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A qualitative study of maternal health knowledge and healthcare-seeking behaviour among rural married women in Bangladesh using the social-ecological model

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Abstract

Background Maternal health is one of the pivotal concerns in rural Bangladesh, where many women still face obstacles to safe and timely care during pregnancy and childbirth. This study explores maternal health knowledge and their healthcare-seeking behavior during pregnancy, delivery, and after childbirth among the rural married women in Bangladesh.

Methods This is a qualitative data-based study, and it conducted 12 In-depth Interviews (IDIs) and 3 Key Informant Interviews (KIIs) in Salimpur village, Trishal municipality of Mymensingh District, Bangladesh. This study interviewed 12 married women of reproductive age (18–35 years) and 3 key informants (two household heads and a village doctor) using purposive sampling. In addition, the data were analyzed using reflexive thematic analysis, combining inductive and deductive approaches guided by the Social-Ecological Model. All interviews were audio-recorded, transcribed verbatim, and coded to ensure credibility.

Results In this study four key themes emerged in the light of Social-Ecological Model, namely: (1) education as an enabler of health literacy and autonomy; (2) family gatekeeping through the decision-making authority of mothers-in-law and husbands; (3) emerging skepticism toward some restrictive cultural practices, particularly among younger and more educated women; and (4) quality preference over cost that drives the utilization of private healthcare despite financial difficulties or constraints.

Conclusion Rural women face multiple barriers to maternal healthcare services. For this, improving maternal health outcomes requires ensuring accessible and affordable services, and needs to improve women's health knowledge and decision-making power. Moreover, findings of this study are contextually situated within one rural village and are not intended to be statistically generalizable, but offer transferable insights for rural Bangladesh and similar low-resource settings.

Keywords Maternal health, Rural women, Bangladesh, Qualitative research, Social-Ecological model, Healthcare-seeking behavior

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1 Introduction

Maternal health serves as a fundamental measure of how well health systems perform and how much progress countries are making in development. Globally, approximately 260,000 women died from pregnancy-related complications in 2023, with 92% of these deaths happening in low and middle-income countries. Additionally, every day in 2023, over 700 women died from preventable causes related to pregnancy and childbirth [1]. The Sustainable Development Goal target 3.1 aims to reduce maternal mortality to less than 70 maternal deaths per 100,000 live births by 2030 [2].

Bangladesh has achieved remarkable progress in reducing maternal mortality from 441 to 156 deaths per 100,000 live births between 2000 and 2022 [1, 3], which represents one of the most noteworthy decreases in maternal mortality and also reflects the improvements in health status of women through initiatives like the Safe Motherhood Programme, expansion of healthcare infrastructure, and training of skilled birth attendants [4, 5].

However, the maternal mortality ratio in Bangladesh remains higher than the Sustainable Development Goal (SDG) targets, and there remain notable disparities in rural areas [2, 6]. According to the Bangladesh Demographic and Health Survey (BDHS) of 2022, nearly 41% of pregnant women received at least four antenatal care visits from a skilled provider, and 88% of women had at least one visit. In Mymensingh division specifically, about 44.9% of women had four or more antenatal care visits with at least one with a skilled or qualified service provider, and 26.1% of deliveries were made by untrained or unqualified traditional birth attendants, and 46.8% by qualified doctors [7, 8]. In the rural region of Bangladesh, the situation is more concerning; for instance, approximately 65% of deliveries take place or are performed at home, and many without skilled or professional birth attendants. About 45% of all births are delivered via caesarean section nationwide, and in Mymensingh, this rate is 38.9% [8]. Moreover, rural women face numerous barriers and complexities to their journey of maternal issues, namely, limited healthcare access, poor transportation infrastructure, economic constraints, and persistent traditional beliefs surrounding maternal health [9, 10]. These types of disparities differently affect the ability to access quality care for rural women during pregnancy, childbirth, and the postpartum period [11, 12].

Mymensingh District, with a population of approximately 5.6 million, is predominantly agricultural with limited healthcare infrastructure outside urban centres, and often faces maternal health challenges [13]. The proper utilization of healthcare services remains below the best due to multiple interconnected barriers [14, 15]. Moreover, district-level statistics suggest that the ANC coverage is relatively higher and lower cesarean rates compared to the national average, which exposes some degree of healthcare engagement and improvement, but the specific rural sub-districts and village communities remain understudied in qualitative terms. In relation to that, this study selected a rural area (Salimpur village, Trishal municipality) for getting more practical insights, access, and proximity. This study aims to explore how individual and community-level barriers persist even in areas with relatively better aggregate health indicators, which makes it an informative outset for a qualitative investigation.

Prior quantitative studies in Bangladesh have recognized individual-level predictors of maternal healthcare utilization, including maternal education, household size, parity, and women's emancipation [16, 17]; but these studies have not fully adopted the complex

social, cultural, and interpersonal dynamics that complicate these behaviors. In addition, some qualitative studies reveal the lived experiences of women, the role of family members in health decisions, the influence of cultural beliefs and traditional practices, or specific features like adolescent mothers, early motherhood complexities, and other issues [18, 19]. In relation to this, a deeper qualitative inquiry is therefore essential to uncover the lived experiences and contextual factors that numbers alone cannot explain. The Social-Ecological Model (SEM) offers an appropriate multi-level framework for this purpose, situating individual behavior within interpersonal, community, and health-system contexts [20–22]. Moreover, this model reveals that individual behaviors are often shaped by interpersonal relationships, community norms and resources, organizational structures, and broader policy environments [23, 24]. For this, this study aims to identify key points for intervention at each level and design more effective and contextually appropriate programs by examining maternal health care-seeking of rural women through this pivotal lens. While some qualitative studies have examined maternal health-seeking behavior in rural Bangladesh [19, 25], this study applied the Social-Ecological Model as an explicit analytical framework at the rural village level in Mymensingh District, particularly in peri-urban areas like Trishal municipality, where traditional rural values interact and interconnect with increasing modernization and globalization. This study addresses that specific gap in healthcare-seeking patterns in these transitional and rural contexts.

This study had three specific objectives as follows: (1) to explore maternal health knowledge and perceptions; (2) to examine how SEM-level factors shape healthcare-seeking behaviors; and (3) to provide evidence-based recommendations.

2 Materials and methods

2.1 Study design

This study was carried out through an interpretive qualitative design, drawing on in-depth interviews (IDIs) and key informant interviews (KIIs) to explore the lived experiences and perspectives of rural married women regarding maternal health knowledge and healthcare-seeking behavior among the rural married women of Salimpur village located at Trishal municipality in Mymensingh District, Bangladesh. The time frame of data collection was from June to July 2025.

2.2 Study setting

The study area was purposively selected as a peri-urban location where traditional and cultural rural practices cohabit with increasing access to healthcare facilities. This municipality is located about 25 km from Mymensingh city, and delivers a unique opportunity to examine maternal health behaviors at the intersection of both rural tradition and urban influence.

2.3 Sampling and participant recruitment

The study participants were married rural women having at least one child 2 years old and experiencing pregnancy within the past two years. They were selected through purposive sampling to ensure diversity in age, education, parity, and childbirth experience. The recruitment process was simplified through local community health workers and rural leaders in Salimpur.

2.4 Inclusion and exclusion criteria

The study particpants were selected through following numerous inclusion criteria, for instance, (1) married women aged 18–35 years; (2) residing in Salimpur village for at least one year; (3) having experienced pregnancy and childbirth within the past two years; (4) having at least one child aged ≤ 2 years; and (5) willingness to participate and provide informed consent. Conversely, women with cognitive impairments or severe health conditions were excluded from the interview process. Also, for KIIs, purposive selection targeted male household heads with pregnant wives and a village doctor with ≥ 5 years of experience serving the community. The study conducted twelve in-depth interviews (IDIs) with married women, and three Key Informant Interviews (KIIs) were collected from two household heads and one village doctor.

2.5 Data collection procedure

Interview guidelines were developed in light of the Social-Ecological Model (SEM) and discussions with maternal health experts. The study also conducted a pilot test with three (03) women (not included in the final sample) to assess question clarity, cultural appropriateness, time requirements, and others. All interviews were conducted in Bangla by the lead researcher and trained research assistants with backgrounds in social science. Interviews lasted approximately 40 to 45 min and were audio-recorded with participant consent. Recordings were transcribed verbatim in Bangla by the research team and subsequently translated into English. A bilingual team member checked a random sample of 30% of transcripts for accuracy. Field notes were maintained during all interviews to capture non-verbal cues and contextual observations.

2.6 Interview guide and instrument development

The IDI guide was structured around five thematic areas corresponding to the levels of the Social-Ecological Model by the researcher: individual-level knowledge and perceptions about maternal health; antenatal, delivery, and postnatal care experiences; family and interpersonal decision-making processes; community-level cultural beliefs and traditional practices; and health system access, quality, and financial barriers. These areas were explored through open-ended and probing questions to allow participants to narrate their experiences freely, with prompts for elaboration. The KII guide explored community-level perspectives on women's healthcare behaviors, family influence patterns, and healthcare access barriers.

2.7 Sample size and thematic saturation

This sample size of 12 IDIs and 3 KIIs was determined based on the principle of information power [26], in view of the study aims, a specific sample of married women with recent pregnancy experience, an established theoretical framework (SEM), and in-depth and long-time interview quality. Also, the study continued the data collection until thematic saturation was achieved properly, and when no new themes emerged from consecutive interviews [27]. Preliminary saturation was observed after the tenth interview, and other interviews (11 and 12) continued as confirmatory.

2.8 Data analysis

The study conducted thematic analysis guided by the SEM, which originated from Urie Bronfenbrenner's ecological systems theory [28–30]. Data analysis of this study was performed by following the famous six-phase reflexive thematic analysis approach of Braun & Clarke [31], combining inductive coding of raw data with deductive mapping of themes onto the Social-Ecological Model levels [31]. The deductive framework was followed by the four levels of SEM (individual, interpersonal, community, and health systems). Moreover, inductive coding allowed emergent themes within each level with an analytical flow of processes:

1. ***Familiarization***-All audio recordings were transcribed verbatim in Bangla within 48 h of collection and translated to English by bilingual researchers. The lead researcher listened to all recordings while reading transcripts to ensure accuracy and involvement in the data.
2. ***Initial coding***-Three researchers (M.R.I., S.I, and A.H.R.) independently coded three transcripts line-by-line, and then identified meaning units relevant to maternal healthcare behaviors. An initial codebook with numerous codes was developed.
3. ***Theme development***-Codes were organized into provisional themes through team discussions, by following the SEM framework.
4. ***Theme review***-All authors reviewed themes against coded data and entire transcripts to ensure internal homogeneity and external heterogeneity.
5. ***Theme definition***-Final themes were clearly defined with inclusion or exclusion criteria. Representative quotes were selected for each theme.
6. ***Report production***-Findings were structured according to SEM levels with narrative interpretation linking themes to existing literature.

2.9 Researcher reflexivity

In terms of researcher reflexivity, the backgrounds of our team influenced how we collected and understood the data. The lead researcher (M.R.I.) is a male sociologist from a similar rural area and an expert in understanding the cultural and traditional practices of rural life, but acknowledged that women might feel uncomfortable discussing sensitive maternal health issues with a man. Furthermore, our team brought diverse perspectives, rural sociology and public health expertise (M.W.R.), and sociology (S.I., A.H.R.), which helped us to further illustrate findings from multiple perspectives. We held regular discussions and meetings about our own suppositions throughout the study. Moreover, researchers made a mindful effort to listen to what women actually told, even when their experiences surprised us, for instance, finding that some younger women were actively challenging traditional restrictions rather than simply following them like past scenarios.

2.10 Ethical considerations

Most haughtily, ethical approval was received from the Ethical Standards Review Committee (ESRC), BSERT, Bangladesh Agricultural University (memo no. 131/BSERT, 11th August 2025). Also, all participants provided written informed consent after receiving detailed information about the study purpose, voluntary participation, right to withdraw, confidentiality measures, and data use. Interviews were conducted in private locations chosen by participants to ensure comfort and confidentiality. Participants were assigned pseudonyms or unique codes (such as IDI 1, IDI 2, etc.), and all identifying information

was removed from transcripts. Digital recordings were stored in password-protected devices accessible only to the research team and will be destroyed after 2 years. No financial enthusiasm was provided or offered during interviews.

2.11 Findings of the study

Numerical references to participant counts throughout the findings are provided for descriptive transparency and should be interpreted as qualitative patterns rather than statistically representative frequencies.

2.12 Characteristics of study participants

This study conducted a total of twelve in-depth interviews (IDIs) with married women who experienced pregnancy and childbirth within the past two years and with diverse sociodemographic backgrounds. Table 1 shows that their ages ranged from 18 to 35 years, with a mean of 26.8 years. Five women were aged between 18 and 24 years, while four were 25 to 30 years, and three were 31 to 35 years. Educational levels varied across participants; most ($n = 7$) had a secondary school level educational qualification. Family income ranged from approximately 10,000 to 40,000 Bangladeshi Taka monthly. Four participants lived in extended family structures where multiple generations lived together, while eight lived in nuclear families with just their husband and children. The number of children per participant ranged from one to three, with varied pregnancy and delivery experiences. Moreover, three KIIs have highlighted the importance of the heads of households and the role of a village doctor in rural women's access to health services.

2.13 Maternal health care-seeking behaviour through the social-ecological model

The study exhibits four key thematic categories (individual level, interpersonal level, community level, and health systems level) based on the Social-Ecological Model. Figure 1 reveals how factors at four interconnected levels, such as individual (knowledge, education, autonomy), interpersonal (family influence), community (cultural norms), and health systems (access, quality), shape and influence maternal healthcare-seeking behaviors.

Table 1 Sociodemographic characteristics of study participants ($n = 12$)

Characteristic	Category	Frequency	Percentage (%)
Age group (years)	18–24	5	41.7
	25–30	4	33.3
	31–35	3	25.0
Educational level	No formal education	2	16.7
	Primary education	2	16.7
	Secondary education	7	58.3
	Higher secondary education	1	8.3
Family structure	Nuclear	8	66.7
	Extended	4	33.3
Number of children	1 child	3	25.0
	2 children	3	25.0
	3 children	6	50.0
Monthly family income (BDT)	10,000–15,000	3	25.0
	15,001–20,000	3	25.0
	20,001–25,000	4	33.3
	25,001–40,000	2	16.7

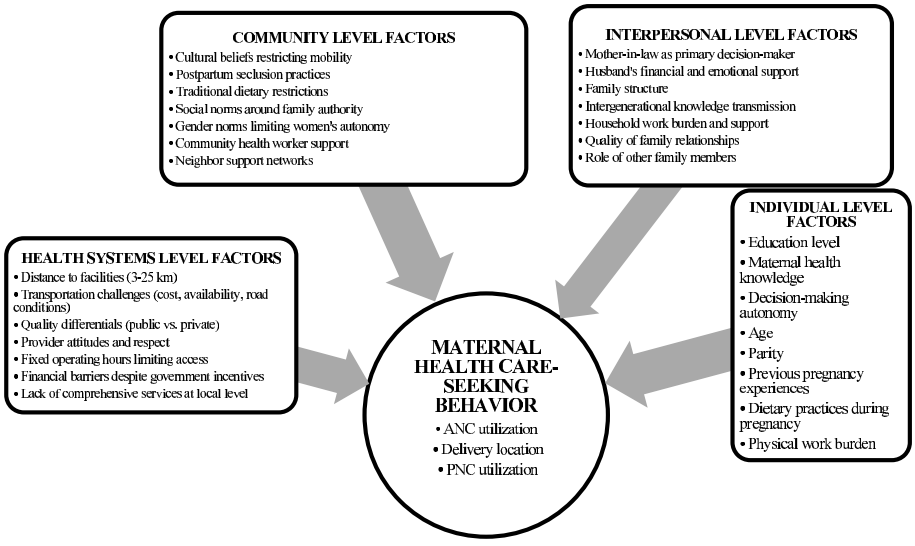


Fig. 1 Modifying factors by using the Social-Ecological model for maternal health care-seeking behaviour. Source: Abridged version of SEM (2025)

2.14 Individual level factors

2.14.1 Education as a gateway to healthcare engagement

Education appeared to influence maternal health outcomes in several ways. Among the qualitative sample, the study observed patterns suggesting education-related differences, namely, respondents with no formal education attended approximately two antenatal care visits, and those who completed primary school education attended about two and a half visits. The pattern changed with more education; secondary school graduates attended nearly four visits, and the two women with higher secondary education attended four visits. These figures illustrate descriptive patterns only and should not be interpreted as statistical findings. Also, postnatal care showed a clear picture, such as no women with no education or primary education received postnatal care, compared to nearly half of women with secondary education, and all portions for the women with higher secondary education. Among women with secondary or higher education, they participate in decision-making themselves or share decisions and easily seek healthcare facilities.

2.14.2 Knowledge-practice gap: understanding without accessing

Most women (ten out of twelve) reported that they had maternal healthcare knowledge; however, how deep and accurate this knowledge was varied noticeably. Some women demonstrated their high levels of understanding about the importance of antenatal care, hospital deliveries, and postnatal care visits. One woman who experienced five miscarriages before a successful delivery developed extensive knowledge through her complicated pregnancy journey:

"I went to the hospital 6–7 times before I had the 6th baby. I had 6–7 ultrasound tests and 6–7 times blood and other necessary tests."—(25-year-old woman, IDI 1).

However, other respondents showed limited understanding of maternal health perception, and when they were asked about their understanding of maternal healthcare, some gave general responses. One woman explained:

"Taking care of mothers before and after childbirth. Eating nutritious food. Avoiding heavy work."—(24-year-old woman, IDI 7).

Ten of twelve respondents recognized facility-based delivery as safer due to trained professionals' presence. However, understanding the importance of care didn't ensure access; several knowledgeable women still faced service barriers.

2.14.3 Constrained autonomy: shared and contested decision-making

This study found that in terms of decision-making autonomy and dietary practices during pregnancy and postpartum, some respondents mentioned that they participated in household decision-making and healthcare utilization. Two women added that the majority of the decisions were apparently made either by husbands or by their mothers-in-law. Other women added that their parents and family members played a role in seeking healthcare facilities' decisions during pregnancy and after childbirth. Besides, when asked who decided about healthcare visits, one woman replied:

"My mother-in-law and sister-in-law assisted during my pregnancy, and also decided about my pregnancy healthcare visits, checkups, and tests. I always went to hospitals with my mother-in-law because I felt more comfortable with her."—(25-year-old woman, IDI 1).

When asked, what did you do when your wife got sick during pregnancy? A family head said,

"Every time my wife got sick during pregnancy, I took her to the upazila hospital to visit the doctor."—(Head of the household, KII 1).

Women's accounts or priority of family decision-making were corroborated by male household heads. While women described their mothers-in-law and husbands as primary decision-makers, household heads revealed evolving attitudes. One explained:

"In our society, the husband still has the final say; however, I prioritize my wife's opinions over those of other family members when it comes to pregnancy-related complications, and I have made efforts to support her." (Head of the household, KII 2).

The study participant's mother-in-law, father-in-law, and other family members also played significant roles in the decision to seek health care during pregnancy. One woman said,

"When I fell sick during pregnancy, my parents and brother took me to the hospital to see a doctor. My in-laws and many neighbors stood by me during my pregnancy complications." (30-year-old woman, IDI 8).

Most importantly, what women ate during pregnancy varied greatly based on both economic resources and pregnancy-related symptoms. Some of the participants reported eating a varied diet including meat, eggs, fish, nuts, fruits, and vegetables regularly during their pregnancy journey. One woman mentioned:

"I ate meat, eggs, fish, nuts, and fruits, but not properly due to health complications during pregnancy."—(25-year-old woman, IDI 1).

However, many of the respondents described that they have significant dietary limitations during pregnancy. Several reported they could not eat anything during early pregnancy due to severe nausea and vomiting or other issues:

"It was a difficult time for me because I couldn't eat anything properly during my pregnancy. I faced multiple issues during that period."—(35-year-old woman, IDI 4).

Fruit consumption was particularly limited, with many women reporting they ate fruits only rarely or never during pregnancy:

"I had never eaten fruits or such things in my pregnancy journey, mostly because of my health condition and pregnancy issues, and also for the economic constraints"—(24-year-old woman, IDI 3).

In this way, among the twelve respondents, three reported eating fruits daily, two ate fruits weekly, five ate fruits rarely, and two never ate fruits during pregnancy. For vegetables, eleven respondents consumed them daily, and one consumed them weekly. For protein sources, ten respondents stated that they consumed fish, eight consumed meat, nine consumed eggs, and seven consumed legumes or pulses. Seven respondents pointed out that they could not eat adequately due to nausea, vomiting, and other health issues; furthermore, three of them ate normally without major changes, and two made positive dietary advancements.

2.15 Interpersonal level factors

2.15.1 The role of family members and others

This study found that in extended families, mothers-in-law and natal mothers played a key role in nearly every part of maternal healthcare for women. They emerged as primary decision-makers, sources of information and advice, providers of practical support, and companions during healthcare visits. During the different stages of pregnancy and delivery, mothers-in-law were the most frequent support providers. During pregnancy complications, five participants relied primarily on their mother-in-law. During antenatal care visits, six participants were accompanied by their mother-in-law and natal mothers. During delivery, four respondents had their mother-in-law as their primary support person. In the postpartum period, five respondents received primary support from their mothers-in-law and natal mothers.

Several respondents (six out of twelve) clearly stated that their mothers-in-law and natal mothers helped them most during pregnancy, associated them with healthcare facilities, and handled household tasks.

"My mother-in-law and natal mother helped me most in every problem. Besides, sometimes my husband helped, but most of the time my mother-in-law helped me a lot."—(25-year-old woman, IDI 1).

Women expressed that their mothers-in-law and natal mothers decided about healthcare:

"I share most of the things with my mother and mother-in-law, because I feel more comfortable with them."—(25-year-old woman, IDI 1).

Husbands played diverse and mixed roles in maternal healthcare. Some respondents described their husbands as important sources of emotional support and accompaniment to healthcare facilities (IDI 7 and IDI 10). However, financial support was the most reliable contribution from husbands, as they were typically the primary or main wage earners. Several women mentioned their husbands helped sometimes, but other family members provided more day-to-day support in maternal health issues.

"My sister-in-law helps me the most. She wasn't married yet, so she stayed at home. She helped out a little."—(35-year-old woman, IDI 4).

"My mother helps me, and she is always beside me at the bad times or when needed"—(23-year-old woman, IDI 9).

In rural villages of Bangladesh, not only family members but also neighbours helped the mothers in many ways during their pregnancy. In this study, the respondents were asked what kind of help neighbours gave them during the period of pregnancy. They said,

"Neighbour sister-in-law (Bhabi), helped many times in my critical moments and also assisted me during pregnancy"— (30-year-old woman, IDI 5).

"With my neighbour sister-in-law. Because my husband had no experience, and my parents are not here. They passed away. My brothers lived in Khulna, a faraway place."— (30-year-old woman, IDI 6).

Moreover, a woman needs different types of support from many people during pregnancy, including relatives and neighbours. One of the heads of the family was asked who provided the most support during his wife's pregnancy. He replied:

"In our village, many individuals willingly helped pregnant women in various ways, such as arranging vehicles in emergencies, calling doctors or other professionals, as well as taking them to the hospital when needed. Just as my parents, my father-in-law, and my mother-in-law helped my wife during her pregnancy, I have also seen many times that neighbours came to my wife and gave her courage and shared stories. I think this is also a kind of support; in this way, they helped my wife during her pregnancy." (Head of the household, KII 2).

2.15.2 Family structure

Maternal healthcare sometimes depends on family structure and living arrangements. In extended families where fathers/mothers-in-law lived in the same house, they became the central decision-makers for almost everything related to pregnancy and childbirth. Similarly, the thirty-five-year-old woman in IDI 4 relied heavily on her natal mother and sister-in-law for support throughout pregnancy, even when doctors prohibited heavy work. Conversely, participants from nuclear families faced difficulties; for instance, the thirty-five-year-old woman in IDI 2 had no mother-in-law nearby, so her three brothers became her main helpers during pregnancy and delivery. The thirty-year-old woman in IDI 6 faced an even more challenging situation and had to turn to her neighbour for support. In addition, the thirty-year-old woman in IDI 8 recognized her husband as her main decision-maker about her healthcare. The twenty-four-year-old woman in IDI 7 said both her native parents and husband supported her during pregnancy and the postpartum period.

Among the study participants, patterns compatible with existing literature were observed, where women with higher educational attainment tended to report more frequent ANC visits. However, given the small sample size ($n = 12$), these observations are presented as descriptive and illustrative only, not as statistical findings.

2.16 Community level factors

2.16.1 Cultural beliefs and traditional practices

Cultural faith, societal norms and values, and hereditary practices related to pregnancy, childbirth, and the postpartum period are sometimes rooted in the community, and these factors have an effective influence on the maternal health practices of rural mothers. In relation to this, most participants stated the existence of many rules and regulations of society. Traditional beliefs about maternal behavior were widely reported,

particularly abridgment on evening mobility and dietary taboos during twilight hours. One woman recalled:

"There are many cultural and traditional rules and regulations. Many people ask us to follow many things. After the evening, they ask us to leave the house with fire-box, fire, iron, stone, etc."—(35-year-old woman, IDI 4).

However, responses varied meaningfully. Three women strongly adhered to these beliefs, five expressed skepticism while partially complying, and two openly rejected them. As one woman stated:

"There are many rules and regulations in our society, but I do not accept anything. I went anywhere or outside freely throughout my pregnancy and after that time. I think that those things are not precise or valid"—(30-year-old woman, IDI 5).

This variation suggests that although these traditions are still present, they are not uniformly accepted. In addition, when considering the perceived impact of beliefs, three participants thought beliefs had positive or protective effects, four thought beliefs had negative or restrictive effects, three thought beliefs had no significant impact, and two were uncertain about their impact.

2.16.2 Changing attitudes toward traditional beliefs

There were also indications of a gradual change in cultural attitudes. This generational shift suggests opportunities for behavior change interventions. Some respondents noted this type of generational difference:

"If you have a mother-in-law or an elderly person who lives nearby, they talk a lot about these superstitions. But no one believes them much these days."—(30-year-old woman, IDI 8).

"Many people around me forbade me from doing many things, such as not going out of the house too much, not going there when someone dies, and not using amulets after getting pregnant."—(18-year-old woman, IDI 10).

The question asks whether rural married women visit religious leaders during pregnancy, seek advice from rural doctors, or believe in superstitions. A rural doctor said,

"Rural married women during pregnancy still come to me for various advice, but now most of them go to the upazila hospital. Women do not go to religious leaders like before, but most of them follow religious rules and regulations."—(Village doctor, KII 3).

2.17 Health systems level factors

2.17.1 Distance and transportation challenges

Geographic distance to healthcare facilities and difficulties with transportation are among the major barriers. For basic antenatal care at upazila health complexes, participants reported distances of four to five kilometers, which they typically travelled by rickshaw or motorized three-wheeler (CNG or auto-rickshaw):

"Upazila Health Complex is approximately 4–5 km away, and I went numerous times by using CNG or rickshaw, and that was a hurdle for me."—(35-year-old woman, IDI 2).

For more specialized services, women had to travel to district hospitals or private facilities in Mymensingh city:

"Non-government healthcare service is approximately 22 to 24km, and I have gone there many times by using CNG or buses."—(25-year-old woman, IDI 1).

Travel difficulties were mentioned by several women:

"It takes a long time to go to the Mymensingh hospitals to get tested or such things. It would be great if there were a hospital near our village."—(35-year-old woman, IDI 4).

2.17.2 Public versus private healthcare facilities

Most participants who delivered their babies in public or governmental hospitals were actually attracted by free services or low costs:

"My delivery was done in a government medical centre (Upazila Health Complex), Trishal, Mymensingh, and our family chose that place for low costs."—(35-year-old woman, IDI 2).

"My delivery was performed at Mymensingh Government Medical Hospital for the financial ease, because we do not have enough money at all."—(35-year-old woman, IDI 4).

Despite financial difficulties, many women preferred private hospitals over government hospitals during their pregnancies. When asked why they chose private hospitals, they said:

"The private hospital has better facilities than the public hospitals, and for this, I went to the private hospital since my pregnancy journey till now."—(27-year-old woman, IDI 11).

"I went to a private hospital because it served better than the government hospital, and in the government hospital, we have to wait for a long time, and also those who are known to the nurses or hospital authorities get more facilities."—(24-year-old woman, IDI 12).

2.18 Discussion of the study

This study found that several factors of the Social-Ecological Model influenced the maternal health care-seeking behavior of rural married women in Mymensingh District, Bangladesh. At the individual level, factors such as maternal health knowledge, decision-making autonomy, higher education status, and others during pregnancy impact maternal health outcomes. Besides, at the interpersonal level, factors such as mothers-in-law and other family members, like husbands, sisters-in-law, and natal mothers, played a significant role in either encouraging or discouraging the use of skilled and expert maternal healthcare services. In addition, at the community level, traditional cultural beliefs and practices significantly influenced health behaviors. Moreover, health system factors, including distance to facilities, transportation challenges, poor quality of healthcare at public facilities, and financial constraints, also affect healthcare service utilization.

This research has numerous unique contributions and also develops key understandings. Initially, this study has systematically applied the Social-Ecological Model in exploring some factors across multiple levels that interact simultaneously. Additionally, the study documented diverse findings, such as younger and educated women actively stopping traditional restrictions. This generational shift suggests that cultural change is ongoing but unevenly distributed, and these were absent in earlier literature. Moreover, women choose private facilities in spite of preferring free care, which challenges the impression that financial barriers alone explain low public facility utilization; quality and respect emerged as equally critical. Furthermore, this study revealed the central role of mothers-in-law, which reflects the patrilocal kinship-based structure of Bangladesh, where young brides hold limited authority. Mothers-in-law serve as gatekeepers not merely out of control, but because they hold experiential knowledge and household

resources that determine healthcare access. Their authority is both enabling (providing care, knowledge, and accompaniment) and constraining (enforcing traditional restrictions). Moreover, this duality is rigorous; in addition, interventions that simply bypass mothers-in-law may fail, while those engaging them as health champions could leverage their authority constructively. The effectiveness of mother-in-law-inclusive interventions in Nepal [32, 33] also supports this kind of approach.

Education appeared to function beyond simple knowledge transfer, with some educated women demonstrating greater confidence in asserting their healthcare preferences within family decision-making. This is similar to the capability approach of Sen [34], which suggests education expands 'capability sets' of women, not just their knowledge but their confidence to claim healthcare rights within patriarchal family structures [34]. Notably, our study found that educated women didn't simply know more, but they participated more actively in decision-making, reframing healthcare from a family prerogative to a personal right, which is also similar to previous studies [35–37]. This suggests a potentially important dimension of agency that warrants further investigation through both qualitative and quantitative approaches.

In addition, several interpersonal factors in the personal environment, such as decisions made by mothers-in-law, husbands, natal mothers, sisters-in-law, and other family members, relied on information about maternal healthcare, and this is similar to previous studies [33, 38]. Besides, this study found that a husband's education and financial stability sometimes impact maternal issues, and sisters-in-law, parents of wives, and neighbors played a vital role in seeking healthcare during pregnancy and postnatal care. There have been some studies of this kind in the past [39–41]. Furthermore, cultural beliefs and traditional practices were found to be widely influential at the community level in this study, which is related to other studies [42, 43]. However, the study also found evidence of changing attitudes, particularly among younger women who expressed skepticism about traditional beliefs, which was also similar to prior studies [44, 45]. The present study additionally documents that younger, more educated women showed initial signs of questioning certain traditional practices, though this shift appeared gradual and uneven across households. At the health system level, the study found that distance and transportation challenges, quality of care, provider attitudes, service availability, and financial barriers influenced maternal health-seeking behavior. Unfortunately, there are difficulties in accessing public health facilities. Additionally, women were deterred by long wait times, fixed operating hours, poor quality of services, etc., as in similar previous studies [11, 46]. This study also documents that some of the pregnant women received healthcare facilities from private hospitals for better service than government hospitals. The preference for private facilities with various financial difficulties reveals a fundamental crisis in public health system acceptability. Furthermore, rural women were not simply choosing 'better' care, but they were escaping disrespect, long waiting times, discrimination, corruption, and also uncertainty.

In this way, the results of this study found several factors that influenced the maternal health care-seeking behavior of rural women in Mymensingh District, Bangladesh. These findings align with and extend the previous research and also new thoughts on maternal health care-seeking in Bangladesh [47, 48]. Moreover, these types of findings reveal the need for multi-level interventions that concurrently address empowerment of women, family engagement, cultural transformation, and health system strengthening.

3 Study limitations

This study acknowledged several limitations; for instance, the sample of 12 women from one village limits the transferability of findings, though the rich qualitative data provide valuable insights with the Social-Ecological Model. Moreover, the cross-sectional design captured perspectives at a single time point, and conversely, longitudinal research would better reveal how healthcare-seeking behaviors and attitudes evolve across multiple pregnancies. Additionally, social desirability bias may have influenced participant responses, particularly regarding sensitive topics such as decision-making autonomy and dietary practices. While transcripts were translated from Bangla to English by a bilingual team member, some meaning may have been lost in translation. Efforts to improve this included back-translation checks and consultation with native Bangla-speaking team members. Moreover, data were collected over a narrow two-month window (June–July 2025), which may not capture seasonal variations in healthcare-seeking behavior that are known to affect rural populations in Bangladesh. However, beyond these limitations, our study offers considerable views and perceptions into the multi-level influential factors of maternal health behaviors in rural settings.

4 Conclusion

This qualitative study reveals a nuanced picture of rural health-seeking behaviors of mothers in Bangladesh, where the overall initiatives or performances are shaped by different dominant and intersecting factors across individual, interpersonal, community, and health system levels. These dynamics were examined using the Social-Ecological Model as an organizing framework. Findings of this study are contextually situated within one rural village and are not intended to be statistically generalizable. However, given the small purposive sample and single-site design, the following recommendations are exploratory in nature and intended to inform hypothesis generation and pilot program design rather than direct policy implementation, and aligned with the National Action Plan for Maternal Health 2020–2030 [49]:

At the individual level: short-term (1–3 years)

1. Implement community-based maternal health education programs that will specifically target women with primary or no formal education, using peer educators from similar backgrounds to enhance relatability and trust. This aligns with Pillar 3 of Bangladesh's National Action Plan for Maternal Health 2020–2030, which emphasizes community-level health promotion and maternal health literacy.

At the interpersonal level: short-term (1–3 years)

2. Design interventions explicitly engaging mothers-in-law as health champions through intergenerational learning sessions, and will recognize their authority while updating knowledge with evidence-based practices. The National Action Plan 2020–2030 specifically identifies family-level engagement and the mobilization of community influencers as key strategies for improving maternal health behavior.

At the community level: medium-term (3–5 years)

3. Leverage this generational shift through peer-to-peer dialogue programs where younger women share positive experiences of modern maternal care, gradually shifting community norms.

4. Engage respected community and religious leaders in reframing maternal health as a religious duty consistent with several religious principles of preserving life and seeking knowledge.

At the health systems level: long-term (5–10 years)

5. Establish satellite maternal health clinics in villages or provide subsidized transportation vouchers for pregnant women, particularly for emergency obstetric care. In relation to the National Action Plan 2020–2030's goal of ensuring quality and accessible maternal health services, particularly in rural and underserved communities, this study recommends easy and more accessible healthcare facilities at the doorsteps for every mothers.

Moreover, findings of our study suggest important policy considerations warranting further exploration:

1. Universal maternal health education policies should recognize that knowledge alone is insufficient, so women need decision-making power and family support to translate knowledge into care-seeking.

2. The Safe Motherhood Programme should expand beyond individual-focused interventions to family-centered approaches that constructively engage mothers-in-law and husbands.

3. Quality improvement initiatives in public health facilities may yield greater utilization gains than infrastructure expansion alone, given the demonstrated willingness of women to pay for respectful care.

Taken together, these recommendations are broadly consistent with and support the priorities outlined in Bangladesh's National Action Plan for Maternal Health 2020–2030, particularly its focus on equitable access, quality improvement, and family-centered care. However, these implications require validation through larger, multi-site studies before broader implementation, though they may offer provisional directions for context-specific pilot interventions in similar rural settings.

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Author contributions
1. Md. Reazul Islam—Wrote the main manuscript, formulate interview guidelines, and formulate study design 2. Md. Wakilur Rahman—Prepared study design and review the literature 3. Saiful Islam—Conduct the literature review and formulate interview guideline 4. Ahsanul Haque Rifat—Conduct literature review and formulate theoretical framework 5. Md. Golam Dostogir—Review manuscript and conduct research design.

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Data availability
The data generated and analyzed during this study are not publicly available in order to protect participant privacy and confidentiality, in accordance with the ethical approval conditions. Requests for access to anonymized data may be directed to the corresponding author and will be considered on a case-by-case basis.

Declarations

Ethics approval and consent to participate
The ethical approval obtained from the Ethical Standards Review Committee (ESRC), BSERT, Bangladesh Agricultural University (memo no. 131/BSERT, 11th August 2025), and in accordance with the Declaration of Helsinki. Written

informed consent was obtained from all participants prior to their participation in the study. Participants were fully informed about the study purpose, voluntary nature of participation, their right to withdraw at any time without consequence, and how their data would be used and protected. All participants' privacy and confidentiality were carefully maintained throughout the research process.

Consent for publication
All participants have consented to the publication of these data.

Competing interests
The authors declare no competing interests.

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