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Original Article

Postpartum Psychiatric Morbidities in a South Indian Tertiary Hospital: Prevalence and Obstetric Correlates

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ABSTRACT

Background and Aims Postpartum psychiatric morbidities, including depression, anxiety, stress, and psychosis, pose significant risks to maternal and infant health, often leading to impaired bonding and long-term developmental issues. Despite global recognition, data from Indian tertiary care settings remain limited, particularly in southern urban contexts. This study aimed to estimate the prevalence of these morbidities among postpartum women and explore associations with sociodemographic and clinical profiles.

Materials and Method A cross-sectional study was conducted at Kilpauk Medical College and Hospital, Chennai, involving 290 postpartum women aged ≥18 years, assessed 2–6 weeks post-delivery. Convenience sampling was used. After informed consent, sociodemographic and clinical data were collected via structured proforma. Validated tools included Mini International Neuropsychiatric Interview (MINI), Hamilton Anxiety Rating Scale (HAM-A), Edinburgh Postnatal Depression Scale (EPDS), Brief Psychiatric Rating Scale (BPRS), and Perceived Stress Scale (PSS). Data were analysed using SPSS version 25, with chi-square/Fisher's exact tests for associations ($p<0.05$ significant).

Results Overall psychiatric morbidity was 35.17%, with depression (EPDS) at 13.10%, anxiety (DASS-21/HAM-A aligned) at 15.17%, stress (DASS-21/PSS) at 10.34%, and low psychosis rates. Depression was significantly associated with caesarean section (84.2% vs. 65.9%; $p=0.024$) and primiparity (73.7% vs. 56.3%; $p=0.045$). Anxiety ($p=0.011$) and stress ($p=0.005$) were higher among mothers of female infants.

Conclusion Postpartum psychiatric morbidities affect over one-third of women in this tertiary cohort, driven by obstetric factors and cultural gender biases. Routine screening and multidisciplinary interventions are essential to mitigate risks and improve maternal-infant outcomes.

Keywords: Postpartum depression; anxiety; stress; psychiatric morbidity; tertiary care; India.

INTRODUCTION

The postpartum period represents a critical phase in a woman's life, characterized by profound physiological, psychological, and social adjustments following childbirth [1]. While this transition is often celebrated as a time of joy and bonding with the newborn, it also carries a heightened vulnerability to mental health disturbances. Postpartum psychiatric morbidities encompass a spectrum of conditions, ranging from transient postpartum blues to more severe disorders such as depression, anxiety, and psychosis [2]. Globally, perinatal mental disorders affect a substantial proportion of women, with estimates indicating that up to 20% experience significant depressive or anxiety symptoms during pregnancy or the postpartum period [3]. In low- and middle-income countries (LMICs), the burden appears considerably higher, often compounded by socioeconomic stressors, limited access to healthcare, cultural stigmas surrounding mental illness, and inadequate integration of mental health services into routine maternal care [4].

In India, where over 25 million births occur annually, postpartum mental health presents unique challenges. Cultural factors, including strong family involvement in childcare, gender preferences for offspring, and societal expectations of maternal resilience, interact with structural issues such as poverty, urban-rural disparities, domestic violence, and limited mental health resources [5]. Anxiety disorders in the postpartum phase are similarly prevalent, often co-occurring with depression. Postpartum psychosis represents a psychiatric emergency with risks of infanticide or suicide if not promptly addressed [6]. Despite this, postpartum mental health remains under-screened and under-treated in many settings. Barriers include stigma, lack of awareness among healthcare providers, overburdened obstetric services, and the absence of routine integration of psychiatric evaluation in postnatal care protocols. Early identification is crucial, as postpartum psychiatric conditions are amenable to interventions such as psychotherapy, pharmacotherapy, and psychosocial support, which can significantly mitigate adverse outcomes for both mother and child [7].

Psychosocial contributors include marital discord, inadequate partner or family support, financial strain, history of psychiatric illness, and stressful life events [8]. In the Indian context, additional factors such as preference for male infants, joint family pressures, and economic dependence further exacerbate risks. Tertiary care centres, by virtue of their diverse patient populations and multidisciplinary capabilities, offer an ideal opportunity to estimate prevalence, identify correlates, and advocate for improved screening practices. Despite accumulating evidence, data from southern urban tertiary settings remain limited, with variability in diagnostic approaches and timing of assessments. Therefore, the present study was conducted with the objectives of estimating the prevalence of psychiatric morbidities including anxiety, depression, and psychosis, as well as the level of stress among postpartum women; and to investigate the association between these psychiatric morbidities and the sociodemographic and clinical profiles of women attending the tertiary care centre.

MATERIALS AND METHODS

Study Settings: This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at Kilpauk Medical College (KMC) and Hospital, a multispecialty tertiary care hospital located in Chennai, Tamil Nadu.

Study Participants: The study included postpartum women aged 18 years and above who had delivered in the Obstetrics and Gynaecology Department of KMC and were within the early postpartum period (up to 6 weeks post-delivery, with the majority assessed between 2–6 weeks to capture peak vulnerability windows for psychiatric morbidities). Women who were willing and able to provide informed consent were eligible. Exclusion criteria encompassed those with severe medical or obstetric complications precluding participation (e.g., critical illness, ongoing intensive care), known pre-existing severe psychiatric disorders requiring active inpatient treatment, inability to communicate in Tamil or English, or refusal to participate.

Sampling Technique: The target sample size of 290 participants was determined considering feasibility within the 6 months study period. Convenience sampling was employed over the study duration. Consecutive eligible postpartum women attending the postnatal ward or outpatient follow-up clinic were approached during their routine visits.

Study Tools: Data were collected using a pre-designed, structured proforma divided into sections: Sociodemographic profile (age, education, occupation, marital status, family type, socioeconomic status, residence) and Clinical and obstetric profile (parity, mode of delivery, gestational age at delivery, pregnancy planning, complications during pregnancy/delivery, history of psychiatric illness, medical comorbidities).
Validated rating scales were administered to assess psychiatric morbidities:

- Mini International Neuropsychiatric Interview (MINI): A structured diagnostic interview to screen for major psychiatric disorders, including major depressive episode, generalized anxiety disorder, and psychotic disorders in the postpartum context.
- Hamilton Anxiety Rating Scale (HAM-A): A 14-item clinician-administered scale assessing anxiety severity (psychic and somatic symptoms); scores ≥18 indicate moderate to severe anxiety.
- Edinburgh Postnatal Depression Scale (EPDS): A 10-item self-report scale specifically designed and validated for postpartum depression screening; scores ≥10–13 (depending on cutoff) suggests probable depression.
- Brief Psychiatric Rating Scale (BPRS): An 18-item clinician-rated tool to evaluate psychotic symptoms and overall psychiatric symptom severity.
- Perceived Stress Scale (PSS): A 10-item self-report instrument measuring the degree of perceived stress over the past month; higher scores indicate greater perceived stress.

Study Methodology: Sociodemographic and clinical details were recorded via direct interview using the structured proforma. Subsequently, the rating scales were administered in a quiet, private setting within the ward or clinic to ensure confidentiality and minimize distress. The assessments typically took 45–60 minutes per participant.

Ethical Issues: Ethical approval was obtained from the Institutional Ethics Committee of KMC prior to commencement. The study adhered to the principles of the Declaration of Helsinki. Informed written consent was secured in the participant's preferred language. Participants with elevated scores were provided immediate referral and support.

Statistical Analysis: Data were analysed using SPSS version 25. Descriptive statistics included frequencies, percentages, means, and standard deviations for sociodemographic, clinical variables, prevalence of psychiatric morbidities (anxiety, depression, psychosis), and stress levels. Inferential statistics comprised chi-square test/Fisher's exact test for associations between categorical variables and presence of psychiatric morbidities. P-value <0.05 was considered statistically significant.

RESULTS

In this cross-sectional study, a total of 290 postpartum women were included. The sociodemographic characteristics are presented in Table 1. The majority of participants were aged ≤30 years (n=210, 72.41%), with a mean age of 27.8 ± 4.9 years. Most women had secondary education (n=152, 52.41%), were homemakers/domestic workers (n=178, 61.38%), and belonged to joint families (n=168, 57.93%).

Table 1. Socio-demographic variables of postnatal women (n=290)

Variables		n	(%)
Age completed in years	≤30	210	72.41
	>30	80	27.59
Mean ± SD		27.8 ± 4.9	
Occupation	Domestic work	178	61.38
	Services	62	21.38
	Business	28	9.66
	Agriculture	22	7.59
Educational status	No education	12	4.14
	Primary	38	13.10
	Secondary	152	52.41
	Bachelor	58	20.00
	Master	30	10.34
Type of family	Joint	168	57.93
	Nuclear	122	42.07

Obstetric-related variables are shown in Table 2. A higher proportion of male babies were delivered (n=188, 64.83%), with caesarean section being the predominant mode of delivery (n=198, 68.28%). Planned pregnancies accounted for 65.52% (n=190), and 58.62% (n=170) were primiparous (one pregnancy).

Table 2. Obstetric-related variables of postnatal women (n=290)

Variables		n	(%)
Gender of baby	Male	188	64.83
	Female	102	35.17
Mode of delivery	Caesarean section	198	68.28
	Normal vaginal delivery	92	31.72
Planning of current pregnancy	Planned	190	65.52
	Unplanned	100	34.48
Number of pregnancies	One	170	58.62
	Two	88	30.34
	Three or more	32	11.03
History of co-morbidities	No	258	88.97
	Yes	32	11.03

The overall prevalence of psychiatric morbidities was 102 (35.17%). Among specific morbidities, anxiety (assessed by DASS-21) was the most prevalent at 15.17% (n=44), followed by depression (assessed by EPDS) at 13.10% (n=38), and stress (assessed by DASS-21) at 10.34% (n=30). Some overlap existed, contributing to the total morbidity prevalence.

Figure 1: Prevalence of Psychiatric morbidities in postnatal women (n=290)

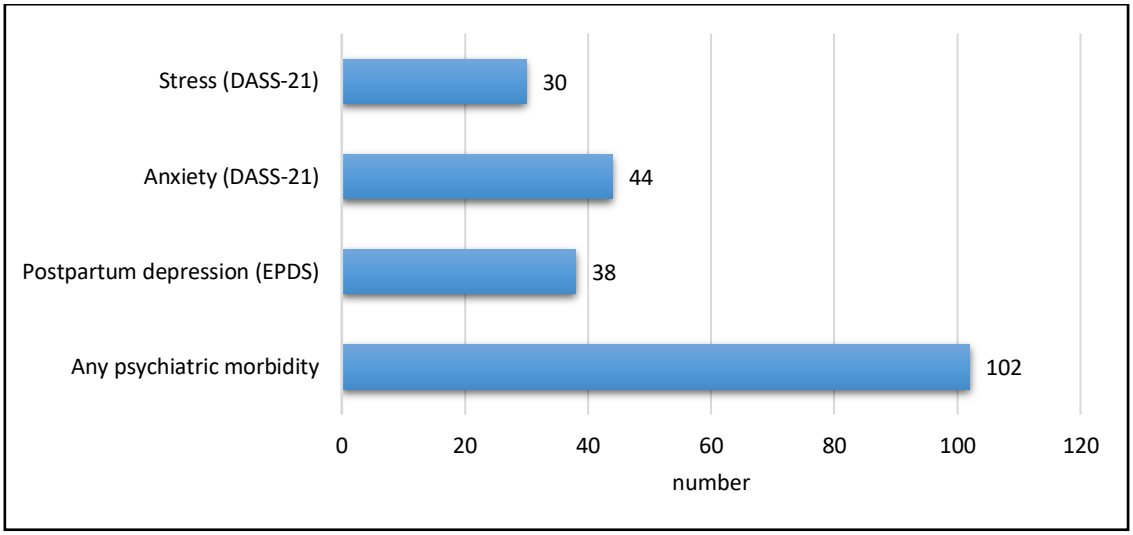

Table 3 presents the association between selected obstetric-related variables and postpartum depression as measured by the Edinburgh Postnatal Depression Scale (EPDS). Postpartum depression was significantly more prevalent among women who underwent caesarean section (84.2% vs. 65.9% in vaginal delivery; $\chi^2 = 5.124$, $p = 0.024$) and among primiparous women (73.7% vs. 56.3% in multiparous women; $\chi^2 = 4.012$, $p = 0.045$). No significant associations were observed with baby gender or pregnancy planning status (both $p > 0.05$).

Table 3. Association between obstetric-related variables and psychiatric morbidity (postpartum depression) by EPDS (n=290)

Variables	Depression n (%)	No depression n (%)	χ^2/Fisher's exact	p-value
Gender of baby				
Male	24 (63.2)	164 (65.1)	0.052	0.820
Female	14 (36.8)	88 (34.9)		
Mode of delivery				
Cesarean section	32 (84.2)	166 (65.9)	5.124	0.024
Normal vaginal delivery	6 (15.8)	86 (34.1)		
Parity				
Primipara	28 (73.7)	142 (56.3)	4.012	0.045
Multipara	10 (26.3)	110 (43.7)		
Pregnancy planning				
Planned	24 (63.2)	166 (65.9)	0.112	0.738
Unplanned	14 (36.8)	86 (34.1)		

Table 4 indicates a significant association between baby gender and anxiety (DASS-21 positive), with higher anxiety among mothers of female babies ($\chi^2 = 6.512$, $p=0.011$). Other variables showed no significant associations.

Table 4. Association between obstetric-related variables and psychiatric morbidity (anxiety) by DASS-21 (n=290)

Variables	Anxiety (n=44) (%)	No anxiety (n=246) (%)	χ^2 / Fisher's exact	p-value
Gender of baby				
Male	20 (45.45)	168 (68.29)	6.512	0.011
Female	24 (54.55)	78 (31.71)		
Mode of delivery				
Caesarean section	30 (68.18)	168 (68.29)	0.001	0.988
Normal vaginal delivery	14 (31.82)	78 (31.71)		
Planning of pregnancy				
Planned	28 (63.64)	162 (65.85)	0.078	0.780
Unplanned	16 (36.36)	84 (34.15)		
Number of pregnancies				
One	26 (59.09)	144 (58.54)	0.042	0.979
Two	14 (31.82)	74 (30.08)		
Three or more	4 (9.09)	28 (11.38)		

History of co-morbidities				
No	38 (86.36)	220 (89.43)	0.412	0.521
Yes	6 (13.64)	26 (10.57)		

Table 5 shows the association between obstetric-related variables and stress as assessed by the Depression Anxiety Stress Scale-21 (DASS-21). Stress levels were significantly higher among mothers of female babies (60.0% vs. 40.0% in mothers of male babies; $\chi^2 = 7.872$, $p = 0.005$). No statistically significant associations were found with mode of delivery, parity, or pregnancy planning (all $p > 0.05$).

Table 5. Association between obstetric-related variables and psychiatric morbidity (stress) by DASS-21 (n=290)

Variables	Stress n (%)	No stress n (%)	χ^2/Fisher's exact	p-value
Gender of baby				
Male	12 (40.0)	176 (67.7)	7.872	0.005
Female	18 (60.0)	84 (32.3)		
Mode of delivery				
Caesarean section	24 (80.0)	174 (66.9)	2.018	0.155
Normal vaginal delivery	6 (20.0)	86 (33.1)		
Parity				
Primipara	18 (60.0)	152 (58.5)	0.108	0.947
Multipara	12 (40.0)	108 (41.5)		
Pregnancy planning				
Planned	20 (66.7)	170 (65.4)	0.022	0.883
Unplanned	10 (33.3)	90 (34.6)		

DISCUSSION

This cross-sectional study conducted at a tertiary care centre in Chennai, India, revealed an overall prevalence of psychiatric morbidities among postpartum women of 35.17%, with specific rates of 13.10% for depression (assessed by EPDS), 15.17% for anxiety (DASS-21), and 10.34% for stress (DASS-21). These findings underscore the substantial burden of mental health issues in the postpartum period within a hospital-based population, aligning with global and regional estimates while highlighting context-specific variations. The use of validated tools such as MINI, HAM-A, EPDS, BPRS, and PSS allowed for a comprehensive evaluation, revealing low rates of psychosis (implicit in BPRS scores) but notable affective and stress-related disturbances. Significant associations were observed between depression and caesarean section ($p=0.024$) as well as primiparity ($p=0.045$), and between both anxiety ($p=0.011$) and stress ($p=0.005$) with female infant gender. These results emphasize the interplay of obstetric and sociocultural factors in precipitating postpartum psychiatric vulnerabilities.

The prevalence of postpartum depression in our cohort (13.10%) is somewhat lower than pooled estimates from meta-analyses in India, which report rates around 22% (95% CI: 19–25%) [9]. This discrepancy may stem from methodological differences, including the timing of assessment (predominantly 2-6 weeks postpartum in our study) and the use of EPDS with context-specific cutoffs. Hospital-based studies in southern India, akin to our setting, often report higher figures, such as 26% in the southern region [9]. Comparatively, community-based surveys yield lower rates (e.g., 15% in northern India),[9] suggesting that tertiary centers like ours capture a more vulnerable subset, including women with complicated deliveries. Anxiety prevalence (15.17%) exceeded depression, mirroring patterns in other South Asian contexts where anxiety disorders affect 13-34% of postpartum women [10]. This predominance of anxiety over depression echoes findings from a Nepalese tertiary hospital study, where anxiety was 13.33% and depression 11.31%,[10] possibly due to overlapping symptomatology and cultural expressions of distress favouring anxiety manifestations. Stress levels (10.34%) align with PSS-derived estimates in Asian populations, ranging from 10-18% [11].

The low prevalence of psychosis (not explicitly quantified but inferred from BPRS) is consistent with global rarity (0.1-0.2%) [12]. Overall morbidity of 35.17% indicates comorbidity, as anxiety and depression often co-occur, amplifying risks for mother-infant bonding and long-term child outcomes [9]. Regional variations in India, with higher burdens in the south,[9] may be influenced by urbanization, socioeconomic pressures, and shifts in family structures, as seen in Chennai's diverse patient demographic.

A key finding was the association between caesarean section and increased depression risk, with 84.2% of depressed women having undergone caesarean versus 65.9% without depression. This supports meta-analytic evidence showing an adjusted odds ratio (OR) of 1.12-1.29 for PPD following caesarean compared to vaginal delivery [13]. In India, where caesarean rates exceed 20% nationally and approach 40-50% in urban tertiary centres,[14] surgical interventions may exacerbate PPD through prolonged recovery, pain, disrupted bonding, and hormonal perturbations [13]. The present study's

clinician-administered assessments (e.g., HAM-A) likely captured somatic symptoms amplified by postoperative discomfort. Similarly, primiparity was linked to higher depression (73.7% vs. 56.3%), consistent with patterns in South Asian cohorts where first-time mothers face unique challenges, including inexperience and role transition anxiety [15].
Anxiety and stress were significantly higher among mothers of female infants, with 54.55% anxious and 60.0% stressed versus lower rates for male infants. This reflects entrenched son preference in Indian society, where female births evoke disappointment, familial pressure, and perceived economic burdens [16]. Studies from Goa and rural India report elevated risk (OR 2.6) for PPD/anxiety with female offspring or son preference [16,17]. Cultural devaluation of daughters, linked to dowry systems and patrilineal inheritance, intensifies maternal guilt and isolation [17]. In current study sample, with 35.17% female infants, this association highlights gender bias as a modifiable risk factor, potentially mitigated through education and policy interventions. Notably, no associations emerged with comorbidities or pregnancy planning, contrasting some literature where unplanned pregnancies elevate PPD risk [18].

Sociodemographic profiles revealed a young cohort (mean age 27.8 years, 72.41% ≤30), with over half in joint families and secondary education, typical of urban southern India. Homemakers predominated (61.38%), potentially heightening isolation and dependency, though not significantly associated here. Male infant predominance (64.83%) may reflect selective care-seeking, but caesarean prevalence (68.28%) exceeds WHO recommendations, warranting scrutiny for iatrogenic mental health impacts [13].

Strengths of this study include a robust sample size (n=290), multi-tool assessment for nuanced morbidity detection, and ethical safeguards with referrals. Convenience sampling in a busy tertiary setting ensured feasibility, while SPSS-driven analyses provided reliable inferences. Limitations encompass the cross-sectional design, precluding causality; hospital bias limiting generalizability to community populations; and exclusion of severe cases, potentially underestimating prevalence. Self-report biases in PSS/EPDS and cultural stigma may have led to underreporting. Future prospective cohorts could track trajectories and incorporate biomarkers or interventions.

These findings have profound implications for maternal health in India. Routine screening at 2-6 weeks postpartum, integrating EPDS and DASS-21 into obstetric protocols, could facilitate early detection [19]. Liaison between obstetricians and psychiatrists, as advocated, would enhance care for high-risk groups: caesarean-primipara women and those with female infants [9]. Addressing son preference through awareness campaigns and gender equity programs could reduce psychosocial burdens [17]. Policy-wise, expanding mental health integration in National Health Mission frameworks would mitigate long-term sequelae, improving maternal quality of life and child development [11].

CONCLUSION

This study found psychiatric morbidities in 35.17% of 290 postpartum women, with depression (13.10%), anxiety (15.17%), and stress (10.34%) as key issues. Depression linked significantly to caesarean delivery (p=0.024) and primiparity (p=0.045), while anxiety (p=0.011) and stress (p=0.005) were higher with female infants, reflecting cultural son preference. These findings highlight the need for routine postnatal mental health screening using tools like EPDS, HAM-A, and PSS in tertiary settings. Early detection, obstetric-psychiatric liaison, family education, and gender equity efforts can reduce this burden, improving maternal well-being and child outcomes in India.

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