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Original Research Article

Postpartum depression and risk factors in a tertiary care centre in Northern India

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Abstract

Background: Postpartum depression (PPD) is a common non-psychotic illness that can occur at any time after conception till postpartum period, mostly observed within 2-6 weeks of birth and can occur as late as 30 weeks after delivery.
Objective: This study aims to understand the prevalence of postpartum depression among women in a tertiary care centre in northern India and to identify risk factors associated with PPD.
Materials and Methods: A one-year cross-sectional study was conducted on 200 postpartum women who presented to the Obstetrics and Gynecology department (outpatient) from 2 to 6 weeks after giving birth. Women with cognitive dysfunction, women who did not want to participate and postpartum thyroiditis were not included in this study. Data were collected by pre-developed, pretested and validated Hindi version of Edinburgh postpartum depression scale (EPDS).
Results: The prevalence of 8% was found in this study. Socio demographic factors such as birth of the baby girl, complications related to pregnancy, adverse life events and domestic abuse, non-availability of family support during pregnancy and delivery have been observed to be significant in the development of PPD.
Conclusion: Postpartum depression is a major health problem and its impact is important not only for the mother but also to the child. For this reason, we recommend screening of PPD in our society, especially for the women in these risk groups as they could benefit from screening for the presence of PPD.

Keywords: Postpartum, Depression, Pregnancy, Delivery.

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1. Introduction

As per World Health Organization approximately 10% of pregnant women worldwide suffer some psychological disorder, mainly depression in immediate postpartum period. Perinatal Mental Disorders are more prevalent in low- and lower-middle income countries; i.e. 15.6% of women in low and lower middle-income countries suffer from mental health problem during pregnancy and 19.8% experience some psychological disorder after delivery.[1,2]

Postpartum depression (PPD) is a common non psychotic illness that can occur at any time after conception till postpartum peroid, mostly observed within 2-6 weeks of birth and can occur as late as 30 weeks after delivery and the reason behind this are believed to be biological or psycho-social.[3-5] Postpartum depression can range from mild self-limiting form of depression to postnatal major depression and psychosis.[6]

Social factors associated with development of PPD include stressful life events, gender of the baby, childcare stress and prenatal anxiety. Additionally, a past history of PPD, marital conflict, gender of previous children and single parenthood also predict PPD.[7] Lack of social support during pregnancy is also a relatively potent risk factor for postpartum depression.[8] Unfortunately, PPD is underdiagnosed and undertreated but it can often be

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prevented and treated. In fact, early diagnosis through timely screening can lead to its prevention and early treatment.

While the prevalence of PPD is 10%–15% in developed countries, most Indian and South Asian studies found prevalence of 15%.[9] This study aims to know the prevalence of postpartum depression among women in a tertiary care centre in northern India and to identify different risk factors associated with PPD.

2. Material and Methods

A one-year cross-sectional study was conducted over the course of one year on 200 postpartum women presenting to the Obstetrics and Gynecology department (outpatient) between 2 to 6 weeks after giving birth. Women with cognitive dysfunction, women who did not want to participate and postpartum thyroiditis were not included in this study. Ethical approval was obtained from the Ethics Committee and therefore adhered to ethical standards described in 1964 Declaration of Helsinki (2013 amendment).

Data was collected using a questionnaire. The following equipment is provided to all patients:

1. A semi-structured questionnaire specifically designed to assess risk factors for PPD was developed and pre-tested. It includes:-
   a. Social and demographic characteristics such as age, education, family structure (nuclear/joint family), occupation, and place of residence.
   b. Obstetric history including number and sex of children. Details of present pregnancy like planned/ unplanned, mode of delivery, complications if any during pregnancy and delivery of child.
   c. Neonatal characteristics such as birth weight, duration of neonatal intensive care unit (NICU) stay, breast feeding difficulties and maternal stress for childcare.
   d. Previous personal and immediate family history of mental illness and treatment
   e. Relationship and support with spouse, parents, and family. Substance abuse in spouse and domestic violence were asked.
2. Validated Hindi version of Edinburgh postnatal depression scale

Edinburgh postnatal depression scale (EPDS) was developed by Cox et al. specifically for screening of depression in postpartum women.[10] This is a 10 items self report questionnaire commonly used to diagnose PPD. It is well validated and has high sensitivity, specificity and accuracy. In India, EPDS in different languages had been adopted and validated as a screening tool for postpartum depression with 84.9% specificity and 100% sensitivity, at a cut-off score of 12/13. Every item is scored between 0 and 3 points, and the total score is between 0 and 30 points. Seven of the questions are scored in reverse. In the present study, a cut off EPDS score of 13 for the Hindi version of EPDS was used to calculate the risk of postpartum depression.

It takes approximately ten minutes to complete the survey. All participants gave informed written consent. Data was collected in a separate room to ensure participant privacy. All women were informed about the aim of the study and the consequences of providing personal information and only women who agreed to this were selected to participate in the study. They were free to withdraw their names from the study without affecting their right to receive medical consultations in hospital. Patient information was kept confidential.

2.1. Primary outcome

To know the prevalence of postpartum depression.

2.2. Secondary outcome

Association of different risk factors for PPD.

2.3. Statistical analysis

All data was obtained from version 22 of statistical package of social sciences (SPSS) software. Data was analyzed descriptively using Chi-square test. P value of less than 0.05 was considered a significant difference.

3. Results

A total of 212 women were included in the study, of which 12 postpartum women refused to participate in the study. The average age of the women was 26 years (Range = 18–41). All of the women were married.

In our study, 16 women were found to have EPDS score >13 and so, the prevalence of PPD was found to be 8%. (**Table 1**).

Fourteen out of 181 women ≤30 years had depression while 2 out of 19 women aged >30 years had depression and this difference was statistically not significant. In reference to the educational status of the patient, 2 out of 54 women had depression amongst those who were educated till primary level whereas 14 out of 146 women had depression who had middle or higher level education. Eight percent of the women in our study were financially independent and depression among these women was not statistically different than women who were not financially independent.

Among 87 women living in urban areas, 9 had depression as compared to 78 and amongst 113 women living in rural areas, 7 had depression, but this difference was not significant statistically. It was also not found statistically significant according to religion. Five women out of 72 living in nuclear families were found to be depressed whereas 11 out of 128 women were depressed in joint families 128-64%), and the difference was also statistically not significant.

Nine women amongst primigravida (43%) and 7 amongst multigravida (57%) had depression which was not statistically significant (**Table 2**). One hundred forty-six women had planned pregnancy and 10 women out of them had depression whereas 54 women had unplanned pregnancy and 6 out of them had depression which was not significant statistically. Mode of delivery was not found to be associated significantly with PPD. However, PPD was found to be significantly associated (p value 0.0134) with the sex of the child born. Twelve out of 91 women had depression who gave birth to female child as compared to 4 out of 109 women who delivered male child. Thirteen out of 148 women had depression whose baby birth weight was <2499gm as compared to 3 out of 52 women whose birth weight was 2500gm or above and this was not significant statistically. Out of 58 sick babies born only 6 women had depression as compared to 10 who delivered healthy babies (142) which was also not significant. Similarly, no significant association was found between PPD and feeding practices, previous history of abortion and family history of psychiatric disorder.

Statistically significant (p value 0.038) association was found between PPD and complication during pregnancy or delivery. Five women with some complication during delivery (25) had depression as compared to 11 in women whose delivery was smooth (175). Non-availability of family support in 88 women during pregnancy was associated with PPD in 12 as compared to 4 women who had family support (112). This was found to be statistically significant (p value 0.0092). Similarly, history of domestic abuse was also found to be significantly associated (p value 0.04) with PPD. Two out of 7 women with history of domestic abuse had depression as compared to 14 who had no such history (193). However, no association was found between PPD and stressful life events in the past year. Only 4 of 23 women had depression who had stressful life events in past year as compared to 12 out of 177 women who did not have such a history.

Table 1: Socio-demographic profile of study subjects

Parameter	Total (n=200)	Not depressed(n=184)	Depressed (n=16)	Chi square
Age group (years)				
<30	181 (90.5%)	167	14	χ 2 = 0.1821
>30	19 (9.5%)	17	2	p=0.669
Education				
Primary or lower	54 (27%)	52	2	χ 2 =1.8552
Middle school or higher	156(78%)	132	14	p=0.173
Occupation				
Employed	16 (8%)	14	2	X 2 =0.4785
Housewives	184 (92%)	170	14	p= 0.4897
Resident				
Urban	87 (43.5%)	78	9	χ 2 =1.145
Rural	113 (56.5%)	106	7	p= 0.286
Religion				
Hindu	184 (92%)	170	14	χ 2 =0.4785
Muslim/ other	16 (8%)	14	2	p=0.4897
Type of family				
Nuclear	72 (36%)	67	5	χ 2 =0.1703
Joint	128 (64%)	117	11	p= 0.679

Table 2: Association between various risk factors and the prevalence of postnatal depression among the study participants

Parameter	Total (n=200)	Not depressed (n=184)	Depressed (n=16)	Chi square
Gravida				
Primigravida	86 (43%)	77	9	χ 2 = 1.2457 p= 0.2654
Multigravida	114 (57%)	107	7	
Planned pregnancy				
Yes	146 (73%)	136	10	χ 2 =0.9728 p= 0.3240
No	54 (27%)	48	6	
Mode of delivery				
Caesarean	76 (38%)	69	7	χ 2 =0.2441 p= 0.6213
Vaginal	124 (62%)	115	9	
Gender of the baby				
Female	91 (45.5%)	79	12	χ 2 = 6.1034 (significant) p= 0.01349
Male	109 (54.5%)	105	4	
Birth weight				
<2499g	148 (74%)	135	13	χ 2 =0.4751 P=0.49
>2500g	52 (26%)	49	3	
Pregnancy outcome				
Baby sickly	58 (29.5%)	52	6	χ 2 = 0.6103 p=0.4347
Baby healthy	142 (71%)	132	10	
Baby feeding practices				
Breastfeeding	167 (83.5%)	154	13	χ 2 =0.0639 p=0.80
Animal milk / Formula feed	33(16.5%)	30	3	
Complications during pregnancy and delivery				
Yes	25 (12.5%)	23	5	χ 2 =.298
No	175 (87.5%)	161	11	p=0.03815
H/o abortion				
Present	29 (14.5%)	28	1	χ 2 = 0.9548
Absent	171 (85.5%)	156	15	p= 0.3285
Availability of family support during pregnancy				
Very less	88 (44%)	76	12	χ 2 =6.783
Often	112 (56%)	108	4	p=0.0092
History of domestic abuse				
Yes	7 (3.5%)	5	2	χ 2 = 4.1708 (significant) p= 0.04113
No	193 (96.5%)	179	14	
Family history of psychiatric disorder				
Yes	5 (2.5%)	4	1	χ 2 =1.0033
No	195 (97.5%)	180	15	p=0.3187
Stressful life events in the past year				
Yes	23 (11.5%)	19	4	χ 2 = 3.1143
No	177 (88.5%)	165	12	p=0.07762

4. Discussion

Total 200 study participants were studied in this study; out of them 16 (8%) women were found to have a score of more than 13 indicating moderate depressive symptoms. This prevalence rate was found consistent with other studies also. Sheela et al reported a prevalence of 7.5% in Bangalore women, Lee et al reported 7.7-14% in Chinese and Lanes et al reported 8.69% in Canadian women.[11-13] However quite different prevalence was also reported by Suguna et al as 18%, Saldanha et al as 21.5%, Chaaya et al as 21% in Lebanon, Katherine et al as 22% in United Arab Emirates and Mohammad et al as 22% in Jordan.[14-18] This difference noted in different studies may be due to different population studied, different way of reporting or difference in perception of mental health.

In this study no significant association was found between women's age, literacy, family structure (nuclear/joint), occupation and religion of the women with the prevalence of postpartum depression. This is similar to study done by Shenoy et al and in contrast to the studies done by Clarke et al in Nepal and by Kruthika et al in Mangalore.[19-21] We did not find any association between the residential status and PPD which is similar to recent studies conducted in non-western countries, however Gaikwad S et al reported high prevalence of PPD in rural as compared to urban societies.[22,23]

In this study, pregnancy planning, parity and mode of delivery had no association with PPD and same was reported by Shenoy et al and other studies done globally.[19] However, some studies show a positive association between unplanned pregnancy and postpartum depression.[9,24] Similarly, no association was found between PPD and baby feeding practice which was also reported in the studies conducted by Shenoy et al and others.[19,25]

In many parts of our country, in-laws put immense pressure on women to deliver a son and birth of a baby girl in this situation increases the risk of PPD. We also found a strong correlation between PPD and birth of girl in our study which was also reported by Sheela and Vankatesh, Modi et al and Gupta et al.[9,11,26] However, Shenoy et al observed no such association.[19]

Lack of family support during pregnancy and after delivery is another very important risk factors leading to PPD and we found its association with PPD similar to Modi et al, Gupta et al and Lanes et al.[9,13,26] Domestic abuse is another risk factor associated with PPD, but this is a very sensitive matter and often underreported. In this study, a strong association was observed between PPD and domestic abuse which is similar to the findings of Gaikwad S et al and Nongrum et al in their studies.[23,27] Complications during pregnancy and delivery can also lead to PPD and in this study we found that women who had complications during pregnancy and delivery had PPD significantly. Similar was observed by Blom et al and Kettunen et al, however Gupta et al did not report this risk factor as significant in terms of PPD development.[26,28,29]

In the present study, family history of psychiatric disorder was not found to be significantly associated with PPD, which is similar to Shenoy et al and Johnstone et al.[19,25] The women who had experienced stressful life events in the past one year scored higher on the EPDS scale than other women but this was not statistically significant and similar observation was made by Qobadi et al and Hegde et al in South India.[30,31]

5. Limitations

The study has some limitations, for example, this study was done in a single-centre, so results cannot be generalized and women may not be able to answer correctly due to pressure from mother-in- law and lack of family support.

6. Conclusion

In our study, the prevalence of PPD was found to be to be 8%. In our study, factors such as birth of the girl child, pregnancy or delivery related complications, any adverse life event, domestic abuse, non-availability of family support during pregnancy or delivery were found to be significant for the development of depression in postpartum women. Future large-scale studies with community-based samples in the future might be helpful in identifying additional risk factors for PPD. Postpartum depression is a serious health problem that affects not only the mother but also the baby. Therefore, we recommend PPD screening in society, specially for the women in these risk groups as they could benefit from screening of PPD. They may also benefit from increased psychological support, counselling and family support to prevent rumination.

7. Source of Funding

None.

8. Conflicts of Interest

All authors declare no conflicts of interest.

9. Ethical Approval

This study complies with ethical rules as the manuscript was approved by ethics committee of Pt. B. D. Sharma PGIMS, Rohtak.

10. Informed Consent

Informed consent was obtained from all the participants.

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