

Prevalence of perinatal depression in rural settings and knowing risk factors

Abstract

Background: The mental health of pregnant women is critical for a healthy maternofetal outcome. Although postnatal depression has received a lot of attention, recent literature has indicated a large burden of the condition in the antenatal period, emphasizing its serious and long-term effects on both mother and infant.

Methodology: This cross sectional study conducted over 100 healthy perinatal women attending Obst. OPD. Questionnaire 1 based on Edinburgh Postnatal Depression Scale and Questionnaire 2 was used to screen all the study participants for depression and potential social and familial factors leading to the depression.

Results: In study group of 100 patients 53 were antenatal (>28 wks of gestation) and 47 were postnatal (within 2 weeks of delivery). The prevalence of depression in present study was 19% (95%CI:14.0-22.0%) and was more in antenatal than in postnatal participants. The mean age of the participants was 25.02 ±7 yrs, 91% women were housewife, 65% were of low socioeconomic status and 49% were of below 8th standard educated. The major causative factors of depression among women with EDPS score > 10 includes violence at home, unhealthy familial relationship, and desire for male baby.

Conclusion: Because of the hormonal imbalance, pregnancy causes major upheaval in the physiology and psychology of women. The establishment of a mental health team in perinatal care for screening, counseling, and treatment of psychiatric illnesses during and after pregnancy has the potential to prevent or alleviate perinatal depression. Systems should be in place to ensure diagnostic and treatment follow-up.

Keywords: perinatal depression, antepartum period, pregnancy, newborn morbidity and mortality

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Introduction

Mental health is an essential component of WHO's concept of health. People with good mental health are able to fulfill their full potential, manage with life's regular stressors, work more productively, and contribute more to their communities. Historically, far more emphasis has been placed on depression during the postpartum period, with much less emphasis placed on depression during the antepartum period.^{1,2}

Depression during pregnancy has a negative impact on newborn morbidity and mortality by increasing the likelihood of pre-term³ deliveries and low birth weights.⁴ Untreated depression has also been associated with reduced head circumference,⁵ prenatal stress and delayed maturation,⁶ increased newborn care unit admissions,⁷ and cranial neural crest deformity.⁸ At 8 months, these infants exhibit poor relationship with their moms and a low infant development score. Long-term, these babies suffer behavioral issues, developmental delays, hyperactivity, and poor social skills.⁹ Adolescents exposed to a mother's antenatal depression have a higher risk of depression and delinquency¹⁰ than those who are not exposed during pregnancy.

Perinatal depression often goes unrecognized because changes in sleep, libido and appetite may be attributed to normal pregnancy and postpartum changes. In addition, health care providers not trained in recognizing such symptoms and women reluctant to report for changes in their mood increase the problem. It can have serious long-term effects on the well-being of women and infants.

For all these reasons, it is vital to detect and treat depressed women in perinatal period. Routine perinatal checkups, it is the best

time for screening women and diagnosing at early stage for timely intervention. After that, clear pathways of systematic follow-up of all positive screenings and access to effective treatment are crucial for the clinical effectiveness of screening.

So, this study is aimed to assess the prevalence of perinatal depression in rural area using Edinburgh postnatal depression scale (EPDS)¹¹ questionnaire and to find the causal factors related to it.

Aims and objectives

- 1) To estimate the prevalence of perinatal depression in a rural tertiary care hospital.
- 2) To identify the potential risk factors of perinatal depression.

Material and methods

This cross-sectional study was conducted on 100 perinatal mothers attending a tertiary hospital's department of Obstetrics and Gynecology from August 1, 2019 to September 30, 2019. Women over the age of 18 were eligible if their pregnancies had no complications and they only came in for standard prenatal or postnatal (2 weeks after birth) checkups. For participation in the study, all women with a permanent rural home provided written informed permission.

Sample size calculation: The sample size was calculated keeping in mind the cross sectional study with prevalence of antenatal depression 18.4% and postnatal depression 19.2%, at confidence interval 95% and permissible error 8%. The required sample size came out to be 92 and 96 respectively and thus the total participants taken in this study were 100.

Intervention

Data collection: The data was collected from OPD of Obstetrics and Gynaecology department at BPS GMC, Khanpur Kalan, India. All women coming for their routine antenatal or postnatal checkups at our centre were approached in their free time while waiting for appointment. After explaining aims and procedure to participants, written consent was obtained and confidentiality granted. The mental well-being was assessed through questionnaire 1 & 2(Annexure).

Since we were targeting rural population, the questionnaire “Edinburgh Postnatal Depression Scale” was translated to Hindi and used for screening of depression amongst the perinatal women. In cases where the woman was unable to read the questionnaire, the researcher explained and collected the responses from the woman. Questionnaire 1 seeks information about profile of the women.

Instructions for using the Questionnaire:

- The woman was asked to check the appropriate response from the questionnaire about how she had been feeling in the previous seven days.
- The woman was asked to respond to all the columns.
- Her relatives were not allowed to influence her response.
- The woman completed the scale herself unless she had problem or difficulty in reading. In such cases, the researcher explained the questions to her and collected the responses.

Scoring of questionnaire I

Questions 1, 2 & 4

Were scored 0,1,2 or 3 with top box scored as 0 and the bottom box as 3.

Questions 3, 5-10 (marked with a *)

Were reverse scored, with the top box scored as a 3 and the bottom box scored as 0.

Maximum score: 30

Possible depression: 10 or greater

Questionnaire 2 was used to assess the potential risk factors that may be linked to the perinatal depression. This questionnaire was designed with due care of possible familial and social factors of depression in rural set up. This questionnaire 2 was validated after combined review by department of Psychiatry BPSGMC & Obstetrics and Gynecology. Both the questionnaires were filled by all the 100 participant women.

All the women who had EDPS score ≥ 10 were considered positive i.e. possibly depressed and were referred to psychiatry department for further management.

Data analysis

The participants were divided into two groups based upon questionnaire 1: The Group 1 included participants scoring 10 or more than 10 according to EPDS and Group 2 included participants scoring less than 10 according to EPDS.

The socioeconomic status taken in questionnaire 2 was based on Modified BG Prasad Scale¹² which classifies the socioeconomic status into upper, upper middle, middle, lower middle and lower classes. For easier analysis, upper, upper middle, middle and lower middle

were considered to be belonging to high status and those belonging to lower class were considered to be belonging to low status. Data was compiled in MS Excel and SPSS (version 17.0) software. Mean prevalence rates and their respective 95% CI were estimated, univariate associations of major depressive disorder with each of the following variables were estimated using logistic regression. Sociodemographic, obstetric factors, obstetric complications during current pregnancy, medical history, stressful life events, and exposure to violence. Both the groups were compared and step-wise logistic model was used to build a multivariate model of risk factors for antenatal and postnatal depressive disorder. Odds ratios (OR) and 95%CI were used to estimate the strength of associations. P value less than 0.05 was considered to be the level of significance.

Confidentiality: All women were assured about maintaining the confidentiality throughout the procedure as well as after the completion of research.

Observations and results

In the study 100 participants were randomly approached who satisfied all the selection criteria. 53 of these participants were falling in their antenatal period with the period of gestation > 28 weeks and 47 were in their postnatal period (upto 2 weeks of delivery).

Table 1 showed \geq the prevalence of perinatal depression in the present study was 19% (95%CI:14.0-22.0%). The prevalence was more in antenatal than in postnatal participants as found out by EPDS questionnaire.

Table 1 Prevalence of perinatal depression

Category	Group 1 EDPS \geq 10	Group 2 EDPS $<$ 10
Antenatal cases (53)	13(24.5%)	40(75.5%)
Postnatal cases (47)	6(15.8%)	41(87.2%)
Total(100)	19	81

The mean age of the participants were 25.02 \pm 7 years. The sociodemographic profile of the participants depicted in Table 2.

Table 2 Sociodemographic profile

	Overall sample N=100	Gp1 N=19	Gp2 N=81
Age group			
Adolescents (<20)	4	2	2
Adults (\geq 20)	96	17	79
Level of education (years)			
\leq 8	49	10	39
$>$ 8	51	9	42
RELIGION			
Hindu	87	16	71
Muslim	13	3	10
Occupation of women			
Unemployed	91	16	75
Unskilled worker	4	1	3
Skilled worker	5	2	3
Education of the husband(Years)			
\leq 8	25	7	18
$>$ 8	75	12	63
Occupation of husband			
Unemployed	2	1	1
Unskilled worker	37	8	25

Table 2 Continued...

	Overall sample N=100	Gp1 N=19	Gp2 N=81
Skilled worker	44	9	35
Professional	17	1	16
Family members			
≤5	47	10	37
>5	53	9	44
Status			
Upper	25	2	23
Lower	75	17	58

Obstetric variables and medical history

In the current study, 9 of the participants had >2 girl children out of which 3 had EPDS score ≥ 10 . 2 out of 3 participants with ≥ 5 live births and 7 out of 29 with previous history of abortion had EPDS score ≥ 10 as shown in Table 3.

Table 3 Obstetrical variables and medical history

	Overall sample N=100	Group1 N=19	Group2 N=81
Girl child			
≤2	91	16	75
>2	9	3	6
Live births			
≤2	82	13	69
3,4	15	4	11
≥5	3	2	1
Abortion/miscarriage			
NO	71	12	59
YES	29	7	22
Previous medication history			
No	90	18	72
Yes	10	1	9

Stressful life events and history of violence: In the present study, 75% of the participants facing domestic violence and marital disharmony

Table 5 Relation of risk factors with odds ratio and p value

	Group 1 N=19	Group 2 N=81	OR (95%CI)	P value
Age group				
Adolescents (<20)	2	2	4.647(0.611-35.34)	0.138
Adults (≥ 20)	17	79	1	
Level of education(years)				
≤8	10	39	2.708(0.936-7.833)	0.066
>8	9	42	1	
Religion				
Hindu	16	71	1	0.689
Muslim	3	10	1.331(0.328-5.396)	
Occupation of women				
Unemployed	16	75	1	
Unskilled worker	1	3	4.562(0.153-16.005)	0.707
Skilled worker	2	3	3.125(0.482-20.25)	0.232
Education of the husband(Years)				
≤8	7	18	2(0.726-5.507)	0.18
>8	12	63	1	
Occupation of husband				
Unemployed	1	1	1	

have reported a high EPDS score as shown in Table 4. Out of the total, 19 cases of high EPDS score, 5(30%) participants have reported an unhealthy relation with in-laws while 6(24%) participants of male baby desiring group have also reported a high EPDS score.

Table 4 Stress event and social factors data

	Overall sample N=100	Group1 N=19	Group2 N=81
Violence			
NO	96	16	80
YES	4	3	1
Relation with husband			
GOOD	96	16	80
NOT GOOD	4	3	1
Relation with in-laws			
Good	83	14	69
Not good	17	5	12
Desire of male baby			
NO	75	13	62
YES	25	6	19
Previous medication history			
No	90	18	72
Yes	10	1	9

Relation of risk factors for current major depressive disorder

Bivariable logistic regression analysis done in the two groups for all the factors is shown in Table 5. The variables violence and marital conflicts were found to be significantly associated with perinatal depression. But low education, high order of live birth were marginally associated with high EPDS score i.e $p < 0.10$. The women with history of marital conflicts were about fifteen times more likely to have perinatal depression as compared to those who had no marital conflict [OR=15(1.465-153.54)] (Figure 1).

Table 5 Continued...

	Group 1 N=19	Group 2 N=81	OR (95%CI)	P value
Unskilled worker	8	29	0.0276(0.015-4.915)	0.387
Skilled worker	9	35	0.257(0.015-4.522)	0.353
professional	1	16	0.111(0.004-3.523)	0.213
Family members				
≤5	10	37	1	
>5	9	44	0.757(0.278-2.058)	0.585
Status				
Upper	2	23	1	
Lower	17	58	3.371(0.721-15.76)	0.123
Live births				
≤2	13	69	1	
3,4	4	11	1.93(0.532-7.002)	0.317
≥5	2	1	10.615(0.896-125.817)	0.061
Girl child				
≤2	16	75	1	
>2	3	6	2.50(0.562-11.12)	0.229
Abortion/miscarrage				
No	12	59	1	
Yes	7	22	1.564(0.546-4.484)	0.405
Violence				
No	16	80	1	
Yes	3	1	15(1.465-153.54)	0.022
Relation with husband				
Good	16	80	1	
Not good	3	1	15(1.465-153.54)	0.022
Relation with in-laws				
Good	14	69	1	
Not good	5	12	2.054(0.624-6.757)	0.236
Desire of male baby				
No	13	62	1	
Yes	6	19	1.506(0.504-4.504)	0.464
Previous medication history				
No	18	72	1	
Yes	1	9	2.25(0.267-18.925)	0.455

Discussion prevalence of depression during pregnancy and risk factors

Depression is the fourth major source of illness burden and the main cause of non-fatal burden, accounting for over 12% of the total years lived with disability globally.¹³ Depression is also the most common psychiatric condition during pregnancy, impacting about one out of every four women.¹⁴ Antenatal depression frequently precedes postnatal depression,¹⁵ resulting in a poor maternal-fetal outcome. The current study found that the prevalence of perinatal depression is 19% (95% CI: 14.0-22.0), with prenatal depression at 24.5% and postnatal depression at 15.8%. In terms of the incidence of perinatal depression in other research, a Hubner-Liebermann study published in 2012¹⁶ discovered that the prevalence of depressive disorders was 18.4% during pregnancy and 19.2% throughout the puerperium. Roomruangwong and Epperson 2011¹⁷ found the overall prevalence of depression during pregnancy and postnatal period to be about 20% and 21.8%, respectively. A systemic review by Gavin, in 2005¹⁸ showed prevalence of about 6.5% to 12.9% (1.0-5.6%) at different trimesters of pregnancy and months after delivery. The possible reason of postnatal preceding antenatal depression might be because of the difference of the time in perinatal period of studies conducted and the type of setup (rural in our study).

In the present study the odds ratio for depression in the participants aged <20 years was 4.64 (95% CI: 0.611-35.34). Study by Tadesse et

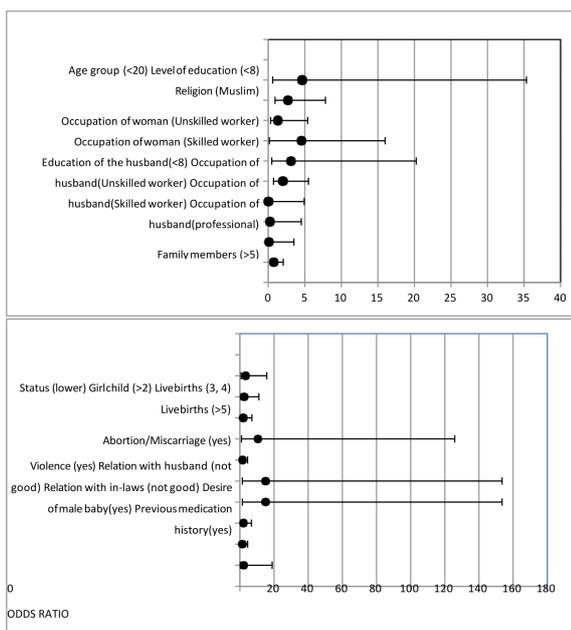


Figure 1 Pictorial presentation of factors with their odds ratio and 95% confidence interval.

al.¹⁹ also reported 53% of depression in pregnant females of age 14–19 years.¹⁹ The other factors which increased the odds of depression in present study include lower level of education, their occupation as laborer, low education level of husband, relation with in-laws. The ratios were not statistically significant but all these factors are considered as high risk factors for depression in literature.²⁰

The relation to obstetric history in present study also demonstrate high odds ratio (10.6) for depression in participants with higher parity and abortion. Regarding parity, literature reports higher incidence of depression in primigravida and primiparous females.²¹ In present study, the socio-economic burden of large family may have acted as a contributing factor with high parity.

Importance of sex of baby for mother was also tried to be assessed in the present study and surprisingly high odds ratio was identified in participants with more number of girl children and desire for male baby. However study by Sylven S N et al.²² found no significant association of gender of offsprings with postpartum depression but reported high incidence of postpartum blues in females with baby boy. In our study, it may be due to higher incidence of societal sexual discrimination.

Marital conflict was discovered to be a key predictor connected with perinatal depression, with women who had marital conflict being more likely to experience prenatal depression. This result was consistent with earlier research.²³ To avoid antenatal depression, the physiological and psychological changes that occur during pregnancy may necessitate additional close partner support. In 2014, prenatal depression was found to be closely connected with poor marital communication and marital dissatisfaction in a study conducted in Korea by Y. Jung, C. M. Park, H. Seo, and colleagues.²⁴ Those with medium social support were 81% less likely to experience prenatal depression than those with poor social support. Other studies^{23,25} have reported similar results.

It is interesting to note that out of the total 47 postnatal women, none of the women responded to the additional specific questions that were asked to them in extension of questionnaire 2. It obviously shows that there is no association of prevalence of postnatal depression to the risk factors that were specifically asked to postnatal women.

Thus, with regard to the determinants of perinatal depression, this study has found out that the factors significantly associated were violence, marital conflict, and marginally to lower level of education and high parity.

Conclusion

As previously reported we found that depression is common during pregnancy. Violence and conflict in marriage are associated with an increased prevalence of perinatal major depression. The impact of these factors may be exacerbated during pregnancy, especially in rural areas, where women face great inequalities.

The implications of our study for practice are to emphasize the need for screening for depression during pregnancy even at small settings especially when low income is associated with other risk factors for depression, e.g. gender-based violence. Policies aimed at reducing gender-based violence and supporting pregnant mothers who are facing financial, emotional difficulties are likely to have a significant public health impact. Lastly, the creation of a mental health team in prenatal services to treat psychiatric disorders during and after pregnancy might prevent or ameliorate perinatal depression. Systems should be in place to ensure follow-up for diagnosis and treatment.

Limitations

Since the study was hospital based, perinatal women with depression, who do not seek perinatal care service at Hospital, would not be caught. EDPS is a screening tool. Therefore, making a diagnosis of perinatal depression based on this scale without the gold standard psychiatric examination can be difficult. Since this study involves population of public health sector, most of the participants belong to lower status so application of the data to a higher sector might be difficult.

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Conflicts of interest

All authors declare that they have no conflict of interests.

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