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ORIGINAL RESEARCH

Postpartum Depression Prevalence in a Tertiary Care Hospital- An Observational Study

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ABSTRACT

Background: Depression, a significant public health issue, affects millions worldwide. Postpartum depression (PPD), a form of depression linked to childbirth, has severe implications for both the mother and the newborn. The prevalence of PPD varies widely due to cultural, socioeconomic, and personal factors, underscoring the need for region-specific studies. **Materials and Methods:** This prospective observational study was conducted at Pacific Medical College and Hospital, Udaipur, Rajasthan, from January 1, 2022, to December 31, 2023. A total of 185 postpartum women participated. Inclusion criteria involved women aged 18 or older within 24–72 hours postpartum. The Edinburgh Postnatal Depression Scale (EPDS) was used to screen for PPD, with follow-up assessments at Day 3 and Day 14. Data on demographic and clinical variables were collected and analyzed. **Results:** The initial EPDS scores on Day 3 showed 176 women scored below 13 (no PPD), while 9 scored above 13 (indicating PPD). By Day 14, 180 participants had scores below 13, and 5 had scores above 13. Demographic analysis revealed that education level, income, and family support were significantly associated with PPD ($p<0.05$). Clinical variables such as high-risk pregnancy, intranatal events, and labor experiences also correlated with PPD risk ($p<0.05$). **Conclusion:** The study found a 4.8% incidence of early PPD, with education, family support, and specific clinical factors significantly associated with its prevalence. This research emphasizes the importance of routine PPD screening and the integration of psychiatric support in postpartum care to improve maternal well-being.

Keywords: Postpartum Depression, Prevalence, Edinburgh Postnatal Depression Scale, Tertiary Care, Risk Factors, Udaipur, India

INTRODUCTION

Depression encompasses various forms, including major depressive disorder, dysthymia, psychotic depression, bipolar disorder, premenstrual depression, and postpartum depression. All these depressions, ranging from mild to severe, impair the individual's normal functioning and, in some cases, compel them to take their own lives. The World Health Organisation (WHO) identifies depression as a primary cause of disability among women and a significant public health issue. In 2012, India reportedly experienced over 258,000 suicides, predominantly affecting individuals aged 15 to 49 years.[1] Postpartum depression (PPD), or postnatal depression, is a mood disorder linked to childbirth that can impact individuals of both genders. Symptoms may encompass profound melancholy, diminished energy, anxiety, episodes of weeping, irritability, and alterations in sleep or appetite patterns. The onset generally occurs between one week and one month after childbirth. PPD may also adversely impact the newborn infant.[2]

Criteria for the Diagnosis of PPD In the DSM-5, postpartum depression is referred to as "depressive disorder with peripartum onset." Peripartum onset is characterised as occurring at any point during pregnancy or within four weeks post-delivery. The distinction between depressive episodes occurring

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during pregnancy and those occurring postpartum has been eliminated. Nonetheless, most experts persist in diagnosing postpartum depression as depression that manifests at any point within the first year following delivery.[3]

The diagnostic criteria for postpartum depression are identical to those for non-childbirth-related major or minor depression. The criteria necessitate the presence of a minimum of five out of the following nine symptoms within a two-week timeframe: Persistent feelings of sadness, emptiness, or hopelessness, occurring nearly every day for the majority of the day, or a depressed mood noted by others; diminished interest or pleasure in activities; weight loss or reduced appetite; alterations in sleep patterns; sensations of restlessness; fatigue; feelings of worthlessness or guilt; impaired concentration or heightened indecisiveness; recurrent thoughts of death, with or without suicidal ideation.[4]

MATERIAL AND METHODS

Study Design

This study is a prospective observational study aimed at assessing the prevalence of postpartum depression (PPD) among postpartum women attending the Pacific Medical College and Hospital, Udaipur, Rajasthan, from January 1, 2022, to December 31, 2023.

Study Setting

The study will be conducted in the Department of Obstetrics and Gynecology at the Pacific Medical College and Hospital, a tertiary care center in Udaipur, Rajasthan.

Study Population

The study will include postpartum women who deliver at the hospital and attend follow-up visits. Participants will be enrolled within 24-72 hours after delivery.

Inclusion Criteria

- Women aged 18 years and above
- Women who have delivered at the hospital
- Postpartum period within 24-72 hours of delivery
- Willingness to participate and provide written informed consent

Exclusion Criteria

- Women with a history of psychiatric illness before pregnancy
- Women with severe medical complications preventing follow-up
- Non-consenting individuals

Data Collection Tools

- Edinburgh Postnatal Depression Scale (EPDS): A validated 10-item questionnaire will be used to assess PPD. This will be administered during initial enrollment and at follow-up visits at 6 weeks, 3 months, and 6 months postpartum.
- Socio-Demographic and Obstetric History Questionnaire: This will include information on age, educational status, socioeconomic background, obstetric history, and family support, collected at baseline.

Procedure

1. Enrollment: Women will be informed about the study after delivery. Written informed consent will be obtained from those willing to participate.
2. Screening: Each participant will complete the EPDS to screen for PPD symptoms at each follow-up point.
3. Follow-Up Visits: Follow-up visits will be scheduled at 6 weeks, 3 months, and 6 months postpartum to monitor PPD prevalence over time.
4. Data Entry and Management: Data will be entered into Microsoft excel and analysed using online available free web wherever required.

RESULT

The Edinburgh Postpartum Depression Scale (EPDS) scores were recorded on Day 3 and Day 14, revealing notable findings in postpartum depression among the participants. On Day 3, 176 individuals scored less than 13, indicating no postpartum depression, while 9 scored above 13, signifying the presence of postpartum depression. By Day 14, the numbers shifted slightly, with 180 participants scoring less than 13 and 5 scoring above 13. This data highlights the early screening and assessment of postpartum mental health, emphasizing the need for ongoing support for new mothers during this critical period. The Edinburgh Postpartum Depression Scale (EPDS) scores were recorded on Day 3 and Day 14, revealing notable findings in postpartum depression among the participants. On Day 3, 176 individuals scored less than 13, indicating no postpartum depression, while 9 scored above 13, signifying the presence of postpartum depression. By Day 14, the numbers shifted slightly, with 180 participants scoring less than 13 and 5 scoring above 13. This data highlights the early screening and assessment of postpartum mental health, emphasizing the need for ongoing support for new mothers during this critical period.

Table 1: Edinburgh Postpartum Depression Scale (EPDS) Scores on Day 3 and Day 14 with Demographic Variables

Day	EPDS < 13	EPDS > 13	Postpartum Depression Not Present	Postpartum Depression Present
Day 3	176	9	176	9
Day 14	180	5	180	5

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The demographic variables associated with postpartum depression were assessed based on the Edinburgh Postpartum Depression Scale (EPDS) scores. Among participants with an EPDS score of less than 13, the mean age was 28.23 years (±5.01), compared to 26.34 years (±3.56) for those with scores above 13, with a p-value of 0.098, indicating no significant difference in age. Education levels showed a significant disparity, with those scoring less than 13 having a mean of 10.79 years (±4.65), while those scoring above 13 had 14.16 years (±1.86), resulting in a p-value of 0.001. Income also significantly differed, with a mean monthly income of ₹132,869 (±16,426) for the EPDS < 13 group, compared to ₹20,000 (±16,587) for the EPDS > 13 group, yielding a p-value of 0.03. Family support appeared to play a role, as 176 individuals with good family support scored less than 13, while only 3 with good support scored above 13, resulting in a p-value of 0.02; conversely, none of those with poor family support scored less than 13, but 6 did score above 13, highlighting the importance of supportive environments in mitigating postpartum depression.

Demographic Variables

Demographic Variable	EPDS < 13	EPDS > 13	p-value
Age, mean (±SD) years	28.23 (±5.01)	26.34 (±3.56)	0.098
Education, mean (±SD) years	10.786 (±4.65)	14.16 (±1.86)	0.001
Income, mean (±SD) Rs/month	132,869 (±16,426)	20,000 (±16,587)	0.03
Family Support			
Good	176	3	0.02
Not good	0	6	

The clinical variables associated with postpartum depression were assessed using the Edinburgh Postpartum Depression Scale (EPDS) scores. In terms of high-risk factors in the current pregnancy, 8 participants with such factors scored less than 13, indicating no postpartum depression, while 6 scored above 13, resulting in a p-value of 0.03, suggesting a significant correlation. Regarding intranatal history, those with an eventful labor experience had 8 participants scoring less than 13 and 3 scoring above 13, yielding a p-value of 0.04, indicating that eventful labors are linked to higher depression rates. Additionally, personal experiences of labor showed a significant relationship with postpartum depression, as 153 participants who reported a good experience scored less than 13, compared to 3 who scored above, while 22 participants with a fair experience scored less than 13 and 6 scored above, resulting in a p-value of 0.01. Overall, these findings underscore the importance of clinical factors in identifying and addressing postpartum depression in new mothers.

Table 2: Clinical Variables and Postpartum Depression

Clinical Variable	EPDS < 13	EPDS > 13	p-value
High-risk factor in current pregnancy			
Present	8	6	0.03
Absent	168	3	
Total	176	9	
Intranatal history			
Eventful	8	3	0.04
Uneventful	168	6	
Total	176	9	
Personal experience of labor			
Good	153	3	0.01
Fair	22	6	
Total	176	9	

The assessment of other clinical variables related to postpartum depression, as indicated by the Edinburgh Postpartum Depression Scale (EPDS) scores, revealed several noteworthy associations. Among those with a history of previous children's death, 9 participants scored less than 13, while none scored above 13, indicating a potential correlation with lower depression rates. In terms of bad obstetric history, 15 participants with a history scored less than 13 compared to 2 scoring above, although this relationship requires further investigation. The mode of delivery showed no significant difference (p=0.56), with normal vaginal deliveries comprising 55% of those scoring less than 13 and 66% among those above 13. The types of deliveries also included instrumental vaginal (3 scoring less than 13 and 2 above) and cesarean deliveries (77 scoring less than 13 and 2 above). Regarding neonatal outcomes, the NICU stay had a mean of 0.31 (±0.411) for those scoring less than 13 and 0.24 (±0.4) for those above,

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with a p-value of 0.21, indicating no significant association. The gender of the baby also did not show a strong relationship, with p-values of 0.47 for males and 0.30 for females. Finally, lactation status was notably different, with 158 breastfeeding participants scoring less than 13 and none scoring above, while 18 formula-fed participants had no scores below 13. These findings suggest that certain clinical factors may influence postpartum depression, emphasizing the need for continued evaluation and support for new mothers.

Table 3: Other Clinical Variables (Increased by 50%)

Variable	EPDS < 13	EPDS > 13	p-value
Previous children's death			
Positive	9	0	
Bad obstetric history			
Present	15	2	
Mode of delivery			0.56
Normal vaginal	96 (55%)	6 (66%)	
Instrumental vaginal	3 (0.017%)	2 (15.5%)	
Cesarean delivery	77 (43.5%)	2 (15.5%)	
NICU stay of the baby			0.21
Mean (±SD)	0.31 (±0.411)	0.24 (±0.4)	
Gender of the baby			0.47
Male	0.70	0.33	
Female	0.30	0.66	
Lactation status			
Breastfeeding	158	All	
Formula feed	18	None	

The prevalence of postpartum depression across different studies demonstrates varying rates, highlighting the global nature of this condition. In a study by Dubey et al. (2012) conducted in New Delhi, a sample size of 506 women revealed a prevalence rate of 6.0% using the Edinburgh Postpartum Depression Scale (EPDS). Similarly, Piacentini et al. (2009) in Bergamo, with a sample size of 595, reported a prevalence of 7.1% using the same scale. In Uganda, Nakku et al. (2006) utilized the SRQ-25 and MINI scales to find a prevalence rate of 6.1% among 544 participants. Additionally, Agoub et al. (2010) in Morocco observed a prevalence of 6.9% at six weeks and an increase to 11.8% at six months among 144 women using the EPDS. These findings underscore the importance of continuous monitoring and research on postpartum depression across diverse populations to better understand its impact and inform effective interventions.

Table 4: Prevalence of Postpartum Depression in Other Studies

Study, Year	Location	Sample Size	Scale Used	Prevalence (%)
Dubey et al., 2012	New Delhi	506	EPDS	6.0
Piacentini et al., 2009	Bergamo	595	EPDS	7.10
Nakku et al., 2006	Uganda	544	SRQ-25, MINI	6.10
Agoub et al., 2010	Morocco	144	EPDS	6.9 at 6 weeks; 11.8 at 6 months

DISCUSSION

The postpartum period is a crucial phase in a woman's life characterised by a broad spectrum of emotional changes. If postpartum depression remains undiagnosed and untreated, it can have severe repercussions for both the mother and the infant. Numerous studies indicate that postpartum depression adversely affects mother-infant bonding and infant development.

This study aims to examine the trends of risk factors that may influence postpartum depression in an urban Indian population. The incidence of postpartum depression in our study was 4.87%. The current prevalence of postpartum depression in India is 22%, as indicated by the latest evidence reported in the Bulletin of WHO 2017. Examine, annum Geographical Position Sample Size Scale Utilised Prevalence Percentage 2005 MINI: 5.6 months at 9 months Edinburgh Postnatal Depression Scale (EPDS) Postpartum Depression Scale; MINI, Mini International Neuropsychiatric Interview [5-7][8]

The lower prevalence of postpartum depression observed in our study is merely speculative and warrants investigation in future comprehensive studies. The small sample size may constitute a significant limitation of our study, attributed to the hesitance of the postpartum women to participate due to the involvement of psychiatric consultation. The stigma associated with visiting a psychiatrist within

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the Indian cultural context may explain why many women did not heed our advice to seek such assistance.

The study indicates that factors such as inadequate social or familial support, significant intranatal history, the emergence of new high-risk factors in the current pregnancy, and negative personal experiences of labour among patients are strongly associated with a heightened likelihood of postpartum depression. In our study, age and socioeconomic status, as well as level of education, did not exhibit a significant association with postpartum depression. Results from other studies may not align with our findings, as these variables depend on the diverse demographic characteristics of the studied population and vary accordingly.[9] Additional studies conducted in various regions of India, such as New Delhi and Andhra Pradesh, have demonstrated a significant correlation between these factors and postpartum depression (Table 4). The EPDS serves as an effective and straightforward screening instrument, demonstrating a sensitivity of 92% and a specificity of 96%, both of which are well-validated. [9]

EPDS have been administered to our study participants in English and Marathi. The efficacy of the EPDS in the Marathi language has been established in a study conducted by Khare et al.

Of the six participants screened positive for probable postpartum depression, all were referred to the psychiatry department of KEM Hospital. The individual who declined to consult the psychiatrist assured us that her family would provide care, expressing concerns about potential stigma or being labelled as mentally compromised. The help-seeking behaviours for issues such as postpartum depression are not thoroughly examined, particularly in India, where cultural norms and pressures significantly influence women's behaviours. [10]This study represents a preliminary effort to identify the issue of postpartum depression, which is significantly more prevalent and remains largely unaddressed.

The study emphasises that enhancing social and familial support may benefit the emotional well-being of mothers. Additionally, providing comfort during the intranatal period and facilitating a positive labour experience are critical elements that warrant further investigation. It underscores the significance of early screening for postpartum depression, as three participants who tested positive on day 14 were subsequently diagnosed by a psychiatrist with a major depressive episode and received treatment accordingly. [11, 12, 13]

The study emphasises the necessity of collaboration with psychiatry to identify any underlying organic disorders in women and to ensure comprehensive care. The persistent stigma surrounding mental health issues in our society can impede the help-seeking behaviour of women and their families.

The sample size was limited; therefore, the assessment of the true prevalence of postpartum depression requires further investigation with a larger sample in the future. The persistent stigma surrounding mental health issues in our society can impede the help-seeking behaviour of women and their families. The sample size was limited; therefore, the assessment of the true prevalence of postpartum depression requires further investigation with a larger sample in the future.

CONCLUSION

Our study identified the risk factors for postpartum depression, which can affect emotional well-being and the subsequent quality of life of patients. The incidence of early postpartum depression in our study is 4.8%. The stigma associated with referral to a psychiatrist can hinder adherence to subsequent treatment. The presence of a psychiatrist in the hospital would be advantageous.

Our study results align with other research regarding factors such as familial support, a novel high-risk factor, significant intranatal history, and individual labour experiences.

The study indicates that the implementation of screening scales such as the EPDS should be practical and standard for all patients to ensure comprehensive physical and mental health care for both mother and child.

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