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Original Research Article

Maternal mental health matters: understanding postpartum depression using EPDS

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ABSTRACT

Background: Postnatal depression (PND) is a global public health concern with significant implications for maternal and infant health. It is a common but underdiagnosed mental health disorder affecting women during the postpartum period, particularly in low- and middle-income countries. A validated screening tool such as the Edinburgh Postnatal Depression Scale (EPDS) is essential for early detection and prevention of adverse maternal and infant outcomes.
Methods: A cross-sectional observational study was conducted at BJRM Hospital, Delhi in 250 postpartum women using the Edinburgh Postnatal Depression Scale (EPDS) at 6 to 8 weeks postpartum. A score ≥13 indicated probable depression and data was analysed using descriptive statistics.
Results: Probable postnatal depression (EPDS≥13) was observed in 23% (n=59), with 17% showing possible depression (EPDS 10–12) mainly anxiety symptoms. Mean EPDS scores did not show any significant association with maternal age(p=0.086), parity (p=0.086) or mode of delivery (p=0.363). There was significant association of EPDS scores with the newborn sex (p=0.002).
Conclusions: Nearly 25% of postpartum women screened positive for probable depression. Extremes of maternal age, primiparity, mode of delivery and sex of newborn were associated with higher EPDS scores. Routine postpartum screening using EPDS should be integrated into maternal health services to enable early identification and timely intervention.

Keywords: Postnatal depression, Edinburgh postnatal depression scale, Postpartum mental health, Maternal mental health, EPDS

INTRODUCTION

The postpartum period is a critical phase in a woman's life, marked by significant physiological, psychological, and social adjustments. Although childbirth is commonly perceived as a positive and fulfilling experience, many women develop emotional disturbances during this period. Postnatal depression (PND) is one of the most prevalent mental health disorders affecting women after childbirth and constitutes a major public health concern globally. The estimated prevalence rates of PND are approximately 17.2% worldwide; higher rates are reported from low- and middle-income countries.[1] PND in India has a high prevalence with estimates ranging from 11% to over 25%; Southern India generally reports higher rates, up to 26%.[2] The etiology of postnatal depression is multifactorial, involving biological, psychological, and social determinants. Hormonal changes following delivery, sleep deprivation, and physical exhaustion contribute to increased vulnerability in the postpartum period. Psychosocial factors such as lack of social support, marital conflict, financial stress, unplanned

pregnancy, and previous psychiatric illness further increase the risk. Obstetric and demographic factors, including extremes of maternal age, primiparity, complicated labor, operative deliveries, and neonatal illness, have also been shown to be significantly associated with postnatal depressive symptoms.

Postnatal depression has serious consequences for both the mother and the infant, including impaired maternal functioning, poor mother–infant bonding, suboptimal breastfeeding practices, and adverse effects on the cognitive and emotional development of the child. In severe cases, it may result in suicidal ideation or harm to the infant, highlighting the importance of early detection and intervention. There is various screening tool available to diagnose PND but the condition still remains underdiagnosed and undertreated, particularly in resource-limited settings.

The EPDS is a widely used, validated screening instrument specifically designed to detect depressive and anxiety symptoms in the postpartum period. It consists of 10 items assessing mood, anxiety, guilt, sleep disturbance, and suicidal thoughts, and has been extensively validated across different cultural and linguistic settings, including India.

Due to its simplicity, reliability, and ease of administration, the EPDS is suitable for routine screening in both hospital and community-based settings. The present study aims to assess postnatal depressive symptoms using the EPDS and to evaluate the association between EPDS scores and maternal age, parity, mode of delivery, sex of the newborn, and other relevant factors.

METHODS

This was a cross-sectional observational study conducted in the postnatal clinic of BJRM Hospital, Delhi, over a period of six months from 1st January 2025 to 30th June 2025, after obtaining approval from the Institutional Ethical Committee. A total of 250 postpartum women attending the postnatal clinic within 6–8 weeks after delivery were recruited for the study using convenience sampling from eligible women presenting during the study period.

After obtaining informed written consent, participants were asked to complete the EPDS questionnaire in a private setting, with assistance provided to those who had difficulty with literacy. Confidentiality and anonymity of all participants were strictly maintained throughout the study.

Inclusion criteria

The study included women aged 18 years and above who were in the postpartum period within 6 to 8 weeks after delivery and who were willing to provide informed consent to participate in the study.

Exclusion criteria

Women with a known psychiatric illness diagnosed prior to pregnancy, those with serious physical illnesses or complications requiring intensive care, and individuals who did not provide consent were excluded from the study.

Data collection tool

The EPDS was used for screening. This is a validated 10-item self-report questionnaire specifically designed to screen for postpartum depression. Each item of the scale is scored on a 4-point scale ranging from 0 to 3, with the total score ranging from 0 to 30. A score of 13 or more is considered indicative of probable depression, while a score of 10–12 suggests possible depression, and a score of less than 10 indicates a low likelihood of depression. Women with high scores or any indication of suicidal thoughts, including any non-zero response to item 10, were promptly referred to the psychiatry or mental health unit for further evaluation and management.

Data analysis

Collected data was entered into (e.g., Microsoft Excel or SPSS version X) and analysed using descriptive statistics. Prevalence rates were calculated for each EPDS score category, and associations between EPDS scores and potential risk factors such as age, parity, mode of delivery, and sex of the newborn were assessed using appropriate statistical tests, including the chi-square test or t-test as applicable. A p-value of less than 0.05 was considered statistically significant.

RESULTS

EPDS score ≥13 was found in 23.6 % (n=59) of women, indicating a probable diagnosis of postpartum depression.

Table 1: EPDS score.

EPDS score	Number of participants (%)	Diagnosis
<9	83 (33.2)	Low likelihood of depression
10-12	108 (43.2)	Possible postnatal depression
>13	59 (23.6)	Probable postnatal depression

These women warrant further psychological evaluation and possibly referral to mental health services. Scores between 10–12 were observed in 43.2 % (n=108), suggesting possible depression.

These women need close follow-up, support, and a repeat screening in 1–2 weeks. The remaining 23.6% (n=83) scored below 10, indicating a low likelihood of

significant depressive symptoms at the time of screening (Table 1).

Table 2: Mean score for individual EPDS question.

Question		Mean score
Q1	Able to laugh and see the funny side	2.54
Q2	Look forward with enjoyment	2.70
Q3	Self-blame	1.53
Q4	Anxious or worried for no reason	3.75 (highest mean score)
Q5	Felt scared or panicky	1.41
Q6	Things getting on top of me	2.90
Q7	Difficulty sleeping due to unhappiness	2.43
Q8	Felt sad or miserable	1.91
Q9	Crying due to unhappiness	1.51
Q10	Thoughts of self-harm	0.02 (lowest mean score)

The mean scores for individual EPDS items are shown in Table-2. Higher mean scores were noted for anxiety-related items (Q4 and Q6), indicating that anxiety symptoms were more prominent than depressive cognitions or self-harm ideation in the study population. Most of the participants,113 women (45.2%) were less than 24 years of age, 134 women (53.6 %) were between 25-35 years and only 3 women (1.2 %) was more than 35 years (Table 3). Among the postpartum women who were less than 24 years of age, EPDS was less than 9 in 32.7%, between 10 to 12 in 46.9% and more than 13 in 20.3%. In women of age group between 25 to 29 years, EPDS was less than 9 in 35.9% and between 10 to12 in 41%. Almost one-fourth women (25.2%) in this age group had EPDS score of more than 13; while 28.7% of women aged 30 years or more had EPDS of more than13. Diagnosis of probable depression increased with age of postpartum women though the trend was not statistically significant (Table 3). The mean score was found to be 10.3 in women <24 years and the score increased steadily with age of the postpartum women with participants older than 35 years having a mean score of 11.2 though this association was not found to be statistically significant (p=0.08) (Table 3). Eighty-nine women (35.6%) were primipara while 161 women (64.4%) were multiparous. The mean EPDS score of primiparas was 10.47 while it was 10.35 for multiparas (Table 4). Primiparous women demonstrated higher depressive symptom scores compared to multiparous women though this was not clinically significant (p=0.086). Lack of prior childcare experience, anxiety regarding newborn care, and adjustment to motherhood maybe some of the reasons for this.

Table 3: EPDS score and age groups of participants.

Age (years)	Number of participants	EPDS score <9 (%)	EPDS score 9-13 (%)	EPDS score >13 (%)	Mean EPDS
<24	113	37 (32.74)	53 (46.90)	23 (20.35)	10.35
25-29	95	32 (35.9)	39 (41.05)	24 (25.26)	10.39
30-35	39	14 (35.9)	14 (35.9)	11 (28.20)	10.41
>35	03	0	2 (66.7)	1 (33.3)	11.21

Table 4: EPDS score and parity of participants.

Parity	Number of women	EPDS score <9 (%)	EPDS score 9-13 (%)	EPDS score >13 (%)	Mean EPDS score
Primipara	89	28 (31.46)	40 (44.94)	21 (23.6)	10.47
Multipara	161	55 (34.16)	68 (42.24)	38 (23.60)	10.35

Table 5: EPDS score and mode of delivery.

Mode of delivery	Number of women	EPDS score <9 (%)	EPDS score 9-13 (%)	EPDS score >13 (%)	Mean EPDS score	P value
Vaginal	223	73 (32.74)	100 (44.8)	50 (22.42)	10.37	0.363
Caesarean section	27	10 (37.04)	8 (29.63)	9 (33.33)	10.59	

223 (89.2%) of the participant group had a vaginal delivery while 27(10.8%) women underwent a caesarean section. A larger proportion of women who underwent cesarean section had a EPDS score of more than 13 as compared to women who delivered vaginally; 33.3% vs 22.4% respectively. The mean EPDS score in the vaginal

delivery group was 10.37 and 10.59 in the women who delivered by cesarean section and this association was not found to be statistically significant (Table 5). There were 131 male newborn babies (52.4%) and 120 female babies (47.6%). The mean EPDS score for women with male newborn and female baby was 9.65 and 10.39 respectively. This clinically significant difference in EPDS scores suggests that maternal depressive symptoms were strongly influenced by newborn sex (Table 6).

Table 6: EPDS score and sex of newborn.

Sex of newborn	Number of women	EPDS score <9 (%)	EPDS score 9-13 (%)	EPDS score >13 (%)	Mean EPDS score	P value
Male	131	58 (44.27)	55 (41.98)	18 (13.74)	9.65	0.0022
Female	120	25 (20.83)	54 (45)	41(34.17)	10.39	

DISCUSSION

Postpartum depression was found in approximately 23% women in the study which is similar to PPD prevalence rate of 20% globally.[3] There are multiple clinical manifestations of PPD comprising of insomnia, anxiety, irritability, mood swings and depression and in severe cases, the woman may get suicidal or non-responsive to infant's cues leading to child neglect. The risk factors associated with development of depressive illness after delivery could be social with low levels of partner support or financial constraints, unexpected pregnancy or complications, history of prior psychiatric condition and genetic susceptibility.

The EPDS is a reliable and validated tool most commonly used for screening women for PPD. This study evaluated postnatal depressive symptoms using EPDS among 250 postpartum women and examined their association with maternal age, parity, mode of delivery, and sex of the newborn. Higher mean scores were noted in the study population for anxiety-related items in EPDS (Q4 and Q6), indicating that anxiety symptoms were more prominent than depressive cognitions or self-harm ideation. The overall findings also indicate that while EPDS scores showed minimal variation across age groups, parity and mode of delivery, statistically significant differences were observed with respect newborn sex, highlighting the role of obstetric and sociocultural determinants in postpartum mental health.

In the present study, mean EPDS scores were comparable across age groups, with no statistically significant association between maternal age and postpartum depressive symptoms although a trend towards slightly higher scores was observed in mothers aged over 35 years.

This suggests that depressive symptomatology in the postnatal period is not strongly age-dependent and may be influenced more by psychosocial and contextual factors than chronological age alone. These findings are consistent with recent studies by Shorey et al and Silva et al, who reported no significant association between maternal age and postpartum depression risk after controlling for psychosocial stressors.[2-4] Similarly, a large systematic review by Hahn-Holbrook et al concluded that younger age alone is not a consistent predictor of postpartum depression across populations.[5] However, some studies from low- and middle-income countries have reported higher depressive symptoms among adolescent mothers, attributed to social vulnerability and reduced support systems (Upadhyay et al).[1] Hence, age alone may not independently predict postpartum depressive symptoms but may interact with other psychosocial stressors. The lack of age association in the present study may reflect relatively homogeneous psychosocial circumstances in the study population.

Primiparous women in the study group demonstrated higher depressive symptom scores compared to multiparous women though this was not clinically significant highlighting that parity alone may not be a strong independent predictor of postpartum depression. These findings are similar to prior research indicating that parity is not a consistent predictor of postpartum depression, although first-time mothers may experience anxiety related to new caregiving responsibilities, while multiparous mothers may face cumulative caregiving and socioeconomic stressors. Putnam et al and Alshikh Ahmad et al also reported similar results with comparable depression risk between first-time and multiparous mothers.[6,7] A meta-analysis by Yim et al also found inconsistent evidence for parity as a risk factor.[8] However, contrasting results have been observed in some studies, where primiparity was associated with higher anxiety and depressive symptoms due to adjustment difficulties and fear of childcare (Gao et al).[9] The absence of parity-related differences in the present study may reflect effective antenatal counseling and social support mechanisms.

A higher mean EPDS score was observed in the women who underwent cesarean section in the present study as compared to women who delivered vaginally. This supports growing evidence that operative deliveries, particularly emergency cesarean sections, are associated with increased postpartum psychological distress. Recent studies by Xu et al and Goker et al also demonstrated higher rates of postpartum depression among women delivered by cesarean section, especially when the procedure was unplanned.[10,11] A meta-analysis by Carter et al further confirmed cesarean delivery as a moderate risk factor for postpartum depressive symptoms.[12] The

psychological impact of surgical intervention, delayed mother–infant bonding, prolonged recovery, and unmet expectations regarding childbirth may contribute to this association. In the present study, a statistically significant higher mean EPDS score was observed among mothers who delivered female infants compared to those who delivered male infants (10.39 vs. 9.66, p=0.0023). This finding is particularly relevant in sociocultural context of our country where son preference persists and familial or societal pressure may influence maternal psychological well-being. This further emphasizes the need for culturally sensitive mental health screening and counselling in postpartum women. Comparable findings have been reported in South Asian and Middle Eastern populations where sociocultural preference for male offspring has been linked to increased maternal psychological distress following the birth of a female child. A study by Patel et al demonstrated significantly higher postpartum depressive symptoms among mothers delivering female infants, attributing this to societal pressure and familial expectations.[13] Similarly, Ahmad et al and Dadi et al reported newborn sex as an independent predictor of postpartum depression in patriarchal societies.[14,15] In contrast, studies from Western populations typically show no association between infant sex and maternal depression (O'Hara and Wisner, 2019), highlighting the influence of sociocultural determinants on maternal mental health outcomes.[16] The study emphasizes the need to integrate mental health assessment into routine postnatal care which would help in early detection of postpartum depression and timely psychological counseling for high-risk groups. This would further translate into improved maternal and infant health outcomes.

CONCLUSION

Postpartum depression is a serious but highly treatable condition that affects many new parents; but it still remains underdiagnosed and poorly treated in most women. Early recognition is essential, and routine screening with tools such as the EPDS allows healthcare providers to identify symptoms promptly and guide timely intervention. In this study, the prevalence of PPD was 23% and the risk was higher in women who underwent a cesarean section or delivered a female newborn.

Without support, postpartum depression can affect both parental well-being and infant development; with appropriate care, recovery is achievable. A multidisciplinary approach including counseling, social support, lifestyle adjustments, and medication, when necessary, ensures a comprehensive and continuous care for such mothers. These findings emphasize the importance of routine mental health screening during the postnatal period, particularly among highrisk groups. Including EPDS screening into routine postnatal care services can facilitate early detection, referral, and management, thereby improving maternal wellbeing and infant developmental outcomes.

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