ORIGINAL ARTICLE

A Cross-Sectional Study on Prevalence of Post-Natal Depression and its Associates among Women in a Rural Community in Hooghly District, West Bengal

Souvik Das[1], Dipak Pal[2], Sanjoy Kumar Sadhukhan[3], Hasibur Zaman Haque[4], Mousumi Datta[5]
[1]Junior Resident- MPH (Epidemiology), Department of Epidemiology, All India Institute of Hygiene and Public Health (AIIH&PH), Kolkata, [2]Director-Professor, Department of Epidemiology, AIIH&PH, Kolkata, [3]Professor and Head, Department of Epidemiology, AIIH&PH, Kolkata, [4]Junior Resident- MPH (Epidemiology), Department of Epidemiology, AIIH&PH, Kolkata, [5]Ex Junior Resident- MPH (Epidemiology), Department of Epidemiology, AIIH&PH, Kolkata

ABSTRACT

Background:Post-natal depression, aserious mental health problem experienced by mothers 4 to 6 weeks after delivery. Patients suffering from post- natal depression are at higher risk of developing major depressive illness in future life. **Objectives**: To assess the prevalence of post-natal depression and its associates among women in a rural community in Hooghly district, West Bengal. **Methodology**: A cross-sectional study was conducted among 83 post-natal mothers (period of 6th to 10th week after delivery) in a rural community in Hooghly district, West Bengal, selected by simple random sampling technique from the list of mothers attending the immunization clinic in a health centreduring the period of April 2019 to September 2019. Data was collected by face-to-face interview and review of records by house to house visits. Depression was assessed by Edinburgh post-natal depression scale (EPDS).Statistical analysis was done using Microsoft Excel and SPSS version 16. **Results**: Prevalence of post-natal depression among study participants came out to be 28.9%. Poor socio-economic status (p=0.000). Unplanned pregnancy (p=0.025), Pre-term delivery (p=0.011) and increase in number of parity (p=0.025) were found to be statistically significantly associated with post-natal depression. **Conclusion**: Post-natal depression is a major public health problem which should be dealt with great concern while making policy for betterment of maternal and child health especially in low income countries like India. This can be detected early by health care providers in primary health care set up using simple screening tools. Special care and counselling should be provided to them.

KEYWORDS

Post-natal Depression; Rural Community; West Bengal

INTRODUCTION

Post-natal Depression is a mood disorder that can affect women after childbirth. It is the most common psychopathology and is considered as a serious public health issue because of its devastating effects on the mother, family and infant or the child.[1] It is experienced by mothers 4 to 6 weeks after delivery. [2]Mothers with post-natal depression experience extreme sadness, anxiety and exhaustion that may make it difficult for them to complete their daily care activities as well as new-born care. It is multi-factorial, with physical, emotional and socio-demographic factors playing a major role. After childbirth the levels of hormones (estrogen and progesterone) in a woman's body quickly fall, leading to neurochemical changes and mood swings.[3] Many mothers do not get necessary rest to recover fullyafter giving birth. Often sleep gets deprived. Mothers then might start showing symptoms of post-natal depression. It can affect any woman regardless of age, race, ethnicity or

CORRESPONDING AUTHOR: Dr. Souvik Das, Junior Resident- MPH (Epidemiology), Department of Epidemiology, All India Institute of Hygiene and Public Health (AIIH&PH), Kolkata
E Mail ID: souvikdas960@gmail.com
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economic status. Prevalence of post-natal depression of developed countries are 15.4% in US, 38.1% in Italy, 17.1% in Germany, 22.5% in Ireland, 27% in Japan depending upon the socio-demographic, cultural and psychological perspective. [4] In developing countries the prevalence is widely distributed, in Nepal 5% whereas in India it ranges from 11-48.5%. [5-11]

Some of the risk factors of post-natal depression are similar to symptoms during or after previous pregnancy. Mothers who experienced depression or bipolar disorder any other time in her life are vulnerable to suffer from this disorder. Positive family history of mental illness or depression arefound often among mothers suffering from post-natal depression. Common symptoms of this disorder are: having trouble bonding or forming emotional attachment with her baby, persistently doubting her ability to care for her baby, thinking about harming herself or her baby, feeling sad, empty, hopelessness or overwhelmed, crying more often than usual, oversleeping or inability to sleep, trouble in decision making, trouble in concentration, losing interest in otherwise enjoyable activities, physical aches, pain, muscle pain, stomach problems, eating too little or too much, withdrawing from friends or family. Only a health care provider can diagnose post-natal depression.[3]

Patients suffering from post- natal depression are at higher risk of developing major depressive illness in future life. This disorder had been thoroughly investigated in developed country as compared to developing countries. In recent years, majority of the studies on postnatal depression in India had been conducted in Southern India, followed by Western India and Northern India [12]. There are few studies in Eastern India and West Bengal. Present study was conducted to find out the prevalence of post-natal depression among women in a rural community (Anandanagar village) of Hooghly district, West Bengal and to find out the socio-demographic factors and obstetric factors associated with post-natal depression among them.

MATERIAL & METHODS

This was a community based cross-sectional study conducted during the period of April 2019 to September 2019. The study setting was Anandanagar Health Centre in Singur Block, Hooghly District, West Bengal. All the mothers who were in the post-natal period of 6th to 10th week after delivery during that period of study were included. Those 142 mothers were the study population. Unwilling mothers, those who did not give informed written consent and very sick mothers were excluded. A study conducted in South India in 2015 among rural women [1] showed prevalence of post-natal depression as 31.4% [1] So sample size of this study was calculated taking p= 0.314, Confidence level-95%, Z value-1.96 and Absolute error 10%, using the formula, sample size = $(Z)^2 \times p \times q / L^2$

$= (1.96)^2 \times 0.314 \times 0.686 / (0.1)^2$

$=82.75$ i.e. 83,

Taking 10% as non-response the final sample sizewas 83+9= 92.

Line-listing was done for all the mothers fulfilling eligibility criteria. From the list, 92 participants were selected by simple random sampling. Among them, 9 subjects were absent on three consecutive visits. Study technique was face to face interview using pre-tested, pre-designed schedule containing socio-demographic and obstetric variables and Edinburgh post-natal depression scale (EPDS). It is a 10 item self-reported scale based on one-week recall, designed to screen PND (Post-Natal Depression). The EPDS tool was translated in Bengali language and pre-tested among 30 similar mothers outside study settings. (The Cronbach's alpha - 0.71). Out of maximum score 30,mothers scoring 13 or morelikely to suffer from depressive illness of varying severity.[13]

Dependent variable was Post-Natal Depression and independent variables were

a) Socio-demographic factors such as Age, Religion, Caste, Education of mothers, Family types, Socio-economic status (Class I-Class V, as per modified B G Prasad's scale) [14], Working status of them (housewives or working i.e. any kind of employment helping in earning money) and
b) Obstetric factors such as Parity, Pregnancy planning (planned or unplanned), Mode of delivery (normal or caesarean section), Type of delivery (pre-term or term), Gender of new-born, Complications of pregnancy and any known medical illness

All the mothers who were in the post-natal period of 6th to 10th week after delivery and scored >=13 in EPDS were considered to suffer from post-natal depression. [12]

Planned pregnancy- Intention to conceive or having baby before actually having the baby

Complications of pregnancy- Any medical illness arising out of pregnancy as per review of medical records and reports.
Known medical illness- Any comorbidities as per medical records.
Data was analyzed using Microsoft Excel 2010 and SPSS version 16 software. Descriptive statistics i.e. frequency distribution of study sample was performed to assess the background, socio-demographic and obstetric outcomes whereas association of those variables were identified by Chi- square and Fisher's Exact Test with significance level $p<0.05$.
Ethical Approval: Permission was taken from Institutional Ethics Committee of All India Institute of Hygiene and Public Health. Informed written consent was taken from each participant before data collection. Confidentiality was maintained through-out the process.

RESULTS

Total study participants were 83with mean age was 23.25 ±3.5 years. Most mothers (62.7%) came from joint family. Majority of the mothers passed secondary level of education(51.8%), followed by higher secondary(22.9%). Regarding economic status calculated using Modified B G Prasad's scale [14] mean per capita monthly income came out to be 3352.54+-1197.66. Regarding working status of study subjects 97.6% were housewives. [**Table 1**]

TABLE 1 ASSOCIATION OF SOCIO-DEMOGRAPHIC CHARACTERISTICS WITH DEPRESSION AMONG POST-NATAL MOTHERS (N=83)

Characteristics	Post-Natal Depression Present (%)	Post-Natal Depression Absent (%)	χ^2, df; *p*
Age in years			
16-20	5(27.8)	13 (72.2)	0.968, 3; 0.932
21-25	14(29.2)	34 (71.8)	
26-30	5(33.3)	10 (66.7)	
31-35	0	2 (100)	
Religion			
Hindu	21(28.4)	53 (71.6)	0.095, 1; 0.757
Muslim	3(33.3)	6 (66.7)	
Caste			
General	16(30.2)	37 (69.8)	21.761, 3; 0.500
OBC	3(37.5)	5 (62.5)	
SC	15(29.4)	2 (70.6)	
ST	0	5 (100)	
Socio-economic status			
I	0	2 (100)	48.241, 3; <0.001
II	0	28 (100)	
III	8(22.2)	28 (77.8)	
IV	16(94.1)	1 (5.9)	
Education standard			
Primary	2(33.3)	4 (66.7)	0.681, 4; 0.954
Middle	4(36.4)	7 (63.6)	
Secondary	11(25.6)	32 (74.4)	
Higher Secondary	6(31.6)	13 (68.4)	
Graduate and above	1(25)	3 (75)	
Type of family			
Nuclear	17(32.7)	35 (67.3)	0.966,1; 0.326
Joint	7(22.6)	24 (77.4)	
Working status			
Housewife	24(29.6)	57 (70.4)	0.833,1; 0.361
Working	0	2 (100)	

With respect to obstetric variables, 49.4% mothers were primi mothers, followed by second para (36.1%), third para (12%) and fourth para (2.4%). Study revealed 56.6% was unplanned pregnancy. Majority of mothers (55.4%)had normal delivery. Result showed that 73.5% were

term delivery. Among the last child born there were more boys (53%).About 15.7% mothers had suffered from complications. Majority (86.7%) had no known medical illness while the rest had some history of known medical illness [**Table 2**].

TABLE 2 ASSOCIATION OF OBSTETRIC CHARACTERISTICS WITH DEPRESSION AMONG POST-NATAL MOTHERS (N=83)

Variables	Post-Natal Depression Present (%)	Post-Natal Depression Absent (%)	χ^2,df; *p*
Parity			
1	7(17.1)	34 (82.9)	8.507, 3; 0.025
2	11(36.7)	19 (63.3)	
3	6(60)	4 (40)	
4	0	2 (100)	
Pregnancy planning			
Planned	9(19.1)	38 (80.9)	5.029, 1; 0.025
Unplanned	15(41.7)	21 (58.3)	
Mode of delivery			
Normal	10(21.7)	36 (78.3)	2.585,1 ;0.108
C.S.	14(37.8)	23 (62.8)	
Type of delivery			
Term	13(21.3)	48 (78.7)	6.474, 1; 0.011
Pre-term	11(50)	11 (50)	
Gender of newborn			
Boy	11(25)	33 (75)	0.698, 1; 0.403
Girl	13(33.3)	26 (66.7)	
Pregnancy complications			
No complications	19(27.1)	51 (72.9)	0.683,1; 0.408
Complications	5(38.5)	8 (61.5)	
Known medical illness			
No known illness	21(29.2)	51 (70.8)	0.016,1; 0.897
Known illness	3(27.3)	8 (72.7)	

Prevalence of post-natal depression among the study population was 28.9 %.

Post-Natal Depression was found significantly associated (p<0.05) with socio-economic status. [Table1]Significant association (p<0.05) between post-natal depression and highnumber of parities was found. Unplanned pregnancy was found to have statistically significant association (p<0.05) with post-natal depression. Pre-term delivery was also associated significantly(p<0.05) with post-natal depression. [**Table 2**]

DISCUSSION

In this study the prevalence of post-natal depression was 28.9% which was in accordance with the studies conducted by Shivalli et al [1](31.4%), Patel et al [15](23%) and Savarimuthu et al [16] (26.3%).A WHO published report in 2018 [17] found PND among 22% women, similar findings were reported by Khan et al [18](26.97%)and Chandran et at [19](11%).

Poor socio-economic status was found to be significantly associated (<0.05) with PND in this study. Similar observation was reported in other studies [1,8,11,18,19]. Lack of basic amenities would lead to psychosocial well-being of mothers. It might lead to post-natal depression.Multiparous mothers reported significant association(p<0.05) with PND.Similar findings were reported in a study by Khan et al, Patel et al andHedge et al [18,20,21]. Multiple pregnancies need higher care burden followed by psychological stress and ultimately leads to depression.

Unplanned pregnancy was found to be significantly (p<0.05) associated with post-natal depression.Similar findings were reported in a study conducted by Brito CN et al [22].In case of unplanned pregnancy mothers were unprepared to cope up with the stress of child bearing which might have led to depression among mothers. Type of delivery i.e. pre-term delivery was also found to be significantly associated (p<0.05) with PND in the present study which was also found in the study conducted by Vigod et al in Canada. [23] Pre-term infants' less facial interaction with the mothers and prone to illness resulted more

psychological stress among mothers which might arise depression among them.

In current study birth offemale newborn was not significantly associatedbut was one of the predictors in the studies conducted by Shivalli et al, Patel et al, Savarimuthu et al.[1,15,16]It means the people in current studyhad not shown any discrimination on gender of the newborn. It might be due to the success in recent initiative taken by the Government on gender equity. Working status of mothers was significantly associated with post-natal depression.[24]Current study did not find such association due to different study settings.

LIMITATIONS

EPDS is a screening tool and is not intended to provide a diagnosis. It has the predictive ability of identifying women experiencing distress during pregnancy and classifying women at higher risk of probable postnatal depression. A careful clinical evaluation by a trained professional is needed to confirm a diagnosis and establish a treatment plan. Moreover, history was not taken from family members or husbands to elicit domestic atmosphere (support, care/violence). In statistical analysis only association between dependent and independent variables has been elicited by Chi-square test, adjustment by multivariable model has not been considered.

CONCLUSION

Post-natal depression is a serious public health problem which should be dealt with great concern while making policy for betterment of maternal child health especially in low income countries like India. This can be detected early in post-partum period using simple screening tools by health care providers even in primary care set-up. Proper family planning is needed to avoid multiparity, unplanned pregnancy. Proper ante-natal care leads to reduction of pre-term delivery as these are the important predictors of post-natal depression in a rural community.

AUTHORS CONTRIBUTION

All authors contributed equally.

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