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Original Research Article

Prevalence of postpartum depression and associated risk factors in tertiary health care centre

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ABSTRACT

Background: Postpartum depression (PPD) is defined as a depressive episode occurring during pregnancy or until 4-weeks post-childbirth. It is essential to diagnose postpartum depression since it can disrupt normal maternal and infant bonding and have a negative impact on both the short and long-term development of children. To determine the prevalence of postpartum depression and the associated risk factors in women delivering in a tertiary health care centre.
Methods: A prospective observational study was conducted in a tertiary health care centre from January 2021 to June 2022 for a period of 18 months. Pregnant women were assessed using the Edinburgh postnatal depression scale (EPDS) at 2-3 days postpartum and at 6 weeks postpartum. The cut-off score for detecting major depression is a score greater than or equal to 13.
Results: The study included 204 women, of which postpartum depression was present in 28 women. The prevalence of postpartum depression in this study group is 13.7%. Unplanned pregnancy, neonatal intensive care unit (NICU) admission of newborns, preterm delivery, lack of support from family, complications during pregnancy or birth, and delayed breastfeeding were significantly associated with postpartum depression.
Conclusions: Psychological and emotional well-being should also be given priority in addition to the physical well-being of women. All women who are at high risk should be screened so that PPD can be detected earlier, and support should be extended in the form of counselling and treatment.

Keywords: Postpartum depression, EPDS questionnaire, Psychological-emotional well-being

INTRODUCTION

Postpartum depression is referred to as a depressive illness of peripartum onset.[1] Peripartum onset is the time during pregnancy to the four weeks after delivery. Postpartum depression (PPD) symptoms may persist for one to two years after giving birth. It is essential to diagnose postpartum depression since it can disrupt normal maternal and infant bonding and have a negative impact on both the short and long-term development of children.[2] PPD is thought to be caused by physical, emotional, social, and genetic factors, while the actual etiology is unknown.[3] Hormonal changes in pregnancy play a huge role in mood during and after pregnancy. Women should be evaluated if symptoms persist for more than two weeks. Irritability, sadness, and anxiety are common symptoms. Mothers usually feel sad, empty or hopeless practically every day for most of the day. She often has low mood, change in sleep patterns, loss of enjoyment or interest in other activities, feelings of agitation, reduced appetite or weight loss, feeling worthless, lethargy and increased indecisiveness.[4]

When symptoms initially appear, postpartum depression and postpartum blues might be difficult to differentiate. Postpartum blues are less severe, settle on their own and last less than two weeks. The global prevalence of postpartum depression is about 7.6% to 39%.[5] Developing

countries may exhibit a higher occurrence rate of postpartum depressive symptoms ranging from 10% to 42% than the developed countries.[5] If this postnatal depression is not treated, it may lead to recurrent episodes of depression, which is a long-term and chronic complication of postpartum depression. Women who have experienced postpartum depression have a 50% to 62% risk for future depression.[6] It has a major impact on the woman, the family, her spouse, the mother-infant interaction and the long-term emotional and cognitive development of the baby.[7] The consequences on the child of maternal postpartum depression are not restricted to infancy but can extend into toddlerhood, preschool age and even school age.[8]

METHODS

A prospective observational study was conducted at Apollo Cradle Hospital in Chennai, Tamil Nadu, India, from January 2021 to June 2022 for a period of 18 months. The aim of the study was to determine the prevalence of postpartum depression and the associated risk factors in women delivering in tertiary care hospital in Chennai and Tamil Nadu. All pregnant women who had normal vaginal delivery/assisted vaginal delivery/elective lower segment caesarean section (LSCS)/emergency LSCS who were above 18 years and above 28 weeks of gestation who came for follow-up were included in the study. Women who were not willing to participate and women with a previous history of mild or major psychiatric illness were excluded from the study. The study was conducted after getting approval from the institutional ethical committee. Informed consent is obtained from all patients who met the inclusion criteria.

A total of 204 patients were included in this study.

Sample size

The sample size is calculated by using the following formula given, where Z=standard normal variate value (95% CI) =1.96, p=prevalence=15.8%=0.158, q=1-p=92.5%=0.842, and d=clinical allowable error=5% required sample size=204 cases.

$$n = Z^2pq/d^2$$

Methodology

Edinburgh postnatal depression scale (EPDS) containing 10 questions are given at 2-3 days postpartum and at 6 weeks postpartum.[9] She is also asked to fill out the risk factors questionnaire. Each of the 10 questions is scored 0, 1, 2, 3 depending on the severity, except questions 3, 5, 10, which are scored as 3, 2, 1, 0. The total score is obtained by adding the scores for all questions. The cut-off score for detecting major depression is a score greater than or equal to 13. If the EPDS score is greater than or equal to 13, women are given support and counselling. She was followed up at 6 weeks postpartum. She was asked to fill out the EPDS questionnaire. If the score was greater than or equal to 13, she was referred to the psychiatrist.

Statistical methods

The collected data were analysed with IBM statistical package for the social sciences (SPSS) statistics for Windows, version 23.0. (Armonk, NY: IBM Corp). To describe the data, descriptive statistics, frequency analysis, and percentage analysis were used for categorical variables, and the mean and SD were used for continuous variables. To find the significant predictors of depression, the binary logistic regression analysis with the backward Wald method was used. To find the significance in categorical data, the Chi-square test was used similarly. If the expected cell frequency is less than 5 in 2×2 tables, then Fisher's exact was used. In all the above statistical tools, the probability value of 0.05 is considered a significant level.

RESULTS

The study included 229 pregnant women, out of which 25 women failed to come for follow up. The study included 204 women; 97 women were primiparous, and 107 women were multiparous, out of which most of the women belonged to higher socioeconomic status (87.8%). The distribution of employment and family type was almost equal, which was incidental. This study group was well-educated women (99.5%). Out of 204 women, postpartum depression was present in 28 women, and 176 women did not have postpartum depression (Table 1).

Table 1: Prevalence of postpartum depression in study group.

Post-partum depression	Frequency	Percent
Absent	176	86.3
Present	28	13.7
Total	204	100.0

The overall prevalence of postpartum depression in this study group is 13.7% (Figure 1).

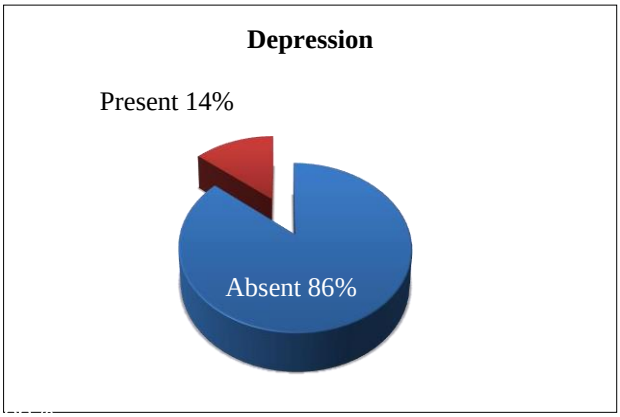

Figure 1: Distribution of postpartum depression.

Depression was found to be more in employed women (16.8%), nuclear family (19.1%), upper middle class (17%), unplanned pregnancy (28.8%), spontaneous conception (21.2%), primi mothers (16.8%), more in elective LSCS (16.4%), emergency LSCS (16%), complicated pregnancy or childbirth (22.9%), preterm (22.6%), twin baby (33.3%), delayed initiation of breastfeeding (34%), family history of psychiatric illness (28.6%), lack of good support from husband (35.6%), lack of good relationship with in laws (36%), lack of parenteral support (32%), NICU admission (53.6%) (Table 2).

Unplanned pregnancy, NICU admission of newborn, lack of good support from husband, lack of good relationship with in-laws and lack of parental support were found to have high statistical significance ($p<0.01$ level). Preterm delivery, complications during pregnancy or birth, delayed breastfeeding, and family history of psychiatric illness were found to be statistically significant ($p<0.05$ level). Conception type, history of abuse, and socioeconomic status showed no statistical significance (Table 3).

Table 2: Comparison of factors influence of depression by binary logistic regression.

Factors	CI 95%	P value
Planned/unplanned pregnancy	0.071 (0.009-0.538)	0.010**
Conception type	6.282 (0.727-54.287)	0.095#
Term/preterm/post term	32.885 (1.513-714.794)	0.026*
Complications	10.713 (1.481-38.663)	0.019*
Delayed breastfeeding	6.445 (1.074-38.663)	0.042*
Family history of psychiatric illness	128.368 (3.049-5403.812)	0.011*
Lack of good support from husband	0.024 (0.003-0.225)	0.001**
Lack of good relationship with in-laws	0.042 (0.006-0.292)	0.001**
Lack of parenteral support	27.412 (3.053-246.083)	0.003**
History of abuse	0.082 (0.006-1.082)	0.057#
SES	4.819 (0.824-28.190)	0.081#
NICU	0.007 (0.000-0.127)	0.001**
Constant	0.004	0.113

**Highly statistical significance at $p<0.01$, *significant at $p<0.05$ and #no statistical significance at $p>0.05$

Table 3: Prevalence of depression in various groups and its statistical significance.

Variables	Present (%)	Absent (%)	Total	P value
Age				
21-25	27 (93.1)	2 (6.9)	29	0.446
26-30	85 (87.6)	12 (12.4)	97	
31-35	47 (81)	11 (19)	58	
35-40	17 (85)	3 (15)	20	
Education				
Degree	175 (86.2)	28(13.8)	203	1
High school	1 (100)	0 (0)	1	
Occupation				
Homemaker	92 (89.3)	11 (10.7)	103	0.202
Employed	84 (83.2)	17 (16.8)	101	
Family type				
Nuclear	89 (80.9)	21 (19.1)	110	0.016
Joint	87 (92.6)	7 (7.4)	94	
Socio economic status				
Lower middle	14 (93.3)	1 (6.7)	15	23.40
Upper	59 (89.4)	7 (10.6)	66	
Upper lower	10 (100)	0 (0)	10	
Upper middle	93 (82.3)	20 (17.7)	11	

DISCUSSION

This study was done in a tertiary health care centre in Chennai, and it included 204 women. PPD was screened using the EPDS scale. It showed that 28 women had PPD. The prevalence of postpartum depression is 13.7%. This is similar to studies conducted by Kruthika et al (13.6%), Gupta et al (15.8%), Abulaiti et al (14.2%), Sandhya et al

(15.2%), Shriram et al (11%), and Chandran et al (11%).[7,10-14] However, recent studies conducted by Chen et al (34%), Paswan et al (34%), Lanjewar et al (26.3%), and Liu et al (23.5%) showed a higher prevalence rate.[15-18] It may be attributed to COVID-19-related factors and cultural factors. Studies conducted by Sheela et al showed a lesser prevalence of 7.5%.[5] Socio-demographic factors such as age and family type did not have any association with postnatal depression. A study done in Karnataka showed that young age had a significant association with depression.[7] The majority of the studies showed that education is significantly associated with depression.[7,10] Women who had less education had a higher risk of developing depression. Women who were from lower socioeconomic status and who were unemployed developed depression.[7,10] This is contrasting in my study, as depression was common in employed women. This may be attributed to the fact that the literacy rate has improved, and education is available to all. In this study cohort, most of the women were well-educated. Depression was found to be more common in women who had unplanned pregnancies. This is similar to the study done by Kruthika et al and Paswan et al.[7,16] History of miscarriage and type of conception had no association with PPD, which is similar to most studies. This study shows no association with the Gravidity of women, whereas many studies showed that PPD was more common in primiparous women.[7,13,16,17] This study shows no association with the type of delivery, whereas many studies were done by Kruthika et al, Sandhya et al and Lanjewar et al showed that women who underwent caesarean section had an increased risk of depression.[7,12,17] This may be due to increased post-operative pain added to the responsibility of nurturing the newborn. This contrasts with the study done by Shriram et al, which showed that PPD was increased in women undergoing vaginal delivery.[13] This study showed that PPD was more common in women who had preterm delivery and babies with NICU admission, which is similar to the study done by Ying et al.[18]

The majority of studies showed that depression was more common in women who delivered a female child.[10,11,15,19] Lanjewar et al showed that it was common in women who delivered a male child.[17] This study did not find any association between the sex of newborns and depression. This shows that there is a change in the mindset of women. Women who had difficulty in breastfeeding and delayed initiation of breastfeeding had a higher risk of developing depression. This is similar to the study by Abulaiti et al and Chen et al.[11,15] This study showed that family history of psychiatric illness and lack of social support had a higher risk of developing PPD. This was similar to the study done by Ying et al, Lanjewar et al, and Chen et al.[15,17,18] This study showed that there was no association between depression and a history of abuse. However, Chen et al showed that there is a significant association between a history of abuse and depression.[15] In this study, out of 201 women, 57 women had COVID, but only 3 developed depressions. In this study, the history of COVID had a significant association with depression, which was similar to the study by Chen et al this may be attributed to COVID-related factors and the separation anxiety of the mother from the newborn.[15]

Limitations

Since this is a cross-sectional study, the risk factors might have been present earlier, and pregnancy would have aggravated depression. EPDS is subjective in nature and thus depression was not diagnosed clinically with the diagnostic criteria. The severity of depression was not categorized. This study was followed up for 6 weeks. Follow-up until one-year post-partum would have given a clearer picture of whether PPD resolved or became worse.

CONCLUSION

The prevalence of postpartum depression was 13%. Unplanned pregnancy, preterm delivery, complications during pregnancy or birth, NICU admission of birth, delayed initiation of breast feeding, family history of psychiatric illness, lack of good relationship with in-laws, and lack of relationship support were found to have significant associations with the development of postpartum depression. These factors should be addressed; all women who are at high risk of developing PPD should be detected earlier, and support should be extended in the form of counselling and treatment. Thus, the prevalence of PPD can be curbed. Psychological and emotional well-being should also be given priority in addition to the physical well-being of the women. With the increasing trend in the prevalence of depression, it is essential to incorporate screening for postpartum depression in all women.

Recommendations

Antenatal women with high-risk factors for postpartum depression should be identified and addressed early to nip it in the bud. All postpartum women should be screened for postpartum depression.

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