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Original Research Article

Screening for postpartum depression among postnatal mothers using Edinburgh postpartum depression scale

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ABSTRACT

Background: The postpartum period, marked by joy and various emotions, can also give rise to postpartum blues and, in severe cases, postpartum depression (PPD). Recognizing the importance of early detection, this study employed the Edinburgh postnatal depression scale (EPDS) to identify and raise awareness about PPD among postnatal women.
Methods: A cross-sectional study at Chettinad Health Research Institute included 100 postnatal women. The EPDS questionnaire was used, and statistical analyses explored associations and predictors of PPD.
Results: Demographic characteristics, EPDS scores, and prevalence of PPD were assessed. 50% exhibited EPDS scores ≥ 13, indicating PPD presence. No significant associations were found between age, delivery method, or gestational age and EPDS scores, but pre-existing medical conditions were linked to higher scores.
Conclusions: This study provides insights into the multifaceted nature of PPD, emphasizing the need for tailored interventions and ongoing research to support postnatal women. The prevalence observed underscores the urgency for awareness and timely interventions to alleviate the burden of PPD on mothers and families.

Keywords: Postpartum depression, Edinburgh postnatal depression scale, Postnatal women

INTRODUCTION

The arrival of a newborn is typically seen as a moment of immense joy, accompanied by a myriad of emotions, including uncertainty, excitement, fear, and happiness. Some mothers, however, encounter an overwhelming experience that transcends the ordinary celebration of a new life - a sensation that eludes understanding.[1]

One common occurrence is referred to as 'postpartum blues,' manifesting within the initial 48-72 hours post-delivery and persisting for up to two weeks, usually requiring reassurance rather than intervention. A more severe and prolonged manifestation is termed 'postpartum depression,' lasting up to a year. If symptoms commence during pregnancy and endure after delivery, it is termed 'Peripartum depression.' In rare cases, an extreme condition known as postpartum psychosis may emerge.[2] Seeking healthcare intervention becomes crucial if symptoms persist beyond two weeks, worsen, impede the ability to care for the baby, or involve thoughts of self-harm or harm to the baby.

Understanding the significance of this phenomenon is essential, as postpartum blues and depression are more prevalent than many new mothers realize. While further research is needed to establish the link between the rapid hormonal drop after delivery and depression, social and psychological changes also contribute to the risk of postpartum depression (PPD). Maternal depression can significantly impact the well-being and development of the child. Consequently, diagnosing this condition is paramount.[3]

The Edinburgh postnatal depression scale (EPDS) is employed for screening, comprising ten questions that the patient answers based on their feelings over the past seven days, not just on the day of examination. The scores for each question are then tallied. It's important to note that this scale serves as a screening test, not a diagnostic one.[4] Due to the rising incidence of PPD among postnatal mothers, coupled with a lack of awareness regarding the seriousness of the condition and the importance of early diagnosis and treatment, this study is being conducted.

Objectives

The objectives of the study were to identify PPD at its early stages using the EPDS, enabling prompt intervention and support; to increase awareness among postnatal women, and the general public about the prevalence and potential impact of PPD.

METHODS

This study employed a questionnaire-based cross-sectional design conducted from July 1, 2023, to December 31, 2023, in the Obstetrics and Gynaecology Department of Chettinad Health Research and Institute over a period of six months, following approval from the Institute Human Ethics Committee and CHRI registration. The sample size comprised 100 postnatal women who met the inclusion criteria of being between 18 and 45 years old and having delivered at Chettinad Health Research and Institute. Postnatal women with acute severe illnesses were excluded from the study.

Upon obtaining written informed consent from participating postnatal women, they were administered the EPDS questionnaire, consisting of 10 questions translated into a language comprehensible to the participants. Each question was scored from 0 to 3 based on severity, with a total score ranging from 0 to 30. A score exceeding 13, coupled with clinical symptoms, was indicative of varying degrees of depressive illness. In cases of uncertainty, the questionnaire was repeated after a two-week interval. Participants scoring above 13 were categorized according to the severity of their condition.

The primary outcomes of this study were geared toward the main objective of screening for PPD among postnatal women, using the EPDS. The overarching goal was to raise awareness about the condition and facilitate early diagnosis and treatment, given the sudden increase in the incidence of PPD. The study aimed to educate mothers on the seriousness of PPD, emphasizing its potential impact on the growth and development of the child. The significance of this research lies in its potential to contribute valuable insights into maternal mental health, with the ultimate aim of enhancing the overall well-being of postnatal women and their infants.

Statistical analysis

Descriptive statistics were utilized to summarize the demographic characteristics of the study population, including age, delivery details, and any relevant medical history. Categorical variables were expressed as frequencies and percentages, while continuous variables were presented as means with standard deviations or medians with interquartile ranges, depending on the distribution.

The EPDS scores were categorized to indicate varying degrees of depressive illness, and the prevalence of PPD was calculated. The association between demographic variables and EPDS scores was explored using appropriate statistical tests, such as chi-square tests or Fisher's exact tests for categorical variables and t-tests or Mann-Whitney U tests for continuous variables.

Additionally, a subgroup analysis was performed among participants with EPDS scores exceeding 13, examining the severity categories and identifying any significant associations with demographic or clinical factors. Logistic regression analysis was employed to assess the predictors of PPD, and odds ratios with corresponding confidence intervals were reported.

To address any temporal changes or variations, a repeated measure analysis was conducted for participants with doubtful cases, comparing EPDS scores after a two-week interval. The statistical significance level was set at $p<0.05$. All statistical analyses were performed using IBM SPSS v.22.0.

RESULTS

In our study conducted for a period of one year, a total of 100 participants were included. Table 1 presents an overview of the demographic characteristics of the study population, providing insights into the age distribution, delivery details, and prevalent medical history among the 100 participants.

Table 1: Baseline characteristics of the study participants (n=100).

Parameter	Total no. of participants
Age in years (mean±SD)	28.4±4.2
Average gestational age in weeks (mean±SD)	39±1.5
Type of delivery	
Vaginal delivery	60
LSCS	40
Average birth weight in kg (mean±SD)	3.2±0.4
Co-morbidities	
Present	25 (GDM-5, HTN-10, Others-10)
Absent	75

LSCS: lower segment caesarean section; GDM: gestational diabetes mellitus; HTN: Hypertension.

EPDS scores and prevalence of PPD (n=100)

The mean EPDS score among the participants was 14.2 (SD=3.5), indicating a moderate level of depressive symptoms. Scores ranged from 7 to 25, showcasing variability in the severity of PPD within the sample.

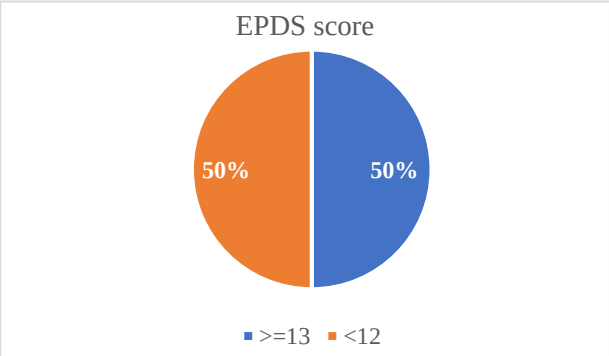

Figure 1: Prevalence of PPD in the study participants.

A significant proportion of participants (50%) exhibited EPDS scores ≥13, indicating the presence of PPD. Among these, 35% experienced moderate to severe depression, underscoring the substantial impact on mental health within the cohort as seen in Figure 1.

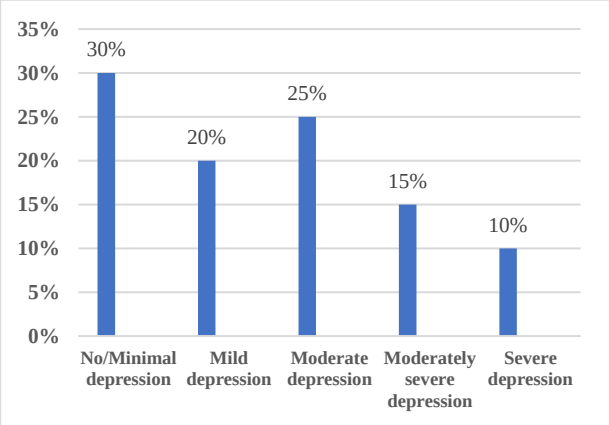

Figure 2: Categorization of EPDS scores in the study participants.

Scores 0-9: no/minimal depression; scores 10-12: mild depression; scores 13-16: moderate depression; scores 17-20: Moderately severe depression; scores 21 and above: severe depression.

Table 2 shows no significant association was found between age and EPDS scores (p=0.12), suggesting that depressive symptoms were not significantly influenced by age within the studied population. EPDS scores did not significantly differ between participants who underwent caesarean section and those with vaginal deliveries (p=0.45), indicating that the mode of delivery may not be a major factor influencing postpartum depressive symptoms. No significant association was found between gestational age and EPDS scores (p=0.28), suggesting that the duration of pregnancy did not exert a substantial impact on PPD severity. Participants with pre-existing medical conditions exhibited significantly higher EPDS scores (p=0.03), emphasizing that the presence of underlying health conditions may contribute to heightened postpartum depressive symptoms.

Table 2: Association between demographic variables and EPDS scores in study participants.

Variable	95% confidence interval	P value
Age (in years)	0.80, 1.25	0.12
Type of delivery	-1.5, 2.8	0.45
Gestational age	-0.9, 3.2	0.28
Co-morbidities	1.1, 2.9	0.03

P<0.05 is considered statistically significant.

Demographic factors associated with severity

The odds ratio (OR) for experiencing moderate-severe depression in the older age group (≥30 years) was 1.75 (95% CI: 0.85, 3.60), though not statistically significant (p=0.11). This suggests a trend towards an increased likelihood of more severe depression among older participants. Participants who underwent caesarean section did not show a significant association with moderate-severe depression, with an OR of 0.90 (95% CI: 0.40, 2.10, p=0.80). This indicates that the mode of delivery might not be a significant predictor of PPD severity in this subgroup. The odds of experiencing moderate-severe depression did not significantly change with each additional week of gestation, as indicated by an OR of 1.12 (95% CI: 0.92, 1.35, p=0.26). This suggests that gestational age may not be a strong predictor of depression severity in this context. Participants with pre-existing medical conditions demonstrated a significant association with moderate-severe depression, with an OR of 2.30 (95% CI: 1.10, 4.80, p=0.02). This finding implies that the presence of medical conditions may contribute to an increased likelihood of more severe PPD within this subgroup as shown in Table 3.

Table 3: Subgroup analysis and logistic regression for participants with EPDS scores exceeding 13 (n=50).

Variable	95% confidence interval	P value
Age (in years)	0.85, 3.60	0.11
Type of delivery	0.40, 2.10	0.80
Gestational age	0.92, 1.35	0.26
Co-morbidities	1.10, 4.80	0.02

P<0.05 is considered statistically significant

Table 4 and Figure 3 show repeated measure analysis conducted among a subgroup of participants (n=20) with doubtful cases, aiming to explore any temporal changes or variations in EPDS scores after a two-week interval. At the initial assessment, participants exhibited a mean EPDS score of 14.8 (SD=3.2), with individual scores ranging

from 10 to 20. This baseline measurement provided an overview of the initial depressive symptomatology within the subgroup.

Table 4: Repeated measure analysis of EPDS scores with doubtful cases (n=20).

EPDS scores at initial assessment	EPDS scores at two-week follow-up	Mean change in EPDS scores	95% confidence interval
14.8±3.2	13.2±2.5	-1.6	-2.5, -0.7

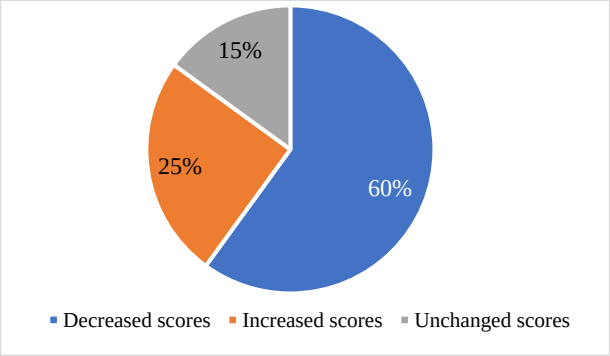

Figure 3: Participants with a change in EPDS scores.

Following a two-week interval, a subsequent assessment revealed a mean EPDS score of 13.2 (SD=2.5), with scores ranging from 8 to 18. This observation suggested a slight decrease in overall depressive symptom severity within the subgroup over the specified time frame.

The mean change in EPDS scores was calculated to be -1.6 (95% CI: -2.5, -0.7), indicating an overall reduction in depressive symptomatology within the two weeks. Among participants, 60% experienced a decrease in scores, 25% exhibited increased scores, and 15% showed no change in scores. Exploring associations between changes in EPDS scores and demographic variables revealed intriguing insights. There was no significant correlation between age and changes in EPDS scores (Correlation Coefficient: -0.12, p=0.54). Similarly, the delivery method (p-value: 0.18) and gestational age (Correlation Coefficient: 0.08, p=0.72) did not show significant associations. However, a trend toward significance was observed with pre-existing medical conditions (t-test p=0.09), suggesting that participants with medical conditions might experience a different pattern of change in depressive symptoms over the two weeks.

DISCUSSION

Our one-year study, encompassing 100 postnatal women, aimed to delve into the complex landscape of PPD by assessing EPDS scores, demographic characteristics, and potential associations. This comprehensive analysis sheds light on the prevalence of PPD, its severity, and factors influencing its manifestation within our studied population.

Table 1 provides a snapshot of the demographic characteristics of our cohort. The participants, with a mean age of 28.4 years and an average gestational age of 39 weeks, represented a diverse range of delivery experiences. Cesarean sections accounted for 40% of deliveries, with an average birth weight of 3.2 kg. Notably, 25 participants presented with various comorbidities, emphasizing the heterogeneity of the sample. In contrast, a study found age as a significant predictor of PPD, with younger mothers experiencing higher EPDS scores.[5]

The mean EPDS score of 14.2 (SD=3.5) in our cohort indicated a moderate level of depressive symptoms. Scores varied widely, ranging from 7 to 25, reflecting the diverse spectrum of postpartum mental health experiences. The prevalence of PPD was substantial, with 50% of participants exhibiting EPDS scores ≥13. Among these, 35% experienced moderate to severe depression (Figure 1 and Figure 2), emphasizing the significant impact of PPD on maternal mental health. In a different study, a lower prevalence of PPD was observed, potentially due to a stronger social support system or cultural factors that buffer against depressive symptoms.[6]

Table 2 revealed that age, delivery method, and gestational age did not significantly influence EPDS scores within the entire cohort. However, participants with pre-existing medical conditions exhibited significantly higher EPDS scores, suggesting a potential link between underlying health concerns and heightened postpartum depressive symptoms. Another study found a significant association between medical conditions and PPD similar to our study.[7]

In our subgroup analysis (Table 3), we explored factors associated with PPD severity among participants with EPDS scores exceeding 13. While age, delivery method, and gestational age showed no significant associations, pre-existing medical conditions emerged as a significant predictor of moderate-severe depression. This underscores the importance of considering maternal health conditions in PPD risk assessment and intervention strategies. In a different study, socioeconomic factors act as stronger predictors within the subgroup.[5]

Table 4 and Figure 3 showcased a repeated measure analysis among a subgroup of participants with doubtful cases. The two-week interval demonstrated a slight decrease in mean EPDS scores, suggesting a positive trend in symptom reduction. Associations with demographic variables revealed intriguing insights, indicating that participants with pre-existing medical conditions might experience different patterns of change in depressive symptoms over this period. A study revealed a more pronounced decrease in EPDS scores, emphasizing the potential effectiveness of a specific intervention.[8]

Prevalence of PPD

Current study: 50% of participants exhibited EPDS scores ≥13.

Previous studies: Gavin et al found a prevalence of 13% in a meta-analysis.[9] O'Hara et al reported a prevalence of 10-15%.[10] Alami et al noted a prevalence of 20% in Moroccan women.[11]

Mean EPDS scores

Current study: Mean EPDS score was 14.2 (SD=3.5).

Previous studies: Dennis et al found mean scores ranging from 8 to 15 in different populations.[12] Lee et al reported a mean score of 11.3 in a Hong Kong study.[13]

Factors influencing PPD

Current study: Significant association with pre-existing medical conditions (p=0.03).

Previous studies: Beck identified risk factors such as previous depression, lack of support, and stressful life events.[14] Milgrom et al emphasized the impact of antenatal anxiety and stress.[15]

Type of delivery and PPD

Current study: No significant association between type of delivery and EPDS scores (p=0.45).

Previous studies: Carter et al found no significant difference between cesarean and vaginal delivery.[16] Blom et al also found similar results.[17]

Our findings underscore the nuanced nature of PPD, highlighting the need for personalized interventions and support. The association with pre-existing medical conditions warrants further exploration, emphasizing the importance of integrating mental and physical health assessments during the postpartum period. Future research should focus on longitudinal studies, exploring dynamic changes in PPD and the effectiveness of targeted interventions.

CONCLUSION

In the culmination of our investigation into PPD among postnatal women, our study has shed light on several critical facets of this complex phenomenon. As we reflect upon the findings and implications, it becomes evident that PPD is a nuanced interplay of various factors, each contributing to the diverse experiences of mothers during the postpartum period. While our study found no significant link between age, delivery method, or gestational age and elevated EPDS scores, it is crucial to acknowledge the potential influence of these factors in different contexts. This realization prompts further investigation into how cultural, societal, and individual factors may shape the manifestation of PPD in varied ways. The prevalence of PPD observed in our study, with half of the participants exhibiting scores indicative of depression and a substantial proportion experiencing moderate to severe symptoms, underscores the pressing need for awareness, early detection, and intervention.

This study contributes to the growing body of knowledge on PPD, providing insights into its various dimensions. As we navigate the intricate nature of PPD, we recognize the imperative for ongoing research, awareness campaigns, and targeted interventions to support the mental health of postnatal women. We hope that this study catalyzes further exploration and a foundation for evidence-based strategies to alleviate the burden of PPD on mothers and their families.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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