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Prevalence and determinants of postnatal depression among mothers attending a tertiary care hospital in Hyderabad. A cross-sectional study.

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Abstract

Background

Postnatal depression (PND) is a common yet underdiagnosed condition that impairs maternal well-being and child development.

Objectives

To determine the prevalence of PND among mothers attending a tertiary hospital in Hyderabad and to identify associated sociodemographic and obstetric factors.

Materials and methods

A cross-sectional study was conducted among 120 postnatal mothers within 24 weeks of delivery at the Departments of Obstetrics and Pediatrics, Neelima Institute of Medical Sciences, Hyderabad. Participants were grouped as 0–12 weeks and 13–24 weeks postpartum. The 10-item Edinburgh Postnatal Depression Scale (EPDS) was used, with scores >10 indicating possible depression. Sociodemographic and obstetric details were recorded, and associations were tested using chi-square analysis.

Results

The mean age was 26.8 ± 4.2 years. Most mothers were literate (89.2%), homemakers (71.7%), and from nuclear families (62.5%). Overall, 39 (32.5%) scored >10 on EPDS. Depression was more frequent in the 0–12 weeks group (38.3%) compared with 13–24 weeks (26.7%), though not significant. Significant associations were observed with maternal employment ($p = 0.0008$), female infant gender ($p = 0.0008$), domestic violence ($p = 0.011$), family substance abuse ($p = 0.0003$), and financial debts ($p = 0.023$). Education, family type, and delivery mode showed no significant association.

Conclusion

PND affects nearly one-third of mothers, with higher vulnerability in the early postpartum period. Psychosocial stressors, including employment status, gender of the newborn, violence, family substance abuse, and financial strain, were strongly associated with depressive symptoms. Recognition of both the prevalence and determinants is essential for timely interventions.

Recommendations

Routine mental health screening and psychosocial support should be integrated into maternal healthcare, with priority given to high-risk groups.

Keywords: *Postnatal depression, Edinburgh scale, maternal mental health, postpartum period, psychosocial risk.*
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Introduction

Postnatal depression (PND) is a prevalent yet frequently underdiagnosed mood disorder affecting women in the weeks and months following childbirth. It is characterized by symptoms akin to major depressive disorder, such as persistent low mood, fatigue, diminished self-worth, disturbed sleep, and a loss of interest in previously pleasurable activities. What differentiates PND is the emotional disconnection or ambivalence that mothers may feel toward their infants, often accompanied by doubts regarding their parenting capabilities (1).

Globally, the prevalence of PND is estimated to range between 10% and 15% during the first postpartum year. However, the burden is notably higher in low- and middle-income countries (LMICs) due to heightened psychosocial stress, limited access to mental health services, and societal stigma (2). In the Indian context, a recent comprehensive review has documented a wide variation in prevalence, with pooled estimates ranging from 22% to over 30%, reflecting both regional disparities and methodological differences (3).

The implications of untreated PND extend beyond maternal health, as it is strongly linked to poor child outcomes, including suboptimal growth, cognitive delays, behavioral disturbances, and compromised mother-infant bonding (2,4). Despite these adverse consequences, mental health screening is not routinely integrated into postnatal care services, particularly within public health systems (5).

PND is multifactorial in origin, arising from a complex interplay of biological, psychological, and social determinants. Key risk factors include hormonal changes, inadequate social support, unplanned pregnancies, financial constraints, gender preference for male offspring, exposure to domestic violence, and personal or family history of psychiatric illness (3-5). Addressing these factors through early detection and targeted intervention is essential to reducing the burden of PND and improving maternal-infant health outcomes.

This study was conducted to determine the prevalence of postnatal depression among mothers attending a tertiary care hospital and to examine the associated sociodemographic and obstetric factors. By identifying significant determinants, the study aims to generate evidence that can inform and enhance maternal mental health strategies, particularly in resource-constrained healthcare settings.

Methodology

Study design and setting

This cross-sectional analytical study was conducted over five months, from November 2024 to March 2025, at the Departments of Obstetrics and Pediatrics, Neelima Institute of Medical Sciences, Hyderabad, Telangana. The institution is a tertiary care teaching hospital catering to both urban and rural communities. Ethical approval was obtained from the Institutional Ethics Committee of Neelima Institute of Medical Sciences, Hyderabad, Telangana, before commencement of the study. Verbal informed consent was secured from all participants before their inclusion in the study.

Participants and selection method

A total of 120 postnatal mothers within six months postpartum were recruited. Participants were selected using **convenience sampling** from both outpatient and inpatient services of the obstetrics and pediatrics departments. Eligibility criteria included mothers who had delivered live, healthy infants and were mentally competent to respond. Exclusion criteria were mothers with a prior diagnosis of psychiatric illness, those with perinatal loss, or those unwilling to participate. Participants were then stratified into two groups based on postpartum duration:

Group 1: 0–12 weeks postpartum
Group 2: 13–24 weeks postpartum
Each group consisted of 60 participants.

Bias control measures

Several steps were taken to minimize potential sources of bias. Selection bias was reduced by recruiting mothers consecutively from both inpatient and outpatient units during the study period, ensuring representation of different clinical settings. Information bias was minimized by using a **validated screening tool (EPDS)** translated into the local language (Telugu) and pretested for clarity. Interviewers were trained uniformly to administer the questionnaire in a neutral, non-judgmental manner to avoid interviewer bias. Confounding was partially addressed by excluding mothers with pre-existing psychiatric illness or recent bereavement. Data entry and statistical analysis were cross-checked independently to reduce analytical bias.

Data collection tool

The 10-item *Edinburgh Postnatal Depression Scale (EPDS)*, a validated self-report screening tool, was used to assess depressive symptoms. The scale was translated into the local language (Telugu) and pretested for contextual clarity. A score >10 was considered suggestive of possible depression, warranting further clinical evaluation.

Variables assessed

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In addition to EPDS scores, data on sociodemographic characteristics (age, education, socioeconomic status, family type, occupation), obstetric factors (mode of delivery, gender of baby), and psychosocial variables (domestic violence, substance abuse in family, financial debts) were collected using a semi-structured interview schedule.

Statistical analysis

Data were entered into Microsoft Excel and analyzed using SPSS software version. Descriptive statistics such as frequencies and percentages were used to summarize categorical variables. The Chi-square test was applied to assess associations between potential risk factors and postnatal depression. A p-value <0.05 was considered statistically significant.

Results

Participants

During the study period, 138 postnatal mothers were approached. Of these, 10 did not meet the eligibility criteria (6 had a prior psychiatric illness, 2 had perinatal loss, and 2 were not mentally competent to respond), and 8 declined participation. The remaining 120 eligible mothers consented and were included in the analysis. All participants completed follow-up, and no data were excluded.

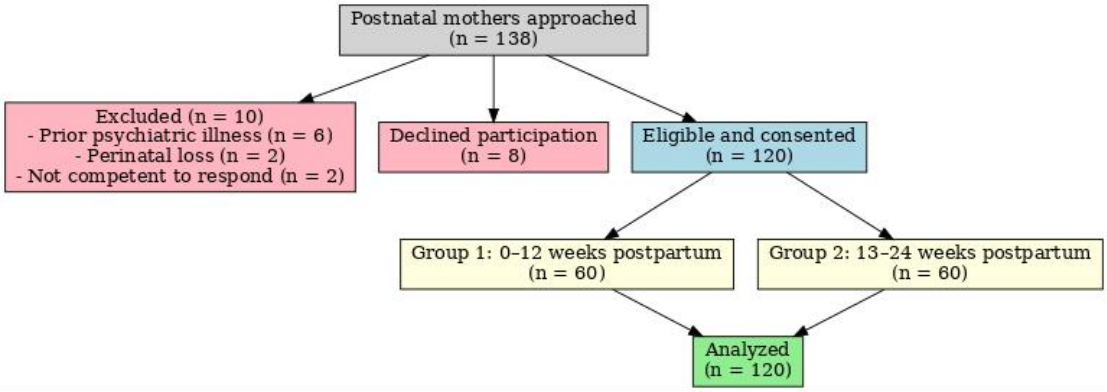

Figure 1. Participant flow diagram

Among the 120 mothers analyzed, equal distribution was maintained across the two postpartum groups: 0–12 weeks (n = 60) and 13–24 weeks (n = 60). Overall, 39 mothers (32.5%) scored >10 on the Edinburgh Postnatal Depression Scale (EPDS), indicating possible depression (Table 1).

Table 1: distribution of participants by epd score

EPD Score Category	Number of Participants	Percentage (%)
> 10 (Possible Depression)	39	32.5%
≤ 10 (No Depression)	81	67.5%

Analysis of the association between duration of the postpartum period and depression revealed that 23 (38.3%) of the mothers in the 0–12 week group and 16 (26.7%) in the 13–24 week group had an EPD score >10. However, this difference was not statistically significant (p > 0.05), suggesting no strong association between the duration of the postpartum period and depressive symptoms (Table 2).

Table 2: Association between duration of postpartum period and depression

Postpartum Period	EPD Score > 10 (Possible Depression)	EPD Score ≤ 10 (No Depression)
0–12 weeks	23	37
13–24 weeks	16	44

No significant association observed between postpartum duration and depression (p > 0.05).

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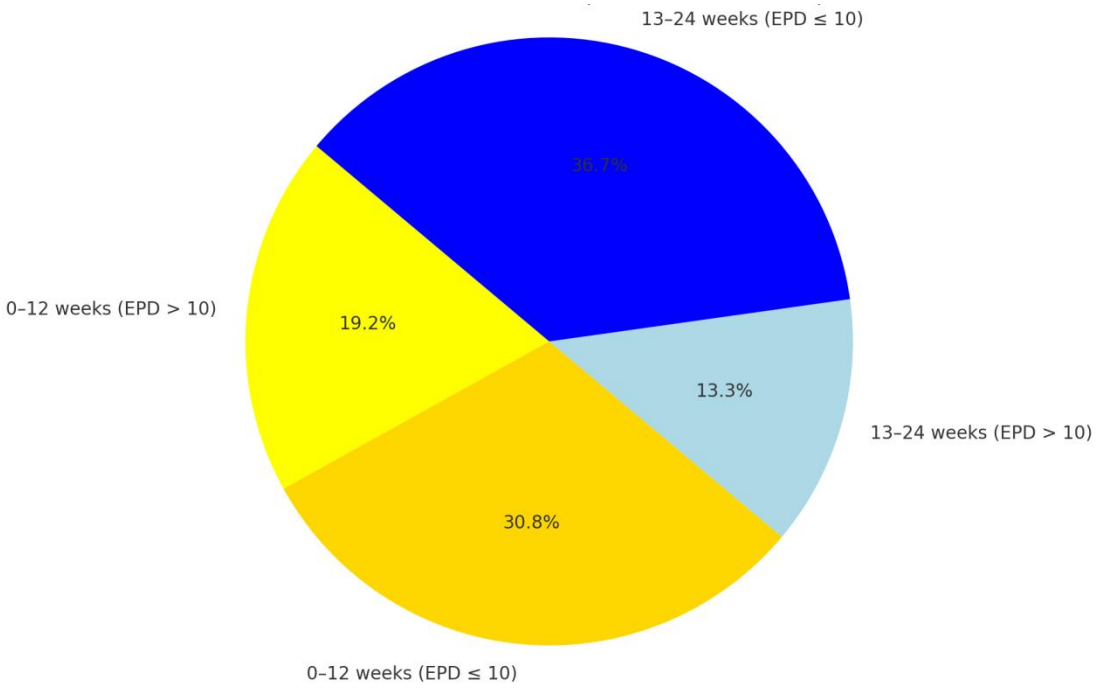

Figure 2. Association between duration of postpartum period and depression

Sociodemographic and obstetric factors were further examined for their association with postpartum depression. Statistically significant associations were observed with working status ($\chi^2 = 19.9$, $p = 0.0008$), gender of the baby ($\chi^2 = 15.39$, $p = 0.0008$), exposure to domestic violence ($\chi^2 = 6.41$, $p = 0.011$), presence of substance abuse in the family ($\chi^2 = 21.57$, $p = 0.0003$), and familial debts ($\chi^2 = 5.13$, $p = 0.023$). Conversely, family type, maternal education, and type of delivery did not show any significant association with depressive symptoms (Table 3).

Table 3: Association of various factors with postpartum depression

Variable	Category	Chi-square Value	p-value	Significance
Family Type	Nuclear vs Joint	2.61	0.16	Not Significant
Education	Illiterate vs Literate	0.67	0.41	Not Significant
Working Status	Housewife vs Job Holder	19.9	0.0008	Significant
Type of Delivery	Normal vs Caesarean	2.254	0.13	Not Significant
Gender of Baby	Male vs Female	15.39	0.0008	Significant
Violence from Husband	Yes vs No	6.41	0.011	Significant
Substance Abuse in the Family	Present vs Absent	21.57	0.0003	Significant
Familial Debts	Present vs Absent	5.13	0.023	Significant

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Discussion

This study assessed the prevalence and determinants of postnatal depression (PND) among mothers attending a tertiary care hospital in Telangana. The overall prevalence of PND was 32.5%, indicating that nearly one-third of postnatal mothers experienced significant depressive symptoms. Although depression was more frequent during the early postpartum period (0–12 weeks), the difference compared with the 13–24 week group was not statistically significant, suggesting that vulnerability extends throughout the first six months after childbirth.

The observed prevalence aligns with findings from other Indian and global studies. Kansagra et al. reported a prevalence of 34.1% in Western India, highlighting the continued relevance of maternal mental health concerns across diverse populations [6]. Comparable figures were also documented in studies from Nigeria and Tanzania, confirming that PND is a widespread public health challenge irrespective of cultural or geographic setting [7,8]. Similar to our findings, Bala et al. also identified the early postpartum period as a particularly sensitive time for the onset of depressive symptoms [9].

Several determinants emerged as significant in this study. Working mothers showed higher rates of depressive symptoms, which may reflect the added strain of balancing professional duties with childcare responsibilities. This association echoes previous reports where employment outside the home heightened stress and compromised maternal coping [6]. Gender of the newborn was another important factor; mothers of female infants had higher depression scores, reflecting persistent socio-cultural preferences for male children in South Asia. Such gender-related expectations have been highlighted in earlier Indian studies [9].

Exposure to domestic violence, substance abuse within the family, and financial debts were also strongly associated with depressive symptoms. These findings are consistent with prior evidence linking PND to psychosocial adversity, including intimate partner violence and economic stressors [10,11]. Social support systems play a vital buffering role, and the absence of protective family or community networks is known to exacerbate psychological distress in postpartum women [11].

In contrast, maternal education, family structure, and mode of delivery were not significantly associated with depressive symptoms. These results are in agreement with reports from Nepal and India, where such factors were not found to independently predict PND once psychosocial stressors were accounted for [12].

Generalizability

The findings of this study provide important insights into the burden and determinants of postnatal depression among mothers in a tertiary care hospital setting in Hyderabad. However, caution is needed when generalizing these results. The use of a single-center, convenience-based sample limits external validity, as the participants may not fully represent mothers from different geographic, cultural, or socioeconomic backgrounds in India. In addition, the study was conducted in an urban tertiary care facility, which may differ from community or rural health settings where access to care and psychosocial environments vary considerably. Despite these limitations, the prevalence and determinants identified are consistent with reports from other regions [6–12], suggesting that the patterns observed may be relevant to similar populations in low- and middle-income country settings. Larger, multi-centric studies would strengthen the external validity and applicability of these findings.

Conclusion

This study highlights a considerable burden of postnatal depression, with 32.5% of mothers exhibiting significant depressive symptoms. Although no statistically significant association was found with postpartum duration, a higher prevalence was observed in the early weeks following childbirth. Psychosocial factors such as employment status, gender of the newborn, domestic violence, substance abuse in the family, and financial stress were significantly associated with depressive symptoms. These findings emphasize the urgent need for routine mental health screening and targeted support interventions during the postnatal period. Early identification and holistic management of maternal mental health can significantly improve outcomes for both mothers and their infants in low-resource settings.

Limitations

This study had several limitations. The use of a convenience sampling method limited the generalizability of the findings to the broader population. Self-reported data, including responses to the Edinburgh Postnatal Depression Scale, were subject to reporting bias. The cross-sectional design restricted the ability to establish causality between the identified risk factors and postnatal depression. Additionally, other potential confounders, such as past psychiatric history or the availability of social support systems, were not comprehensively assessed.

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Recommendations

Routine screening for postnatal depression should be integrated into primary and tertiary maternal healthcare services using validated tools like the EPDS. Healthcare providers, especially in public sector hospitals, should receive training to recognize early signs of maternal depression. Targeted psychosocial support, counseling, and referral systems must be developed, particularly for high-risk groups such as working mothers, those facing domestic violence, or financial stress. Community awareness programs should be launched to reduce stigma and encourage mental health-seeking behavior. Future longitudinal studies are recommended to explore causal relationships and assess the impact of interventions on maternal and child outcomes.

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List of abbreviations

PND – Postnatal Depression
EPDS – Edinburgh Postnatal Depression Scale
LMICs – Low- and Middle-Income Countries
SPSS – Statistical Package for the Social Sciences
χ^2 – Chi-Square
ANC – Antenatal Care
OPD – Outpatient Department
IPD – Inpatient Department

Source of funding

The study had no funding.

Conflict of interest

The authors declare no conflict of interest.

Author contributions

MSR-Concept and design of the study, results interpretation, review of literature, and preparation of the first draft of the manuscript. Statistical analysis and interpretation, revision of manuscript. **RF**-Concept and design of the study, results interpretation, review of literature, preparing the first draft of the manuscript, and revision of the manuscript.**KVK-**Review of literature and preparing the first draft of the manuscript. Statistical analysis and interpretation. **SU-**Concept and design of the study, results interpretation, review of literature, and preparing the first draft of the manuscript. Statistical analysis and interpretation, revision of manuscript.

Data availability

Data available on request

Author biography

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