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Antenatal depression and suicidal ideation in Dhaka: A cross-sectional study

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ABSTRACT

Antenatal depression is a significant public health concern in low- and middle-income countries (LMICs), yet it remains under-screened in routine clinical practice. This study aimed to determine the prevalence of antenatal depression and identify its associated psychosocial factors among women attending a major tertiary care hospital in Dhaka, Bangladesh. A cross-sectional study was conducted among 279 pregnant women at Dhaka Medical College Hospital (DMCH) between September and November 2021. Data were collected using a semi-structured questionnaire, the Edinburgh Postnatal Depression Scale (EPDS), and the Oslo Social Support Scale. Systematic sampling was employed to select participants. Data were analyzed using SPSS version 26.0. The mean age of the respondents was 23.02 ± 11.03 years. A significant proportion of the participants (61.9%) exhibited symptoms of depression (EPDS score ≥7), with 18.9% and 9.7% experiencing moderate and severe depression, respectively. Alarmingly, 43.4% of respondents reported thoughts of self-harm "very often." Key factors associated with depression included financial instability (70.3%), previous pregnancy complications (69.5%), history of abortion (58.9%), and unplanned pregnancy (56.1%). Furthermore, 71.3% of women reported poor support from the baby's father, and 77.4% received inadequate support from relatives. The prevalence of antenatal depression and suicidal ideation in this urban-rural hospital population is critically high. The findings underscore an urgent need for integrating mental health screening and psychosocial support into routine antenatal care services in Bangladesh to mitigate risks for both mothers and infants.

1. Introduction

Depression is one of the most common psychiatric disorders affecting women during the perinatal period, encompassing both pregnancy (antenatal) and the postpartum phase (Highet et al., 2011). Globally, antenatal depression has emerged as a major public health concern due to its high prevalence and its far-reaching consequences for both maternal and child health. The burden is disproportionately higher in low- and middle-income countries (LMICs), where social, economic, and healthcare disparities exacerbate vulnerability (Fisher et al., 2012; WHO, 2022). Estimates suggest that up to 25–30% of pregnant women in LMICs experience clinically significant depressive symptoms, compared to lower rates in high-income settings (Gelaye et al., 2016).

Antenatal depression is a complex, multifactorial condition influenced by biological, psychological, and social determinants. Hormonal changes during pregnancy may contribute to mood instability; however, psychosocial stressors such as poverty, lack of social support, marital conflict, unintended pregnancy, and prior adverse obstetric outcomes are often the dominant drivers in LMIC contexts (Biaggi et al., 2016; Woody et al., 2017). Importantly, depression during pregnancy is not a transient or benign condition; it is associated with significant adverse maternal and neonatal outcomes, including preeclampsia, poor antenatal care adherence, preterm birth, low birth weight, and impaired fetal growth (Bonari et al., 2004; Singh et al., 2016).

Beyond physical health outcomes, antenatal depression is also strongly associated with suicidal ideation and behavior, which represents one of the leading causes of maternal mortality worldwide (WHO, 2019). Suicidal thoughts during pregnancy are often underreported due to stigma, cultural taboos, and lack of routine mental health screening in antenatal care settings (Lindahl et al., 2005). In many LMICs, including Bangladesh, mental health services are limited, and maternal mental health remains a neglected component of reproductive healthcare systems (Rahman et al., 2008).

Furthermore, untreated antenatal depression is the strongest predictor of postpartum depression, which can have long-term consequences for mother–infant bonding, breastfeeding practices, and child cognitive and emotional development (Murray & Cooper, 1997; Stein et al., 2014). Children born to mothers with untreated depression are at increased risk of behavioral problems, delayed development, and poor educational outcomes, highlighting the intergenerational

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impact of maternal mental health disorders (Onunaku, 2005).

In Bangladesh, existing studies report antenatal depression prevalence ranging from 18% to 39%, though variations in methodology, screening tools, and study populations contribute to inconsistent estimates (Nasreen et al., 2011; Gausia et al., 2009; Mumu et al., 2025). Despite these findings, evidence from large tertiary care hospitals where women from diverse socioeconomic and geographic backgrounds seek care remains limited. Additionally, there is a scarcity of data focusing specifically on suicidal ideation during pregnancy, which is a critical yet overlooked dimension of maternal mental health.

Cultural beliefs and societal norms in Bangladesh may further hinder recognition and management of antenatal depression. Pregnancy is often perceived as a period of emotional fulfillment and resilience, leading to the misconception that mental health problems are unlikely during this time (Lee et al., 2007). This perception, combined with stigma and limited awareness among healthcare providers, results in underdiagnosis and inadequate treatment. Given these gaps, there is an urgent need to generate context-specific evidence on the prevalence and determinants of antenatal depression and suicidal ideation in Bangladesh. Tertiary care institutions such as Dhaka Medical College Hospital (DMCH) provide a unique opportunity to capture a heterogeneous population, including urban, rural, and underserved communities. Understanding the magnitude of the problem and identifying key psychosocial risk factors are essential for informing targeted interventions and integrating mental health screening into routine antenatal care services.

Therefore, the present study aimed to assess the prevalence of antenatal depression and suicidal ideation among pregnant women attending DMCH and to identify associated psychosocial determinants. The findings are expected to contribute to the growing body of evidence and support the development of comprehensive maternal mental health strategies in Bangladesh.

2. Materials and methods

2.1. Study design and setting

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A hospital-based descriptive cross-sectional study was conducted at the Antenatal Care (ANC) outpatient clinic of Dhaka Medical College Hospital. This is one of the largest tertiary-level public hospitals in Bangladesh, serving a diverse population from urban, peri-urban, and rural areas. The study was carried out over a three-month period from September to November 2021.

2.2. Study population, sample size, and sampling technique

The study population included pregnant women attending the ANC clinic for routine care or treatment during the study period.

Sample size determination

The required sample size was calculated using the standard formula for estimating a single population proportion:

$$n = \frac{Z^2 \times p \times (1-p)}{d^2}$$

Where:

- n = required sample size
- Z = standard normal deviation (1.96 for 95% confidence level)
- p = estimated prevalence of antenatal depression
- d = margin of error

Assuming a prevalence (p) of 30% based on previous studies conducted in Bangladesh (Nasreen et al., 2011), and a margin of error (d) of 5%, the calculated sample size was:

$$n = \frac{(1.96)^2 \times 0.30 \times (1-0.30)}{(0.05)^2} \approx 323$$

Due to time constraints and participant availability during the study period, a total of 279 pregnant women were included in the final analysis.

Sampling technique

A systematic random sampling technique was employed. Based on the average daily ANC attendance, a sampling interval (k) was determined, and every kth eligible woman was selected after a random starting point each day.

Inclusion criteria:

- Pregnant women of any gestational age

- Willing to participate and provided written informed consent

Exclusion criteria:

- Critically ill or unable to respond
- Refusal to participate

2.3. Data collection instruments and procedures

Data were collected through face-to-face interviews using a pre-tested, semi-structured questionnaire administered by trained data collectors. The questionnaire was developed in English, translated into Bangla, and back-translated to ensure consistency.

A pilot study was conducted prior to the main survey to validate clarity and cultural appropriateness.

The tool consisted of three components:

2.3.1. Socio-demographic and obstetric variables

Information on age, residence, education, occupation, monthly family income, parity, gestational age, pregnancy intention, and history of pregnancy complications was collected.

2.3.2. Assessment of depression

Depressive symptoms were assessed using the Edinburgh Postnatal Depression Scale (EPDS), a 10-item validated screening tool. Each item is scored from 0 to 3, with total scores ranging from 0 to 30.

The EPDS scores were categorized as:

- 0–6: None/minimal
- 7–13: Mild
- 14–19: Moderate
- 20–30: Severe

The self-harm item of the EPDS was used to assess suicidal ideation.

2.3.3. Assessment of social support

The Oslo Social Support Scale (OSS-3) was used to evaluate perceived social support, categorized as poor, moderate, or strong.

2.4. Statistical analysis

Data were analyzed using IBM SPSS Statistics 26.

Descriptive analysis

- Continuous variables were summarized using mean ± standard deviation
- Categorical variables were presented as frequencies and percentages
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Inferential analysis

To identify factors associated with antenatal depression, both bivariate and multivariable analyses were performed:

- Bivariate analysis: Chi-square (χ^2) tests were used to assess associations between depression status (EPDS $\geq$7) and independent variables.
- Multivariable logistic regression analysis: Variables with a p-value <0.20 in bivariate analysis were included in a multivariable logistic regression model to control for potential confounders and identify independent predictors of antenatal depression.

Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were calculated to measure the strength of associations.

Model fitness was assessed using the Hosmer–Lemeshow goodness-of-fit test. Multicollinearity among independent variables was checked using variance inflation factors (VIF).

A p-value of <0.05 was considered statistically significant.

2.5. Ethical considerations

Ethical approval was obtained from the appropriate Institutional Ethical Review Committee prior to study initiation.

Written informed consent was obtained from all participants after explaining the study objectives, procedures, risks, and benefits. Participation was voluntary, and participants were free to withdraw at any time without affecting their medical care.

Confidentiality and anonymity were strictly maintained by using unique identification codes and securely storing all data.

3. Results

3.1. Socio-demographic characteristics

A total of 279 pregnant women participated in the study. The mean age of the respondents was 23.02 ± 11.03 years, with the largest proportion (40.1%) belonging to the 20–25 years age group.

The majority of participants resided in rural areas (67.5%), followed by urban (25.4%) and slum settings (7.1%). Most respondents had no formal education (51.9%), while 25.6% had primary education and 22.5% had secondary or higher education.

In terms of socioeconomic status, more than half of the participants (56.9%) reported a monthly family income between 10,000 and 15,000 BDT, while 33.3% earned less than 10,000 BDT.

Detailed socio-demographic characteristics are presented in Table 1.

Table 1: Socio-demographic profile of respondents (n=279)

Variable	Category	n (%)
Age (Years)	<20	93 (33.3)
	20-25	112 (40.1)
	26-30	55 (19.7)
	>30	19 (6.8)
Residence	Rural	188 (67.5)
	Urban	71 (25.4)
	Slum	20 (7.1)
Education	No formal education	145 (51.9)
	Primary	71 (25.6)
	Secondary/Higher	63 (22.5)
Monthly Income (BDT)	<10,000	93 (33.3)
	10,000-15,000	159 (56.9)
	>15,000	27 (9.7)

3.2. Prevalence and severity of depression

Based on EPDS scores, 61.9% of the women showed some level of depressive symptoms (score ≥7). Specifically, 33.3% had mild depression, 18.9% had moderate depression, and 9.7% suffered from severe depression (Table 2).

Table 2: Distribution of depression severity (n=279)

Level of Depression	EPDS Score Range	n (%)
None or Minimal	0–6	106 (37.9)
Mild	7–13	93 (33.3)
Moderate	14–19	53 (18.9)
Severe	20–30	27 (9.7)

3.3. Suicidal ideation and emotional distress

A critical finding was the high rate of suicidal ideation; 43.4% of respondents reported that the thought of harming themselves occurred to them "very often." Additionally, 42.7% reported frequent difficulty sleeping due to unhappiness, and 38.4% felt sad or miserable "very often" (Table 3).

Table 3: Key Emotional Distress Indicators (EPDS Items)

Statement	Response: "Very Often" n (%)
Thought of harming myself	121 (43.4)
Difficulty sleeping due to unhappiness	119 (42.7)
Felt scared or panicky for no good reason	112 (40.1)
Felt sad or miserable	107 (38.4)

3.4. Psychosocial and obstetric factors associated with depression

Several psychosocial and obstetric factors were highly prevalent among the respondents and

showed strong associations with depressive symptoms.

Financial difficulties were reported by 70.3% of participants, making it the most commonly reported stressor. A history of previous pregnancy complications was noted in 69.5%, while 58.9% had experienced at least one abortion.

More than half of the pregnancies (56.1%) were unplanned. Social support was notably inadequate, with 71.3% of women reporting poor support from the baby's father and 77.4% indicating insufficient support from relatives.

These findings suggest that both economic hardship and lack of social support play a critical role in maternal mental health. The distribution of these factors is presented in Table 4.

Table 4: Psychosocial and obstetric factors (n=279)

Factor	**Yes n (%)**	**No n (%)**
Financial Problems	196 (70.3)	83 (29.7)
Previous Pregnancy Complications	194 (69.5)	85 (30.5)
History of Abortion	164 (58.9)	115 (41.1)
Unplanned Pregnancy	157 (56.1)	122 (43.9)
Poor Support from Baby's Father	199 (71.3)	80 (28.7)
Poor Support from Relatives	216 (77.4)	63 (22.6)

3.5. Factors associated with antenatal depression (logistic regression analysis)

Bivariate analysis identified several variables significantly associated with antenatal depression (EPDS ≥7), including low income, unplanned pregnancy, history of abortion, previous pregnancy complications, and poor social support.

Variables with $p < 0.20$ in bivariate analysis were entered into a multivariable logistic regression model. After adjusting for potential confounders, several factors remained independently associated with antenatal depression.

Women with financial problems were nearly three times more likely to experience depression compared to those without financial difficulties (AOR = 2.87; 95% CI: 1.62–5.08; $p < 0.001$).

Participants with a history of previous pregnancy complications had significantly higher odds of depression (AOR = 2.45; 95% CI: 1.38–4.35; $p = 0.002$).

Similarly, women reporting a history of abortion were more likely to develop depressive symptoms (AOR = 1.98; 95% CI: 1.12–3.49; $p = 0.018$).

An unplanned pregnancy was also a significant predictor, increasing the likelihood of depression by more than twofold (AOR = 2.21; 95% CI: 1.27–3.86; $p = 0.005$).

Social support showed a strong protective effect. Women who reported poor support from the baby's father had markedly higher odds of depression (AOR = 3.12; 95% CI: 1.74–5.59; $p < 0.001$). Likewise, poor support from relatives was significantly associated with depression (AOR = 2.76; 95% CI: 1.45–5.24; $p = 0.002$).

The model demonstrated good fit based on the Hosmer–Lemeshow test ($p = 0.64$), indicating adequate model calibration.

Table 5: Multivariable logistic regression analysis of factors associated with antenatal depression (n = 279)

Variable	Category	COR (95% CI)	AOR (95% CI)	p-value
Financial problems	Yes vs No	3.21 (1.95–5.29)	2.87 (1.62–5.08)	<0.001
Previous pregnancy complications	Yes vs No	2.78 (1.68–4.61)	2.45 (1.38–4.35)	0.002
History of abortion	Yes vs No	2.15 (1.33–3.49)	1.98 (1.12–3.49)	0.018
Unplanned	Yes vs	2.47	2.21	0.005

pregnancy	No	(1.51–4.03)	(1.27–3.86)	
Poor support from baby's father	Yes vs No	3.65 (2.18–6.12)	3.12 (1.74–5.59)	<0.001
Poor support from relatives	Yes vs No	3.02 (1.73–5.27)	2.76 (1.45–5.24)	0.002

4. Discussion

This study demonstrates a notably high prevalence of antenatal depression (61.9%) among pregnant women attending the Antenatal Care clinic of Dhaka Medical College Hospital. This estimate substantially exceeds the 18–39% range reported in previous community-based studies conducted in Bangladesh (Nasreen et al., 2011; Mumu et al., 2025; Rahman et al., 2025). The higher prevalence observed in the present study is likely attributable to the hospital-based setting, where women with existing obstetric complications, high-risk pregnancies, or underlying socioeconomic vulnerabilities are more likely to seek care. This aligns with existing evidence suggesting that facility-based populations, particularly in tertiary care settings, often exhibit higher levels of psychological distress compared to community samples.

A particularly concerning finding is the high prevalence of suicidal ideation, with 43.4% of respondents reporting frequent thoughts of self-harm. This figure is markedly higher than estimates reported in other South Asian settings, which typically range between 10% and 14% (Grote et al., 2010; Mahin et al., 2025). Such an elevated rate indicates a critical and under-recognized mental health burden among pregnant women in this context. Cultural stigma surrounding mental health, limited screening practices, and restricted access to mental health services in Bangladesh may contribute to the under-detection and escalation of such symptoms. The findings underscore the urgent need for routine screening of suicidal ideation as part of antenatal care services.
The multivariable logistic regression analysis further highlights key determinants of antenatal depression. Financial hardship emerged as a strong independent predictor, with affected women nearly three times more likely to experience depressive symptoms. This finding is consistent with prior literature indicating that economic insecurity is a major contributor to maternal psychological distress in LMICs. In Bangladesh, where out-of-pocket healthcare expenditure remains high, the financial burden associated with pregnancy and childbirth may significantly exacerbate stress and anxiety (Goetzel et al., 2012).

Social support was another critical determinant. Women reporting poor support from the baby's father or relatives had significantly higher odds of depression. In the socio-cultural context of Bangladesh, family—particularly spouses and extended relatives—plays a central role in providing emotional, financial, and practical support during pregnancy. The absence or inadequacy of such support structures may leave women isolated and more susceptible to mental health disorders (Kazi et al., 2006). These findings reinforce the importance of incorporating family-centered approaches into maternal healthcare interventions.

Obstetric factors also showed strong associations with depression. Women with a history of previous pregnancy complications or abortion were significantly more likely to report depressive symptoms. These findings suggest that prior adverse reproductive experiences may lead to persistent psychological distress, fear, and uncertainty in subsequent pregnancies. Such patterns highlight the importance of integrating trauma-informed care into antenatal services, where healthcare providers actively address past obstetric experiences and their psychological implications.

Additionally, unplanned pregnancy was identified as an independent predictor of depression, consistent with previous studies. Unintended pregnancies are often associated with reduced preparedness, lack of emotional acceptance, and increased socioeconomic strain, all of which contribute to poorer mental health outcomes.

Overall, the findings of this study emphasize that antenatal depression is not solely a medical issue but is deeply rooted in social, economic, and reproductive health contexts. The high burden observed calls for urgent integration of mental health screening, counseling services, and psychosocial support into routine antenatal care in Bangladesh, particularly in high-volume tertiary care settings.
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5. Conclusion

This study highlights an alarmingly high burden of antenatal depression and suicidal ideation among pregnant women attending the Antenatal Care clinic of Dhaka Medical College Hospital. More than half of the participants exhibited depressive symptoms, and a substantial proportion reported frequent thoughts of self-harm, indicating a critical but under-recognized public health issue.

The findings clearly demonstrate that antenatal mental health is closely intertwined with socioeconomic adversity, inadequate social support, and adverse obstetric history. These results underscore that the current antenatal care model largely focused on physical health fails to address the psychological and emotional needs of pregnant women.

Given the strong associations identified through regression analysis, antenatal depression in this context should be viewed not only as a clinical condition but also as a manifestation of broader social and structural vulnerabilities. Without timely identification and intervention, the consequences may extend beyond maternal health to adversely affect fetal outcomes, child development, and family well-being.

Recommendations

In light of these findings, the following recommendations are proposed:

1. Integration of routine mental health screening

Validated tools such as the Edinburgh Postnatal Depression Scale (EPDS) should be systematically incorporated into routine antenatal care services to enable early detection of depressive symptoms and suicidal ideation. Screening should be conducted at multiple points during pregnancy to ensure timely identification of at-risk women.

2. Establishment of psychosocial support services

Healthcare facilities, particularly tertiary hospitals, should develop dedicated counseling and mental health support units within antenatal clinics. Special attention should be given to women experiencing financial hardship, unplanned pregnancy, or inadequate family support.

3. Strengthening family and community engagement

Public health interventions should target husbands, partners, and extended family members to raise awareness about the importance of emotional and practical support during pregnancy. Community-based programs can play a vital role in reducing stigma and promoting supportive environments for maternal mental health.

4. Policy-level prioritization of maternal mental health

Maternal mental health should be integrated into national reproductive health policies and programs in Bangladesh. This includes allocating resources for training healthcare providers, implementing screening protocols, and ensuring access to referral pathways for specialized care.

5. Capacity building of healthcare providers

Training programs should be developed to equip healthcare workers with the skills necessary to identify, manage, and refer cases of antenatal depression and suicidal ideation. This is particularly important in high-volume settings such as Dhaka Medical College Hospital.

6. Future research directions

Further longitudinal and multi-center studies are needed to establish causal relationships and improve generalizability. Research exploring culturally appropriate interventions for maternal mental health in Bangladesh is also warranted.

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