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Original Research Article

Assessment of Postpartum Depression and Anxiety Among Postpartum Mothers

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Abstract:

Background: Postpartum depression (PPD) and postpartum anxiety (PPA) are major public health concerns affecting maternal wellbeing, infant care, and family functioning. In India, sociocultural and economic factors significantly influence maternal mental health, yet routine screening remains inadequate. This study aimed to assess the prevalence of PPD and PPA among postpartum mothers and identify associated risk factors.

Methods: A cross-sectional observational study was conducted among 100 postpartum mothers attending the postnatal clinic at C. U. Shah Medical College, Surendranagar. Participants within six weeks postpartum were evaluated using the Edinburgh Postnatal Depression Scale (EPDS) and Hamilton Anxiety Rating Scale (HAM-A). Socio-demographic and obstetric variables were collected through structured interviews. Data were analyzed using SPSS version 25, applying descriptive statistics and Chi-square tests. Significance was considered at $p < 0.05$.

Results: PPD prevalence was 28%, with 14% showing mild and 14% moderate–severe depression. Moderate–severe anxiety was observed in 40% of participants. Younger mothers and cesarean deliveries showed higher depressive tendencies, though not statistically significant. Nuclear family structure was significantly associated with higher anxiety ($p < 0.05$). Depression was significantly more prevalent in low socioeconomic groups ($p < 0.05$). EPDS and HAM-A scores demonstrated a strong positive correlation ($r = 0.68$, $p < 0.001$).

Conclusion: Postpartum psychological distress is substantial, emphasizing the need for routine screening, early detection, and strengthened psychosocial support in postnatal care systems.

Keywords: Postpartum Depression, Postpartum Anxiety, EPDS, HAM-A, Maternal Mental Health.

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Introduction

The postpartum period, often referred to as the "fourth trimester," represents a critical phase in a woman's life marked by both joy and vulnerability. While childbirth is generally viewed as a fulfilling experience, it can also bring about a range of emotional challenges. Among these, postpartum depression (PPD) and postpartum anxiety (PPA) are the most prevalent psychological disorders, significantly affecting maternal and infant health outcomes. In India, where cultural norms, family structures, and socioeconomic disparities play a vital role in shaping maternal experiences, the assessment of postpartum mental health has gained increasing importance. Studies indicate that PPD affects around 22% of Indian mothers, highlighting it as a pressing public health issue that warrants systematic evaluation and intervention [1].

Postpartum depression is defined as a non-psychotic depressive episode that typically occurs within four weeks to one year following childbirth. It manifests as persistent sadness, loss of interest in daily activities, fatigue, irritability, guilt, and difficulty bonding with the baby. Postpartum anxiety, which often coexists with depression, is characterized by excessive worry about the infant's wellbeing, restlessness, and intrusive thoughts. The prevalence of postpartum depression in India varies widely from 8% to 48%, depending on the geographic region, cultural background, and assessment methods used [2]. This variation underscores the need for culturally adapted and

validated screening tools that can accurately detect psychological distress among Indian mothers.

The Edinburgh Postnatal Depression Scale (EPDS) is one such validated instrument widely used in Indian research and clinical settings. A study conducted in South India using EPDS found that 20.1% of women were affected by PPD, with significant associations between depression and factors such as caesarean delivery, nuclear family structure, delayed childbirth, and poor postnatal care [3]. Similarly, a study from Karnataka reported a 42.7% prevalence of postpartum depression, linking it to maternal age, marriage duration, family size, gender of the infant, and mode of breastfeeding [4]. These findings highlight how both biological and sociocultural determinants interact to influence the mental health of new mothers in India.

Socioeconomic status and social support networks are also pivotal in determining maternal wellbeing. In India's predominantly collectivist culture, family support serves as both a protective and risk factor depending on its quality. A qualitative study on Indian mothers with PPD and PPA revealed that emotional and tangible support from family members served as a source of strength, while a lack of understanding or excessive criticism intensified distress [5]. On the other hand, domestic violence, marital dissatisfaction, and limited autonomy were found to increase vulnerability to depression, particularly in low-income and rural households [6].

Urbanization and modernization have added new layers of complexity to maternal mental health in India. The shift from joint to nuclear family systems, rising female employment, and the decline in traditional postpartum care practices have increased isolation and stress among mothers. Urban women, especially those juggling careers and motherhood, are more susceptible to depression and anxiety due to limited social support and role overload. Moreover, deep-rooted gender biases, such as preference for male children, further compound psychological distress, particularly when mothers give birth to female infants [7].

The COVID-19 pandemic magnified these mental health challenges. A 2025 study from Eastern India found that COVID-19-positive mothers experienced nearly three times higher rates of PPD and anxiety compared to COVID-negative mothers. The key contributing factors included financial hardship, social stigma, poor family support, and restricted access to healthcare [8]. This indicates that external stressors, such as pandemics or economic crises, can significantly heighten postpartum vulnerability.

In addition to depression, postpartum anxiety (PPA) has emerged as an independent clinical concern. PPA can lead to obsessive worrying about the infant's safety, sleep deprivation, and hypervigilance. Studies suggest that anxiety symptoms often precede or coexist with depressive episodes, underscoring the need to assess both simultaneously. Using the Hospital Anxiety and Depression Scale (HADS) alongside EPDS has been shown to improve early detection and intervention for maternal mental health disorders [9]. However, due to stigma, lack of awareness, and inadequate screening in primary healthcare systems, PPA remains grossly underdiagnosed in India.

The consequences of untreated postpartum depression and anxiety extend beyond the mother. They can impair maternal-infant bonding, disrupt breastfeeding practices, and negatively impact the child's emotional, behavioral, and cognitive development. Children of mothers with PPD are at higher risk of growth retardation, undernutrition, and delayed developmental milestones [10]. Furthermore, maternal mental health challenges often strain marital relationships and perpetuate intergenerational cycles of emotional distress within families.

Despite the rising prevalence, mental health screening for postpartum mothers in India remains inadequate. Most healthcare facilities, especially in rural areas, focus on physical recovery after childbirth while overlooking emotional well-being. Studies have emphasized the importance of integrating mental health screening into routine postnatal care, training healthcare professionals to identify early warning signs, and establishing referral systems for psychiatric support [8]. Strengthening maternal healthcare policies to include psychological assessment and community-based support programs is essential to reducing the burden of PPD and PPA. Postpartum depression and anxiety are critical yet underrecognized dimensions of maternal health in India. Their multifactorial nature encompassing biological, psychological, social, and cultural factors demands a holistic and culturally sensitive approach to assessment and management. Implementing routine screening using validated tools such as EPDS, enhancing social support systems, and promoting awareness about maternal mental health can significantly improve outcomes for mothers and infants. Early intervention and community-level engagement are key to ensuring that no mother faces postpartum depression or anxiety in silence.

Methodology

Study Design: This was an observational cross-sectional study conducted to assess the prevalence and risk factors of postpartum depression and anxiety among postpartum mothers. Data were

collected using standardized tools the Edinburgh Postnatal Depression Scale (EPDS) and Hamilton Anxiety Rating Scale (HAM-A) through structured personal interviews. No intervention was applied, and participants were evaluated at a single point in time.

Study Setting: The study was conducted in the Department of Obstetrics and Gynaecology, C. U. Shah Medical College and Hospital, Surendranagar, Gujarat. Data were collected in the postnatal clinic, which caters to both rural and urban women. Interviews were held privately to ensure participant comfort and confidentiality.

Study Duration: The study was carried out over two months, from March to April 2025. This duration allowed adequate participant recruitment, data collection, and analysis while maintaining feasibility within the institutional schedule.

Participants – Inclusion and Exclusion Criteria: The study included mothers within six weeks postpartum who attended the postnatal clinic, were medically stable, and consented to participate. Mothers with a prior psychiatric history, severe postpartum complications, or communication barriers were excluded to ensure accurate assessment.

Study Sampling: Non-probability convenient sampling was used to recruit eligible participants. Postpartum mothers meeting inclusion criteria were consecutively enrolled during their clinic visits until the target sample size was achieved. This method ensured feasibility within the study period.

Study Sample Size: A total of 100 postpartum mothers were included in the study. The sample size was determined based on feasibility, patient flow, and previous studies on postpartum depression and anxiety. It was adequate to estimate prevalence and identify associations.

Study Groups: The study did not include separate groups or interventions. Participants were later categorized based on EPDS and HAM-A scores into mild, moderate, or severe categories for comparative and analytical purposes.

Study Parameters: The main parameters were EPDS and HAM-A scores for assessing depression and anxiety. Additional socio-demographic variables such as age, education, occupation, socioeconomic status, family type, parity, and gender of the infant were included to identify associated factors.

Study Procedure: Eligible mothers attending the postnatal clinic were approached, informed about the study, and enrolled after providing written consent. Data were collected through face-to-face interviews using EPDS and HAM-A questionnaires. Participants with high scores were referred to psychiatry for further evaluation.

Study Data Collection: Data were collected through personal interviews using structured forms. Responses were recorded, scored, and verified daily. Both psychological and demographic data were coded and entered into a secure database for analysis.

Data Analysis: Data were analyzed using SPSS version 25. Descriptive statistics such as mean, percentage, and standard deviation summarized findings. Inferential statistics including Chi-square tests identified associations between risk factors and depression or anxiety, with significance set at $p < 0.05$.

Ethical Considerations: Ethical approval was obtained from the Institutional Ethics Committee of C. U. Shah Medical College. Informed consent was taken from all participants, confidentiality was maintained, and participation was voluntary. Participants requiring psychological support were referred for counseling.

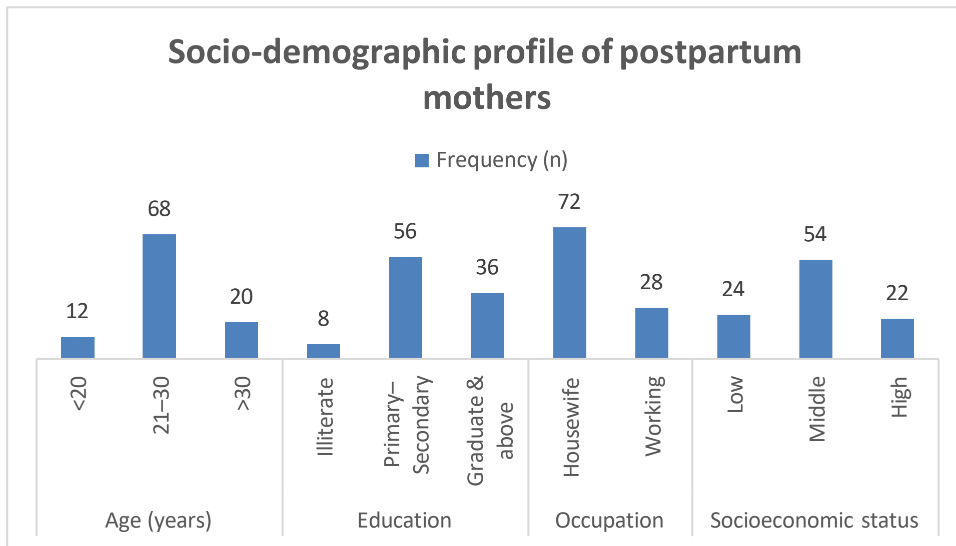
Results

1. **Socio-demographic profile of postpartum mothers**

Majority of participants were aged 21–30 years, housewives, and from the middle socioeconomic class, reflecting a typical Indian maternal demographic (Table 1).

Table 1: Socio-demographic profile of participants (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	<20	12	12.0
	21–30	68	68.0
	>30	20	20.0
Education	Illiterate	8	8.0
	Primary–Secondary	56	56.0
	Graduate & above	36	36.0
Occupation	Housewife	72	72.0
	Working	28	28.0
Socioeconomic status	Low	24	24.0
	Middle	54	54.0
	High	22	22.0



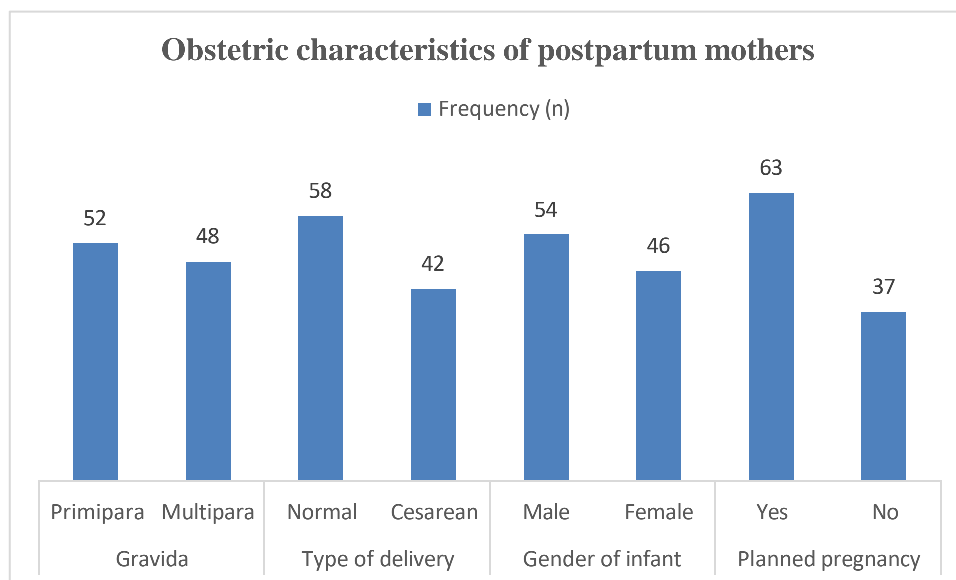
Graph 1: Socio-demographic profile of postpartum mothers

2. **Obstetric characteristics of postpartum mothers**

More than half of the mothers were primipara and delivered normally, with a nearly equal distribution of male and female infants (Table 2).

Table 2: Obstetric profile of participants (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Gravida	Primipara	52	52.0
	Multipara	48	48.0
Type of delivery	Normal	58	58.0
	Cesarean	42	42.0
Gender of infant	Male	54	54.0
	Female	46	46.0
Planned pregnancy	Yes	63	63.0
	No	37	37.0



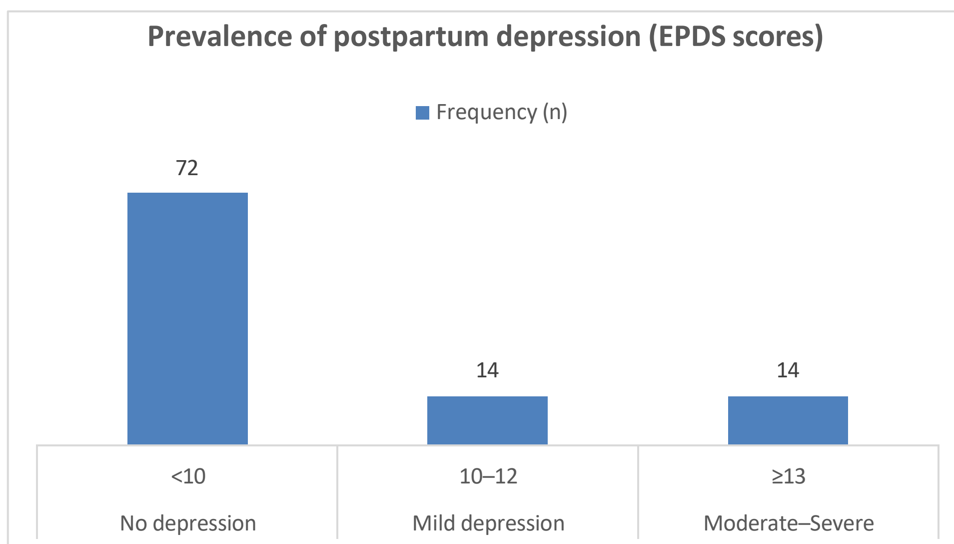
Graph 2: Obstetric characteristics of postpartum mothers

3. **Prevalence of postpartum depression (EPDS scores)**

Nearly one-third of mothers had depressive symptoms, indicating a notable prevalence of postpartum depression in the study group (Table 3).

Table 3: Distribution of participants by EPDS score (n = 100)

Category	EPDS Score Range	Frequency (n)	Percentage (%)
No depression	<10	72	72.0
Mild depression	10–12	14	14.0
Moderate–Severe	≥13	14	14.0



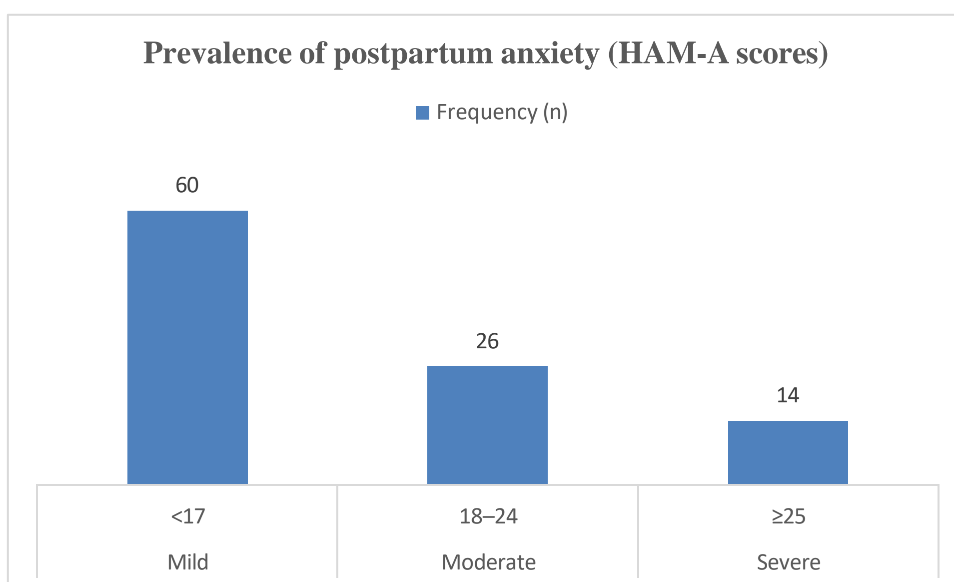
Graph 3: Prevalence of postpartum depression (EPDS scores)

4. **Prevalence of postpartum anxiety (HAM-A scores)**

About 40% of participants experienced moderate to severe anxiety, highlighting significant postpartum anxiety prevalence (Table 4).

Table 4: Distribution of participants by HAM-A score (n = 100)

Category	HAM-A Score Range	Frequency (n)	Percentage (%)
Mild	<17	60	60.0
Moderate	18–24	26	26.0
Severe	≥25	14	14.0



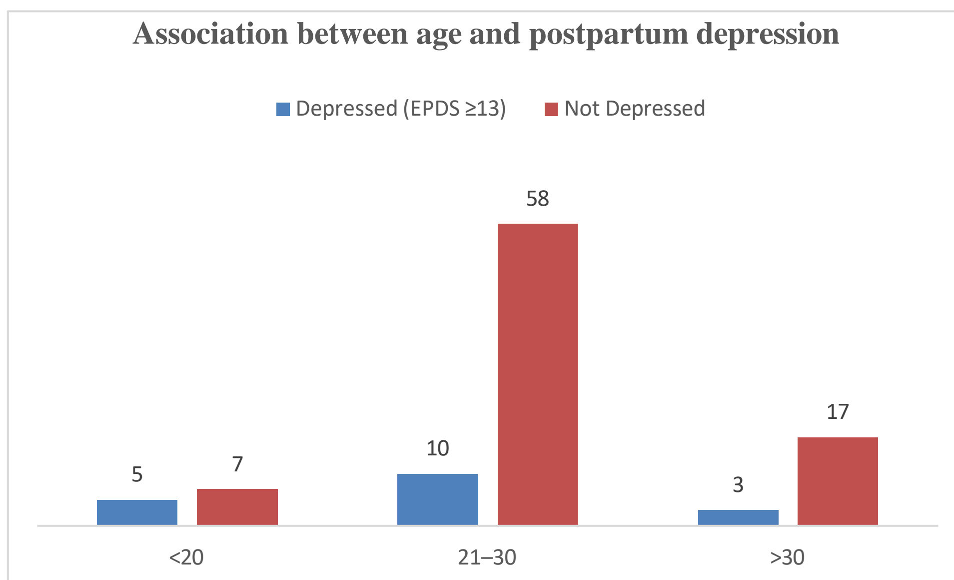
Graph 4: Prevalence of postpartum anxiety (HAM-A scores)

5. **Association between age and postpartum depression**

Depression was more common among younger mothers, though the association was not statistically significant ($p > 0.05$) (Table 5).

Table 5: Association between maternal age and depression (n = 100)

Age (years)	Depressed (EPDS ≥13)	Not Depressed	Total	χ^2	p-value
<20	5	7	12	1.21	0.27
21–30	10	58	68		
>30	3	17	20		



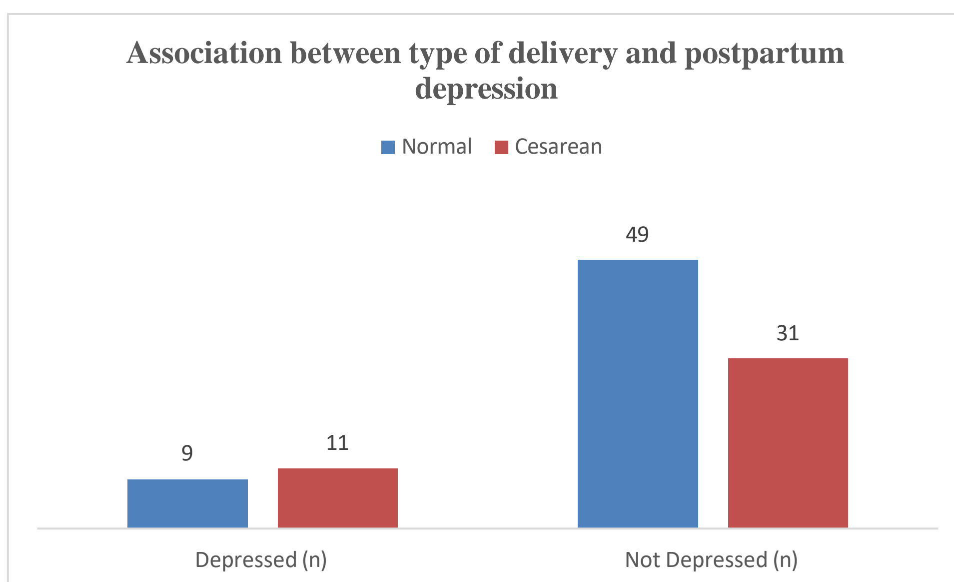
Graph 5: Association between age and postpartum depression

6. **Association between type of delivery and postpartum depression**

Although not statistically significant, cesarean delivery mothers showed a higher depression rate than normal delivery mothers (Table 6).

Table 6: Association between mode of delivery and depression (n = 100)

Mode of Delivery	Depressed (n)	Not Depressed (n)	Total	χ^2	p-value
Normal	9	49	58	3.45	0.06
Cesarean	11	31	42		



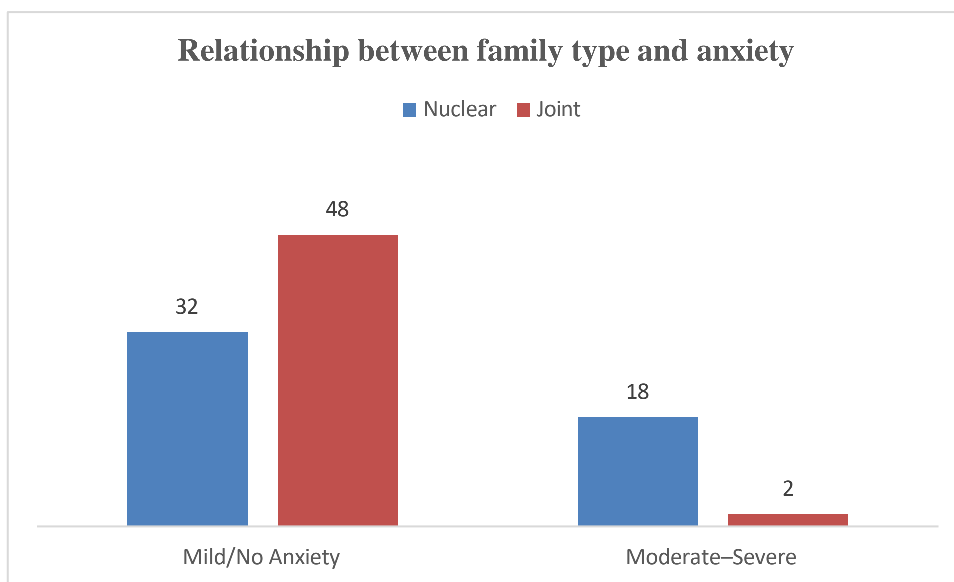
Graph 6: Association between type of delivery and postpartum depression

7. **Relationship between family type and anxiety**

Mothers in nuclear families had significantly higher anxiety ($p < 0.05$), indicating the protective role of joint family support (Table 7).

Table 7: Association between family type and anxiety (n = 100)

Family Type	Mild/No Anxiety	Moderate–Severe	Total	χ^2	p-value
Nuclear	32	18	50	4.02	0.04*
Joint	48	2	50		



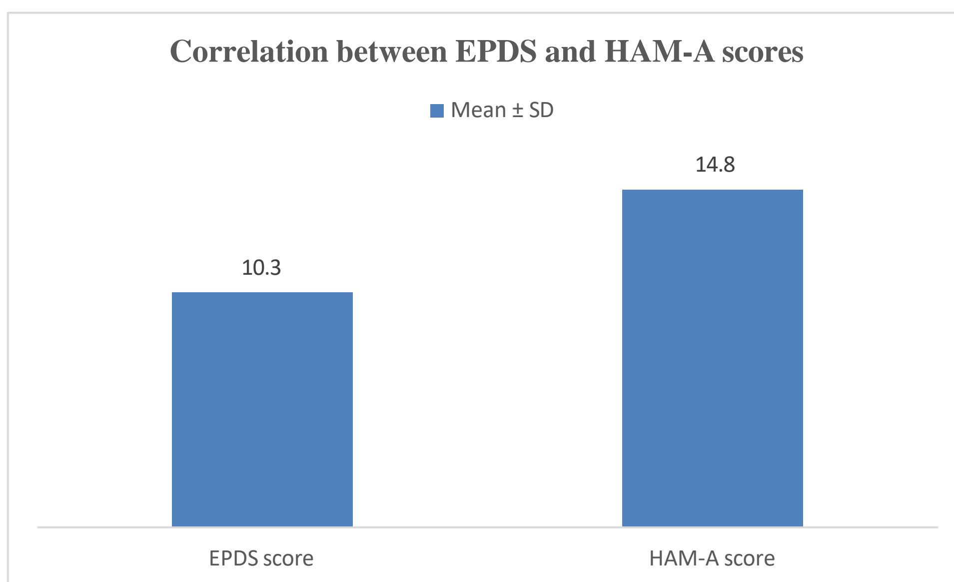
Graph 7: Relationship between family type and anxiety

8. **Correlation between EPDS and HAM-A scores**

A strong positive correlation (r = 0.68) was found, suggesting that depression and anxiety frequently coexisted among postpartum mothers (Table 8).

Table 8: Correlation between EPDS and HAM-A scores

Variable	Mean ± SD	r-value	p-value
EPDS score	10.3 ± 4.1		
HAM-A score	14.8 ± 5.3	0.68	<0.001*



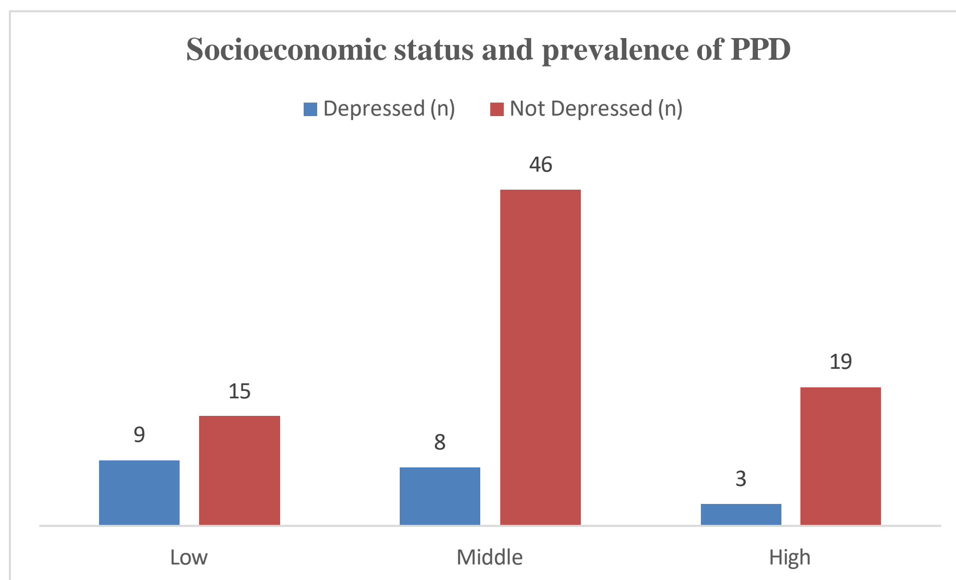
Graph 8. Correlation between EPDS and HAM-A scores

9. **Socioeconomic status and prevalence of PPD**

Depression prevalence was significantly higher among mothers from low-income backgrounds ($p < 0.05$) (Table 9).

Table 9: Association between socioeconomic class and depression (n = 100)

Socioeconomic Status	Depressed (n)	Not Depressed (n)	Total	χ^2	p-value
Low	9	15	24	6.34	0.01*
Middle	8	46	54		
High	3	19	22		



Graph 9. Socioeconomic status and prevalence of PPD

Discussion

The present study assessed the prevalence of postpartum depression (PPD) and anxiety among postpartum mothers and explored their associated socio-demographic and obstetric factors. Using standardized tools (EPDS and HAM-A), the findings revealed that 28% of mothers experienced depressive symptoms and 40% had moderate to severe anxiety. These results highlight a significant burden of postpartum psychological distress, consistent with previous research conducted across India.

The observed prevalence of PPD (28%) aligns closely with findings from Dadhwal et al. (2023) [6], who reported a 27.8% prevalence among rural Indian women, and Kamath et al. (2021) [1], who found a national pooled estimate of 22%. Similarly, a study by Rashmi and Shubhashri (2020) in South India reported 20.1% PPD, while Sunitha and Muktamath (2023) found a higher prevalence of 42.7% in Karnataka [3, 4]. These variations could be attributed to differences in geographic regions, sociocultural norms, and screening cut-off values used in EPDS scoring.

In the present study, younger mothers (<30 years) had a higher prevalence of depression, although the association was not statistically significant. This trend corresponds with the findings of Patel et al. (2015), who noted that younger maternal age and early marriage were risk factors for PPD [2]. Cesarean delivery was also associated with higher depressive symptoms in our study, similar to the findings of Roy et al. (2024) in urban West Bengal, where surgical delivery was linked to increased emotional distress due to prolonged recovery and reduced physical activity postpartum [10].

The relationship between family type and mental health outcomes was noteworthy. Mothers from nuclear families exhibited significantly higher anxiety compared to those in joint families ($p < 0.05$). This observation is consistent with the results of Sridhar et al. (2024), who emphasized the buffering role of family support in mitigating maternal psychological distress [5]. The current study also found a significant association between low socioeconomic status and higher depression scores ($p < 0.05$), reaffirming results from Bala et al. (2024), where financial strain and limited resources were strong predictors of PPD [11].

A strong positive correlation between EPDS and HAM-A scores ($r = 0.68$, $p < 0.001$) indicated coexistence of depression and anxiety, supporting findings from Ratyal et al. (2024), who suggested that anxiety often precedes or overlaps with depressive symptoms [9].

Overall, our study reinforces that postpartum depression and anxiety are prevalent among Indian mothers, influenced primarily by socioeconomic stressors, family structure, and delivery-related factors. Early screening, family-centered interventions, and integration of mental health

support into routine postnatal care are vital to improving maternal wellbeing.

Conclusion

Postpartum depression and anxiety were found to be highly prevalent in the study population, with significant associations observed with socioeconomic status, family structure, and mode of delivery. The coexistence of depressive and anxiety symptoms underscores the need for integrated mental health screening in postnatal care. Strengthening support systems, promoting awareness, and ensuring timely referral for psychological services are essential to improve maternal mental wellbeing. Routine assessment using validated tools like EPDS and HAM-A can help achieve early detection and intervention.

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