

Postpartum Depression in Women: A Risk Factor Analysis

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ABSTRACT

Introduction: Postpartum Depression (PPD) is a known entity affecting not only the women but the whole family. It affects women more harshly and chronically due to their increased stress sensitivity, maladaptive coping strategies and multiple social roles in the community.

Aim: To estimate the commonly associated risk factors of PPD among the women coming to a tertiary hospital in New Delhi, India.

Materials and Methods: It was a longitudinal study conducted at the antenatal clinic for a period of one year. Total 260 women were screened at > 36 weeks of gestation, of which 149 postnatal women completed the questionnaire for PPD at six weeks of their delivery. The informed consent, demographical data and obstetrical details from each participant was taken before commencing the screening. Various risk factors and

their association were determined by odds-ratio and significant association was accepted at < 5% level of error. In order to identify the most important confounding variables, logistic regression analysis was used.

Results: PPD is a common mental health problem seen among the postnatal women as it was found in 12.75% (19 out of 149) of subjects at six weeks of their delivery. Moreover, it has significant association with the young maternal age (p-value=0.040), birth of the female child (p-value=0.015), previous stressful life events (p-value= 0.003), low self-esteem and feeling of loneliness (p-value=0.007).

Conclusion: This study provides important information regarding the risk factors associated with development of PPD in this region of India. Female sex of the new born and the younger age play an important role in the development of PPD.

Keywords: Risk factors, Self esteem, Stressful event

INTRODUCTION

PPD has been defined by the World Health Organization (WHO) as “a special state of mental health disorder and a variant of depression” [1]. The American Psychological Association (APA) defines PPD as “a serious mental health problem characterized by a prolonged period of emotional disturbance, occurring at a time of major life change and increased responsibilities in the care of the newborn” [2]. It is accepted that depression affects women more harshly and chronically due to their increased stress sensitivity, maladaptive coping strategies and multiple social roles in the community. Therefore, researchers have suggested the role of bio-psycho-social factors in the aetiology of PPD. Factors that are considered imperative in unfolding the aetiology of PPD can be classified as biological risk factors, past psychiatric illness, demographic and psychosocial risk factors and obstetrical risk factors. Although there are studies on PPD from India but none of these studies have screened the patient from the antenatal period to assess the risk of development of PPD at six weeks [3-5]. Majority of the studies have assessed the prevalence of PPD between two to six weeks postpartum [3,4,6]. Moreover, there is also lack of data regarding the correlation between the stressful events, loneliness and self esteem in women and the development of PPD. Therefore, a study was planned to estimate the commonly associated risk factors of PPD among the antenatal and postnatal women coming to a tertiary care hospital in New Delhi.

MATERIALS AND METHODS

The present study was a longitudinal study which was undertaken to evaluate the associated risk factors of PPD in postnatal women. It was carried out at Outpatient Department of Obstetrics and Gynaecology in HAH Centenary Hospital, New Delhi. The present study was approved by Institutional Ethical Committee of Jamia Hamdard, New Delhi.

The study was carried out from May 2015 to April 2016 which included those antenatal and postnatal women who were coming for routine antenatal and postnatal checkups in the same setting till six weeks of their delivery and were cooperative and gave informed consent for the participation in the study. Unwilling women and the women with chronic diseases i.e., diabetes, hyperthyroidism and tuberculosis were excluded from the study.

Total 260 antenatal women were screened at more than 36 weeks of gestation for PPD. Subsequently the follow up screening was done at two to five days of child birth and at six weeks of delivery to make a final diagnosis of PPD. Out of 260 women, only 149 women completed the follow up screening for PPD at six weeks of delivery. The women who had lost to follow up went to other hospital for delivery. The informed consent, demographical data and obstetrical details from each participant was taken before commencing the screening.

The various tools which were used to assess the status of mental health of women were as following:

1. Kuppaswamy Socio-Economic Status Scale [7]
2. Edinburgh Postnatal Depression Scale (EPDS) [8,9]

It is a well-known tool for the screening of depression during postnatal periods which comprises of 10-questions, each having scores as 0-3, with minimum and maximum scores as 0 and 30 respectively. This scale is validated in many countries including India where it has been translated into various Indian languages. In the present study, Hindi version of EPDS was used (with cut off score ≥ 10). The calculated Cronbach's alpha value of the present scale was found to lie within range of 0.814-0.844, which was quite reliable.

3. Presumptive Stressful Life Event Scale (PSLES) [10]

It is a scale used to measure the level of stress by estimating the recent stressful life events. A 51 life events with respective scores are given in the scale. The events are relevant to the Indian settings. The events have been classified as, desirable (10-items), undesirable (31-items), and ambiguous (10-items) for the past one year and for life time can be estimated. Scoring can be done in two ways either by calculating the total numbers of life events and by the weighted stress scores.

4. Rosenberg Self Esteem Scale (RSES) [11]

The RSES is a standardized tool in various nations including India. The scale comprises of 10-questions, half are positively phrased while the other five are expressed negatively, with a 4-point likert scale that ranges from "strongly agree" to "strongly disagree. It is a reliable scale with Cronbach's alpha as 0.77-0.88. The total scores varies in arrange of 0 to 30. Higher scores (>15) signify the higher level of self-esteem.

5. De Jong Gierveld Loneliness Scale [12]

The 6-item De Jong Gierveld Loneliness Scale is a short but valid and reliable tool which gives the estimation of emotional and social loneliness. Interpretation can be made by answers as; "yes", "more or less" and "no". The reliability of scale is good as Cronbach's alpha varies between 0.70 and 0.76. The score 0 denotes to complete social embeddedness and the absence of loneliness, while the score 6 refers to extreme loneliness.

The above questionnaires were given during their antenatal and postnatal visits in the OPD in separate room and in the postnatal wards after delivery between second to fifth postpartum day and collected on the same day.

STATISTICAL ANALYSIS

The data was tabulated and analysed in SPSS version 21.0. Various risk factors and their association were determined by odds-ratio and significant association was accepted at <5% level of error. In order to identify the most important confounding variables, logistic regression analysis was carried out entering each variable, first alone, then in groups, systematically. The presence of depression was taken as a dependent variable and various risk factors were assessed as independent variables.

RESULTS

In the present study, out of 260 antenatal women at first visit, 12.3% (n=32) women showed EPDS score of more than 10. On screening at second visit, 12.12% (28 out of 231) women had EPDS score more than 10. On final screening at six weeks, depression was found in 12.75% (19 out of 149) of subjects. All the depressed women scored more than 13 on EPDS at final visit. The psychiatrist consultation was taken for all the females who had a score more than 10 at each visit. [Table/Fig-1] shows trends of depression at various visits and it indicates that there are equal chances of developing the PPD whether the patient is antenatal depressed or have postpartum blues (p-value=0.961).

The comparison of the demographical factors, obstetrical factors and the psychosocial risk factors among depressed and non-depressed group of postnatal women. Of all the demographical factors, younger age group was found to be significantly more associated with PPD (p-value=0.040). It has been observed that there are three times more chances of developing PPD in the postpartum women younger than 25 years of age. Housewives have been found to have three times more chances of going into PPD but the difference was not significant in both the groups [Table/Fig-2]. Women who have given birth to female baby had more chances for going into PPD after adjusting for other confounding factors (p-value=0.015) [Table/Fig-3].

[Table/Fig-4] shows a higher mean score of PSLE scale among the depressed postnatal women than the non-depressed ones which shows the existence of previous stressful life event as significantly associated risk factor of PPD.

In the present study, it was also observed that the percentage of

Visits	Depressed/cases	Non depressed/controls	Odds of exposure	Odds ratio
Antenatal visit	32	228	0.14	1
Second visit (third to fifth postpartum day)	28	203	0.14	0.96
Third visit (at six weeks postpartum)	19	130	0.15	1.02

[Table/Fig-1]: Trend of depression at various visits. Chi-square test for trends is used

Factors	Depressed group n (%)	Non-depressed group n (%)	OR (p-value)
Age in Years			
18-25	10(52.7)	38 (29.2)	1.251 (0.040)
≥25	9(47.3)	92 (70.8)	
Type of families			
Nuclear	8 (42.1)	47 (36.2)	0.311 (0.581)
Joint	11 (57.9)	83 (63.8)	
Religion of the women			
Hindus	14 (73.7)	89 (68.5)	0.236 (0.533)
Muslims	3 (15.8)	23 (17.7)	
Other religions	2 (10.5)	18 (13.8)	
Level of education			
Illiterate	2 (10.5)	9 (6.9)	0.453 (0.740)
Literate	17(90.5)	121 (93.1)	
Occupational level			
Unemployed (housewife)	16 (84.2)	96 (73.8)	1.152 (0.151)
Employed	3 (15.8)	34 (26.2)	
Parity			
Primi-para	10 (56.2)	101 (77.7)	-.808 (0.274)
Multi-para	9 (47.4)	29 (22.3)	
History of Previous abortion			
Present	3 (15.8)	37 (28.5)	-1.029 (0.185)
Absent	16 (84.2)	93 (71.5)	
Pregnancy			
Planned	11 (57.9)	104 (80.0)	-0.544 (0.363)
Unplanned	8 (42.1)	26 (20.0)	
Mode of delivery			
Vaginal	7 (36.8)	74 (56.9)	0.986 (0.099)
Caesarean	12 (63.2)	56 (43.1)	
Gender of newborn			
Male	4 (21.1)	59 (45.4)	-1.742 (0.015)
Female	15 (78.9)	71 (54.6)	

[Table/Fig-2]: Comparison between depressed and non-depressed group of postnatal women on the basis of the demographical and obstetrical factors. Chi-square test is used

postnatal women with loneliness was significantly higher in the depressed group of postnatal women than the non-depressed ones. (26.3% vs 6.9%, Chi-square=7.323, p-value= 0.007).

DISCUSSION

PPD is a highly prevalent psychiatric disorder in the postnatal women in Indian society as evident from current study. Previous stressful life events and loneliness were found to be associated more with PPD. Most of the studies from the India and Western countries revealed the prevalence of PPD in the range of 10%–15% [3,13-15]. The prevalence rate of PPD in the present study was found to be 12.75% which is comparable with the other studies [3,16,14]. The studies from Gujarat showed a similar prevalence i.e., 15.8%

Factors	Significance (p-value)	Adjusted Odd Ratio	CI (95%)
Family	0.581	1.365	0.452-4.126
Religion (Hindu)	0.271	3.601	0.368-35.275
Religion (Muslim)	0.430	2.716	0.227-32.573
Occupation (Housewife)	0.151	3.65	0.657-15.252
Parity (nulliparous)	0.274	0.446	0.105-1.896
Abortion	0.185	0.357	0.078-1.639
Planned delivery	0.363	0.58	0.180-1.872
Mode of delivery	0.099	0.373	0.116-1.203
Female baby sex	0.015	0.175	0.043-0.716
Age <25 years	0.040	3.493	1.060-11.511
Education (Illiterate)	0.740	1.573	0.108-22.877

[Table/Fig-3]: Multivariate logistic regression between various risk factors and postpartum depression.

Logistic regression analysis was done with state of depression being as dependent value.

Factors	Stressful life event		Socio-economic status		Self esteem	
	Depressed	Non-Depressed	Depressed	Non-Depressed	Depressed	Non-Depressed
Mean (SD)	110.42 (36.800)	78.82 (43.092)	19.05 (3.519)	20.01 (3.873)	16.05 (2.438)	17.81 (3.133)
t-value (p-value)	3.036 (0.003)		1.015 (0.312)		2.338 (0.021)	

[Table/Fig-4]: Comparison between depressed and non-depressed group of postnatal women on the basis of psycho-social risk factors.

Unpaired t-test is used

by Gupta S et al., and 12.5% by Desai ND et al., in Gujarati women [3,4]. The cross-sectional study from Mysore in 154 postpartum women between two to six weeks had found the postpartum psychiatric disorder in 44% of study population and PPD in 27% of these females [17]. The most regularly linked factor with higher prevalence rate of the PPD especially in developing countries like India could be psychosocial because Indian women are considered as the classical of perfectionist in each and every affiliation of hers so, they are at extreme of pressures from the society thus may have weight propensity to get affected by PPD. The importance of other risk factors of PPD cannot be denied as the similar rate of depression (13.0%) was also noticed in the developed countries by WHO [1].

It has been observed in the current study that young females are significantly more prone for the development of PPD which could be due to the stress of responsibility of early marriage and child birth. A study on Chinese women had also shown significant association between the younger age and PPD [18].

Current study also found high rate of PPD among the multiparous postnatal women. Similar association was reported by study from Gujarat also [4]. The reason for depression among multipara could be because of the increased level of maternal stress in terms of care and responsibility for their previous children. It was also estimated that percentage of the women with unplanned pregnancy was much higher in the depressed group than the non-depressed one. It could be due to stress regarding the unwanted responsibility of child on the women especially when they are not getting the paramount support from their near ones.

Another important observation in the present study was that significantly higher rate of depression was observed among women who delivered the female child. Gupta S et al., also observed the higher depression rate in women who had previous female child and those who were expected and pressurized from their near ones to give birth to a male child [3]. Desai ND et al., found that chances of depression were 5.487 times higher among women who delivered female child than those who gave birth to the male child [4]. However, this outcome was not seen in the western countries [19]. So, it could be assumed that until now, the outlook and attitudes of people regarding the gender of child has not changed in the developing countries like India where the families still prefer a male baby over a

female. Thus, the current and previous data shows a great requisite of modifying the attitudes of Indian population especially regarding the gender of the child.

Stress is supposed to contribute to illness by causing the mind and body to become exhausted, weakening immunity and motivating the unhealthy behaviours. This is very well reflected in this study by a higher mean score of PSLE scale among the depressed postnatal women. Thus it can be clinched that a stressful life event predisposes women after child birth towards the progress of the depressive symptomatology.

Low self-esteem is thought to be a second route to depression [20]. Our study acclaims low mean score of self-esteem and higher percentage of loneliness among depressed postnatal women which could due to the low gradation of social and emotional support which they were receiving from their near ones. Our result here coincides with the findings of other studies of developed countries [14] as well as the developing countries [19]. Therefore, as supposition it can

be derived from the observations that presence of loneliness and low self esteem significantly contributes in the development of PPD. A study on British women on self-esteem, optimism and postpartum depression revealed that low self-esteem is a reliable contributing factor to the differential susceptibility to postpartum depression [21]. The feeling of loneliness itself implicates that these women are in desire of more social support during this time period.

LIMITATION

This is a hospital based study which was conducted in a tertiary care centre which might not be the actual representative population and the prevalence might be higher if the study would have been taken in the primary and the secondary care hospitals.

CONCLUSION

PPD is a common mental health problem seen among the postnatal women at six weeks of their delivery. It has significant association with the young maternal age, birth of the female child, previous stressful life events, low self-esteem and feeling of loneliness.

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Date of Submission: **Nov 17, 2016**

Date of Peer Review: **Feb 04, 2017**

Date of Acceptance: **Jun 20, 2017**

Date of Publishing: **Aug 01, 2017**

FINANCIAL OR OTHER COMPETING INTERESTS: None.