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Original Research Article

A study of postnatal depression in a tertiary care centre – A prospective observational study

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ABSTRACT

Postnatal depression is defined as non-psychotic depressive episodes of mild to major severity which occurs during pregnancy or postpartum. It is one of the most common non obstetric disorders that causes significant morbidity in women during the perinatal period. It is often unrecognized, but an extremely common yet a disorder (100-150 per 100 births) and is prevalent among Indian women up to 19% - 22% as well. The aim of this study is to find out incidence of postnatal depression in Vijaya Hospital, a private tertiary care hospital.

Background: This study aims at identifying the incidence of postnatal depression in postnatal mothers in a tertiary care centre using Edinburg Postnatal Depression Scale (EPDS) questionnaire and the risk factors contributing to postpartum depression. The results were incidence of postnatal depression at week one was 40% and week four was 27%.

Methods: It is a prospective observational study with a sample size of 100. Postnatal mothers were screened using EPDS questionnaire at one week when they are admitted in hospital and four weeks when they come for postnatal checkup. Women with EPDS score of 13 and above was considered having Postpartum Depression. Age, socioeconomic status, educational status, employment status, type of family, menstrual history, premenstrual syndrome, obstetric score, mode of delivery, planning of pregnancy, relationship with parents, in laws and partner was compared at one week and four weeks.

Results: The Primary outcome of the study was to measure the incidence of PPD at week one which was 40% and week four which was 27%. The secondary outcome identified the risk factors contributing to PPD in my study was menstrual history, mode of delivery, relationship with in laws, lack of partner support which was found to be statistically significant.

Conclusion: In my study done in a private tertiary care hospital, the cumulative incidence of PPD was 52%. Delivery through Caesarean section, menstrual history and poor relationship with in laws at one week was found to be statistically significant with a p-value of <0.05. Lack of partner support at one week and four weeks were found to be statistically significant with a p- value of < 0.05.

1. Introduction

Depression is a psychiatric condition that ranks 5th in the contribution to the Global Burden of Disease and affects more that 280 million people of all ages.[1] It ranks 4th when only women are taken into consideration and is expected to increase further in the coming years.

Postpartum depression (PPD) is one of the most common non obstetric disorders that causes significant morbidity in women during the perinatal period.[2] It is often unrecognized, but an extremely common yet a disorder (100-150 per 1000 births) and is prevalent among Indian

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women up to 19% - 22% as well. Owing to the already increased physiological, physical and emotional stress during the perinatal period, depression has deleterious and often devastating effects on the outcome of the perinatal mother and the infant.[2]

Data suggests that women tend to be diagnosed with first episode of depression or severe depression during the postpartum period; more specifically during the first 3 months after child birth.[3]

The risk factors associated with postpartum depression are multifactorial. During the course of pregnancy, the following factors can lead to mental health problems: adolescent or unmarried pregnancy, unwanted pregnancy, unsupportive marital relationship, past history of stillbirth or miscarriage, nulliparity, poverty and lack of financial support, domestic violence etc. After childbirth the following factors may be responsible: difficult husband's behavior, stressful relationship with in-laws, operative child birth, illness or complications during child birth, birth of child of an undesired gender, sick infant, lack of practical support, poverty and other stressful events in family.[2]

The consequences of major depression during the post-partum period are even more alarming. Postpartum depression tends to be severe and in most cases is present up to the first six months after birth and in some cases may extend up to one year. Maternal suicide is one of the major non obstetric cause of maternal mortality in the first year of child birth. Some studies in India observed that 20% of deaths in the post-partum period were attributed to suicide or major burns (a common mode of suicide in India.[2,4]

It is only fairly normal to assume that postnatal depression has consequences on the infant and evidences related to that suggest the same. Owing to the biochemical imbalances during the perinatal period; infants of depressed mothers show dysregulations in their behaviour and physiology because of prenatal exposure but whether postnatal depression per se affects the growing infant is unclear.[5,6]

2. Materials and Methods

2.1. Study design

Prospective Observational study using a questionnaire.

2.2. Place of study

Department of Obstetrics and Gynecology, Vijaya Hospital, Chennai.

2.3. Study period

September 2020 - April 2021.

2.4. Inclusion criteria

1. All postnatal mothers irrespective of age.
2. Parity – Primi gravida and multi gravida.
3. Mode of delivery – Normal, Assisted vaginal and Caesarean section.
4. Willing to give consent.

2.5. Exclusion criteria

1. History of Psychiatric disorder before conception.
2. Previous history of postpartum depression.
3. Not willing to participate in study.

2.6. Sample size

From the study by Shriraam et al in 2019 the sample size of this study was calculated as 100. Our study had assumption of 7% precision, 80% power and 5% level of significance. The formula used for calculating the sample size is mentioned below.

Formula

$$n = \frac{Z^{2}_{1-\frac{\alpha}{2}} P(1-p)}{d^2}$$

Where,

P: Expected proportion

d: Absolute precision

1-α/2: Desired Confidence Level

2.7. Statistical analysis

Statistical analysis was done by the statistical software STATA 11.0. Continuous variables were represented as 'Mean (SD) 'and categorical variables were represented as 'Frequency (percentage) '. Chi-square test or Fischer's exact test were used to differences in categorical data. The p value of< 0.05 were considered as significant.

2.8. Methodology

Those women who fulfil the inclusion criteria were subjected to study. Consent was taken from participants in the study. The history of the participants was collected using proforma which was given to them at first week when they are in hospital and fourth week when they reviewed in postnatal clinic. EPDS questionnaire was given at week one when in hospital and week four when they reviewed in postnatal clinic. Those patients who have moved to their maternal homes for postnatal care were called over phone at the end of 4 weeks where they would be asked to respond to the questionnaire orally. The results are interpreted as mentioned below:

Table 1:

EPDS score	Interpretation
1 to 9	Normal
10 to 12	Borderline
13 and above	Postpartum depression

Women with EPDS score of 13 and above in first week and fourth week were considered to have postpartum depression and all these women are included in the study.

2.9. Ethical consideration

The study abides by the rules of the Ethical Committee of the hospital. No intervention causing harm to patient mentally, physically or financially was done.

1. This study is conducted at Vijaya Hospital, Chennai.
2. Women with inclusion criteria were selected after explaining in detail about study design, written consent and detailed history was taken.
3. Women who fulfilled inclusion criteria were included in the study. They were given proforma and EPDS Questionnaire at week one and week four and score of > 13 was diagnosed with postpartum depression.

2.10. Objective

Primary outcome: To study the incidence of postpartum depression in postnatal clinic at week one and week four using Edinburg Postnatal Depression Scale (EPDS) in a private tertiary care center.

Secondary outcome: To determine the risk factors contributing to postpartum depression.

3. Results

After recruiting 100 women in our study, all 100 women were assessed with the help of EPDS score at one and four weeks for the evaluation of postpartum depression.

A score of 13 and above was considered as postpartum depression and referred to psychiatric consult for counselling and treatment. A score of 10 to 12 would be considered borderline and referred to psychiatric consult for further evaluation.

Table 2: Effect of menstrual history on EPDS score at one week

Menstrual history	EPDS less than 13	EPDS 13 and above	Total
Irregular	12(85.7%)	2(14.3%)	14
Regular	48(55.8%)	38(44.2%)	86
Total	60	40	100
P value		0.034	

On analyzing menstrual history and their effect on EPDS scores at one week it was found that more women who had regular menstrual history (44.2%) had higher EPDS scores (EPDS >12) compared to women who had irregular menstrual history (14.3%). The difference was found to be statistically significant with a p value of 0.034.

On analyzing menstrual history and their effect on EPDS scores at four weeks it was found that more women who had regular menstrual history (27.9%) had higher EPDS scores (EPDS >12) compared to women who had irregular menstrual history (21.4%). The difference of EPDS scores among the two groups was not statistically significant.

Table 3: Effect of menstrual history on EPDS score at fourth week

Menstrual history	EPDS less than 13	EPDS 13 and above	Total
Irregular	11(78.6%)	3(21.4%)	14
Regular	62(72.1%)	24(27.9%)	86
Total	73	27	100
P value		0.613	

Table 4: Effect of mode of delivery on EPDS score at one week

Mode of delivery	EPDS less than 13	EPDS 13 and above	Total
Normal vaginal delivery	38(74.5%)	13(25.5%)	51
LSCS	22(44.9%)	27(55.1%)	49
Total	60	40	100
P value		<0.003	

On analyzing the mode of delivery and its effect on EPDS scores at one week it was found that more women who gave birth through LSCS (55.1%) had higher EPDS scores (EPDS >12) compared to women who gave birth through normal vaginal delivery (25.5%). The difference of EPDS scores at one week between the two groups was statistically significant with a p value <0.003.

Table 5: Effect of mode of delivery on EPDS score at four weeks

Mode of delivery	EPDS less than 13	EPDS 13 and above	Total
Normal vaginal delivery	38(74.5%)	13(25.5%)	51
LSCS	35(71.4%)	14(28.6%)	49
Total	73	27	100
P value		0.729	

On analyzing the mode of delivery and its effect on EPDS scores at four weeks it was found that more women who gave birth through LSCS (28.6%) had higher EPDS scores (EPDS >12) compared to women who gave birth through normal vaginal delivery (25.5%). The difference of EPDS scores at four weeks between the two groups was not statistically significant.

On analyzing the relationship with in laws and its effect on EPDS scores at one week it was found that more women who had bad relationship with in laws (73.3%) had higher EPDS scores (EPDS >12) compared to women with good relationship with in laws (34.1%). The difference of EPDS scores at one week between the two groups was statistically significant with a p. value of <0.004.

Table 6: Effect of relationship with inlaws on EPDS score at one week

Relationship with in laws	EPDS less than 13	EPDS 13 and above	Total
Good	56(65.9%)	29(34.1%)	85
Bad	4(26.7%)	11(73.3%)	15
Total	60	40	100
P value	<0.004		

Table 7: Effect of relationship with inlaws ON EPDS score at four weeks

Relationship with in laws	EPDS less than 13	EPDS 13 and above	Total
Good	63(74.1%)	22(25.9%)	85
Bad	10(66.6%)	5(33.3%)	15
Total	73	27	100
P value	0.549		

On analyzing the relationship with in laws and its effect on EPDS scores at four weeks it was found that more women who had bad relationship with in laws (33.3%) had higher EPDS scores (EPDS >12) compared to women with good relationship with in laws (25.9%). However, the difference of EPDS scores at four weeks between the two groups was not statistically significant.

Table 8: Effect of partner support on EPDS score at one week

Partner support	EPDS less than 13	EPDS 13 and above	Total
Good	57(64.1%)	32(35.9%)	89
Bad	3(27.3%)	8(72.7%)	11
Total	60	40	100
P value	<0.019		

On analyzing the partner support and its effect on EPDS scores at one week it was found that more women among those without partner support (72.7%) had higher EPDS scores (EPDS >12) compared to women with good partner support (35.9%). The difference of EPDS scores at one week between the two groups was statistically significant with a p value of <0.019.

Table 9: Effect of partner support on EPDS score at four weeks

Partner support	EPDS less than 13	EPDS 13 and above	Total
Good	68(76.4%)	21(23.6%)	89
Bad	5(45.5%)	6(54.5%)	11
Total	73	27	100
P value	<0.029		

On analyzing the partner support and its effect on EPDS scores at four weeks it was found that more women among those without partner support (54.5%) had higher EPDS scores (EPDS >12) compared to women with good partner support (23.6%). The difference of EPDS scores at four weeks between the two groups was statistically significant with a p value of <0.029.

Table 10: EPDS score

EPDS Score	EPDS at one week	EPDS at four weeks	Interpretation
1 to 9	33	50	Normal / Stressed
10 to 12	27	23	Borderline
13 and above	40	27	PPD
Total	100	100	

From the Table 10 data it is evident that more women tend to have higher EPDS SCORES (>12) in the first week after child birth. 40 women had a score of 13 or above in the first week that is suggestive of postpartum depression. Therefore, the prevalence of postpartum depression in the first week after pregnancy is 40%. The number of women having EPDS Score 13 or above in the fourth week was 27 indicating that the prevalence of postpartum depression dropped to 27% in the fourth week after child birth.

Though it suggests that assessment in the first week after childbirth is more sensitive to diagnose postpartum depression, we found that out of the 40 women who were diagnosed with PPD, 25 of them had lower EPDS scores at 4weeks. Only 15 of them had similar EPDS scores even in the 4th week. Out of 27 women who had EPDS score 13 and above at the fourth week, 15 of them were those women who had high EPDS score (>12) at the first week. The remaining 12 of them were patients who had normal EPDS scores at the first week.

This suggests that a total of 52 women were affected with postpartum depression during the course of pregnancy. Therefore, the cumulative incidence of postpartum depression in our study is 52%.

In our study, factors like age of the mother, socioeconomic status, education status, employment status, type of family, obstetric score, gender of the infant, mode of delivery, planning for delivery, planning admission of baby and premenstrual syndrome did not have any association with postpartum depression.

4. Conclusion

In my study postpartum depression was screened at one week and four weeks in the postnatal period using EPDS scale. The cumulative incidence of PPD in my study was 52%.

The factors which were found to be statistically significant were mode of delivery, support and partner support.

The EPDS scale is a self questionnaire which contains 10 questions and a score of 13 and above in postnatal period indicative of PPD.

Delivery through caesarean section was found to be associated with PPD in first week, but at fourth week the mode of delivery was found to be insignificant. Poor relationship with in laws at first week was found to be associated with PPD in first week but not in the fourth week. No partner support at first week and fourth week was associated with PPD.

5. Source of Funding

None.

6. Conflict of Interest

None.

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