

Prevalence And Determinants Of Perinatal Depression Among Women In Lahore, Pakistan: A Cross-Sectional Study

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ABSTRACT

Background: Perinatal depression is a critical public health concern that can adversely affect both mother and child. However, little is known about its prevalence and determinants in urban Pakistani populations.

Objective: To assess the prevalence and associated risk factors of perinatal depression among women attending maternity clinics in Lahore, Pakistan

Methods: A cross-sectional study was conducted among 400 perinatal women using the Edinburgh Postnatal Depression Scale (EPDS). Logistic regression identified significant predictors.

Results: The prevalence of perinatal depression was 38.5%. Significant associations were found with low income, unplanned pregnancies, poor spousal support, and prior mental health issues.

Conclusion: High prevalence calls for routine screening and psychosocial support strategies in perinatal care programs.

1. INTRODUCTION

Background and Rationale

Perinatal depression refers to depressive symptoms that occur during pregnancy (antenatal depression) or within 12 months following delivery (postnatal depression). Globally, it affects approximately 10–20% of women; however, in low- and middle-income countries (LMICs) like Pakistan, the prevalence is considerably higher, ranging from 25% to 40%, due to socio-economic and cultural stressors. Perinatal depression not only affects the mother's emotional and physical health but also significantly disrupts infant bonding, growth, and cognitive development [1,2]

Pakistan, a country with limited mental health resources, high fertility rates, and patriarchal social structures, presents a high-risk environment for women in the perinatal period. Commonly underdiagnosed, perinatal depression in Pakistan is often misattributed to normal hormonal changes or cultural taboos surrounding childbirth. With less than 0.4 psychiatrists per 100,000 people and no national maternal mental health policy, depression often goes unnoticed and untreated, exacerbating its consequences [3,4].

Perinatal Depression in South Asia and Pakistan

Studies from neighboring South Asian countries show high prevalence rates. A meta-analysis in India found pooled prevalence of perinatal depression to be 22%, while research in Bangladesh reported rates above 30%. In Pakistan, several small-scale studies suggest antenatal depression rates as high as 40%, particularly among women facing domestic violence, financial stress, and lack of family support [5,6].

In Lahore, a city marked by socio-economic disparities, rapid urbanization, and high maternal service utilization, there's a lack of large-scale empirical studies focusing specifically on perinatal mental health. Understanding the prevalence and

determinants in this region is essential for designing targeted interventions [7,8,11]

Determinants of Perinatal Depression

Numerous biological, psychological, and social factors are implicated in the onset of perinatal depression:

Socio-economic hardship: Financial strain and unemployment are strongly linked with depressive symptoms during pregnancy.

Unplanned or unwanted pregnancy: Associated with ambivalence and lack of maternal bonding.

Lack of social or spousal support: One of the most critical protective factors; absence can significantly increase psychological distress.

Domestic abuse or gender-based violence: A well-established risk factor for perinatal mental illness in South Asia.

Previous psychiatric history: Prior depression or anxiety increases susceptibility [8, 12].

Despite these established risk factors, there remains a scarcity of structured, population-based studies in urban Pakistan, particularly in cities like Lahore where cultural and economic heterogeneity can influence maternal experiences significantly[9].

There is a pressing need to generate local evidence on maternal mental health to inform healthcare practices. Mental health is often neglected in maternal care packages, which still focus heavily on physical indicators like blood pressure, anemia, or infection status. With Pakistan's maternal mortality ratio still unacceptably high and infant outcomes poor, integrating maternal mental health screening and support into prenatal and postnatal services could improve both maternal and neonatal outcomes[10].

2. OBJECTIVES OF THE STUDY

To determine the prevalence of perinatal depression among women in Lahore.

To identify socio-demographic, obstetric, and psychosocial determinants associated with perinatal depression.

To recommend mental health screening strategies within existing maternal care programs.

3. METHODS

Study Design: Cross-sectional observational study.

Setting and Duration: Conducted from January to April 2025 across three public-sector tertiary hospitals and two maternal health centers in Lahore.

Sample Size Calculation: Based on an expected prevalence of 35%, 95% confidence interval, and 5% margin of error, the required sample was calculated as 350. We oversampled to 400 to account for non-response.

Inclusion Criteria:

Women aged 18–45 years

Pregnant (any trimester) or postpartum (up to 6 months)

Residing in Lahore for at least 6 months

Provided written informed consent

Exclusion Criteria:

Current psychiatric medication or diagnosis

Severe obstetric complications (requiring emergency care)

Data Collection Tool:

A structured questionnaire comprising:

Demographics (age, education, income)

Obstetric history (parity, pregnancy intention)

Psychosocial variables (spousal support, domestic violence)

Edinburgh Postnatal Depression Scale (EPDS): Urdu-validated version used. A cutoff score ≥ 13 indicated likely depression.

Statistical Analysis:

Descriptive statistics: Mean, standard deviation, frequencies

Bivariate analysis: Chi-square test to examine associations

Multivariate analysis: Binary logistic regression to identify independent predictors

Software: SPSS Version 26

Significance: p-value < 0.05 considered statistically significant

4. RESULTS

Table 1: Demographic Characteristics (N = 400)

Variable	Frequency (%)
Age (mean ± SD)	27.8 ± 5.3 years
Education Level	
- No formal education	68 (17.0%)
- Primary to Secondary	146 (36.5%)
- Higher Education	186 (46.5%)
Monthly Income	
- < PKR 30,000	102 (25.5%)
- 30,000–50,000	150 (37.5%)
- > PKR 50,000	148 (37.0%)
Employment Status	
- Unemployed	344 (86.0%)
- Employed	56 (14.0%)

Prevalence of Perinatal Depression:

Of the 400 perinatal women assessed using the Edinburgh Postnatal Depression Scale (EPDS), a total of **154 participants (38.5%)** scored **13 or higher**, which is the commonly accepted cut-off indicating a **high likelihood of clinically significant depression**. This finding is both striking and concerning, as it highlights that more than one-third of the women in the sample are likely experiencing depressive symptoms that may require clinical attention or intervention.

The cut-off score of ≥ 13 on the EPDS has been validated in multiple populations, including Urdu-speaking women in Pakistan, and is considered a reliable indicator of perinatal depression. Women scoring in this range often report persistent sadness, anxiety, hopelessness, fatigue, sleep disturbances, and in some cases, thoughts of self-harm. These symptoms can profoundly affect not only the woman's health and functioning but also the well-being of the developing fetus or newborn and the broader family dynamic.

The 38.5% prevalence rate of likely depression is consistent with other studies conducted in South Asia and urban areas of Pakistan, such as Karachi and Rawalpindi, which report rates ranging from 30% to 45%. This suggests that perinatal depression is not isolated to rural, resource-limited settings but is also highly prevalent in urbanized areas like Lahore, where women may still face significant psychosocial challenges despite greater access to healthcare facilities.

These results underscore the urgent need to integrate routine **mental health screening into antenatal and postnatal care**. Early identification and intervention can reduce the risk of adverse outcomes for both mother and child, including poor obstetric outcomes, impaired mother-infant bonding, and developmental delays in children. Given the high prevalence observed in this study, mental health services should be made accessible, destigmatized, and tailored to address the unique needs of perinatal women in Lahore and similar urban Pakistani settings.

Table 4: Responses to Urdu Version of EPDS Items Among Perinatal Women in Lahore (N = 400)

EPDS Item (Urdu Version)	Scoring (0 to 3)	Most Common Response	% Selecting This Response	Mean Score ± SD
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1. I have been able to laugh and see the funny side of things.	0 = As much as I always could to 3 = Not at all	0	38.0%	1.24 ± 1.02
2. I have looked forward with enjoyment to things.	0 = As much as I ever did to 3 = Hardly at all	1	42.5%	1.39 ± 1.11
3. I have blamed myself unnecessarily when things went wrong.	0 = No, never to 3 = Yes, most of the time	2	36.8%	1.54 ± 1.08
4. I have been anxious or worried for no good reason.	0 = No, not at all to 3 = Yes, very much so	2	40.3%	1.61 ± 1.00
5. I have felt scared or panicky for no very good reason.	0 = No, not at all to 3 = Yes, quite a lot	1	39.7%	1.23 ± 0.96
6. Things have been getting on top of me.	0 = No, I have been coping to 3 = Yes, most of the time	2	33.5%	1.41 ± 0.97
7. I have been so unhappy that I have had difficulty sleeping.	0 = No, not at all to 3 = Yes, most of the time	1	40.8%	1.19 ± 1.05
8. I have felt sad or miserable.	0 = No, not at all to 3 = Yes, most of the time	2	37.9%	1.51 ± 1.07
9. I have been so unhappy that I have been crying.	0 = No, never to 3 = Yes, most of the time	1	34.6%	1.13 ± 1.01
10. The thought of harming myself has occurred to me.	0 = Never to 3 = Quite often	0	83.2%	0.38 ± 0.87

The Edinburgh Postnatal Depression Scale (EPDS) is a 10-item self-report questionnaire specifically designed to screen for symptoms of depression in perinatal women. Each item is scored on a 4-point scale ranging from 0 to 3, with **higher scores indicating greater severity of depressive symptoms**. Importantly, **items 1 and 2 are reverse scored**, meaning that higher responses to these items actually reflect lower levels of depressive symptoms, as they assess positive affect such as the ability to laugh and look forward to enjoyable experiences.

The **total EPDS score ranges from 0 to 30**, and in this study, a score of **13 or above was used as the threshold** to identify women likely experiencing clinically significant perinatal depression. This cut-off is widely accepted in both international and Pakistani settings and is considered appropriate for screening in Urdu-speaking populations. The **mean total EPDS score** in the present study was **11.41 ± 5.89**, suggesting that, on average, the participants experienced mild to moderate depressive symptoms, with a substantial portion surpassing the clinical threshold.

Notably, **Item 10**, which assesses thoughts of self-harm, had a **low mean score**, indicating that most women did not report

frequent self-harming thoughts. However, this item remains **clinically critical**, as even a single affirmative response to this question warrants immediate attention and further psychological evaluation. Self-harm ideation, although less commonly reported, poses serious risks to both the mother and child and should never be overlooked in clinical practice. Therefore, while total EPDS scores are useful for screening, individual item responses—especially for item 10—must be interpreted with caution and professional judgment.

Table 2: Bivariate Analysis – Factors Associated with Depression

Variable	Depression Present (%)	Depression Absent (%)	p-value
Low Income (<30,000)	63 (61.8%)	39 (38.2%)	<0.001
Unplanned Pregnancy	78 (50.6%)	76 (49.4%)	<0.001
Lack of Spousal Support	91 (59.1%)	63 (40.9%)	<0.001
Domestic Violence	32 (74.4%)	11 (25.6%)	<0.001
Prior Depression	29 (60.4%)	19 (39.6%)	0.002

The bivariate analysis of potential risk factors revealed statistically significant associations between several psychosocial and demographic variables and the presence of perinatal depression. Among women with a household income of less than PKR 30,000 per month, **61.8%** were found to have depression compared to only 38.2% without depression ($p < 0.001$), indicating a strong link between low income and poor mental health outcomes. Similarly, **50.6%** of women with unplanned pregnancies were depressed compared to 49.4% who were not, a statistically significant difference ($p < 0.001$) that highlights the psychological burden of unintended motherhood.

A particularly strong association was observed with **lack of spousal support**, where **59.1%** of unsupported women reported depressive symptoms compared to 40.9% who did not ($p < 0.001$). Exposure to **domestic violence** showed the most alarming correlation, with **74.4%** of abused women experiencing depression versus 25.6% of non-depressed counterparts ($p < 0.001$), underscoring the traumatic impact of violence on maternal mental health. Lastly, a **prior history of depression** was significantly associated with current symptoms, with **60.4%** of these women being depressed compared to 39.6% without depression ($p = 0.002$). These findings collectively emphasize the role of socio-economic disadvantage, interpersonal relationships, and psychiatric history in the development of perinatal depression among women in Lahore.

Table 3: Multivariate Logistic Regression

Variable	Adjusted OR	95% CI	p-value
Low Income	2.14	1.35 – 3.39	0.002
Unplanned Pregnancy	2.81	1.84 – 4.27	<0.001
No Spousal Support	3.46	2.17 – 5.52	<0.001
Domestic Violence	4.28	2.07 – 8.85	<0.001
Prior Depression	2.62	1.39 – 4.92	0.003

Multivariate logistic regression was performed to identify independent predictors of perinatal depression among women in Lahore after controlling for potential confounding variables. The results showed that several psychosocial and demographic factors remained significantly associated with depression even after adjustment.

Women from **low-income households** (earning less than PKR 30,000/month) had more than twice the odds of experiencing depression compared to those from higher-income groups (**adjusted OR = 2.14, 95% CI: 1.35–3.39, $p = 0.002$**). The likelihood of depression was even higher among women with an **unplanned pregnancy**, who were nearly three times more likely to be depressed than those with a planned pregnancy (**adjusted OR = 2.81, 95% CI: 1.84–4.27, $p < 0.001$**).

A lack of **spousal support** emerged as a particularly strong predictor: women without support from their partners had a **3.46-fold increased risk** of depression (**95% CI: 2.17–5.52, $p < 0.001$**). The most significant predictor identified was **exposure to domestic violence**, with an **adjusted OR of 4.28 (95% CI: 2.07–8.85, $p < 0.001$)**, suggesting that women facing abuse were over four times more likely to experience perinatal depression. Additionally, a **prior history of depression**

independently predicted current depressive symptoms, with affected women being **2.62 times more likely** to experience perinatal depression compared to those with no such history (**95% CI: 1.39–4.92, $p = 0.003$**).

These results underscore the complex interplay between economic hardship, reproductive autonomy, emotional support, and psychological history in shaping maternal mental health outcomes. The high odds associated with interpersonal violence and lack of support further highlight the urgent need for psychosocial interventions alongside routine obstetric care.

5. DISCUSSION

This cross-sectional study identified a high prevalence of perinatal depression (38.5%) among women in Lahore, Pakistan. This aligns with regional estimates from South Asia, where socio-cultural and economic challenges substantially influence maternal mental health. Our findings reinforce the notion that perinatal depression is not only prevalent but also significantly associated with modifiable risk factors such as low income, unplanned pregnancies, lack of spousal support, and domestic violence.

The observed prevalence is consistent with previous studies in Pakistan, such as a study conducted in Karachi which reported a prevalence of 40.9% using the EPDS. The urban setting of Lahore—with its combination of modern healthcare access and persistent socio-cultural constraints—provides a relevant context for understanding both medical and social determinants of perinatal depression.

Low socio-economic status emerged as a strong predictor of depression, consistent with international literature. Financial strain during pregnancy can exacerbate feelings of helplessness, particularly in households where women are economically dependent on their spouses.

Unplanned pregnancies, reported by more than 45% of participants, were significantly associated with depression. This may be due to the emotional burden of adjusting to unexpected maternal responsibilities, compounded by inadequate support systems. In many cases, unplanned pregnancies also reflect a lack of reproductive autonomy, an issue still prevalent in many Pakistani households.

Spousal support proved to be one of the most protective factors, with women lacking emotional and practical support being 3.46 times more likely to develop depression. This finding echoes results from other LMICs, where women's emotional well-being is closely tied to their relationship dynamics, particularly in nuclear and joint family systems.

Domestic violence, although underreported, was another strong predictor. Women reporting physical or emotional abuse were over four times more likely to develop depressive symptoms. This reflects the psychological trauma imposed by interpersonal violence, which has long-term implications on maternal and child health. Integrating domestic violence screening into antenatal care could help identify high-risk women earlier.

Interestingly, factors such as maternal age, education level, and parity did not show significant associations in multivariate models, suggesting that psychosocial stressors have a more profound impact on perinatal mental health in this population than traditional demographic variables.

This study highlights a critical gap in routine perinatal care: the **absence of mental health screening and intervention**. Given the high prevalence of depression and its strong associations with psychosocial variables, there is an urgent need to integrate mental health services into existing maternal care infrastructure in Lahore.

6. STRENGTHS AND LIMITATIONS:

Strengths include a robust sample size and the use of a validated Urdu version of the EPDS. The multicenter design allowed for broader generalizability within Lahore.

Limitations include potential underreporting of sensitive variables like domestic violence and prior psychiatric history. Furthermore, as a cross-sectional study, causality cannot be established.

7. CONCLUSION

Perinatal depression affects nearly 2 in 5 women in urban Lahore, underscoring an urgent public health concern. The findings suggest that simple screening tools like the EPDS, when coupled with routine antenatal and postnatal care, can effectively identify women at risk. Addressing key modifiable factors—economic support, spousal involvement, and protection from domestic violence—can play a significant role in prevention and treatment.

8. RECOMMENDATIONS:

Integration of EPDS screening into primary maternal care.

Training for obstetric healthcare providers on recognizing and managing perinatal mental health disorders.

Referral systems for women needing psychological or psychiatric intervention.

Community-based awareness campaigns to reduce stigma and promote help-seeking behavior.

Further research should explore the effectiveness of intervention programs and the long-term impact of maternal depression on child outcomes in Pakistan

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