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PREVALENCE AND PSYCHOSOCIAL DETERMINANTS OF POSTPARTUM DEPRESSION SCREENED BY THE EDINBURGH POSTNATAL DEPRESSION SCALE AMONG WOMEN ATTENDING A TERTIARY CARE HOSPITAL: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Postpartum depression (PPD) is a major mental-health complication of childbirth, with global pooled prevalence of 21.0% (95% CI 19.1–23.0%) at Edinburgh Postnatal Depression Scale (EPDS) ≥10 [1]. In the Indian context, PPD is frequently underscreened and underdiagnosed, compounded by cultural stigma, son-preference, lack of social support, and healthcare system gaps in perinatal mental health.

Methods: A cross-sectional study screened 600 postpartum women aged 18–40 years between 4 weeks and 6 months postpartum attending the postnatal and immunisation outpatient department. Validated regional-language EPDS (cut-off ≥10 for probable PPD; ≥13 for major depression), Zung Self-Rating Anxiety Scale, and a structured psychosocial questionnaire were administered.

Results: EPDS ≥10 was present in 16.3% (n=98) and EPDS ≥13 in 7.8% (n=47). Postpartum anxiety (Zung ≥40) was detected in 22.4%. Independent multivariable predictors of PPD included domestic violence (aOR 3.5), unplanned pregnancy (aOR 2.6), NICU admission of infant (aOR 2.4), delayed breastfeeding initiation >24 hours (aOR 2.1), female infant with strong family son-preference (aOR 1.9), and nuclear family without social support (aOR 2.0).

Conclusion: PPD affects approximately 16% of postpartum women at this tertiary care hospital. Multiple modifiable psychosocial risk factors were identified. Routine EPDS screening at postnatal and immunisation visits, with structured referral pathways to psychiatry and counselling, should be institutionalised as standard of care.

Keywords: Postpartum depression; Edinburgh Postnatal Depression Scale; EPDS; psychosocial risk factors; maternal mental health; India

1. INTRODUCTION

Postpartum depression (PPD) is defined as a non-psychotic depressive episode of at least moderate severity beginning within the first year after delivery, most commonly manifesting between 4 weeks and 6 months postpartum [1]. It affects an estimated 10–20% of women

globally, with a meta-analysis of 291 studies from 56 countries (n=296,284 women) by Hahn-Holbrook et al. documenting a pooled prevalence of 21.0% (95% CI 19.1–23.0%) for possible PPD at EPDS ≥10 [2]. In India, published prevalence estimates range from 11% to 32%, reflecting both genuine regional variation and methodological heterogeneity [3].

The consequences of untreated PPD extend beyond the mother — adversely affecting infant neurodevelopment, mother-infant bonding, breastfeeding initiation and duration, child vaccination uptake, and long-term child cognitive and behavioural outcomes [4]. PPD is also associated with increased risk of maternal suicide, particularly in the first year postpartum [5]. Despite this burden, systematic screening for PPD remains absent from most Indian antenatal and postnatal care programmes, and psychiatric referral is hampered by stigma, distance, cost, and the fragmentation of obstetric and mental health services [6].

The Edinburgh Postnatal Depression Scale (EPDS), a validated 10-item self-report questionnaire. is the most widely used and validated screening instrument for PPD across cultures and languages. Several Indian-language validations of EPDS are available (Tamil, Hindi, Kannada, Malayalam, Telugu), with cut-off scores of ≥10 for probable depression and ≥13 for major depression demonstrating acceptable sensitivity (approximately 83%) and specificity (approximately 82%) against structured diagnostic interviews [7].

Psychosocial risk factors for PPD in the Indian context include domestic violence, family conflict over infant sex, unplanned pregnancy, lack of social support in nuclear families, infant illness, and economic stressors [8]. Understanding the local prevalence and risk-factor profile is essential for designing context-appropriate screening and referral programmes. This study aimed to determine the prevalence of PPD using the EPDS among postpartum women attending a tertiary care hospital and identify independent psychosocial and obstetric predictors of PPD.

2. MATERIALS AND METHODS

2.1 Study Design and Setting

A cross-sectional study was conducted in the postnatal and immunisation OPD of a tertiary care hospital over 8 months. IEC approval obtained; written informed consent in local language obtained from all participants. STROBE guidelines followed.

2.2 Study Population and Sample Size

Women aged 18–40 years, between 4 weeks and 6 months postpartum (any mode of delivery), attending postnatal OPD or immunisation clinic were included. Exclusion: women with pre-existing psychiatric disorder (other than PPD), multiple gestation, severe obstetric complication precluding interview, or inability to communicate. Sample size: based on expected PPD prevalence of 15% at 95% confidence and 4% absolute precision (n=306 minimum); accounting for 20% attrition, target n=600.

2.3 Instruments

(1) Edinburgh Postnatal Depression Scale (EPDS) — validated regional-language version; 10 items; cut-off ≥10 (probable PPD), ≥13 (major depression). (2) Zung Self-Rating Anxiety Scale (SAS) — 20 items; raw score converted to anxiety index; ≥40 = moderate-severe anxiety. (3) Structured psychosocial questionnaire — collecting: age, education, occupation, socioeconomic status (modified Kuppuswamy scale), parity, mode of delivery (LSCS/vaginal), planned vs unplanned pregnancy, infant sex, gestational age at birth, birth weight, NICU admission, breastfeeding initiation timing, prior psychiatric history, domestic violence (measured by WHO Domestic Violence Module), perceived social support (Multidimensional

Scale of Perceived Social Support; MSPSS), comorbid medical illness, current breastfeeding status.

2.4 Statistical Analysis

Descriptive statistics for all variables. Chi-square/Fisher's exact test for categorical comparisons. Independent samples t-test for continuous variables. Multivariable binary logistic regression with EPDS ≥10 as outcome; adjusted ORs with 95% CI reported; significance $p<0.05$. SPSS v26.

3. RESULTS

3.1 Prevalence and Screening Outcomes

Of 600 postpartum women screened, 98 (16.3%; 95% CI 13.4–19.5%) had EPDS ≥10 (probable PPD); 47 (7.8%) had EPDS ≥13 (possible major depression). Postpartum anxiety (Zung SAS ≥40) was present in 134 (22.4%); co-existing PPD and anxiety in 68 (11.3%). Mean EPDS score was 7.4 ± 5.2 (range 0–28). Demographic and clinical profile is presented in Table 1.

Table 1: Sociodemographic and Obstetric Profile of Postpartum Women by EPDS Category (n=600)

Characteristic	EPDS <10 (n=502)	EPDS ≥10 (n=98)	p-value
Mean age, years (±SD)	25.8 ± 4.1	24.9 ± 4.7	0.08
Primipara, n (%)	224 (44.6%)	48 (49.0%)	0.44
Education <10th std, n (%)	168 (33.5%)	48 (49.0%)	0.005
Lower SES (Kuppuswamy <10), n (%)	178 (35.5%)	52 (53.1%)	0.002
LSCS delivery, n (%)	202 (40.2%)	44 (44.9%)	0.38
Unplanned pregnancy, n (%)	111 (22.1%)	38 (38.8%)	0.001
Female infant (when son pref), n (%)	92/280 (32.9%)	31/60 (51.7%)	0.006
NICU admission, n (%)	61 (12.2%)	28 (28.6%)	<0.001
Breastfeeding initiation >24 h, n (%)	101 (20.1%)	36 (36.7%)	0.001
Domestic violence (WHO mod), n (%)	48 (9.6%)	32 (32.7%)	<0.001
Low social support (MSPSS <4.0), n (%)	129 (25.7%)	46 (46.9%)	<0.001

Figure 1: Comparison of Maternal and Psychosocial Characteristics by EPDS Score

3.2 Multivariable Predictors of PPD

Multivariable logistic regression (Table 2) identified six independent predictors of EPDS ≥10. Domestic violence was the strongest predictor (aOR 3.5; 95% CI 1.8–6.8; p<0.001), followed by unplanned pregnancy (aOR 2.6; 95% CI 1.5–4.5), NICU admission (aOR 2.4; 95% CI 1.3–4.3), delayed breastfeeding initiation >24 hours (aOR 2.1; 95% CI 1.2–3.8), nuclear family without social support (aOR 2.0; 95% CI 1.2–3.4), and female infant in family with son-preference (aOR 1.9; 95% CI 1.1–3.4).

Table 2: Multivariable Logistic Regression: Independent Predictors of PPD (EPDS ≥10) (n=600)

Variable	Unadj OR (95% CI)	p-value	Adj OR (95% CI)	p-value
Domestic violence	4.5 (2.5–8.2)	<0.001	3.5 (1.8–6.8)	<0.001
Unplanned pregnancy	2.2 (1.3–3.6)	0.002	2.6 (1.5–4.5)	0.001
NICU admission of infant	2.8 (1.6–4.8)	<0.001	2.4 (1.3–4.3)	0.004
Delayed BF initiation >24 h	2.3 (1.4–3.8)	0.001	2.1 (1.2–3.8)	0.011
Nuclear family, low support	2.4 (1.4–3.9)	<0.001	2.0 (1.2–3.4)	0.010
Female infant (son preference)	2.1 (1.2–3.7)	0.009	1.9 (1.1–3.4)	0.031
Education <10th std	1.9 (1.2–3.0)	0.008	1.5 (0.9–2.6)	0.12
LSCS delivery	1.2 (0.8–1.9)	0.38	1.1 (0.7–1.8)	0.63

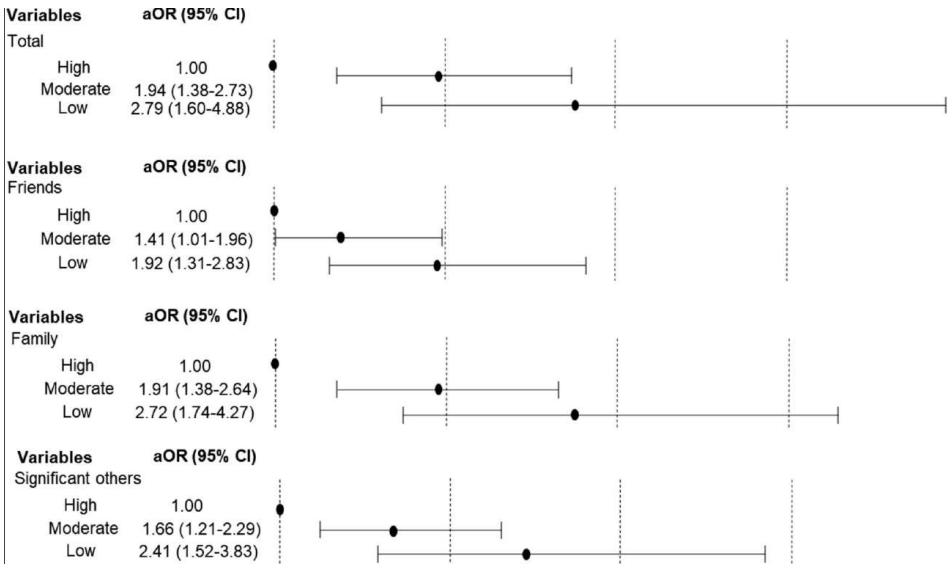

Figure 2: Forest Plot of Independent Predictors of Postpartum Depression

4. DISCUSSION

The prevalence of probable PPD (EPDS ≥10) of 16.3% at this tertiary care hospital is consistent with the published range for Indian studies — 11% to 32% [23,24,25] — and closely approximates the global pooled estimate of 21% [9], acknowledging that the Hahn-Holbrook et al. meta-analysis included studies from higher-income countries with different cultural and socioeconomic contexts. The co-occurrence of postpartum anxiety in 22.4% of women underscores that postnatal mental health screening should encompass anxiety as well as depression, as both conditions independently impair maternal-infant attachment and parenting behaviour [10].

Domestic violence emerged as the strongest predictor of PPD (aOR 3.5), aligning with a meta-analysis by Dennis and Vigod [11] reporting a 2–5-fold increased odds of PPD in women experiencing intimate-partner violence. The WHO estimates that approximately 30% of ever-partnered women globally have experienced intimate-partner violence, with South Asia showing among the highest regional prevalence [12]. The finding that one-third of EPDS-positive women in our study reported domestic violence (32.7%) compared to 9.6% of EPDS-negative women has significant implications: routine antenatal and postnatal care must incorporate validated domestic-violence screening, and healthcare workers should be trained in safe enquiry and referral protocols.

Son-preference — reflected in the significantly higher PPD prevalence among mothers of female infants in families with strong son-preference — is a culturally specific risk factor with documented evidence from South Asian settings [13]. This finding is not a commentary on the value of female children, but rather a reflection of the real social and economic pressure experienced by mothers delivering girls in households where male offspring are disproportionately valued. Addressing this determinant requires community-level gender-sensitisation programmes alongside individual screening.

The association of delayed breastfeeding initiation (>24 hours) with PPD (aOR 2.1) is likely bidirectional: breastfeeding difficulties may precipitate PPD through hormonal dysregulation (oxytocin, prolactin) and frustration, while PPD itself impairs breastfeeding motivation and technique. Early lactation support by trained counsellors within the first 24 hours postpartum may serve as a dual-benefit intervention — improving breastfeeding rates while reducing PPD risk [15].

The absence of a significant association between mode of delivery (LSCS vs vaginal) and PPD, consistent with large meta-analyses [15], suggests that mode of delivery per se is not a risk factor — but emergency CS may be, through pathways of perceived loss of control, pain, and unmet birth expectations not measured in this study. Future studies should distinguish between elective and emergency CS.

Limitations: cross-sectional design cannot establish temporality; EPDS is a screening tool, not a diagnostic instrument (structured clinical interview would increase diagnostic precision); convenience sampling at OPD may underrepresent women with severe PPD who are housebound; domestic-violence screening may be subject to social-desirability bias.

5. CONCLUSION

Postpartum depression screened by EPDS ≥10 was prevalent in 16.3% of postpartum women at this tertiary care hospital. Domestic violence, unplanned pregnancy, NICU admission, delayed breastfeeding, lack of social support, and female infant sex in son-preference families were independent risk factors. Integrating validated EPDS screening into routine postnatal and infant immunisation visits, with structured psychiatry referral pathways and capacity-building for healthcare workers in perinatal mental health, is urgently recommended.

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