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Postpartum depression prevalence and its associated risk factors in Indian scenario: A descriptive study

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Abstract
Aim: to study the prevalence of postpartum depression and its associated risk factors at a tertiary care teaching hospital in India.
Methods: This descriptive cross-sectional study was carried out at Jawaharlal Nehru Medical College, Aligarh Muslim University, U.P, India. The postpartum mothers, who received antenatal and postnatal care in this hospital, were recruited for the study. The validated Edinburgh Postnatal Depression Scale questionnaire was used to measure postpartum depression. A cut-off score of 12 was considered to indicate probable depression.
Results: Out of a total of 408 women participated in this study, 26.9% had a score of 12 (Probable Depression). The multivariate analysis showed that postpartum depression was significantly associated with gender associated factors, history of depressive episode, and lack of family support.
Conclusions: The study confirms that gender-based factors are important determinants of postpartum depression followed by previous history of depressive episode and the husband's perceived lack of social support emerging as associated risk factors.

Keywords: postpartum depression, women mental health, prevalence, risk factors

Introduction
Depression is one of the leading causes of disease burden in women aged 15-44 years in both high income and low- and middle-income countries [1]. Postpartum depression (PPD) is depressive mood disorder associated with childbirth and is a serious but treatable medical disease that involves anxiety, lack of energy, feeling of sadness, changes in sleep and appetite habit. After childbirth the variuos biological changes and increase in the social responsibilities lead to development of depression in the mother.
Globally, the prevalence of PPD is 10-15% in the western countries while it is 19.8% in low and lower middle-income countries [2]. Studies concluded that about 3% to 6% of women experience PPD during pregnancy or immediately after birth [3].
Several risk factors have been found to be associated with postpartum depression, including a mother's history of major depressive disorder or a past history of, depression during pregnancy or after childbirth, and a family history of depression [4, 6]. Other important factors in some low-income countries are family disruption, lack of social support, poor economic status and dissatisfaction with having a female child [7, 9]. Not breastfeeding, stressful life events, baby's health problems and unintended pregnancy were also found to be associated with postpartum depression [10, 11].
The onset of depression during postpartum period is very important and considered as a major public health problem affecting mothers, fathers, children's and the whole family make it an important condition to diagnose, treat, and prevent. The provision of care will vary depending on the socio-demographic and obstetric factors.
It is anticipated that this study will shed light on one of the major health problems. The findings of this study will help to fill in the gaps in the literature about prevalence of postpartum depression and its associated risk factors in Indian scenario. It will also help the health policy makers to ensure better planning, resource allocation and delivery of relevant health services.

Materials and methods
The present descriptive cross-sectional study involved the postpartum women who received antenatal and postnatal care at Jawaharlal Nehru Medical College Hospital, Aligarh Muslim University, Aligarh, U.P, India. The study protocol was reviewed by the Ethical Committee of the Hospital and granted ethical clearance. After explaining the purpose and details of the study, a written informed consent was obtained.

Sample selection
The sample size was calculated using a prior type of power analysis by G* Power Software Version 3.0.1.0 (Franz Faul, Universitat Kiel, Germany). The minimum sample size was calculated, following these input conditions: estimated prevalence of 20%, power of 0.80 and $P \leq 0.05$ and sample size arrived were 350 subjects. Total sample screened was 408.

Data Collection tool
Postpartum Depression Scale[12] (EPDS) was used to screen for postpartum depression symptoms. The EPDS is a 10-item self-report scale, specifically designed to screen for

postpartum depression in community samples. Each item is scored on a 4-point scale (from 0 to 3 reflecting increased severity of symptoms). The minimum and maximum total scores are 0 and 30, respectively, in which 0 is least depressed and 30 is most depressed. A self-administered questionnaire reflecting important demographic, maternal, infant, and psychosocial risk factors for postnatal depression was appended to the EPDS. In this study, a cut-off score of ≥ 12 was used so that comparisons could be made with other studies.

Statistical analysis

Completed questionnaires were coded and spreadsheets were created for data entry. The data was analyzed using SPSS 20 (SPSS Inc. Chicago, IL, USA) Windows software program. Descriptive statistics were used to summarize the demographic information and the survey data was analyzed. Multivariate logistic regression analysis models were used to check relation between independent and dependent variables. Confidence level and level of significance were fixed at 95% and 5% respectively.

Results

Table 1: Prevalence of postpartum depression (EPDS score) in the study population

EPDS Score	N (%)
Score <12	298 (73.1)
Score >12	110 (26.9)
Total	408 (100.0)

Table 2: Distribution of demographic profile of the study population with EPDS>12

Variables	N (%)
Maternal Age	
16-20 Years	8 (7.27)
21-25 Years	68 (61.81)
26-30 Years	22 (20.0)
>30 Years	12 (10.9)
Maternal Education	
Illiterate/ Read and write	13 (11.81)
Primary	43 (39.10)
Higher Secondary	32 (29.10)
Graduate	22 (20.0)
Maternal Occupation	
Housewife	74 (67.27)
Working	26 (23.63)
Student	10 (9.10)
Marital status	
Married	106 (96.36)
Divorced	4 (3.63)

Table 3: Distribution of characteristics of the last-born child with EPDS >12

Variables	N (%)
Child Gender	
Male	42 (38.18)
Female	68 (61.82)
Delivery type	
LSCS	37 (33.63)
Vaginal	73 (66.36)
Previous Miscarriage	
Absent	78 (70.91)
One	24 (21.81)
More than one	8 (7.27)
Breastfeeding Problem	
Present	46 (41.81)
Absent	64 (58.18)

Table 4: Distribution of support at home and history of depression with EPDS >12

Variables		N (%)
Family support		
Husband	Supportive	28 (25.45)
	Non-supportive	82 (74.54)
Mother	Supportive	49 (44.53)
	Non-supportive	61 (55.45)
History of Depression		
During pregnancy	Present	87 (79.09)

	Absent	23 (20.90)
Family	Present	38 (34.54)
	Absent	72 (65.45)

Table 5: Multiple Logistic Regression Analysis for Risk factors with EPDS>12

Variables	Odds ratio	p-value
Female child	3.65 (2.25 – 5.94)	0.001
Husband support	2.91 (0.69 – 12.33)	0.001
Depression History	2.45 (0.42 -5.03)	0.001

Discussion

There are few epidemiological investigations of maternal depression in developing countries. A recent well-designed study of an urban township in South Africa [13] reported a similarly high rate of postpartum depression. The rates of postpartum depression that we found in our study are no higher than those reported in population and primary care studies in low-income countries [14, 15].

The finding that the majority of mothers had an onset of antenatal depression is also consistent with evidence from other prospective studies [16]. Thus; "postnatal depression" simply describes the presence of a depressive disorder in the period after childbirth. It does not, however, indicate any specific risk or etiological role of childbirth in the onset of the depressive disorder.

Violence against women, a major public health concern in a country in which more than one-third of women report being physically abused by their husbands [17], was found to be common and, not surprisingly, a significant risk factor for postnatal depression.

The study confirms our hypothesis that gender-based factors are important determinants of postnatal depression. The preference for male children is deeply rooted in Indian society; such gender bias and the limited control a woman has over her reproductive health may make pregnancy a stressful experience for some women. Thus, women who already have a female child face greater stress because of their wish that their new infant be a boy. In the event that the child is a girl, the risk of depression is greater. Mothers may be blamed for the birth of a female child.

Although the precise mechanism of how these stressors operate differentially according to the gender of the infant remains unclear, it is plausible that the family's collective joy at the arrival of a male infant helps support the mother and negates the risk associated with other stressors.

Limitations

We are not sure how truthfully and thoughtfully the respondents answered the questionnaire and level of subjectivity is not acknowledged in the present study. Our study is a hospital-based study with less sample size and cross sectional hence the generalizability of the findings can be questioned.

Recommendations

The implications of the findings of this study for policy and practice are that mental health must be integrated into maternal health care in low-income countries.

Parent counseling to promote marital communication and to reduce the preference for male children must be an essential component of routine antenatal care.

Future research should focus on studies examining the efficacy of interventions delivered in the antenatal period on the prevention of postnatal depression.

Improving marital communication and reducing gender preference should be important components of any such interventions.

Similar community-based study with large sample size should designed for more reliable findings.

Conclusion

Our study showed a high rate of depressive symptoms among mothers during postpartum. It also confirms that gender-based factors are important determinants of postnatal depression followed by previous history of depressive symptoms and the husband's perceived lack of social support emerging as associated risk factors.

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