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Postpartum depression and associated risk factors: a descriptive study in tertiary care teaching hospital

Abstract

Background: Postpartum depression is a mood disorder that can affect women after childbirth which may cause feeling of extreme sadness, anxiety, and exhaustion that may lead to hamper of daily care activities for themselves and others. **Aim:** To determine presence of depression and associated risk factors among postnatal mothers. **Methods and material:** Fifty postnatal mothers, aged between 18-44 years were selected from the Department of Obstetrics and Gynaecology, Gauhati Medical College Hospital (GMCH), Guwahati, Assam, India. The presence of postpartum depression and maternal bonding with baby were assessed by using the Edinburgh Postnatal Depression Scale (EPDS) and the Postpartum Bonding Instrument. **Results:** The prevalence of postpartum depression among mothers was 26%. Prevalence was found higher among the Muslim postnatal mothers. 'Confidence and anxiety' and 'aggression to baby' were found more significant which adversely affected bonding with their babies. **Conclusions:** Postpartum depression was found in a high number of mothers and it adversely affected bonding to their babies.

Keywords: Postnatal Mothers. Maternal Bonding. Baby.

Marami Baishya[1], Bornali Das[2]

[1]College of Nursing NEMCARE Foundation, NH 37, Santipur, Mirza, Kamrup, Assam, India, [2]Department of Psychiatry, Gauhati Medical College Hospital, Guwahati, Assam, India

Correspondence: Marami Baishya, MSc (Nursing), Assistant Professor, College of Nursing NEMCARE Foundation, NH 37, Santipur, Mirza, Kamrup, Assam, India. PIN-781125. maramibaishya@gmail.com

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INTRODUCTION

Fifteen to 44 years is the reproductive age group for women. Mental health problems during these ages are not uncommon. In fact, they represent a major public health issue worldwide. Mental health problems constitute almost seven per cent of women's global disease burden. This is more so in the reproductive age group. Postpartum mental disturbances can lead to impairment of her baby care and she finds difficulty to carry out her task.[1,2] It may hamper mother-infant relationship and bonding; also, in the child's cognitive and emotional development.[3-5] Sometimes, it is difficult to recognise by the primary healthcare providers. Prevalence rate of major depression differs by place to place. Studies show that prevalence rates of depression is ten per cent or more. The disorder is thought to occur three times more commonly in the developing than in developed countries as well as to represent a considerable public health problem affecting women and their families.[1,6,7] Postpartum depression represents a considerable public health problem affecting not only the women but also their families. It may lead to continuing and recurrent depression,[8] associated with marital difficulties,[3] and disturbances in infant behaviour and development.[3,9] Considering the importance of the subject and in light of sparse data from this part of the globe, we undertook the study with the following aims and objectives.

Aims

To determine presence of depression and associated risk factors among postnatal mothers.

Objectives

1. To determine presence of depression among postnatal mothers.
2. To identify risk factors associated with depression among postnatal mothers.
3. To find out the association between postpartum depression and sociodemographic variables among postnatal mothers.
4. To find out the association between postpartum depression and associated risk factors among postnatal mothers.
5. To assess the relationship between postpartum depression and maternal bonding with baby.

METHODS

It was an observational descriptive study.

Sample

Simple random sampling method was used. Fifty postnatal mothers were interviewed. The study was conducted from 18 July 2018 to 20 September 2018.

Inclusion criteria

- Postnatal mothers aged between 18-42 years.
- Postnatal mothers attending the Department of Obstetrics and Gynaecology, Gauhati Medical College Hospital (GMCH), Guwahati, Assam, India.

Exclusion criteria

- Known chronic psychiatric illness.
- Known intellectual developmental disorder.
- Any history of substance dependence.
- Death of the new born.
- Postnatal mothers who refused to give written informed consent.

Tools

1. ***Sociodemographic proforma***
   The social, personal, family, and illness-related issues were noted in a sociodemographic proforma.
2. ***Modified Kuppuswamy's scale for socioeconomic status***
   The Kuppuswamy's scale[10] is widely used to measure the socioeconomic status of an individual in regards to different community members. It consists of three variables, namely education (consisting of seven categories), occupation (consisting of ten categories), and income (consisting of seven categories). According to the total scores obtained in three variables, the socioeconomic status is grouped into five classes, i.e. upper, upper middle, lower middle, upper lower, and lower.
3. ***Semi-structured questionnaire***
   Semi-structured questionnaire was used for identifying factors which influenced the postpartum depression. It consisted of total ten items.
4. ***The Edinburgh Postnatal Depression Scale (EPDS)***
   The ten questions Edinburgh Postnatal Depression Scale (EPDS)[11,12] is a valuable and efficient way to identify mothers at risk for postnatal depression. This scale indicated how the mother has felt during the previous week. Total score is 30. Mothers who score ten or greater, are considered as possible depression. If the score is above 13, then the likely consideration is as a depressive illness of varying severity.
5. ***Postpartum Bonding Instrument***
   The Postpartum Bonding Instrument[13] was used to assess relationship between postpartum depression and maternal bonding with baby. It consists of 25 items. This scale is divided into four scores, i.e.

Score one- Positive/negative affective response to baby: normal=11, high=12.
Score two- Anger and rejection: normal=16, high=17.
Score three- Confidence and anxiety: normal=nine, high=ten.
Score four- Aggression to baby: normal=two, high=three.

Ethical clearance

Ethical clearance was obtained from institutional ethics committee of GMCH. All the participants of the study provided written informed consent and were explained about the purpose, objectives, and procedures.

Statistical analysis

Descriptive statistics in the form of frequency and percentage as well as inferential statistics in the form of Fisher's exact test and Chi-square test were carried out using the GraphPad InSTAT.

RESULTS

Table 1 shows that most of the sample (60%) was in the age group of 18-25 years. Majority were Hindu (68%). All of them were married. Area of living was almost equally divided (urban [44%] vs. rural [56%]). Forty six per cent of the participants

Table 1: Sociodemographic data (N=50)

Sl. no.	Sociodemographic data	n	%
1	Age (in years)		
	18-25	30	60
	26-36	17	34
	37-42	3	6
2	Religion		
	Hindu	34	68
	Muslim	16	32
3	Marital status		
	Married	50	100
4	Area of living		
	Urban area	22	44
	Rural area	28	56
5	Education		
	Illiterate	1	2
	High school	23	46
	H.S.L.C.	18	36
	H.S.	7	14
	Graduate	1	2
6	Occupation		
	Employed	2	4
	Part-time	9	18
	Homemaker	39	78
7	Socioeconomic class		
	Upper	2	4
	Upper middle	13	26
	Lower middle	21	42
	Upper lower	9	18
	Lower	5	10
8	Type of family		
	Nuclear family	22	44
	Joint family	20	40
	Extended	8	16
9	Number of children		
	1	28	56
	2	18	36
	3	4	8

H.S.L.C.=High School Leaving Certificate, H.S.=Higher Secondary

were high school educated, followed by High School Leaving Certificate (H.S.L.C.) passed (36%). Homemakers constituted the largest majority (78%). In the socioeconomic status, lower middle (42%) was the highest. Type of family was nearly equally divided between nuclear and joint (44% vs. 40% respectively). Most had one child (56%).

Out of the sample of 50, we found that 26 (52%) postnatal mothers had depression.

Table 2 shows that unwanted sex of the baby was found in 38%. Majority of the new born had illness (64%). Marital conflict was present in 16%. Domestic violence was found in a small minority (six per cent). Lack of support from spouse, current physical illness, and negative life events were found equally (24%). Most of the participants had their current pregnancy as planned (66%) while 44% experienced painful or distressing parturition. A large majority had caesarean section (72%).

Table 2: Risk factors of postpartum depression (N=50)

Sl. no.	Risk factors of postpartum depression	n	%
1	Unwanted sex of the baby		
	Yes	19	38
	No	31	62
2	Illness present of the new born		
	Yes	32	64
	No	18	36
3	Marital conflict		
	Yes	8	16
	No	42	84
4	Domestic violence present		
	Yes	6	6
	No	44	88
5	Lake of support from spouse		
	Yes	12	24
	No	38	76
6	Current physical illness		
	Yes	12	24
	No	38	76
7	Negative life events		
	Yes	12	24
	No	38	76
8	Current pregnancy is planned pregnancy		
	Yes	33	66
	No	17	34
9	Painful or distressing experience of parturition	22	44
	Yes	28	56
	No		
10	Mode of delivery of the current pregnancy		
	Spontaneous vaginal delivery	14	28
	Caesarean section	36	72

The association of postpartum depression and sociodemographic variables is presented in Table 3. Religion-wise, postpartum depression was significantly high among Muslim compared to Hindu (p=0.006). Age, area of living, education, occupation, socioeconomic class, type of family, and number of children were not significantly associated with postpartum depression.

The association between postpartum depression and risk factors is presented in Table 4. Unwanted sex of the baby, illness of the new born, marital conflict, domestic violence, lack of support from spouse, current physical illness, negative life events, planned pregnancy, painful or distressing experience of parturition, and mode of delivery of the current pregnancy were not significantly associated with postpartum depression.

Table 5 shows that 'Confidence and anxiety' was significantly associated with postpartum depression (p=0.024) and 'Aggression to baby' was very significant in relation to postpartum depression (p=0.009). There was no significant relationship between 'Positive/negative affective response to baby' and postpartum depression (p=0.069), while none of the participants scored 'high' in 'Anger & rejection'.

DISCUSSION

This pilot study among 50 postnatal mothers was carried out to determine the presence of depression and associated risk factors. Moreover, we tried to find out the association between postpartum depression and sociodemographic variables as well as associated risk factors. Finally, we assessed the relationship between postpartum depression and maternal bonding with baby.

Majority of the study participants were 18-25 years old, Hindu, married, living in rural area, high school educated, homemakers, from lower middle socioeconomic status and nuclear family, and had one child. Postpartum depression was present among 26 (52%) mothers.

Meta-analysis of 38 studies involving 20,043 Indian women found prevalence of postpartum depression to be 22%.[14] Data from the 2009-2011 Pregnancy Risk Assessment Monitoring System (PRAMS) revealed that 11% of 87,565 women met the criteria for postpartum depression.[15] In a tertiary care hospital, Kumar *et al.*[16] found psychiatric morbidity in 67 of 152 study subjects (44%); 26% of them had depressive disorder. As per Masood *et al.*,[17] ten to 15% mothers in Western societies are affected by postnatal depression. Prevalence of depression among British Pakistani and Indian woman is higher compared to their white counterparts.[17] Gausia *et al.*[18] conducted a similar study in Bangladesh, by using EPDS; they found that prevalence of postnatal depression was 22% among postnatal mothers.

Goyal *et al.*[19] assessed 12 mothers, aged between 29-40 years using EPDS and found two of them were at risk for postpartum depression. Among 506 women attending a tertiary teaching hospital in another study from Delhi, India

Table 3: Association between postpartum depression and sociodemographic variables (N=50)

Sociodemographic variables	Postpartum depression		Chi-square/ Fisher's Exact Test*	df	p-value	Level of significance
	Present	Absent				
Age (in years)						
18-25	18	12			0.248*	Not significant
26-36	5	12				
37-42	3	0				
Religion						
Hindu	13	21			0.006*	Significant
Muslim	13	3				
Marital status						
Married	26	24			1.00*	Not significant
Area of living						
Urban area	13	9			1.00*	Not significant
Rural area	17	11				
Education						
Illiterate	0	1	4.98	2	0.082	Not significant
High school	9	14				
H.S.L.C.	13	5				
H.S	3	4				
Graduate	1	0				
Occupation						
Employed	1	1	3.96	2	0.138	Not significant
Part-time	2	7				
Housewife	23	16				
Socioeconomic class						
Upper	1	1	3.00	3	0.391	Not significant
Upper middle	6	7				
Lower middle	9	12				
Upper lower	5	4				
Lower	5	0				
Type of family						
Nuclear family	11	11	0.42	2	0.810	Not significant
Joint family	10	10				
Extended	5	3				
Number of children						
1	10	18			1.00*	Not significant
2	8	10				
3	0	4				

H.S.L.C.=High School Leaving Certificate, H.S.=Higher Secondary, df=degree of freedom

found postpartum depression in 12.75% (19 out of 149).[20] Using EPDS in a community sample of 137 women from rural South India, 26.3% were found to have postpartum depression.[21]

Upadhyay *et al.*[14] reported that risk factors for postpartum depression were "financial difficulties, presence of domestic violence, past history of psychiatric illness in mother, marital conflict, lack of support from husband, and birth of a female baby". In contrast, we found no statistically significant association of postpartum depression with socioeconomic status (p=0.391), presence of domestic violence (p=0.409), marital conflict (p=0.704), lack of support from spouse (p=0.326), and unwanted sex of the baby (p=0.57). Mukherjee *et al.*[15] also found that having many bills to pay and having more than usual arguments with husband/partner were risk factors for postpartum depression. In addition, having a husband/partner who did not want the pregnancy and drug/drinking problems of someone close was associated with postpartum depression.[15]

Table 4: Association between postpartum depression and associated risk factors (N=50)

Risk factors	Postpartum depression		p-value	Level of significance
	Present	Absent		
Unwanted sex of the baby				
Yes	11	8	0.570	Not significant
No	15	16		
Illness present of the new born				
Yes	18	14	0.557	Not significant
No	8	10		
Marital conflict				
Yes	5	3	0.704	Not significant
No	21	21		
Domestic violence present				
Yes	2	4	0.409	Not significant
No	24	20		
Lake of support from spouse				
Yes	8	4	0.326	Not significant
No	18	20		
Current physical illness				
Yes	6	6	1.00	Not significant
No	20	18		
Negative life events				
Yes	6	6	1.00	Not significant
No	20	18		
Current pregnancy is planned pregnancy				
Yes	19	14	0.372	Not significant
No	7	10		
Painful or distressing experience of parturition				
Yes	12	10	0.782	Not significant
No	14	14		
Mode of delivery of the current pregnancy				
Yes	5	9	0.210	Not significant
No	21	15		

In contrast to our study, Dubey *et al.*[20] found that birth of female child, nuclear family structure, and poor marital relationship were significantly correlated with peripartum depression. Upadhyay *et al.*[14] did not find any significant differences in prevalence by mother's age, geographical location, and study setting. Similarly, we also did not find statistically significant association between postpartum depression and age (p=0.248) and area of living (p=1.00). Savarimuthu *et al.*[21] found that postpartum depression was associated with the following factors: "age less than 20 or over 30 years, schooling less than five years, thoughts of aborting current pregnancy, unhappy marriage, physical abuse during current pregnancy and after childbirth, husband's use of alcohol, girl child delivered in the absence of living boys and a preference for a boy, low birth weight, and a family history of depression".

Zaidi *et al.*[22] found significant association of postpartum depression with young maternal age, birth of female child, previous stressful life events, low self-esteem, and feeling of loneliness. No such association was found in our study (e.g. negative life events [p=1.00]). According to Gausia *et al.*,[18] postpartum depression could be predicted by history of past mental illness, depression in current pregnancy, perinatal death, and poor relationship with mother-in-law. About the mechanism for postpartum depression, low luteinizing hormone (LH)/follicle stimulating hormone (FSH) ratio is a potential risk factor.[23] At six-week post-delivery, low FH/FSH ratio ("the optimal cut-off value for serum of LH/FSH levels in predicting postpartum depression was estimated to be 0.22mlU/mL with an AUC of 0.598 [95% CI, 0.291-0.859]") can be a biochemical predictor of postpartum depression.[23]

Whatever be the mechanism, one thing is for sure that postpartum depression influences maternal bonding with baby. This is best exemplified by the significant relationship of postpartum depression with 'confidence and anxiety' of mothers (p=0.024) and their 'aggression to baby' (p=0.009).

Limitations

As the sample is recruited from a tertiary teaching hospital, the findings cannot be generalised to the community as

Table 5: Relationship between postpartum depression and maternal bonding with baby (N=50)

Maternal bonding with baby	Postpartum depression		p-value	Level of significance
	Present	Absent		
Positive/negative affective response to baby				
Normal	2	7	0.069	Not significant
High	24	17		
Anger and rejection				
Normal	26	24		
High	0	0		
Confidence and anxiety				
Normal	18	23	0.024	Significant
High	8	1		
Aggression to baby				
Normal	15	22	0.009	Very significant
High	11	2		

a whole. Moreover, sample size of 50 is small as it is a pilot project.

Strengths

Use of well-validated tool like EPDS and addition of tool for bonding increases credential of the study.

Implications and future directions

High occurrence of postpartum depression enlightens healthcare providers for the need of services to cater to this population, keeping in mind that not only the health of the mothers but also that of their babies are at stake.

Conclusion

Postpartum depression was found in significant number of mothers and it adversely affected bonding with their babies.

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