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# Barriers to contraceptive use among people living with diabetes and/or hypertension: a qualitative study

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## Abstract

**Background** Pregnancy in individuals with diabetes and/or hypertension, especially when undiagnosed, untreated, or uncontrolled, can result in severe consequences, including maternal and child mortality. Contraception is crucial for the management of pregnancy in individuals with diabetes and/or hypertension. However, the decision-making and experiences related to contraception use among this population in low- and middle-income countries are poorly understood. This study aims to explore the barriers to contraception use among sexually active men and women living with diabetes and/or hypertension.

**Methods** We conducted a qualitative study using the empirical phenomenological approach. We interviewed participants diagnosed with diabetes and/or hypertension, as well as stakeholders involved in providing care to individuals living with at least one of these two conditions and family planning service providers. Semi-structured interview guides were used, and data were collected through four focus group discussions, four in-depth interviews, and ten key informant interviews. All interviews were transcribed and analysed thematically.

**Results** People living with diabetes and/or hypertension encounter misunderstandings and various barriers when it comes to using contraception. These experiences were categorised into four main themes and nine sub-themes. The themes identified were: (i) lack of awareness/inadequate knowledge and misunderstanding, (ii) social and religious beliefs, (iii) barriers to available and affordable contraceptives, and (iv) lack of coordination between facilities providing family planning services and treatment and management for diabetes and/or hypertension.

**Conclusion** Findings provide a comprehensive understanding of the complexities and considerations involved in contraceptive use-related decision-making among individuals with diabetes and/or hypertension. These findings can be used in policymaking and programme development to promote contraceptive use and improve the reproductive health outcomes of this population.

**Keywords** Contraception, Diabetes mellitus, Hypertension, Family planning services, Birth control, Reproductive health, Bangladesh

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## Background

Chronic conditions, particularly diabetes and hypertension, have become a significant global health concern, affecting more than 1.5 billion people worldwide [1, 2]. Although developed countries have currently higher prevalence, around two-thirds of those affected live in low- and lower-middle-income countries (LMICs), and the prevalence of these two diseases is rapidly rising [3, 4]. The main contributing factors include genetics, older age, rapid urbanization, lifestyle changes, unhealthy dietary habits, physical inactivity, and obesity. These factors are becoming increasingly common in many LMICs, including Bangladesh, leading to a high prevalence of diabetes and/or hypertension [5–7]. In Bangladesh and most other LMICs, the demographic shift from a relatively young to an ageing society substantially contributes to the rising burden of these two diseases [8]. Women with diabetes and hypertension are at higher risk of pregnancy-related complications, making proper management of these chronic conditions and the use of appropriate contraceptives with shared responsibility by both spouses critical [9–11].

The impact of diabetes and hypertension on maternal and child health in low- and middle-income countries (LMICs), including Bangladesh, is a growing concern [8, 12]. One significant factor is that these chronic conditions often go undiagnosed, untreated, or uncontrolled in LMICs [13]. For example, in Bangladesh, only one-fourth of diabetes and hypertension cases are managed, while the rest remain mostly undiagnosed, untreated, or uncontrolled [5, 6, 14]. People in LMICs often lack awareness about diabetes and hypertension [13]. Many believe that these diseases mainly impact wealthy and elderly individuals [15]. In reality, the majority of people in LMICs are young and from low socio-economic backgrounds [8]. As more women pursue higher education and professional careers before marriage, the average age of fertility has increased in LMICs, including Bangladesh [16–18]. This is in addition to the shift in the onset of diabetes and hypertension to a relatively younger age, leading to more frequent occurrences of these conditions during pregnancy [8]. However, accurate estimates are still lacking. This has resulted in many women becoming pregnant without being aware of, receiving treatment for, or being able to manage these chronic conditions [8]. The lack of use of modern contraception and unplanned pregnancies can worsen the situation [17] and lead to pregnancy complications, birth defects, stillbirths, and preterm births, as well as maternal and child mortality [19–22]. Moreover, for women with diabetes, high blood sugar during pregnancy can increase the risk of babies being born too large, necessitating a caesarean delivery [11, 23, 24]. While maternal health is crucial during pregnancy, paternal health is also linked to pregnancy

outcomes. Recent studies indicate that metabolic syndrome in fathers increases the risks of ectopic pregnancy, miscarriage, and stillbirth [25–27].

It is essential to effectively manage diabetes and hypertension while implementing efficient family planning and contraception strategies to ensure pregnancies occur under controlled diabetes or hypertension [28]. However, LMICs face challenges in this regard. For example, Bangladesh has a pluralistic health system delivered by the government, non-governmental organizations (NGOs), and private for-profit providers [29, 30]. Private providers are mostly financed by household out-of-pocket payments, NGO providers are supported by international and national funding as well as out-of-pocket costs, and government facilities are mostly funded by taxpayers' money [30]. Services provided by various providers are often disjointed, both between and within the providers. Insufficient access to quality healthcare services and limited resources further compound the problem [31]. Moreover, there is very limited utilization of pre-conception care that would enable healthcare providers to identify chronic conditions early in pregnancy [32]. Additionally, there is a lack of awareness regarding the importance of effective contraception use, especially in the context of diabetes and/or hypertension [8]. The scarcity of research that examines the relationship between contraception use and diabetes and/or hypertension further hinders progress in this area.

Research on contraceptive use [16, 17, 33] and treatment and management of diabetes and/or hypertension [5, 6, 12, 14] in LMICs, including Bangladesh, is often conducted separately, leading to an oversight of their interlinkage. To date, only one study in Bangladesh has examined the relationship with contraceptive use and found that women living with diabetes and/or hypertension were 20% less likely to use contraceptives than those without these conditions [8]. Although this finding highlights the negative impact of diabetes and/or hypertension on contraceptive use, the various factors influencing this association are not well understood. To bridge this knowledge gap, our study aims to investigate the barriers to contraceptive use among sexually active men and women living with diabetes and/or hypertension.

## Methods

### Study design and participants

The study explores the barriers to contraceptive use among people living with diabetes and/or hypertension using in-depth qualitative data. Since we were interested in exploring the barriers based on experience, we preferred first-order construction of the participants. Thus, we conducted a qualitative study using an empirical phenomenological approach to social psychology to explore the experiences of the participants [34]. We identified

participants with diabetes and/or hypertension in two stages. First, we asked if they had been diagnosed with diabetes and/or hypertension. If they answered affirmatively, we followed up with additional questions to confirm their response. These questions included when they were diagnosed, who made the diagnosis, whether they received prescriptions for that condition(s), and if they were taking any medication to manage their condition(s). We did not proceed with further interviews if the diagnosis of diabetes and/or hypertension could not be validated. The study continued to include participants until thematic saturation was reached. The inclusion criteria for participants were as follows: (i) sexually active individuals living with spouses, (ii) do not want to have children at least in the next two years, and (iii) diagnosed with diabetes and/or hypertension. We included only sexually active individuals living with spouses, as having casual sex or giving birth to a baby outside a formal marital relationship is prohibited in Bangladesh. Participants were chosen from the Mymensingh division of Bangladesh, which, according to the latest available data, has a similar prevalence of diabetes (9.20%) and hypertension (26.2%) to other regions in the country [5, 35]. There are thirteen upazilas (i.e., sub-districts) in the Mymensingh district, of which we randomly selected three (Trishal, Mymensingh Sadar, and Fulbaria) for data collection. Participants were selected using purposive sampling within these upazilas. Healthcare providers who specialised in non-communicable disease treatments, particularly diabetes and/or hypertension, were also included in the study. Additionally, we interviewed district and divisional representatives from the Directorate General of Family Planning Services (DGFP) of the Government of Bangladesh, who play key roles in providing family planning and contraception services through their countrywide network. Representatives from non-government organisations providing family planning and contraception services were also included. Interviews were conducted in the participants' community or workplace.

### Data collection and management

Data were primarily collected through four in-person focus group discussions (FGDs), of which two involved women only, one involved men only, and one involved both men and women, totalling 30 participants. Participants were assured of the anonymity and confidentiality of their data. Each FGD lasted approximately 80 to 100 min. We also conducted 10 in-person key informant interviews (KIIs) with various stakeholders, including clinical doctors who provide treatments ( $n=4$ ), higher officials of the DGFP ( $n=2$ ), community-level family planning providers working under the DGFP ( $n=2$ ) and representatives from NGOs actively working on family planning services ( $n=2$ ). The key informant interviews

(KIIs) focused on the challenges of ensuring contraception for individuals with diabetes and/or hypertension. In addition, our research team conducted four in-person in-depth interviews (IDIs) with men ( $n=1$ ) and women ( $n=3$ ) who have diabetes and/or hypertension and currently use long-acting or permanent contraceptives. The interviews were conducted by our team members, SJK and MAB, with support from the other co-authors in the data collection process. The interviews were conducted in Bengali and recorded using a password-protected device, following consent from the participants or their legally authorized representatives. SJK (the second author) later transcribed these audio recordings into written English, ensuring the integrity of the participants' narratives while facilitating the subsequent data analysis.

### Study instruments

Semi-structured interview guides were used for interviewing participants. The initial versions of the interview guide were developed based on existing literature [28, 36–39] and were pre-tested and necessary changes were incorporated. The interview guides cover several topic areas, including demographic information such as age, sex, and education; body mass index; diagnosis and management of diabetes and hypertension; plans for pregnancy; current use of contraception; knowledge and attitudes regarding contraceptive use in the context of diabetes and/or hypertension; and any barriers faced in using contraception.

### Reflexivity

The research team comprises Bangladeshi citizens with experience in public health research. All researchers received MSc and/or PhD degrees in population science, public health, or anthropology and have expertise in conducting research in Bangladesh. The team understands local culture, norms and language and has the ability to take note of participants' experiences and accurately present their narratives. The team-members were open and non-judgemental during data collection, actively listening to participants' stories and avoiding leading questions. They were also not living with diabetes and/or hypertension. The research team organised regular debriefing sessions and discussed data accuracy. The researchers were aware of power dynamics between themselves and the respondents.

### Data analysis

We employed an inductive thematic analysis using the 'Framework Approach' [40–42] to analyse the data. After becoming familiar with the data through rigorous reading of the transcripts, our research team members MNK and SJK independently conducted a line-by-line open coding of the data. Interviews were conducted by our

**Table 1** Background characteristics of the study participants

Characteristics	Participants		
	Focus Group Discussion	In-depth Interviews	Key Informants Interviews
	n (%)	n (%)	n(%)
<b>Age (in years)</b>			
18–34	22 (73.3)	2 (50.0)	2 (20.0)
35–39	8 (26.7)	2 (50.0)	4 (40.0)
≥40	0	0	4 (40.0)
<b>Place of residence</b>			
Urban	11 (36.67)	2 (50.0)	3 (30.0)
Rural	19 (63.33)	2 (50.0)	7 (70.0)
<b>Religion</b>			
Islam	28 (93.33)	4 (100.0)	10 (100.0)
Others	2 (6.67)	0 (0.0)	0 (0.0)
<b>Sex</b>			
Male	11 (36.7)	1 (33.3)	6 (60.0)
Female	19 (63.3)	3 (66.7)	4 (40.0)
<b>Education</b>			
No education, preschool	2 (6.7)	0	-
Primary	8 (26.7)	1 (33.3)	-
Secondary	10 (33.3)	0	1 (10.0)
Higher	10 (33.3)	3 (36.7)	9 (90.0)
<b>Body mass index<sup>1</sup></b>			
Underweight	3 (10.0)	0	-
Increasing but acceptable risk	11 (36.7)	0	-
Increased risk	9 (30.0)	3 (66.7)	-
High risk	7 (23.3)	1 (33.3)	-
<b>Number of children ever born</b>			
1	9 (30.0)	1 (25.0)	-
2	11 (36.7)	3 (75.0)	-
3	6 (20.0)	-	-
4	4 (13.3)	-	-
<b>Chronic conditions</b>			
Diabetes	9 (30.0)	1 (25.0)	-
Hypertension	7 (23.3)	1 (25.0)	-
Both diabetes and hypertension	14 (46.7)	2 (50.0)	-
<b>Contraceptive use status</b>			
Yes	11 (36.7)	4 (10.0)	-
Condoms	6 (54.5)	-	-
Pills	4 (36.4)	-	-
Emergency pills when required	1 (9.1)	-	-
Sterilization		3 (75.0)	-
Implants		1 (25.0)	-
No	13 (43.3)	-	-
Irregularly	6 (20.0)	-	-

**Note:**<sup>1</sup>Created based on WHO criteria of body mass index for Asian population [43]

team members SJK and MAB, and the remaining co-authors facilitated the data collection process. The codes generated during this process were then collated into potential sub-themes and themes. This codebook was expanded with emerging themes as more data was collected through the review of transcripts and continuous debriefings among the team members. This process was iterative as we indexed data, identified recurrent themes, and cut out redundancies in the framework. To ensure rigour and accuracy, these preliminary themes were thoroughly discussed with other members of the research team, fostering a collaborative approach to theme development. Following in-depth discussions, the research team collectively selected the final themes and sub-themes that best captured the essence of the data. NVivo 12 was used to facilitate these, including the review of the coded information and themes. The study conforms with the Standards for Reporting Qualitative Research (SRQR) guidelines (supplementary file 1).

## Results

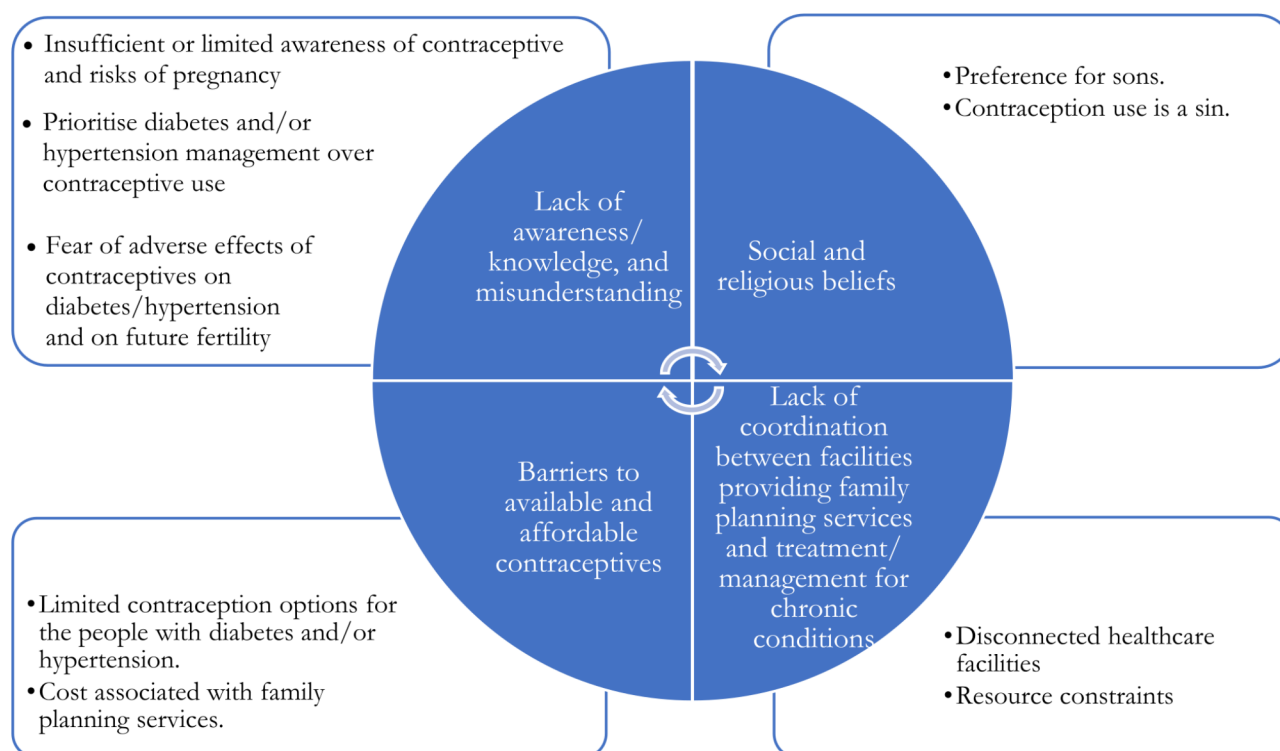
The characteristics of the participants were analysed as per three data collection methods (FGDs, IDIs, and KIIs) and presented in Table 1. The mean ages were 29.16 years for participants in the FGDs, 31.12 years for participants in the IDIs, and 36.23 years for participants in the KIIs. In FGDs, 73.3% of participants were 18–34 years of age, and male participants accounted for 36.7%. Around 10% of the participants in FGDs were underweight, and 23.3% were at high risk based on their BMI. The percentage of those at high BMI risk was 33.3% among the participants in IDIs. Around 37% of the participants in FGDs reported that they used contraceptives regularly; 43% did not use them at all and 20% used them irregularly.

## Themes and sub-themes

Four themes were identified in the analysis: (i) lack of awareness or inadequate knowledge, and misunderstanding, (ii) social and religious beliefs, (iii) barriers to available and affordable contraceptives and (iv) lack of coordination between facilities providing family planning services and treatment and management for diabetes and/or hypertension. These themes were developed from nine sub-themes (Fig. 1).

### Theme 1: lack of awareness/knowledge, and misunderstanding

Participants demonstrated a concerning lack of awareness/knowledge regarding the importance of using contraception when diabetes and/or hypertension are not controlled. Many people living with diabetes and/or hypertension think that having any of these two chronic conditions automatically lowers the chance of getting



**Fig. 1** Themes and sub-themes of barriers to contraceptive use among people with diabetes and/or hypertension

pregnant; thus they do not consider using contraceptives. The following quotations illustrate this theme:

When asked about the reasons for not using contraceptives, participants identified a range of reasons that are mainly about their awareness, knowledge and misunderstanding:

*"I heard that diabetes reduces the risk of becoming pregnant. So, I do not use contraception, even though I have three children, and me and my wife do not want more." (a participant in an FGD, male, age 32).*

*"No one talked to me about the importance of using contraception for people living with diabetes and hypertension, not even the family planning workers who occasionally visit me to counsel about contraception. I am also unaware of why contraception is essential for people with diabetes and hypertension. I believe it is equally important as it is for people without diabetes and hypertension, but my primary concern is managing my diabetes." (a participant in an FGD, female, age 31).*

*"I have heard that the reason for having diabetes is mostly inherited. However, neither of my parents nor my siblings have diabetes or hypertension, so I cannot identify where I might have gotten this from. It's possible that it could be due to excessive use of birth control pills, as I used to take them regularly.*

*A friend of mine who also has diabetes mentioned something similar to me." (a participant in an FGD, female, age 37).*

*"I had a normal weight prior to my marriage. However, after getting married, I began to gain weight, and at the age of 32, five years into my marriage, I was diagnosed with diabetes and hypertension. I didn't make any significant changes to my diet or lifestyle before or after marriage, so I believe this condition might be attributed to the use of contraception." (a participant in an FGD, female, age 33).*

*"I have heard that diabetes can affect male fertility. I have been living with diabetes for nearly a decade, and I am concerned about my fertility, even though my wife does not have any health issues. We have two children, and they were born during the time I had diabetes. Therefore, I'm facing a dilemma when it comes to deciding whether we should use contraception." (a participant in an FGD, male, age 39).*

They also voiced their worries about the detrimental effects of using contraceptives while treating hypertension and/or diabetes, as well as how it can exacerbate pre-existing medical disorders like weight gain. These beliefs led to hesitancy in adopting contraceptives, and some participants preferred to avoid contraceptives altogether, as the following quotes suggest:



*"I know that using contraception could interfere with my diabetes medications, so I decided not to use any method at all. I didn't want anything to jeopardize my treatment." (a participant in an FGD, female, age 38).*

*"I heard stories of women experiencing health problems after using contraceptives. With my hypertension, which is mostly uncontrolled, I didn't want to put my health at further risk, so I decided against using any form of contraception." (a participant in an FGD, female, age 39).*

*"I have diabetes, and I am concerned that contraception would affect my diabetes management, as it increases body weight, which is obviously not good for diabetes management. That's why I prefer not to use contraception." (a participant in an FGD, female, age 37).*

These understandings were found to be entangled with community-level challenges and misunderstandings about future fertility. The following two quotes illustrate that:

*"My husband discouraged me from using contraception, saying it's not natural and can lead to problems with my diabetes and hypertension. I didn't want to deal with his criticism, so I decided not to use contraception." (a participant in an FGD, female, age 36).*

*"My mother-in-law told me that using contraception by diabetic women may reduce fertility capacity. As I have only one baby and plan to have another in the future, I decided not to use contraception. I do not want to compromise my family and my intention to have another baby." (a participant in an FGD, female, age 34).*

Participants in key informant interviews (KIIs) also acknowledged some community-level misunderstandings regarding the use of contraception. The most common misunderstanding was about the side effects, such as weight gain and potential infertility, which were particularly concerning for individuals managing diabetes and/or hypertension.

*"People often believe that using contraception increases body weight, which is considered a major risk factor for diabetes and hypertension at the community level. Therefore, they opt not to use contraception, especially during diabetes and hypertension management." (NGO worker, a participant in a KII, male, age 43).*

The KII participants confirmed that discussions with affected couples about the importance of using contraception during uncontrolled diabetes and/or hypertension were infrequent. The reasons are (i) diabetes and hypertension have not been adequately integrated into existing family planning programs, (ii) a significant portion of individuals are unaware of their diabetes and/or hypertension status, and (iii) there are structural challenges in providing contraceptives during the treatment of diabetes and/or hypertension. One KII participant stated:

*"We have not received training about diabetes and hypertension and we have little knowledge of pregnancy outcomes for people with diabetes and hypertension. We do not specifically focus on people with diabetes and hypertension during contraceptive distribution." (Family Planning Assistant, a participant in a KII, female, age 36).*

A supportive statement was made by a divisional level officer of the DGFS:

*"We have not been able to fully integrate diabetes and hypertension management into our formal family planning services." (a participant in a KII, male, age 40).*

Doctors who treat mainly non-communicable diseases (NCD) mentioned their challenges in providing contraceptives:

*"We occasionally ask about contraception use status for relatively younger women who are at risk of pregnancy. However, they often feel uncomfortable disclosing such information to us. Additionally, due to the high number of patients we see in a day, we may not have enough time to thoroughly address this issue." (a participant in a KII, male, age 45).*

Respondents who participated in IDIs reported that they received contraception-related information from their doctors, which led them to switch to permanent contraception methods. Here are two statements from the participants:

*"During my early diagnosis, I did not use contraception as I believed I was out of the risk of facing an unintended pregnancy due to my chronic conditions. However, my doctor made me aware of the risk and motivated me to opt for permanent contraception, which I eventually received. Now, I feel safe." (a participant in an IDI, female, age 36)*

*My wife and I are both diabetes and hypertensive patients. We asked our doctors about the risk of pregnancy, and based on the consultations, I chose sterilization as a contraception method.” (a participant in an IDIs, male, age 32).*

### **Theme 2: social and religious beliefs**

We identified several societal-level barriers to contraceptive use among diabetes and/or hypertensive patients. One such barrier is the preference for male children, leading some women with diabetes and/or hypertension to forgo contraception with the hope of having a male child. Below are noteworthy quotations from the respondents:

*“I have two daughters. I was recently diagnosed with diabetes and hypertension. The medication I take regularly is expensive, and I am concerned about who will bear the costs in the future when I am older. My daughters will leave me when they get married and start their own families. They will not be responsible for taking care of me. Therefore, I have planned with my husband to try for a son, even though I know that pregnancy with uncontrolled diabetes and hypertension can be risky.” (a participant in an FGD, female, age 35).*

When asked the reasons for not using contraceptives despite the potential risks of adverse health outcomes, the participants responded:

*“I am aware that my health conditions make pregnancy risky, but I do not care. I have only one daughter, and my husband wants a son to continue our family lineage. I agree with him, so we are not using contraception. We are determined to have a son, even if it means putting my health at risk.” (a participant in an FGD, female, age 35).*

*“I am concerned about who will take care of us in our old age. I have only one daughter, and I want to have a son who can take care of us. I have forced my wife not to use contraception, even though she does not want to have any more children. She says that her health conditions are a reason for not wanting more children, but I do not care.” (a participant in an FGD, male, age 37).*

These societal-level challenges are often intertwined with religious beliefs, with common religious belief that contraceptive use is a sin. There is a misconception that Islam, the religion followed by over 90% of people in Bangladesh, does not support the use of contraception. Below, we present two quotations reported by an

illiterate woman and a woman with secondary education, respectively.

*“I know that using birth control is a sin, and Allah would punish us for it. I used to use contraception regularly, but then I had two miscarriages and was later diagnosed with diabetes and hypertension. I believe that Allah is punishing me for using contraception in the past. I do not want to do it again.” (a participant in an FGD, female, age 37).*

*“As a Muslim, I believe that using contraception to control birth is not permitted in our religion. So, I have never considered using contraception. My chronic condition is not a factor in this decision. I would not use contraceptives even if I did not have chronic conditions.” (a participant in an FGD, male, age 34).*

### **Theme 3: barriers to available and affordable contraceptives**

Participants mentioned a range of barriers to contraceptive use that can broadly be categorised into availability and affordability, and they consistently reported facing these two barriers. Availability issues primarily arose due to the limited contraception options for people with diabetes and/or hypertension, particularly in rural areas. Here are two quotes from participants that highlight the mismatch between available and preferred types of contraceptives:

*“I am a hypertension patient. When I asked my healthcare provider about contraception options that are suitable for me, she advised against any hormonal methods, including pills. However, those are the most readily available methods in our community. The only other option is condoms, but my husband is not comfortable using them. As a result, we mostly rely on the safe-day counting method.” (a participant in an FGD, female, age 37).*

*“Pills and condoms are the most commonly available forms of contraception in rural Bangladesh, and the majority of contraception users rely on these methods. People in the community tend to avoid permanent methods and prefer these temporary options instead. The misunderstanding regarding pill use by [11] impacts the overall contraception use patterns among individuals with these conditions.” (NGO worker, female, a participant in a KII, age 40).*

Financial constraints were identified as a significant barrier to accessing contraception. The cost of certain contraceptives adds an extra burden on diabetes and/or hypertension management-related medical expenses. Here is how two female participants explained the cost barrier:

*"I wish there were more affordable contraceptive options for people like me who are dealing with diabetes and hypertension. Balancing our health needs and family planning becomes difficult when cost becomes a significant concern." (a participant in an FGD, female, age 38).*

*"We prefer using condoms for contraception. However, the price of a single condom is double the [cost] of my hypertensive control medication that I take every day. Therefore, when faced with challenges in managing the expenses of hypertensive medications and contraception, I prioritize my hypertensive control medications." (a participant in an FGD, male, age 36).*

#### **Theme 4: Lack of coordination between facilities providing family planning services and treatment and management for diabetes and/or hypertension**

Participants consistently expressed challenges in accessing both treatment for diabetes and/or hypertension and family planning services, as these services were often provided by separate healthcare facilities. The lack of coordination between these services created barriers for individuals seeking comprehensive care for both diabetes and/or hypertension and family planning. Below are some relevant quotes from the participants:

*"Receiving my diabetes treatment and contraception requires visiting two separate health care facilities, which often takes two days. Managing two days is challenging, so we prioritize diabetes treatment." (a participant in an FGD, male, age 36).*

*"I wanted to discuss family planning during my visit to the clinic where I accessed hypertension and diabetes treatment, but I felt uncomfortable raising the topic. I feared being judged or criticized, so I kept silent." (a participant in an FGD, female, age 39).*

*"I have to go to different clinics for my diabetes check-ups and for family planning services. It's time-consuming and inconvenient to manage both." (a participant in an FGD, female, age 29).*

*"I asked my doctor about contraception during my hypertension treatment, but even they didn't have much information. They advised me to consult a family planning expert." (a participant in an FGD, male, age 32).*

*"There appear to be no linkages between the family planning clinic and the healthcare center that provides diabetes care. It would be so much more convenient to receive care for both at one place instead of going to different facilities." (a participant in an FGD, male, age 40).*

Doctors who provide treatment for diabetes and/or hypertension also acknowledged the challenges in coordinating family planning and contraception services for their patients. The following comments illustrate this observation:

*"We are witnessing a rise in NCD patients, including diabetes and hypertension, and the trend now shows younger individuals being affected compared to the previous trend of older age groups. Consequently, integrating contraception as part of NCD management has become an important issue. However, it is not yet adequately addressed as part of NCD care, and we only occasionally ask patients, especially the young ones, about their contraception needs." (Medical doctor, a participant in a KII, male, age 39).*

*"There are separate government programs to provide family planning and contraception services, and NCD patients can access contraception through those channels. Our workload is quite heavy as we provide care for numerous NCD patients in a day. As a result, I often find it challenging to thoroughly monitor everything, although I do try to inquire about contraception for young NCD patients." (Medical doctor, a participant in a KII, female, age 45).*

Officials of the DGFP also acknowledged such coordination gaps and emphasised the need for coordination. The following quote illustrates this:

*"With rising NCD patients among comparatively young people and the rising average age of fertility, providing NCD treatment and contraception services together is critical. However, we do not have integrated services. I recognize that ensuring contraception for this group is even more critical, as pregnancy in women with uncontrolled NCDs could have severe adverse consequences. Ultimately, the decision to integrate contraception during NCDs needs to be made at the ministry level, and we have limited capacity to do anything about it at the divisional level." (a participant in a KII, male, age 40).*

## **Discussion**

This study explored the perceptions of individuals living with diabetes and/or hypertension regarding the barriers they face in using contraception. Several interconnected challenges were identified, including a lack of awareness, misunderstanding, fear among people living with diabetes and/or hypertension regarding contraceptive use, social and religious beliefs, issues related to the availability and affordability of contraception, and a lack of coordination between family planning services and the facilities providing treatment and management of



chronic conditions. We did not find any noticeable difference between men and women in terms of barriers identified, except that some men were reported to be uncomfortable using condoms. These findings hold significant importance in shaping more effective policies and programs aimed at increasing the uptake of contraception among individuals with chronic conditions in Bangladesh as well as other LMICs.

This study found several misunderstandings regarding contraception use. One of these is the belief that contraception can have negative effects on diabetes and/or hypertension development and management by increasing body weight, despite there not being any medical evidence to support this [36]. Similar forms of misunderstandings were reported previously in Ghana [36]. These misconceptions add to the existing community-level challenges in Bangladesh and other LMICs, where there is a widespread belief that using contraception can lead to adverse outcomes, especially among women, who are the main users of contraception [37, 38].

Reduced extent of family planning and contraception services provided by the government healthcare facilities is another significant contributing factor to the barriers to contraception use [16, 33, 44]. The rising prevalence of chronic conditions, including diabetes and hypertension, among reproductive-aged people, particularly after the age of 30, further complicates the situation as they represent a large group of the country's overall population (35.41%) and a significant portion of people of reproductive age [5, 8, 35].

The challenges mentioned above are often compounded by dominant religious beliefs and socio-cultural norms concerning contraceptive use in Bangladesh. The religious belief encompasses the notion, although there exists a counterargument, that contraceptive use is sinful and that controlling childbirth through contraceptive methods is akin to the termination of human life [8, 45, 46]. Additionally, in Bangladesh, there is a strong preference for male offspring, and many couples do not consider using contraception until a male child is born [47, 48]. The fundamental reasons behind son preference are a complex interplay of cultural beliefs, poverty, traditional gender roles in patriarchal society, men's dominance in economic activities, kinship systems, old age support expectations from sons, and demand for dowry [49, 50]. Chronic conditions, including diabetes and hypertension, and associated risks of becoming pregnant are usually given less priority over social and religious demands.

The current healthcare structure in Bangladesh poses multiple challenges in providing access to contraception for people with diabetes and/or hypertension. As the findings suggest, disjointed healthcare services are a major barrier among people living with diabetes and/or hypertension, which is consistent with the literature

[16, 17]. For instance, NCD care in Bangladesh is mainly provided by specialised organisations, such as the Bangladesh Diabetic Association, where family planning and contraception services are not yet fully integrated [6, 35]. While government facilities have introduced NCD treatment on a limited scale, it remains insufficient and serves only a fraction of the target population [51]. The difficulties in accessing different healthcare facilities have a substantial impact on managing diabetes and/or hypertension as well as access to contraceptives. The time-consuming nature of visiting multiple facilities can also result in delays in accessing necessary care for contraception and the management of diabetes and/or hypertension [8]. It might also disrupt work or daily routines, potentially making it more difficult for individuals to adhere to their healthcare regimens. In regional Bangladesh, family planning services are mostly provided by non-medical personnel, particularly at the community level [18, 29]. These personnel often lack sufficient knowledge about the importance of using contraception when diabetes and/or hypertension are uncontrolled [18]. The significant vacancies for family planning workers in rural areas, declining home visits, and inadequate monitoring of their activities further aggravate the situation [52]. To address these complex challenges, there is a pressing need for the seamless coordination of contraception services as part of regular NCD care.

Having to visit multiple healthcare facilities can result in increased costs and financial burden [53], which may discourage some individuals from seeking regular care or accessing contraception services. Also, the growing cost of healthcare services leads some people to prioritize conditions that visibly negatively affect their health and require immediate care rather than focusing on diabetes and/or hypertension [6, 35], which may mean these remain undiagnosed, untreated and uncontrolled. The very low coverage of preconception care may further complicate the matter [32]. The rapid privatization of family planning and contraception services in Bangladesh exacerbated the situation, as expenses for medicine and consultations are often seen as more critical than those for contraception [54, 55]. The absence of healthcare insurance coverage in Bangladesh makes these things even harder.

The barriers mentioned above may have contributed to a significant increase in unwanted pregnancies and a stagnation of contraceptive use in Bangladesh [35]. As such, they can negatively contribute to Bangladesh's progress in achieving health-related Sustainable Development Goals, including achieving universal access to contraception uptake and reducing maternal and child mortality. A previous study in Bangladesh found the prevalence of contraceptive use was substantially higher

among women living with both diabetes and hypertension than those living with none of these two conditions [8].

At present, nearly 40% of the population in Bangladesh resides in urban areas [56], where trained healthcare providers are available to provide appropriate contraceptives to women living with diabetes and/or hypertension. The barriers to appropriate contraceptives are greatly felt in rural areas, where trained providers may not be available, although clinical providers for reproductive healthcare are slowly but gradually increasing both in government and non-government facilities [17]. The WHO's Medical Eligibility Criteria for Contraceptive Use may be used as a guideline in rural areas where frontline providers have limited training [57]. Community-level family planning workers, such as family welfare assistants and family welfare visitors, can be trained to screen for diabetes and hypertension, supply appropriate contraceptives, raise awareness of preconception health and healthy pregnancy, and may work to establish referral linkages with facility-based clinicians. The government should empower primary healthcare facilities, such as community clinics and secondary healthcare facilities at the union or upazila levels to provide combined services for family planning, contraception, and NCD management.

This study possesses several strengths and limitations. Firstly, the findings of this study add data to the scarce literature on contraception use among individuals living with diabetes and/or hypertension, particularly in the context of LMICs. The interviews were conducted with various stakeholders, including contraceptive providers, doctors specializing in NCD management and care, and a relatively large number of individuals living with diabetes and/or hypertension, until saturation was reached. This enabled us to comprehensively explore the barriers. The findings of this study can inform policymakers about developing programs to address these challenges. We included only individuals living with diabetes and/or hypertension due to their high prevalence compared to other chronic conditions and explored their perceptions of contraception and how they manage it. However, including participants who live with other chronic conditions, such as cardiovascular diseases, and exploring their barriers to contraception use would have enriched our findings. Moreover, the participants did not have any representation from individuals with diabetes and/or hypertension who do not have children, and this may mean that the unique experiences of this group are not reflected in our results. Additionally, although the translation was conducted by one of the authors, who is bilingual in both Bengali and English, we were unable to compare it with a second translator's version or a certified translator's translation, which may have affected accuracy. Furthermore, some findings, such as the impact

of religious beliefs on contraception choices, require further exploration, which we were unable to pursue due to a lack of data. While previous studies in Bangladesh have shown these effects exist [8, 45, 46], an interesting area for investigation would be whether the presence of diabetes and hypertension amplifies them. The transferability of the study findings to other contexts may be limited due to the recruitment of participants from one geographical location. Researchers mostly held an "outsider" positionality, which, together with the sensitive nature of the topic, may mean that some participants may have offered mostly socially desirable answers.

## Conclusion

Individuals with diabetes and/or hypertension face multidimensional challenges related to contraceptive use. These challenges include a lack of awareness, misunderstanding and fear surrounding contraceptive use, social and religious beliefs, issues related to the availability and affordability of contraceptives, and a lack of coordination between family planning services and the healthcare providers treating diabetes and/or hypertension. These challenges can lead to increased occurrences of unintended and short-interval pregnancies among individuals living with diabetes and/or hypertension, which, in turn, may contribute to adverse maternal and child health outcomes. To address these challenges and improve reproductive health outcomes for individuals with diabetes and/or hypertension, it is crucial to integrate contraception services as an integral part of care for individuals living with diabetes and/or hypertension or even other chronic conditions. Prioritizing health literacy on diabetes and hypertension, contraception, and pregnancy is also crucial.

## Abbreviations

LMICs	Low- and Middle-Income Countries
DGFP	Directorate General of Family Planning Services
FGDs	Focus Groups Discussion
KISS	Key Informants Interviews
NGOs	Non-Government Organization
IDIs	In-depth interviews
NCD	Non-communicable diseases

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12889-025-22527-4>.

Supplementary Material 1

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## Author contributions

Khan MN designed the study. Khanam SJ conducted the formal analysis. Khan and Khanam SJ drafted the manuscript. Billah MA, Khan MM, and Islam MM

critically reviewed the manuscript. All authors approved the final version of this manuscript.

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# Data availability

Non-identifiable data and materials are available upon request to the corresponding author. Due to restrictions imposed by the ethical approval board, we are unable to share this data publicly.

# Declarations

# Ethics approval

Ethical approval for this study was obtained from the ethics committee of the Institute of Biological Science at the University of Rajshahi, Bangladesh and the University of Newcastle, Australia. Respondents' privacy was strictly ensured, and data collection was conducted in a separate room or corner without the presence of anyone. Informed verbal consent was obtained from all respondents before conducting interviews. When respondents were unable to provide informed consent, we obtained it from their legally authorized representatives, including husbands of women included in the survey.

# Consent for publication

Not applicable.

# Competing interests

The authors declare no competing interests.

# Pre-registration

We did not register this study in any pre-registration databases, as we were under the impression that pre-registration of protocols is important for clinical trials only. Also, most exploratory qualitative studies published in peer-reviewed journals are not registered prior to their implementation.

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