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Psychosocial Risk Factors Associated with Antenatal Depression in Dakar: Evidence from a Cross-Sectional Study

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Abstract

Background: Antenatal depression is a prevalent and under-recognised mental health condition that affects pregnant women, particularly in low- and middle-income countries (LMICs). This can have serious consequences for both maternal well-being and fetal development. **Objective:** This study aimed to estimate the prevalence of antenatal depression and identify its psychosocial risk factors among pregnant women attending prenatal care at the Abass Ndao Hospital in Dakar, Senegal. **Methods:** A cross-sectional study was conducted from June to August 2022, involving 100 pregnant women. Depressive symptoms were assessed using the Edinburgh Postnatal Depression Scale (EPDS), while social support, anxiety, and intimate partner violence were measured using the MSPSS, PRAQ, and WAST tools respectively. Multivariate logistic regression was used to determine the independent predictors of antenatal depression. **Results:** The prevalence of depressive symptoms (EPDS score ≥ 10) was 27%. Independent risk factors included low perceived social support (adjusted odds ratio [aOR] = 4.5), pregnancy-related anxiety (aOR = 1.15), intimate partner violence (aOR = 2.5), recent stressful life events (aOR = 3.2), previous psychiatric history (aOR = 5.15), and low socioeconomic status (aOR = 1.6). **Conclusion:** Antenatal depression is common in urban Senegalese settings and is strongly influenced by psychosocial stressors. Routine screening for emotional distress and social vulnerability during prenatal care should be integrated into maternal health services.

Keywords

Antenatal Depression, Psychosocial Risk Factors, Maternal Mental Health,

Senegal

1. Introduction

Antenatal depression, defined as the occurrence of depressive symptoms during pregnancy, is increasingly recognised as a major public health concern worldwide. Although postnatal depression has received considerable attention, depression during pregnancy remains underdiagnosed, especially in low- and middle-income countries (LMICs), where mental health screening and services are often lacking [1].

The World Health Organization highlights that maternal mental health is crucial not only for the well-being of women but also for the health and development of infants [2]. A systematic review by Fisher *et al.* estimated that 15% to 25% of pregnant women in LMICs suffer from common perinatal mental disorders, with depression being the most prevalent [1]. Similarly, Gavin *et al.* found that antenatal depression affects up to one in five pregnant women worldwide [3].

The implications of untreated antenatal depression are serious. It increases the risk of postpartum depression, disrupts mother-infant bonding, and may affect foetal growth and neurodevelopment [4] [5]. Studies have also shown associations with adverse obstetric outcomes, such as preterm birth, low birth weight, and poor infant feeding practices [4] [5].

In sub-Saharan Africa, pregnant women are particularly vulnerable due to widespread poverty, limited social support, intimate partner violence, and chronic stressors, which compound the risk of psychological distress [2] [3]. However, in many African health systems, prenatal care is mainly focused on physical health, neglecting the emotional and psychosocial dimensions.

In Senegal, there are limited data on the burden and correlates of antenatal depression. Recent African studies have further underscored the prevalence of antenatal depression and its determinants, including studies conducted in Ethiopia [6] and Kenya [7], strengthening the regional relevance of this issue. This study aimed to estimate the prevalence of antenatal depression among pregnant women in Dakar and identify the psychosocial risk factors independently associated with depressive symptoms using validated screening instruments within a routine prenatal care setting.

2. Methods

2.1. Study Design and Participants

This was a cross-sectional, prospective, descriptive, and analytical study conducted from 1 June to 30 August 2022 at the prenatal care unit of Abass Ndao Hospital in Dakar, Senegal. Pregnant women were recruited during routine antenatal check-ups.

Inclusion criteria:

- Pregnant women of any gestational age;

- Fluency in French or Wolof;
- Oral informed consent was obtained after explaining the study objectives.

Exclusion criteria:

- Foreign nationals (to avoid unmeasured cultural confounding);
- History of mood disorders treated with psychiatric treatment;
- Women in active labour at the time of data collection were excluded.

2.2. Instruments and Variables

Data were collected using a structured questionnaire that captured the following:

- Sociodemographic characteristics (age, marital status, education, SES);
- Medical and psychiatric history;
- Variables related to pregnancy (trimester, planned/unplanned pregnancy);
- Psychosocial factors (social support, stressful life events, and relationships with intimate partners).

Four standardised and validated tools were used:

- Edinburgh Postnatal Depression Scale (EPDS) [8]: used to detect antenatal depression. A score of ≥10 was considered indicative of clinically significant depressive symptoms;
- Multidimensional Scale of Perceived Social Support (MSPSS) [9]: This scale assesses the participant's perceived emotional and practical support from family, friends, and a significant other;
- Women Abuse Screening Tool (WAST) [10]: screens for psychological, physical, and sexual intimate partner violence;
- Pregnancy-Related Anxiety Questionnaire (PRAQ-R2) [11]: This questionnaire evaluates pregnancy-specific anxiety, with a score > 28 indicating high anxiety.

All tools were administered in French or Wolof by trained midwives during the prenatal consultations.

2.3. Statistical Analysis

Statistical analyses were performed using SPSS version 21.0. Descriptive statistics were calculated for all sociodemographic and clinical variables of the study participants. A bivariate analysis using chi-squared and t-tests was performed to identify potential associations between explanatory variables and depressive symptoms (EPDS ≥ 10).

Significant variables were entered into a multivariate logistic regression model to identify the independent predictors of antenatal depression. The results are expressed as adjusted odds ratios (aOR) with 95% confidence intervals (CI). Statistical significance was set at $p < 0.05$.

3. Results

3.1. Sample Characteristics

A total of 100 pregnant women participated in this study. The mean age was 26.6

years (SD ± 6.08), with the majority (72%) aged between 18 and 29. Most participants were married (97%), lived in urban areas (68%), and reported a medium socioeconomic status (63%).

Participants were further classified by age, education level, and occupation; details are provided in Table 1.

Table 1. Distribution of participants by age, education level, and occupation.

Characteristic	Category	n	%
Age	18 - 22	15	15%
	23 - 29	57	57%
	30 - 34	18	18%
	≥35	10	10%
Education	No formal education	3	3%
	Primary school	10	10%
	Secondary school	58	58%
	Higher education	29	29%
Occupation	Unemployed	21	21%
	Informal sector	42	42%
	Salaried employment	23	23%
	Student	14	14%

3.2. Prevalence of Antenatal Depression

According to the EPDS, 27 participants (27%) scored ≥ 10, indicating probable antenatal depression, as illustrated in Figure 1.

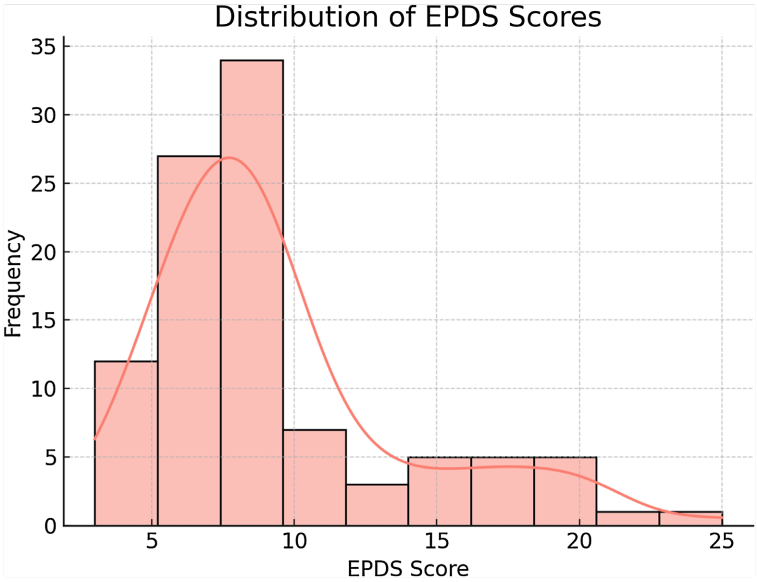

Figure 1. Distribution of EPDS scores.

Figure 1 illustrates the distribution of EPDS scores in the study population. Most scores fell below the clinical threshold, but a significant proportion exceeded it, indicating potential depressive symptoms.

When stratified by trimester, 30.7% of women in the first trimester, 26.3% in the second trimester, and 25.0% in the third trimester screened positive for antenatal depression. Although the difference was not statistically significant ($p = 0.78$), it suggests a potentially higher vulnerability to depressive symptoms in early pregnancy.

3.3. Bivariate Analysis

Depressive symptoms (EPDS ≥ 10) were significantly associated with the following factors:

- Low perceived social support ($p = 0.002$);
- Intimate partner violence (WAST ≥ 5; $p = 0.007$);
- Stressful or traumatic life events ($p < 0.001$);
- High pregnancy-related anxiety (PRAQ > 28; $p = 0.005$);
- Personal psychiatric history ($p = 0.003$);
- Low socioeconomic status ($p = 0.04$).

These variables were included in the multivariate regression models.

3.4. Multivariate Logistic Regression

Multivariate analysis revealed six independent predictors significantly associated with antenatal depression (EPDS ≥ 10). The table below summarises the results (see Table 2).

Table 2. Independent psychosocial predictors of prenatal depression.

Psychosocial factor	Adjusted OR (aOR)	95% CI	p-value
Personal psychiatric history	5.15	3.3 - 10.6	0.002
Stressful life event	3.2	1.33 - 4.51	0.010
Pregnancy-related anxiety	1.15	1.3 - 1.7	0.005
Low perceived social support	4.5	2.5 - 14.6	0.002
Intimate partner violence	2.5	1.2 - 7.9	0.001
Low socioeconomic status	1.6	1.8 - 2.44	0.004

Women with a personal history of psychiatric disorders were more than five times more likely to experience antenatal depression than those without. Similarly, low social support and stressful life events substantially increased the risk.

A positive association was observed between pregnancy-specific anxiety and depressive symptoms, as depicted in Figure 2, which shows the correlation between EPDS and PRAQ scores.

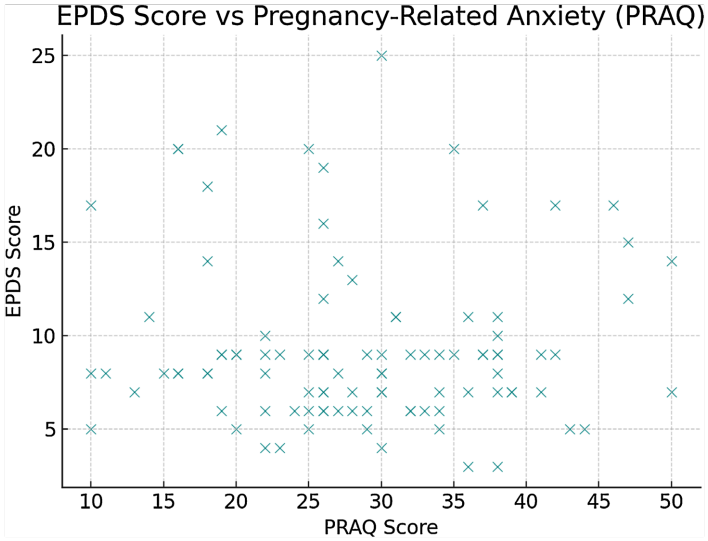

Figure 2. EPDS score vs. pregnancy-related anxiety (PRAQ).

4. Discussion

This study revealed a 27% prevalence of antenatal depressive symptoms among pregnant women attending prenatal care in Dakar, Senegal. This rate is consistent with previous findings from low- and middle-income countries (LMICs), where prevalence estimates typically range from 20% to 40%, depending on the measurement tools and population characteristics [1].

4.1. Low Perceived Social Support

Low perceived social support emerged as one of the strongest independent predictors of antenatal depression (aOR = 4.5).

Women with low perceived support had notably higher EPDS scores, as shown in Figure 3.

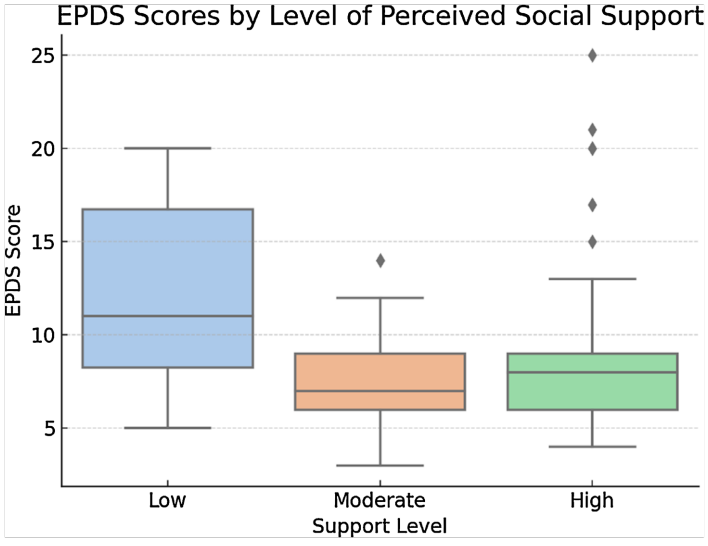

Figure 3. EPDS scores by level of perceived social support.

This is in line with numerous studies demonstrating the protective role of emotional, practical, and informational support during pregnancy [9] [12]. In the Senegalese context, urbanisation, social isolation, and relationship conflicts can decrease traditional family-based support systems, thus increasing psychological vulnerability.

4.2. Intimate Partner Violence

Intimate partner violence (IPV), reported by 8% of participants and associated with a 2.5-fold increase in the risk of depression, remains a largely underestimated factor in antenatal mental health. Several African studies, such as those by Hartley *et al.* [13] and Djidonou *et al.* [14], have highlighted a similar link between IPV and depression during pregnancy. Screening tools such as the WAST should be routinely implemented in antenatal visits, especially in settings where IPV is stigmatised or hidden.

Moreover, our findings suggest possible effects of interaction between social support, IPV, and stressful events. For example, women reporting both low social support and exposure to violence exhibited the highest EPDS scores, indicating a network of mutually reinforcing psychosocial risks. These results align with stress-diathesis models and advocate for multifactorial approaches to mental health screening.

4.3. Stressful Life Events

Recent stressful or traumatic life events (e.g., bereavement, job loss, relationship conflict) were also strongly associated with depressive symptoms (aOR = 3.2). This finding reinforces the role of acute stressors in the initiation or exacerbation of depressive episodes during pregnancy. Similar results have been reported in South Africa and Pakistan, where women facing financial instability or domestic conflict are at an increased risk of perinatal mental disorders [4] [13].

4.4. Pregnancy-Related Anxiety

Pregnancy-specific anxiety (measured by PRAQ-R2) was significantly associated with depressive symptoms, supporting the hypothesis of a bidirectional relationship between anxiety and depression during the perinatal period [9]. This specific form of anxiety is characterised by fears about the health of the baby, pain from delivery, and bodily changes, and is a relevant predictor of emotional distress during pregnancy [15].

4.5. Psychiatric History

As expected, personal psychiatric history was the strongest individual predictor of antenatal depression (aOR = 5.15). This finding supports the existing literature, which consistently shows that women with previous episodes of depression or anxiety are more susceptible to recurrence during pregnancy [3] [12]. This highlights the importance of obtaining a thorough mental health history early in the

prenatal care process.

4.6. Low Socioeconomic Status

Finally, low socioeconomic status was associated with a higher risk of depression (aOR = 1.6). Financial hardship, unemployment, housing insecurity, and limited healthcare access are known to contribute to maternal psychological distress [5] [16].

The intercorrelations between psychosocial variables are displayed in **Figure 4**, highlighting the strongest links with EPDS scores.

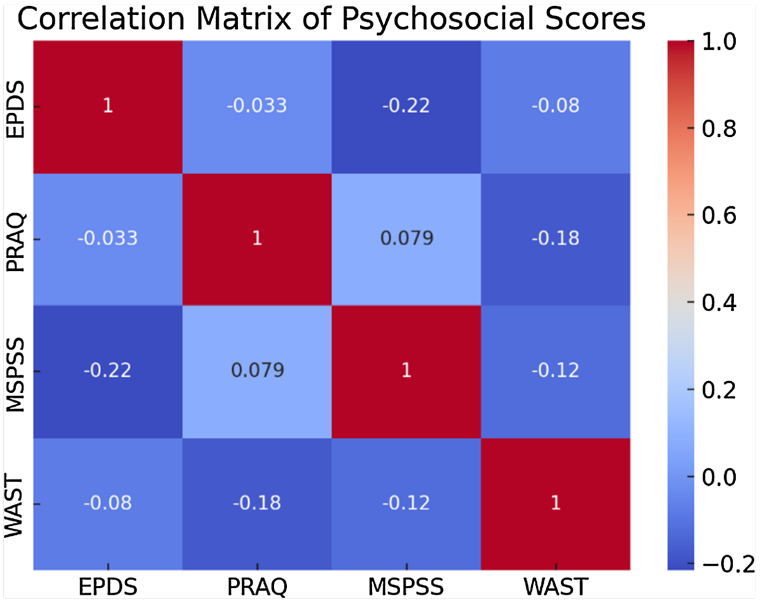

Figure 4. Correlation matrix of psychosocial variables.

4.7. Limitations of the Study

This study has several limitations. First, the cross-sectional design limits causal inference. Although associations between psychosocial factors and antenatal depression were identified, the temporal direction cannot be established.

Second, the use of six predictors in the logistic regression model on a sample of 100 participants may raise concerns of statistical overfitting. Given that only 27 participants had EPDS scores ≥10, the model may exceed the commonly recommended 10 events per variable rule. This limitation should be considered when interpreting the multivariate findings, and replication in larger samples is needed.

Third, the use of self-reported measures, while validated, may have introduced social desirability bias, especially in culturally sensitive domains such as intimate partner violence.

Lastly, the generalisability of findings is limited to urban pregnant women attending a tertiary hospital in Dakar. Rural populations and non-attending pregnant women were not represented.

5. Conclusions

This study provides evidence that antenatal depression is highly prevalent (27%) among pregnant women in Dakar, Senegal, and that psychosocial vulnerabilities strongly influence this condition. Six independent predictors of antenatal depression were identified.

- Personal history of psychiatric disorders;
- Stress or traumatic life events;
- High pregnancy-related anxiety;
- Low perceived social support;
- Intimate partner violence;
- Low socioeconomic status.

These findings reinforce the notion that antenatal depression is not only a biological condition but also a biopsychosocial syndrome, where emotional distress is often rooted in a complex network of interpersonal and structural adversity.

Despite the known consequences of antenatal depression, such as an increased risk of postpartum depression, preterm birth, and impaired infant development, mental health screening is rarely implemented in routine antenatal care in many African countries, including Senegal.

Early identification and appropriate referral of high-risk women are thus critical. Screening tools such as the EPDS, MSPSS, WAST, and PRAQ-R2 are valid, cost-effective, and easily implementable in primary care settings. Incorporating these into existing antenatal care pathways could significantly improve maternal and child outcomes.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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