



PREVALANCE AND PREDISPOSING FACTORS ASSOCIATED WITH POSTPARTUM DEPRESSION

Rincy Mary Abraham¹, EmimaBabu Paul¹, George Mathew¹, Sanjay M R¹, GeethaJayaprakash*²

¹Acharya & BM Reddy College of Pharmacy, Bengaluru-560090, Karnataka, India.

²Department of Pharmacy Practice, Acharya & BM Reddy College of Pharmacy, Bengaluru -560090, Karnataka, India.

ARTICLE INFO

Article history

Received 27/05/2022

Available online
30/06/2022

Keywords

Edinburgh Postnatal
Depression Scale,
Post -Partum Depression,
Predisposing Factors.

ABSTRACT

Mothers after childbirth undergo various hormonal, emotional, physical and psychological changes. PPD (postpartum depression) can be mild to severe depending on the predisposing factors. A Cross sectional community study was conducted in Soldevanahalli village Bengaluru Rural for a period of 6 months. 254 mothers were screened using a self-designed questionnaire and 85 subjects were categorized as having suspected postpartum depression based on Edinburgh postnatal depression scale (EPDS). Descriptive analysis was done on socio-demographic variables, obstetric, neonatal, postnatal and psychosocial factors. Correlation was carried to analyse the factors associated with PPD. Overall prevalence of PPD was 33.5% among the subject population. Lower educational qualification and decreased family monthly income was found to be statistically significant with PPD. In this study certain factors were only considered which was selected based on the subject population, however there can be other factors that may be a cause in development of PPD. Although certain factors have minimal impact on postpartum depression, using a proven diagnostic approach can help reduce the incidence of PPD and its social repercussions. Identification of other such predisposing factors in a larger population and creating awareness about them in postpartum mothers is an essential aspect in healthcare.

Corresponding author

GeethaJayaprakash

Assistant Professor,
Department of Pharmacy Practice,
Acharya & BM Reddy College of Pharmacy,
Bengaluru -560090, Karnataka, India.
geethajayaprakash@acharya.ac.in
+91 8281956799

Please cite this article in press as **Rincy Mary Abraham et al.** Prevalance and Predisposing Factors Associated with Postpartum Depression. *Indo American Journal of Pharmaceutical Research*. 2022;12(06).

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INTRODUCTION

Usually new mothers experience baby blues after child birth that can be identified by symptoms such as mood swings, crying spells, anxiety. Baby blues may be experienced 2 to 3 days after delivery, and can last for up to 2 weeks. But some new mothers experience extreme depression for longer duration known as postpartum depression.⁴ There are various risk factors associated with the development of postpartum depression, but isolating the exact cause is a difficult task. Primary diagnosis, care, and treatment can help the mother recover rapidly and diminish the influence of postnatal depression on the child's growth, but the indications of postpartum depression are often unnoticed. Early discovery can be enhanced by using a systematic assessment in primary care with a screening instrument like the Edinburgh Postnatal Depression Scale (EPDS)⁸. Permitting maternal depression to go undiagnosed and untreated has serious implications for the wellbeing of all the mothers and their children. Since a woman's risk of experiencing depression increases during her childbearing years, it is important for all health care professionals to recognize the indications of depression and contemplate the risk factors associated with maternal depression so that depression can be diagnosed and treated as soon as possible. The goal of this study was to determine the prevalence of postpartum depression in the subject mothers and investigate the underlying predisposing variables.

METHODS:

Study Site and period:

Community based quantitative cross sectional study was conducted in selected villages of Bengaluru district, Karnataka for a period of 6 months.

Sample Size:

The sample size was calculated using the study conducted in India by Anamika Agarwala in 2018 in Karnataka, The prevalence of postpartum depression was 21.5%, at 95% confidence level and absolute allowable error of 6%,

$$n = \frac{Z_{1-\alpha/2}^2 * p * (1 - p)}{d^2}$$

n= 180.1

Considering 10% non-response, a minimum 199 samples was included in the study.

Study Criteria:

Inclusion Criteria:

Mothers with child aged less than or equal to 1 year.
Patient consenting to participate in study.

Exclusion Criteria

Women below 18 years of age.
Women with previous history of depression or anxiety.

Source of data:

1. Personal interview.
2. Local primary health centres and hospitals.
3. Local health workers and health care professionals.
4. Anganwadi and Asha workers

Study materials:

Edinburgh Postnatal Depression Scale (EPDS): EPDS, a commonly used screening tool, was used to estimate the prevalence of PPD. The EPDS consists of 10 questions; each question scores 0 to 3 depending on the severity with a total score of 30. It reflects the presence of each symptom during the last 7 days. An EPDS cut off of 13 or more was used in this study. The Kannada version of EPDS scale was validated by subject experts knowing the local language and used to survey the women for PPD.

Self-designed questionnaire: Consisting of 17 questions containing socio-demographic features, possible predisposing factors including obstetric factors, neonatal and postnatal factors and psychosocial factors which were considered as the predictors of PPD in the present study

Study Procedure:

From the local administrative office, list of Anganwadi centres and Asha workers were collected. The Anganwadi centres and Asha workers were selected randomly. The list of registered mothers in the selected Anganwadi centre or with Asha worker was obtained, and postnatal mothers within the inclusion criteria were included in the study. Participants were provided the information on the study objectives, purpose of the study in their local language Kannada, and informed written consent was obtained. There was no risk associated with the study. The participants were provided with study tools to obtain relevant information. Data was typed into an MS office Excel and proceeded for statistical analysis.

Statistical Analysis:

All the data collected, were compiled and entered into a Microsoft Excel worksheet.

Descriptive statistics number with percentages, mean with SD and median with inter-quartile range (IQR) was calculated, univariate and bivariate analysis was carried out for the data and Pearson chi-square test was applied to find the association between the attribute.

RESULTS:

254 postnatal moms were tested for postnatal depression over the course of six months in this research. The findings were organised into the research population's socio-demographic profile, obstetrical variables and postnatal factors, psychological features, and the factors' relationship to PPD.

Table 1, From the Edinburgh Postnatal Depression Scale score was minimum of 2 and maximum 22 score, mean \pm SD was 10.72 ± 4.23 and median with inter-quartile range (IQR) was 11 with (8-14). The prevalence of postpartum depression was 33.5% (85) in the study sample.

Table1: Descriptive statistics of Edinburgh Postnatal Depression Scale score.

N	Min	Max	Mean	SD	Median	Mode	Q1	Q3
254	2	22	10.72	4.23	11	8	8	14
Postpartum Depression			No. of Mothers		Per cent			
Yes(>13)			85		33.5			
No(<13)			169		66.5			
Total			254		100.0			

Table 2 shows a descriptive study of socio demographic factors. The prevalence of each factor in both the PPD population and non-PPD population is represented in table 2. The table reveals that almost similar percentage of prevalence is seen for both modes of delivery - vaginal births (33.7%) and C-section (33%). Marital age is considered most of the mothers were in the category less than 20 years (37.3%). Majority of the mothers had completed primary school and were employed (78.1%)(35.7%)(36.7%) of PPD mothers are from joint family and (35.1%) among the PPD study population were first time mothers.

In terms of Obstetric variables, Pregnancy related comorbidities affected about (20.1%) of the sample population. but was not very prevalent among the PPD samples. High risk pregnancies were less among the study population (88%). Pre-term birth was also found to be less prevalent among PPD population (34.3%) and (35.5%) mothers had a history of abortion. When psychosocial aspects were taken into account, majority of women had the support of their husbands, families, and friends (34.2%), and (38.4%) per cent of the women indicated spousal displeasure with the baby's sex, considering the prevalence monthly income status of the family of PPD population most of the sample falls into the category 10,000-20,000 (45.5%).

Table 2: Prevalence between various characteristics of non-PPD and PPD group.

CHARACTERSTICS	PPD		NON-PPD		PEARSONS CHI SQUARE	P Value
	n	%	N	%		
Education Qualification of the mother						
Primary Education	50	78.1	14	21.9	76.716	0.05
Secondary Education	22	17.7	102	82.3		
Tertiary Education	13	19.7	53	80.3		
Present Working Status of Mothers						
Employed	55	35.7	99	64.3	0.889	0.3457
Unemployed	30	30.0	70	70.0		
Support of their husbands, families, and friends and PPD						
Yes	82	34.2	158	65.8	0.964	0.3261
No	3	21.4	11	78.6		
Marital-Age (Years)						
< 20	19	37.3	32	62.7	1.711	0.4249
20-25	45	35.4	82	64.6		
>25	21	27.6	55	72.4		
Type of Family						
Nuclear	52	31.7	112	68.3	0.642	0.4230
Joint	33	36.7	57	63.3		
Monthly Income						
< 10,000	30	31.9	64	68.1	15.508	0.0004
10,000-20,000	46	45.5	55	54.5		
>20,000	9	15.3	50	84.7		
No. of Children's in Family						
1	53	35.1	98	64.9	0.447	0.5037
≥ 2	32	31.1	71	68.9		
Spousal Displeasure With The Baby's Sex						
No	32	27.6	84	72.4	3.313	0.0687
Yes	53	38.4	85	61.6		
Mode of Delivery						
Normal	55	33.7	108	66.3	0.016	0.9000
C-Section	30	33.0	61	67.0		
Co-Morbidity Status						
Yes	21	41.2	30	58.8	1.704	0.1917
No	64	31.5	139	68.5		
High Risk Pregnancy						
Yes	13	41.9	18	58.1	1.138	0.2860
No	72	32.3	151	67.7		
Pre-Term Birth						
Yes	5	23.8	16	76.2	0.958	0.3275
No	80	34.3	153	65.7		
History of Abortion						
Yes	38	35.5	69	64.5	0.349	0.5548
No	47	32.0	100	68.0		

Fig 1 In the study population, 12.2% (31) had high risk pregnancy and 87.8% (223) had no high-risk pregnancy. Anaemia was seen in 4.3% (11), Gestational Diabetes Mellitus (GDM) was seen in 3.1% (8) and Preeclampsia was seen in 4.7% (12)

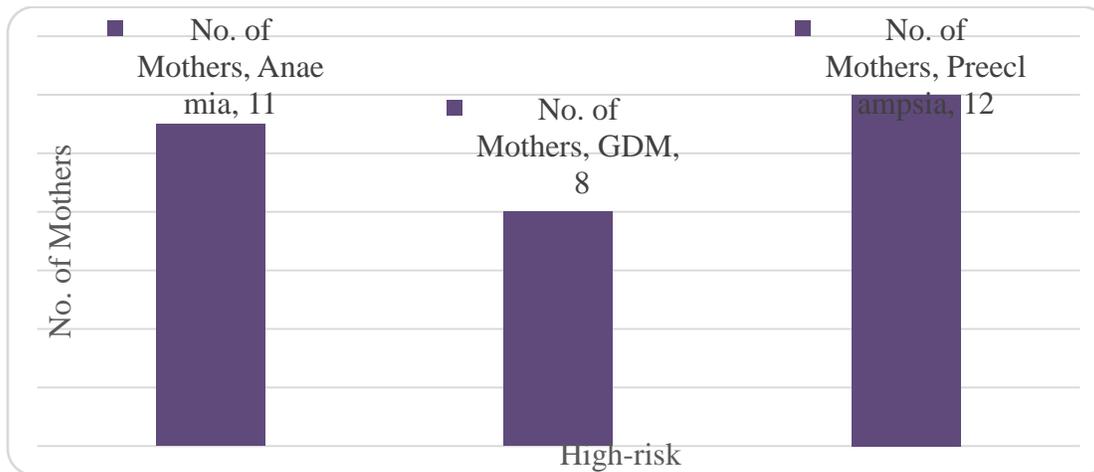


Fig 1:Type of High-risk pregnancy in the study sample.

Fig 2 In the present study 20.1% (51) had co-morbidity and 79.9% (203) had no co- morbidity. Diabetes mellitus was seen in 5.5% (14), Hypo/Hypertension was seen in 6.7% (17) and Hypo/Hyperthyroidism was seen in 7.9% (20).

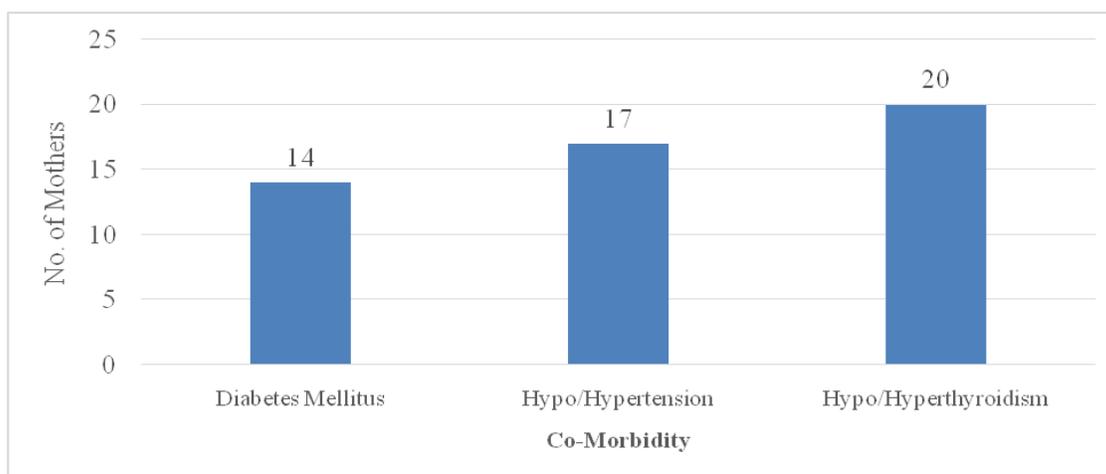


Fig:2:Type of Co-Morbidity in the study sample.

Table 3,shows that Educational qualification of the mother is having a statically significant association with PPD,48.8% of the subjects had secondary level of education ,but most of the subjects categorized as PPD based on EPDS had Primary level of education(78.1%)

Table 3:Association between Education qualification and postpartum depression.

Education Qualification	Depression				Total	
	Yes		No		n	%
	N	%	n	%		
Primary Education	50	78.1	14	21.9	64	25.2
Secondary Education	22	17.7	102	82.3	124	48.8
Tertiary Education	13	19.7	53	80.3	66	26.0
Total	85	33.5	169	66.5	254	100.0
Pearson Chi-Square	76.716		p-value		0.000 < 0.05	

Among income with < 10,000 Rupees 31.9% had postpartum depression and 68.1% had no postpartum depression, among 10,000-20,000 Rupees 45.5% had postpartum depression and 54.5% had no postpartum depression, and among income >20,000 Rupees 15.3% had postpartum depression and 84.7% had no postpartum depression, with Pearson Chi-Square value 15.508 and p-value 0.0004 <0.05. This tells us that there is a statistically significant association between postpartum depression and monthly income.

Table 4: Association between monthly income and postpartum depression.

Monthly Income	Depression				Total	
	Yes		No		n	%
	n	%	n	%		
< 10,000	30	31.9	64	68.1	94	37.0
10,000-20,000	46	45.5	55	54.5	101	39.8
>20,000	9	15.3	50	84.7	59	23.2
Total	85	33.5	169	66.5	254	100.0
Pearson Chi-Square	15.508			p-value	0.0004	

With Pearson Chi-Square value 76.716 and 15.508 and p-value 0.000 and 0.0004. This tells us that education level and monthly income status respectfully has a statistically significant association between postpartum depressions.

DISCUSSION

The data regarding the possible risk factors was collected using self-designed data collection form and the subjects were classified as suspected postpartum depression using Edinburgh postpartum depression scale (EPDS).

In the study conducted by *Anamika Agarwala et al¹¹*, majority of the participants belonged to the age group of 25-30 years. This result was similar to our study (67.3%). The level of education of the majority (73%) respondents in study performed by *Qiping fan et al¹⁴*, was above secondary school which was the same as our study (42.5%).

Of the 254 subjects in the study, most (54.3%) of new born were girl child. This was contradictory to the study conducted by *Adam Fiala et al⁷*, and *Abate Dargie Wubetu et al¹¹* in which 51.9% and 61.4% of new born were boy child respectively. About (59.4%) of the subjects in our study had single child compared to study conducted by *Rashidul Azad et al¹²*, where about (48.7%) of the subjects had single child. With respect to marriage and co-morbidities, the results were comparable with the study conducted by *Abate Dargie Wubetu et al¹¹* (85%) and (15.3%) respectively. The prevalence of postpartum depression in the Soldevanahalli community was found to be 33.5%, which was found to be more than the study conducted by *Thi Kim Ly Do et al¹⁰*, which had prevalence of 27.6%. Subjects with primary education were more likely of developing PPD which was contradictory to the study conducted by *Thi Kim Ly Do et al¹⁰*, which showed, Higher the education level in subjects then they are less likely to develop PPD.

Women with new born sex that was not preferred by their spouse were more likely to develop depression than women with infant sex that was preferred. This conclusion is consistent with research from Basra, Mexico, and Kenya [16, 17, 18].

It's been found that there is a statistical significant association between education qualification (Table 3) and monthly income status (Table 4) with postpartum depression

CONCLUSION

Postpartum depression is a typical complication following pregnancy. According to studies one out of every nine new mothers are affected. Mothers undergo various hormonal, emotional, physical and psychological changes after child birth that makes them vulnerable. This study provides an insight about the prevalence of PPD among the mothers in Soldevanahalli village, Bengaluru rural and the related risk factors that may have contributed in the development of PPD. The prevalence of PPD in the Soldevanahalli community was found to be 33.5 %.

Various parameters were assessed among which Educational qualification and Monthly income status showed association with postpartum depression and are considered as significant risk factors in development of Postpartum depression. Many obstetrics and environmental variables are implicated in the occurrence of postpartum depression through direct and indirect mechanisms, according to the findings of this study.

In this study certain parameters were assessed in relation to the selected community which were found to be the possible risk factors for PPD. However there can be other factors that may be a cause in development of PPD. Identification of other such predisposing factors in a larger population and creating awareness about them in postpartum mothers is an essential aspect in health care. Certain variables have very little effect on postpartum depression, employing a validated diagnostic method can help lower the occurrence of PPD and its societal consequences.

Postpartum mothers regardless of predisposing factors are at a risk of developing PPD and most of them go unidentified or unrecognized. Therefore, further research in this topic is necessary along with providing awareness among the postpartum mothers and peers that will aid in the early diagnosis and prevention of PPD.

Abbreviations

PPD: Postpartum depression

EPDS: Edinburgh Postpartum Depression Scale.

ACKNOWLEDGEMENT

We express our sincere gratitude to everybody who have been associated with this project and have helped us with it directly or indirectly to make this work a big success. We are also grateful to GeethaJayaprakash for her guidance throughout the project.

Funding Support:

No funding is done.

Conflict Of Interest:

There are no conflicts of interest regarding the publication of this article

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