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Factors influencing antenatal care utilization among pregnant women in rural Bangladesh: A nursing perspective

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Abstract

Antenatal care (ANC) is critical for ensuring the health and well-being of both mother and child during pregnancy. In rural Bangladesh, despite efforts to improve maternal health, ANC utilization remains suboptimal due to multiple influencing factors. This study explores the key determinants affecting antenatal care utilization among pregnant women in rural areas from a nursing perspective. Using a cross-sectional descriptive design, data were collected through structured interviews with pregnant women in selected rural communities. The findings highlight that socio-economic status, educational level, cultural beliefs, accessibility to health facilities, and support from family members significantly influence ANC attendance. Additionally, nursing interventions focusing on education, counseling, and community outreach play a vital role in promoting ANC utilization. Understanding these factors enables nurses and healthcare providers to develop targeted strategies to improve ANC coverage, ultimately reducing maternal and neonatal morbidity and mortality in rural Bangladesh. The study emphasizes the need for strengthened nursing roles and community-based approaches to enhance maternal healthcare services.

Introduction

Antenatal care (ANC) is an essential element of maternal healthcare that significantly contributes to the health and well-being of pregnant women and their unborn children. It encompasses a series of medical check-ups, health education, and counseling provided throughout pregnancy to monitor fetal development, identify potential complications, and promote healthy behaviors. Effective utilization of ANC services has been shown to reduce the risks of maternal and neonatal morbidity and mortality, and to improve pregnancy outcomes globally.

Despite its importance, the utilization of ANC services in many low- and middle-income countries, including Bangladesh, remains inadequate, particularly in rural areas. Rural populations often face numerous barriers that limit access to quality antenatal care. These barriers include low socioeconomic status, limited educational attainment, traditional cultural practices, gender norms, and physical distance from healthcare facilities. Additionally, lack of awareness about the benefits of ANC and inadequate family support further reduce the likelihood of timely and regular ANC visits.

Bangladesh has made significant progress in improving maternal health indicators over the past decades; however, disparities persist between urban and rural populations. In rural Bangladesh, where a majority of the population resides, pregnant women often receive less than the recommended number of ANC visits, which contributes to higher maternal and infant health risks. These challenges highlight the urgent need to understand the specific factors that influence ANC utilization in these communities.

From a nursing perspective, nurses play a pivotal role as primary healthcare providers and educators in rural settings. They are uniquely positioned to bridge gaps in knowledge, promote health-seeking behaviors, and deliver culturally sensitive care tailored to the needs of pregnant women. Nurses also contribute to community-based outreach programs and facilitate access to maternal health services, thereby improving ANC attendance and maternal health outcomes.

This study aims to explore the multifaceted factors influencing antenatal care utilization among pregnant women in rural Bangladesh, with a particular focus on the nursing perspective. By identifying barriers and facilitators to ANC use, the study seeks to inform nursing practices and policies that can enhance the accessibility, quality, and effectiveness of antenatal care services in rural areas, ultimately contributing to improve maternal and child health.

Literature Review

Antenatal care (ANC) is recognized globally as a cornerstone for ensuring safe pregnancies and positive birth outcomes. According to the World Health Organization (WHO), at least four ANC visits are recommended for uncomplicated pregnancies to monitor maternal and fetal health and provide essential education and interventions (WHO, 2016) [1]. However, ANC utilization remains

uneven, especially in low-resource settings such as rural Bangladesh.

Several studies have examined factors influencing ANC utilization in developing countries. Socioeconomic status is a consistent determinant, where women from wealthier households are more likely to attend the recommended number of ANC visits. In Bangladesh, Islam and Odland (2011) found that economic constraints limit women's ability to access health services due to costs associated with transportation, service fees, and opportunity costs.

Education also plays a critical role. Literate women with higher educational attainment have better knowledge of pregnancy-related risks and benefits of ANC, which motivates timely attendance. In rural Bangladesh, maternal education positively correlates with ANC utilization, as documented by Haque *et al.* (2017), who reported that women with formal education were twice as likely to seek antenatal care compared to uneducated women.

Cultural and social factors also significantly influence ANC utilization. Traditional beliefs and gender norms may discourage women from seeking formal healthcare, relying instead on traditional birth attendants or family advice. Family support, particularly from husbands and mothers-in-law, has been shown to facilitate or impede ANC attendance depending on the level of encouragement and decision-making dynamics within households.

Geographic accessibility is another major barrier. Rural areas in Bangladesh often suffer from inadequate healthcare infrastructure, limited availability of skilled providers, and poor transportation networks, all of which reduce ANC coverage. Women living far from health facilities are less likely to attend regular visits, especially when faced with physical hardships or safety concerns.

From a nursing perspective, several studies emphasize the critical role nurses and midwives play in increasing ANC utilization through community outreach, health education, and personalized care. Nurses act as frontline providers who can build trust within communities, address misconceptions, and facilitate early detection of complications. In Bangladesh, community health workers and nurses involved in maternal health programs have been successful in improving ANC attendance and maternal knowledge.

Despite these insights, gaps remain in understanding the comprehensive interplay of these factors in the rural Bangladeshi context, especially through the lens of nursing care delivery. This study contributes to filling that gap by investigating the specific influences on ANC utilization and the nursing role in overcoming barriers.

Objectives of the study

- To identify the socio-demographic factors influencing antenatal care utilization among pregnant women in rural Bangladesh.
- To examine the cultural, economic, and accessibility-related barriers affecting ANC attendance in rural communities.
- To explore the role of family and community support in pregnant women's decision to seek antenatal care.
- To assess the impact of nursing interventions on promoting and improving ANC utilization in rural areas.
- To provide recommendations for nursing practice and

maternal health policies aimed at increasing ANC coverage and quality in rural Bangladesh.

Methodology

- **Research Design:** This study employs a descriptive cross-sectional design to explore factors influencing antenatal care utilization among pregnant women in rural Bangladesh from a nursing perspective.
- **Study Area and Population:** The study is conducted in selected rural communities in Bangladesh, where access to maternal healthcare services is limited. The target population includes pregnant women residing in these rural areas who are currently attending or have recently attended antenatal care services.
- **Sample Size and Sampling Technique:** A purposive sampling technique is used to select approximately 200 pregnant women based on inclusion criteria such as pregnancy status, residence in the rural area, and willingness to participate. This sample size is adequate to ensure meaningful analysis and generalizability within the study context.
- **Data Collection Tools:** Data are collected through structured interviews using a pre-tested questionnaire that covers socio-demographic information, knowledge and attitudes towards ANC, cultural and economic factors, family support, and experiences with nursing care during pregnancy.
- **Data Collection Procedure:** Trained nursing researchers conduct face-to-face interviews in participants' homes or local health centers. The data collection process ensures confidentiality and voluntary participation. Nursing professionals also observe community and health facility contexts to gain qualitative insights into nursing roles.
- **Data Analysis:** Quantitative data are analyzed using descriptive statistics (frequencies, percentages and means) and inferential statistics (chi-square tests, logistic regression) to identify significant factors associated with ANC utilization. Qualitative observations and notes are analyzed thematically to supplement quantitative findings.
- **Ethical Considerations:** Approval is obtained from the institutional ethical review board. Informed consent is secured from all participants, ensuring confidentiality, anonymity, and the right to withdraw at any time without repercussions.

Results

A total of 200 pregnant women from rural communities participated in the study. The analysis focused on socio-demographic characteristics, ANC utilization patterns, and factors influencing ANC attendance.

Table 1 summarizes the socio-demographic profile of the 200 pregnant women who participated in the study. The majority of respondents (45%) were aged between 18 and 24 years, followed by 42.5% in the 25 to 34 years age group, and 12.5% aged 35 years or older. Regarding educational attainment, 40% had completed primary education, while 35% had no formal education, and 25% had attained secondary education or higher. Economic status varied, with 60% of the women belonging to low-income families (monthly income below 10,000 BDT), 30% from

medium-income households, and 10% classified as high-income earners. These socio-demographic factors provide essential context for understanding patterns of antenatal care utilization among the study population.

Table 1: Socio-demographic Characteristics

Characteristics	Frequency (N=200)	Percentage (%)
Age (years)		
18–24	90	45.0
25–34	85	42.5
35 and above	25	12.5
Educational Level		
No formal education	70	35.0
Primary education	80	40.0
Secondary or higher	50	25.0
Family Income		
Low (<10,000 BDT/month)	120	60.0
Medium (10,000–20,000)	60	30.0
High (>20,000)	20	10.0

Table 2: ANC Utilization Patterns

ANC Visits Attended	Frequency (N=200)	Percentage (%)
None	40	20.0
1-2 visits	75	37.5
3 or more visits	85	42.5

Table 2 presents the distribution of antenatal care visits among the 200 pregnant women surveyed. The data reveal that 20% of participants did not attend any ANC visits during their current pregnancy. Approximately 37.5% attended one to two visits, while 42.5% of the women reported attending three or more ANC visits, meeting the minimum recommended number of visits. These findings indicate that while a significant portion of pregnant women access ANC services, a substantial number still do not receive adequate antenatal care, highlighting gaps in service utilization in rural Bangladesh.
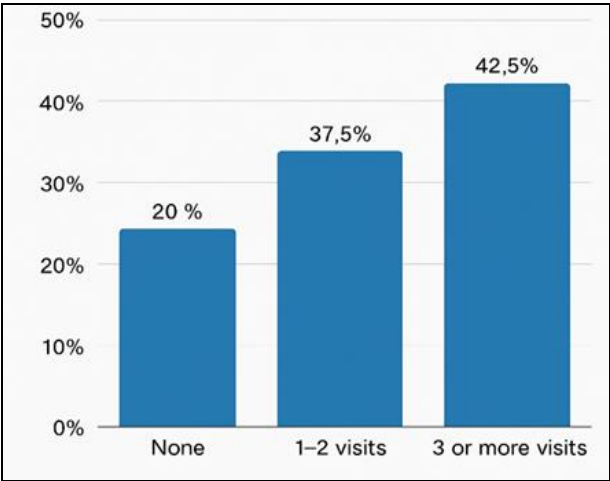

Fig 1: Distribution of antenatal care visits among pregnant women

Table 3: Factors Influencing ANC Utilization

Factor	Attended ≥ 3 ANC (%)	Attended < 3 ANC (%)	P-Value (Chi-square)
Education (Secondary+)	60(70.6%)	10(11.1%)	< 0.001
Family Support (Yes)	70(82.4%)	20(22.2%)	< 0.001
Distance to Facility (<5 km)	75(88.2%)	25(27.8%)	< 0.001
Income (Medium/High)	55(64.7%)	25(27.8%)	< 0.001

Table 3 illustrates the association between various socio-demographic and contextual factors and the utilization of antenatal care services, categorized by women who attended three or more ANC visits versus those who attended fewer than three. The results show a strong positive correlation between higher educational attainment and adequate ANC attendance, with 70.6% of women having secondary education or higher attending the recommended number of visits ($p<0.001$). Family support also significantly influenced ANC utilization, as 82.4% of women with family encouragement met the ANC visit threshold compared to 22.2% without support. Proximity to health facilities was another critical factor, with 88.2% of women living within 5 kilometers attending three or more visits. Additionally, women from medium or high-income households were more likely to utilize ANC services adequately (64.7%) than those from low-income families (27.8%). These findings highlight the multifactorial nature of ANC utilization and underscore the importance of educational, familial, economic, and accessibility factors in promoting maternal health care in rural Bangladesh.
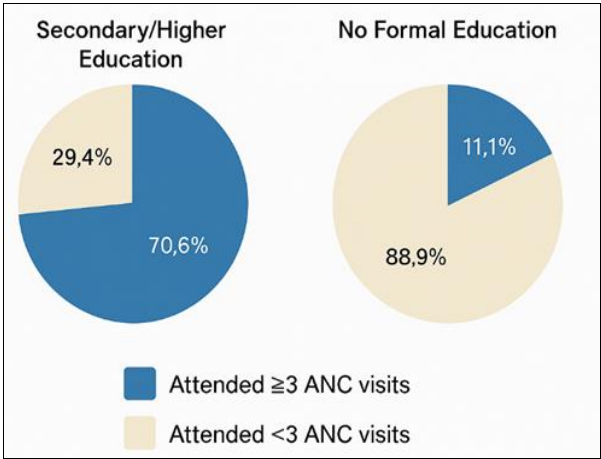

Fig 2: Influence of Education on ANC Utilization

Discussion

The findings of this study reveal important insights into the factors influencing antenatal care (ANC) utilization among pregnant women in rural Bangladesh. Despite the known benefits of regular ANC visits, a significant proportion of women either do not attend or attend fewer than the recommended number of visits. This underlines persistent barriers to accessing maternal healthcare in rural settings.

Consistent with previous studies, educational attainment emerged as a significant determinant of ANC utilization. Women with secondary education or higher were much more likely to attend the recommended ANC visits. Education likely enhances awareness of pregnancy-related risks and the benefits of ANC, empowering women to seek timely care. This finding highlights the critical need for integrating health education into community and school programs to raise awareness from an early age.

Family support also showed a strong positive influence on ANC attendance. Pregnant women who received encouragement and assistance from their families, especially husbands and mothers-in-law, were more likely to access ANC services. This underscores the cultural and social dimensions of healthcare-seeking behaviors in rural Bangladesh. Nursing interventions should therefore not only target pregnant women but also involve family members to create a supportive environment for maternal health.

Accessibility remains a major challenge. The data indicate that women living closer to health facilities are significantly more likely to utilize ANC services adequately. Geographic barriers such as distance, poor transportation, and associated costs restrict access for many rural women. Addressing these issues requires policy-level interventions to improve infrastructure and bring services closer to remote communities.

Economic status also influenced ANC utilization. Women from medium or high-income families were more likely to attend the recommended number of visits, likely due to their greater ability to afford transportation and healthcare costs. Financial constraints remain a critical obstacle that can be alleviated through subsidized care, community health insurance schemes, or conditional cash transfers targeting pregnant women.

From a nursing perspective, the results affirm the vital role nurses play in maternal healthcare delivery. Nurses can bridge knowledge gaps through education and counseling, provide culturally sensitive care, and engage with families and communities to promote ANC attendance. Strengthening nursing capacity and community-based outreach programs could significantly improve maternal health outcomes.

Overall, this study emphasizes the multifaceted nature of ANC utilization in rural Bangladesh, influenced by educational, socio-economic, cultural, and accessibility factors. Addressing these determinants requires a comprehensive approach involving health education, family engagement, infrastructural development, and economic support, with nursing professionals positioned as key facilitators in this process.

Conclusion

Antenatal care (ANC) utilization among pregnant women in rural Bangladesh is influenced by a complex interplay of socio-demographic, cultural, economic, and healthcare system factors. This study highlights the critical role of education, income level, accessibility to healthcare facilities, and family support in determining the frequency and quality of ANC visits. From a nursing perspective, addressing these barriers through community-based education, culturally sensitive counseling, and strengthening healthcare infrastructure is essential to improve ANC uptake. Nurses, as frontline healthcare providers, are pivotal in advocating for maternal health, providing personalized care, and fostering trust within rural communities. Enhancing ANC utilization not only promotes healthier pregnancies and reduces maternal and neonatal morbidity and mortality but also supports broader public health goals. Targeted nursing interventions, policy support, and community engagement are imperative to ensure equitable access to antenatal care for all pregnant women in rural Bangladesh.

Recommendations

- **Enhance Community Awareness Programs:** Nurses and healthcare workers should conduct regular community outreach and education sessions to increase awareness about the importance of antenatal care, focusing on early and regular ANC visits.
- **Improve Accessibility of ANC Services:** Strengthen rural healthcare infrastructure by establishing more accessible antenatal clinics and mobile health units to reduce travel distance and transportation barriers for pregnant women.
- **Promote Female Education and Empowerment:** Encourage policies and initiatives that improve female literacy and education, as educated women are more likely to seek and utilize ANC services effectively.
- **Involve Family and Community Leaders:** Engage husbands, family members, and community leaders in maternal health programs to foster supportive environments that encourage pregnant women to attend ANC visits.
- **Train Nurses in Culturally Sensitive Care:** Provide nurses with ongoing training in culturally appropriate communication and counseling to build trust and effectively address local beliefs and misconceptions related to pregnancy and ANC.
- **Strengthen Referral Systems:** Develop efficient referral pathways within the healthcare system to ensure timely access to higher-level care when complications arise during pregnancy.
- **Integrate ANC services with other maternal and child health programs:** Create integrated care models that combine ANC with nutrition, immunization, and family planning services to improve overall maternal and child health outcomes.
- **Policy Advocacy:** Advocate for increased government funding and support for rural maternal health services, focusing on removing financial barriers and ensuring free or affordable ANC for low-income families

Conflict of Interest
Not available

Financial Support
Not available

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