p>'TP: Yes, my blood was tested, and ultrasonography was done to check the position of the child before childbirth. The</p>	<p><u>Confusion about primary care campaign:</u> The woman was confused about where the awareness campaign for women was arranged by the CC. She used the word 'suppose' and several times 'stop talking' (indicated with [pause] in the transcript) it indicates that she doesn't have exact information about care. She also indicated the campaign related to</p>	<p><u>Inability of identifying the role of CHCP:</u> The woman can't identify the identity of the healthcare providers. They think the community healthcare providers are also the doctor as s/he checks up and provides medicine. She several times mentioned during interview about the word 'doctor' referring the CHCP of village CC. This <u>knowledge gap restricts woman to get treatment</u> from the</p>

	<p>investigation, she didn't move to the UHC during her pregnancy time.</p> <p>(Note: SC=Interviewer and TP=Participant)</p> <p>'TP: I visited our CC ...during my pregnancy. I received treatment like, weighing and measuring blood pressure. They provided iron tablets also.</p> <p>SC: Have you faced any problem during pregnancy?</p> <p>TP: hm..Yes, sometimes I felt pain in my abdomen and vomiting.</p> <p>SC: Then, didn't you visit any other centres except CC for checking up?</p> <p>TP: No</p> <p>SC: Why?</p> <p>TP: Our (CC) doctor said, it's not a major</p>	<p>how to make an appointment. Also, all rural women go to the UHC directly and take the treatment (for both primary and maternal care). I never asked anybody whether the UHC offers any appointment system to visit a doctor.'</p> <p>(Interview2, P1).</p>	<p>doctor also told me about the test results.'</p> <p>(Interview2, P1).</p>	<p>only one disease.</p> <p>'TP: Our CC recommends preventive services as primary care.</p> <p>SC: How do they advise?</p> <p>TP: hmm...[pause] they ask women to come and listen to advice at a certain place.</p> <p>SC: Where? Who does attend to advise?</p> <p>TP: hmm...suppose...a school yard. The doctor and other healthcare workers come and talk about how to wash hands to avoid diarrhoea.</p> <p>SC: Does the advice only apply to diarrhoea?</p> <p>TP: Yes.' (Interview2, P1)</p>	<p>expert person.</p> <p>'TP: There is a doctor in the CC, and they provide basic treatment; so, I don't go other places.</p> <p>SC: Who is a doctor? Could you please tell me the designation?</p> <p>TP: The head of this clinic, hmm...the CHCP.' (Interview2, P1)</p>
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	<p>issue, and it would be cure normally.</p> <p>SC: When do you use the UHC/UHFWC?</p> <p>TP: I don't use UHFWC as it is far away from my house. If the CHCP refers me to visit UHC, then I go there.' (Interview2, Page1, Line 7-11)</p>				
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Appendix J: Study 2 Participant Information Sheet

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Workshop to discuss and prioritise potential solutions for improving rural Bangladeshi women's access and use of primary and maternal healthcare services

Participant Information Sheet for the healthcare professionals (doctor and nurse)/ local policy makers (Upazila/Union chairman, member, school teacher, religious representative, political leader and NGO worker)/ healthcare service users (rural women)

My name is Sanjoy Kumar Chanda, and I am inviting you to take part in the above research study which is part of my PhD degree at the University of Leeds, the United Kingdom. Before deciding if you would like to participate, it is important for you to understand the purpose of the research and what taking part involves. Please read this information carefully and take your time before deciding whether to take part in the study. If you have any questions, please contact me using the contact details at the end of this information sheet. You need to clearly understand the benefits and risks of taking part in this study, so that you are able to make a decision that is right for you. You can change your mind, without giving us a reason, about taking part in the study up to two weeks after participation in the Nominal Group Technique (NGT) workshop.

What is the purpose of the project?

This study is the second part of a two-phase study. In Study 1, we identified the main barriers and facilitators related to access and utilisation of primary and maternal healthcare services among rural Bangladeshi women. We also identified a number of possible solutions which might help improve access to and utilisation of rural Bangladeshi women's primary and maternal healthcare services. We now need your help to come together with other key stakeholders to discuss and reach consensus about the prioritisation of what needs to be undertaken to improve access and utilisation of rural women's access to primary and maternity healthcare services. Thus, this study intends to conduct two workshops through a consensus approach (known as Nominal Group Technique) to discuss which solutions should be prioritised at a local level.

I will go through this information sheet with you directly to ensure that you understand it and answer any questions you may have.

Why have I been chosen?

You have been invited to participate in this study because you are a healthcare professional/ local policy maker/ woman, and your role is vital to developing and providing rural women's health services locally or a healthcare service user who has experience of accessing and utilising primary and maternity care services locally.

What does the study involve?

If you choose to participate in the study, you will be invited to take part in a NGT workshop at a location and time convenient to all participants. The NGT workshops will take up to five hours on two occasions. Your verbal consent and workshops will be audio-recorded and notes will be taken.

Do I have to take part?

No, taking part is completely voluntary. If you agree to take part, we will ask you to sign a consent form. You may withdraw your consent at any stage during or after the NGT workshop. If you decide to withdraw your information/stories from the study, you will be able to do so until two weeks after participation. After two weeks, your information/stories will be analysed and included in the development of findings of the study and cannot be withdrawn.

What are the possible advantages of taking part in the study?

There are no direct benefits to you from taking part in the study. However, the information obtained through the NGT workshop will help us to prioritising the issues around community participation that are essential to improve maternal health, which will help us to develop appropriate service provision.

What are the possible disadvantages and risks of taking part?

There are no direct risks to you from taking part in the study. However, if you are at any time uncomfortable during the NGT workshop and there is something you do not wish to share in the workshop, you have the right not to do so and the moderator (the researcher) who is leading the workshop will move on. You will also be free to leave the workshop at any time.

Use, dissemination and storage of research data

The data will only be used for the study purposes and will be disseminated through publication. The collected data from the study field will be properly secured and stored. The collected data will be stored into a password protected Microsoft OneDrive that is provided by the University of Leeds.

What will happen to my personal information?

All information about your participation in this study will be kept confidential. No names or identifying statements will be used in any report or presentation. Your name will be removed from the written version of the NGT workshop, which means only myself and my PhD supervisors (Dr Maria Horne and Professor Gretl McHugh) will have access to the audio recording of the workshop, field notes and written version of the workshop for the purpose of checking accuracy of the written version of the workshop. The digitalised record of your workshop will be deleted after transcribing the text from the workshop and the written version of the workshop will be stored as a password protected file on a password protected computer at the University of Leeds for a period of five years, after which, it will be permanently deleted from the device on which it is stored.

What will happen to the results of the research project?

Your responses and that of other participants will be analysed. Your responses will be anonymised and will not be associated to one particular participant. The study findings will be used in the development of my PhD thesis and will also be published in scientific journals and be presented at conferences. If you wish, I will let you have a summary of the study findings.

What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

You will be provided a list of potential solutions that was developed based on phase 1 study findings. Afterwards, you will be asked to develop prioritising the solutions from the list of solutions. Each member of the NGT will be asked to do this.

Will my taking part in the study be kept confidential?

All information about your participation in the study will be kept confidential. Your personal details will be kept in a secure locked filing cabinet at an office room provided by Khulna University for the researcher. There are no names on the workshop priority list, only identification numbers and these will be kept separate from your personal details.

We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. The University of Leeds will keep identifiable information about you for 3 years after the study has finished.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and

accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. We will use the minimum personally identifiable information possible to safeguard your rights.

You can find out more about how we use your information by contacting the University Data Protection Officer (Alice Temple: A.C.Temple@leeds.ac.uk).

The only people in the University of Leeds who will have access to information that identifies you will be people who need to contact you to carry out the study or audit the data collection process. The people who analyse the information will not be able to identify you and will not be able to find out your name or contact details. Your information will only be used by organisations and researchers to conduct research in accordance with the UK Policy Framework for Health and Social Care Research. For more information on how we use your data, please see the translated Research Participant Privacy Notice (Annex 11) provided along with this information sheet. The untranslated document (English version) can also be accessed at: <https://dataprotection.leeds.ac.uk/wp-content/uploads/sites/48/2019/02/Research-Privacy-Notice.pdf>

Who is organising/ funding the research?

The work is part of my PhD degree at University of Leeds, United Kingdom. This research is supported by the Prime Minister Fellowship of Bangladesh, a fellowship sponsored by the Government Innovation Unit of the People's Republic of Bangladesh.

Contact for further information

Name of researcher	Sanjoy Kumar Chanda
Email	hcskch@leeds.ac.uk
Student ID	201277999
Name of supervisors	Dr Maria Horne and Professor Gretl McHugh
Contact number	+8801721047466

Finally ...

Thank you for taking the time to read through the information.

Version control

<i>Document type</i>	<i>Version #</i>	<i>Date</i>
PIS for the healthcare professionals/ local policy makers/ healthcare service users	3	8/9/2021

Appendix K: Study 2 Participant Consent Form

School of Healthcare



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**Participant consent form for the healthcare professionals (doctor and nurse)/
local policy makers (Upazila/Union chairman, member, school teacher, religious
representative, political leader and NGO worker)/ healthcare service users (rural
women)**

Participant Identification Number:

<p>Title of the Phase 2 study: Consent to take part in a workshop to discuss and prioritise potential solutions for improving rural Bangladeshi women's access and use of primary and maternal healthcare services</p>	<p>Please confirm agreement to the statements by putting your initials in the box below</p>
<p>I confirm that I have read and understand the information sheet dated xx/xx/xx explaining the above research project and I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.</p>	
<p>I understand that my participation is voluntary and that I am free to withdraw at any point during the NGT workshops without giving any reason. In addition, should I not wish to answer any particular question or questions, I am free to decline.</p>	
<p>I understand that if I decide to withdraw my information from the study I will be able to do so until two weeks after participation. After two weeks, my information will be analysed and included in the study findings. I understand that should direct quotes be used, these will be anonymised and my confidentiality will remain intact.</p>	
<p>I understand that any information I provide, including personal details, will be kept confidential, stored securely and only accessed by those carrying out the study.</p>	
<p>I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.</p> <p>I understand that my responses will be kept strictly confidential.</p>	

I understand that other genuine researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	
I agree to take part in the above research project.	
I agree that any anonymised data will be deposited and held in the Research Leeds Repository.	
I understand that the NGT will be audio-recorded.	
I agree to be made aware of the study findings.	

Name of participant	
Participant's signature	
Date	
Name of lead researcher	
Signature	
Date*	

<i>Document type</i>	<i>Version #</i>	<i>Date</i>
Participant Consent Form for healthcare professionals/ local policy makers/ Healthcare service users	3	8/9/2021

Appendix L: APEASE criteria for assessing the solutions

Table K-1: List of solutions meeting the APEASE criteria

Order	Solution	APEASE criteria						Highest number of 'Yes'
		Affordability (Yes*/No**)	Practicability (Yes/No)	Effectiveness (Yes/No)	Acceptability (Yes/No)	Safety (Yes/No)	Equity (Yes/No)	
1	1. Providing information on the range and type of primary and maternity care services available to rural women and their families in rural Bangladesh to minimise inappropriate attendance	1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		0	1	1	1	1	1	0
		1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		0	1	1	1	1	1	0
		1	1	1	1	1	1	1
		7	9	9	9	9	9	7
2	3. Providing information to increase husbands' understanding about the benefits of primary and maternity services which are being provided to women	0	1	1	1	1	1	0
		1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		0	1	1	1	1	1	0

		1	1	1	1	1	1	1
		0	1	1	1	0	1	0
		0	1	1	1	1	1	0
		1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		5	9	9	9	8	9	5
3	14. Creating a welcoming environment and a shared care plan	1	0	0	1	1	1	0
		1	0	1	1	1	1	0
		0	1	1	1	1	1	0
		1	1	0	1	1	1	0
		3	3	2	4	2	4	0
4	4. Providing information to raise women's and their husbands' awareness and understanding of the religious taboos and traditional family norms to reduce restrictions to accessing and using healthcare services	1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		0	1	1	1	1	1	0
		1	1	1	1	1	1	1
		5	6	6	6	6	6	5
5	15. Maintaining dignity, privacy and respect for women during consultations	1	1	1	1	1	1	1
		1	1	1	1	1	1	1
		1	1	1	1	1	1	1

9	9. Raising community awareness and understanding to increase active support of family members	0	1	1	1	1	1	0
		1	1	0	1	1	1	0
		0	1	1	1	0	1	0
		1	1	1	1	0	1	0
		2	4	3	4	2	4	0
10	6. Increasing husbands' self-confidence in their ability to support their wives health needs	1	1	1	1	1	1	1
		1	0	1	1	0	1	0
		0	1	1	1	1	1	1
		1	1	1	1	1	1	1
		3	3	4	4	3	4	3
11	2. Providing information to increase women's knowledge and awareness of the importance of making appointments for healthcare visits	1	1	0	1	1	1	0
		1	1	1	0	1	1	0
		2	2	2	1	2	2	0
12	7. Encouraging women to see healthcare providers who may not be female	1	1	1	0	1	1	0
		1	1	1	0	1	1	0
		1	0	1	1	1	1	0
		3	2	3	1	3	3	0
Record of the potential solutions		1,3,4,5,6,11,13 and 15						

Appendix M: Example of a conference abstract

The following abstract was submitted to the 9th World Sustainability Forum to deliver a talk on the 13th of September 2021.

Using the Theoretical Domains Framework to identify sociocultural barriers and facilitators to access and use of primary and maternal healthcare services by rural Bangladeshi women

Sanjoy Kumar Chanda

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Abstract

The United Nations (UN) Sustainable Development Goals (SDGs) call for ensuring healthy living and well-being for all by 2030. Increased service use in Bangladesh over the past decades has contributed to healthcare outcomes, yet there is little understanding of sociocultural barriers to women's healthcare access and use at primary health centres in rural Bangladesh.

The aim of this study is to apply the Theoretical Domains Framework (TDF) to identify sociocultural barriers and facilitators to primary and maternal healthcare access and use of Bangladeshi rural women.

Three focus groups and 31 interviews were undertaken with women, their husbands and healthcare providers to collect data. The questionnaire was informed by the TDF, which is based on theories of behaviour change. All focus groups and interviews were taped and transcribed. Data were analysed thematically using a framework approach aided by NVivo12 software.

The sociocultural aspects relate to several barriers to women accessing healthcare services from rural health centres, such as lack of family reinforcement, religious obligations to the uptake of birth control techniques, social stigma, gender of the healthcare providers, traditional family norms preventing husbands to support wives and cost of care. Conversely, sociocultural facilitators include the support of families, neighbourhood and media to access healthcare by women. The findings aligned with five TDF domains: Knowledge, social/professional role, reinforcement, environmental context and resources, and emotion.

This study identified several key behavioural constructs aligned with the TDF that can be targeted when developing increasing healthcare access and use interventions.