Original Research Article

A Cross-Sectional Study on Magnitude of Post-Partum Depression and Factors Associated with it among Postnatal Mothers Visiting a Tertiary Care Setting in Mangalore, Karnataka

Shahina Begum[1], Anitha S[2], Sushantha[3]

[1]Senior Resident, [2]Assistant Professor, Department of Obstetrics & Gynecology, A. J. Institute of Medical Sciences & Research Center, Mangaluru, Karnataka, India, [3]Assistant Professor, Department of Community Medicine, A. J. Institute of Medical Sciences & Research Center, Mangaluru, Karnataka, India.

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Abstract

Introduction: Postnatal period is a vulnerable time for women, with 85% experiencing mood disturbances due to physical and emotional changes. Depression, being one such common occurrence is known to have large impact on morbidities of mother and child. Hence it is crucial to know the factors effecting post-partum depression (PPD).

Aims: To assess the burden of postpartum depression and factors associated with it.

Materials and methods: The cross-sectional study was conducted in a private tertiary care hospital on women in their postnatal period (6 – 8 weeks). Data was collected using pretested semi-structured questionnaire, and depression was assessed using Edinburgh Postnatal Depression Scale; data was analyzed using SPSS.

Results: Around 34% had probable depression. Risk factors were found be: those having lower educational status, semi/unskilled occupation, non-nuclear family, lower SES, complications in present / past pregnancy, multiple gestation, unwanted pregnancy, pressure for female child, poor relationship with family members including husband's absence during delivery.

Conclusion: Prevalence of depression in postnatal women is high. Modifiable psychosocial factors have a close association with PPD, which constitute the potential factors of intervention.

Keywords: Depression; Maternal health; Mental health; Post-partum; Postnatal period; Psychosis.

Corresponding Author: Sushantha, Assistant Professor, Department of Community Medicine, A. J. Institute of Medical Sciences & Research Center, Mangaluru, Karnataka, India.

E-mail: sush28492@gmail.com

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Introduction

Postnatal period is known to be the fragile periods in a woman's life. The postnatal period is a time of significant physical and emotional changes for women as they adapt to new roles and alterations in their physiology. The interaction of biological, psychological, and social factors can make women vulnerable to mental health issues, with psycho-social stress often being overlooked. As a result, around 85% of women experience some form of mood disturbance during this period.[1]

Postpartum depression is a type of mood disturbance that can occur up to one year after childbirth, ranging from mild to severe depression with suicidal tendencies. Although postpartum blues are a common, transient and self-limiting experience for many women, postpartum depression can be persistent and disabling.[2,3]

Postpartum depression is often considered a normal part of the postpartum period, but it is known to have serious consequences for both mother and child if left untreated.[4] Women may experience a range of symptoms, including depression, tearfulness, guilt, anorexia, sleep disorders, feeling inadequate, detachment from the baby, poor concentration, forgetfulness, fatigue, and irritability.[5]

Feeling disconnected from the baby and in worse situations, worrying that one will hurt the baby will make the mother feel guilty about not being able to take care of the baby like a good mother; and this will in turn worsen the depression. This vicious cycle may go on, if left unaddressed. Postpartum depression can affect bonding with the infant, which may lead to malnutrition and other complications in the newborn. Women with PPD are also at high risk for recurrent depression. Accurate assessment of symptoms and early diagnosis are critical for managing PPD, as screening can help identify mothers at risk and prevent PPD.

The prevalence of PPD varies depending on the country, with 10%-15% in developed countries and up to 20% in Indian and South Asian studies.[6] A recently conducted meta-analysis showed that prevalence of PPD in India was 18.81% with 95% confidence interval ranging from 13.59% to 25.44%.[7]There are various factors influencing the occurrence and severity of PPD such as teenage pregnancy, unwanted pregnancy, multiple pregnancies etc. especially in conjunction with lack of / low social support.[8] So, this study was planned aiming to add to the existing knowledge about the prevalence of postpartum depression and associated risk factors among postnatal women in attending a private tertiary care setting in south India.

Objectives

1. To estimate the prevalence of post-partum depression among postnatal mothers, attending a private tertiary care setting in Mangaluru after 6 - 8 weeks of delivery.
2. To assess the factors associated with post-partum depression among postnatal mothers, attending a private tertiary care setting in Mangaluru after 6 - 8 weeks of delivery.

Methodology

Cross sectional study design was adopted to meet the objectives. After obtaining ethical clearance from Institutional Ethics Committee, the study was conducted over a period of 6 months from July 2022 to December 2022 in out-patient section, AJ Shetty Institute of Medical Sciences and Research Center, Mangalore.

All women in their postnatal period 6 – 8 weeks after delivery attending OPD of the Hospital constituted the study population. Sampling technique adopted was purposive and timeframe sampling i.e., all the study population who consented to participate in the study were taken up for the study. Eligibility criteria considered for the present study are as follows:

Inclusion criteria:

All postnatal mothers from day 6 to 8 weeks postpartum irrespective of age, parity, socio-economic status and mode of delivery.

Exclusion criteria:

- Women on psychiatric medications.
- First trimester abortions.
- Medical Termination of pregnancy.

After screening for eligibility criteria, around

65 participants were recruited for the study. After explaining the nature and purpose of the study, written informed consent was taken from the participants. Data collection tool used was a pretested semi-structured questionnaire, with 5 sections which were as follows:

i. **Section A: Socio-demographic factors:** Present age, age at marriage, educational qualification, occupation, socio-economic status, type of family.

ii. **Section B: Assessment of depression:** A validated scored questionnaire named as Edinburgh Postnatal Depression Scale (EDPS), which was devised to assess depression in postnatal women, was used to detect the depressive symptoms in postnatal mothers. This tool was chosen as it is relatively easy to administer; and has good parameters with respect to reliability and validity. The scale has 10 items, with each item scored from 0 to 3; yielding a total score of 0 to 30. Seven items in this tool are scored in a reverse manner.[9]

iii. **Section C: Obstetric factors:** gravida (primi/ multi), bad obstetric history, complications in pregnancy or delivery, POG at the time of delivery, mode of delivery, singleton / multiple pregnancy.

iv. **Section D: Societal factors:** pressure to become pregnant, want to continue pregnancy, pressure to have a female child, number of female children previously, gender of the new born.

v. **Section E: Factors assessing family support:** perception of relationship with husband, in laws, parents, days of husband's stay during delivery.

Using the above tool, data was collected via interview technique. Total score of EDPS was calculated; and postnatal mothers with a total score of 13 and above are considered as those having depression. These mothers were referred to psychiatrists and counsellors for providing further care regarding the same. All the factors in section A, C, D, E were compared between the mothers who are depressed and who are not; and were tested for statistical association.

Statistical analysis:

Data collected was entered and analyzed in Microsoft Excel version 2016. Descriptive statistics such as frequencies and percentages were used to summarize the data collected. To assess the factors associated, tests of significance such as Chi-square test & its Fisher Exact modification were used. A p value of less than 0.05 was considered as statistically significant.

Results and Discussion

A total of 65 postnatal mothers participated in the present study. Mean (SD) age of the mothers was 21.58 (2.31) years. As per the EDPS scale used in the present study, 33.8% postnatal mothers were possibly suffering from depressive disorders.

In a recent systematic review and meta-analysis, the incidence of PPD was found to range from 3.4% to 34%.[10] A prospective Indian study (n=84) had estimated the prevalence of depression to be 8.3%, 20% and 12.8% at the third trimester of pregnancy, within three days of delivery and within four to eight weeks of delivery respectively.[11] The high prevalence of PPD along with the high reported rate of suicidal ideation in the study population underlines the importance of routine screening of postpartum women as suggested by professional organizations.[12] Yawn BP et al. conducted a prospective study in Minnesota in 2015, where multiple mental health assessments were made up to 1 year after delivery. Around 11% are known to develop PPD by the end of 6 months and another 6% by the end of 12 months.[13] This stresses the importance of mental health assessment from prenatal stage till at least 1 year after delivery as PPD is known to effect child growth as well.

Table 1: Association between socio-demographic factors and risk of PPD (n=65)

Variable	Categories	Depression		P value
		Present (N=22)	Absent (N=43)	
Present age	< 20 years	16 (59.3%)	11 (40.7%)	0.001*
	≥ 20 years	6 (15.8%)	32 (84.2%)	
Age at marriage	< 20 years	16 (41.0%)	23 (59.0%)	0.07
	≥ 20 years	6 (23.1%)	20 (76.9%)	
Education	< Primary	15 (53.6%)	13 (46.4%)	0.01*
	> Primary	7 (18.9%)	30 (81.1%)	
Occupation	Semi/unskilled	13 (41.9%)	18 (58.1%)	0.02*
	Housewife	9 (26.5%)	25 (73.5%)	
Type of family	Nuclear	2 (15.4%)	11 (84.6%)	0.009*
	Non-nuclear	20 (38.5%)	32 (61.5%)	
Socio-economic status	Upper middle	8 (17.0%)	39 (83.0%)	0.001*
	Middle	2 (100.0%)	0	
	Lower middle	12 (75.0%)	4 (25.0%)	

*P value significant at < 0.05.

From table 1, it is noted that present age less than 20 years, education level of less than primary schooling, mothers who are employed, staying with non-nuclear family and belonging to lower middle-class family were the socio demographic factors associated with the risk of postpartum depression.

Table 2: Association between obstetric factors and risk of PPD (n=65)

Variable	Categories	Depression		P value
		Present (N=22)	Absent (N=43)	
Parity	≤ 2	17 (30.4%)	39 (69.6%)	0.25
	> 2	5 (55.6%)	4 (44.4%)	
Bad obstetric history	Present	5 (83.3%)	1 (16.7%)	0.003*
	Absent	17 (28.8%)	42 (71.2%)	
Complications in present pregnancy	Yes	14 (60.9%)	9 (39.1%)	0.002*
	No	8 (19.0%)	34 (81.0%)	
POG at the time of delivery	Term	20 (31.7%)	43 (68.3%)	0.06
	Pre/post-term	2 (100.0%)	0	
Mode of delivery	Caesarean	5 (55.6%)	4 (44.4%)	0.43
	Vaginal	17 (30.4%)	39 (69.6%)	
Multiple pregnancies	No	20 (31.7%)	43 (68.3%)	0.04*
	Yes	2 (100.0%)	0	

*P value significant at < 0.05.

With respect to obstetric factors shown in table 2, presence of bad obstetric history, presence of complications in present pregnancy and occurrence of multiple gestation were associated with development of PPD.

Table 3: Association between societal factors and risk of PPD (n=65)

Variable	Categories	Depression		P value
		Present (N=22)	Absent (N=43)	
Pressure to become pregnant	Present	6 (85.7%)	1 (14.3%)	0.001*
	Absent	16 (27.6%)	42 (72.4%)	
Unwanted pregnancy	Yes	7 (70.0%)	3 (30.0%)	0.003*
	No	15 (27.3%)	40 (72.7%)	
Pressure for a female child	Present	9 (69.2%)	4 (30.8%)	0.003*
	Absent	13 (25.0%)	39 (75.0%)	
No of previous female children	None	15 (30.0%)	35 (70.0%)	0.24
	≥ 1	7 (46.7%)	8 (53.3%)	
Gender of the newborn	Male	5 (41.7%)	7 (58.3%)	0.29
	Female	16 (30.8%)	36 (69.2%)	

*P value significant at < 0.05.

From table 3, it can be shown that some of the societal factors are also significantly associated with the risk of PPD. Such societal factors were: Pressure to become pregnant, Unwanted pregnancy and Pressure for a female child. It was interesting to observe that gender of previous children or the current newborn was not a significant factor.

Table 4: Association between family support and risk of PPD (n=65)

Variable	**Categories**	**Depression**		**P value**
		Present (N=22)	**Absent (N=43)**	
Overall relationship with husband	Poor	20 (80.0%)	5 (20.0%)	0.001*
	Good	2 (5.0%)	38 (95.0%)	
Overall relationship with in-laws	Poor	6 (85.7%)	1 (14.3%)	0.001*
	Good	16 (27.6%)	42 (72.4%)	
Overall relationship with parents	Poor	3 (60.0%)	2 (40.0%)	0.04*
	Good	19 (31.7%)	41 (68.3%)	
Days of husband's stay during delivery	Zero	13 (92.8%)	1 (7.2%)	< 0.001*
	≥ 1 day	9 (17.6%)	42 (82.4%)	

*P value significant at < 0.05.

As shown in table 4, four factors related to availability of family support were tested for association with depression; and all were found to be significant. They were: Overall relationship with husband, Overall relationship with in-laws, Overall relationship with parents and Days of husband's stay during delivery. More than 90% of postnatal mothers whose husband had not visited them in the hospital during delivery had increased risk of having PPD as opposed to 18% in postnatal mothers whose husbands visited them in the hospitals during delivery. Difference in proportion of depressed postnatal mothers was much higher for factors related to husband and in-laws as compared to that of parents, concluding that overall relationship with husband and in-laws was more important than the relationship with parents.

The associations found in the present study are similar to the study published by Norhayati MN et al. in 2014 where prevalence was noted to be as high as 82% and factors associated included stressful life events in addition to the findings of present study. The study recommended cut-off verification / modifying it as per the cultural and regional factors.[14] Similar associated factors were also reported by an extensive review conducted by Gelaye B et al. [15] in low- and middle-income countries

and that by Shelke A et al. in India.[16] Another study conducted by Ghaedrahmati M et al. identified few more risk factors apart from the present study; and they are: history of severe premenstrual syndrome, nulliparity, nutritional deficiencies, history of sexual abuse, marital abuse etc.[17] In a study conducted by Giannandrea SA et al., it was observed that half of the mothers who were suffering from PPD, has had pregnancy loss of different types, such as miscarriage, intrauterine death, early neonatal death etc.[18]

Apart from the above-mentioned risk factors, a couple of novel risk factors were identified with good evidence as per Shapiro GD et al.; and they are: Serotonin transporter (5-HTT) genotype and increased consumption of omega-3 polyunsaturated fatty acids. Nutrition aspects can be addressed easily and ω-3 PUFA may be avoided.[19] There is another randomized controlled trial conducted by Coll CVN et al. where the intervention was training antenatal mothers to increase moderate physical activity for 60 minutes. The study discovered that exercises di reduce the PPD, but it was not statistically significant.[20] However, moderate exercise maybe used as a factor to reduce PPD risk as it is relatively easily modifiable as compared to other associated factors.

Ceriani Cernadas JM reviewed literature and summarized the risk factors of PPD which were similar to the present study.[21] The paper concluded that just like there are protocols for early detection and management of various obstetric and medical disorders in pregnancy, a protocol has to be devised to address mental health in pregnancy to aid early detection.

Limitations: The limitations of the present study may be that the study setting was a tertiary care setting, where mostly complicated deliveries / pregnancies are brought. Study reflects better representation when conducted at a community level; and may help in generalization as well as in planning community-based interventions to address some of the societal factors. Another limitation is small sample size because of which strength of association of various factors could not be assessed. Also, the scale used in the present study only comments on presence or absence of depression.[9] The scale used does not assess severity of depression.

Conclusion

Prevalence of depression in postnatal women is high. Modifiable psychosocial factors have a close association with PPD, and these are opportunities for intervention as well. Considering the morbidity and mortality linked to untreated PPD, screening of postnatal women and provision of therapeutic services to them is suggested. Addressing societal factors, at the family level, prenatally or premaritally is as important as addressing obstetric factors when the issue of concern is mental well-being of the mother-child unit.

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