Severity and Associated Risk Factors Leading to Depressive Symptoms in the Post-Partum Period: A Cross Sectional Study in a Tertiary Care Hospital

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Abstract: Depression significantly contributes to the global disease burden. It is important to identify maternal depression in India since death rates due to suicide, a large proportion of which occur in women, are among the highest in the world here. Post partum depression has also been shown to have negative effects on the overall development of the infant. There is scarcity of data and no standardised objective method, to assess depressive symptoms, in our local context. To assess the severity of depressive symptoms in mothers, 6-8 weeks after delivery and to identify risk factors leading to these depressive symptoms. The cross-sectional study was planned at a tertiary care hospital in New Delhi and Faridabad. The study universe included women visiting the immunisation centre. The inclusion criterion was women who had delivered a live child 6-8 weeks before the interview. The exclusion criteria were those coming before 6 weeks post partum, women who had been previously diagnosed with PPD, and those whose children had died at birth or in the period before being interviewed. The sampling technique used was non probability sampling and the sample size was N= 106. The study tools used were the Edinburgh Postnatal Depression Scale, Beck's Depression Inventory (Hindi) and a Structured Proforma. The study period was from April' 2016 to June' 2017. According to Beck's Depressive Inventory II, 45% of the ladies interviewed had depressive symptoms ranging from mild to very severe. Mild depression (score of 11-16) was seen in 19.8 %, borderline (score of 17-20) in 8.4 %, moderate (score 21-30) in 9.4 % and severe (score 31-40) in 5.7 % and very severe (score > 40) in 1.9 %. Suicidal ideation was present in 19.8% of those interviewed (Q 10 EPDS). Lower age group, low socioeconomic status, poor role in decision making and poor relationship with husband were significantly associated with development of depressive symptoms in the post-partum period. Depressive symptoms are found to occur commonly in women; 6-8 weeks post partum. Identification and prompt treatment of these symptoms can significantly reduce harmful effects on the mother, her child and her family. Government policies should also be made to reduce gender bias, domestic violence and to encourage familial support during pregnancy.
Keywords: Depression; Maternal mental health; Postpartum; Risk factors.

INTRODUCTION

Up to 80% of women experience some form of depressive symptoms following childbirth commonly referred to as 'baby blues'. These mild depressive symptoms are often transitory in nature and resolve without treatment. For 7-26% of women, however, these depressive symptoms escalate, present for a longer duration and typically require intervention. Women presenting with such chronic and elevated levels of depressive symptoms may be experiencing post partum depression (PPD). Unlike minor post partum depression or baby blues, post partum depression typically does not resolve without clinical intervention.

PPD is currently the leading disorder in mothers following childbirth. Most women suffering from PPD do not receive any form of treatment and may remain depressed for up to a year after delivery, a situation which may seriously compromise the development of the mother-infant bond, cause delays in the cognitive and emotional development of the newborn infant and result in abuse and negligence in the childcare. In addition, this may also affect the

relationship with the partner and is a risk factor for new episodes of depression for a period of five years thereafter.

Therefore; there is need for effective screening, diagnosis and treatment of PPD

Varying figures for prevalence of PPD have been reported from different countries from as low as 11% to as high as 42%.

Risk factors for postpartum depression already identified are
- personal history of earlier depression particularly antenatal depression,
- illiteracy,
- low socio-economic status,
- anxiety during pregnancy,
- experiencing stressful life events during pregnancy/puerperium,
- female infant gender,
- low levels of social support and
- Poor marital relationship.

Several studies have been done on the prevalence of and risk factors leading to post partum depression, but there is still scarcity of data in our local context.

DIAGNOSTIC CRITERIA
Based on the DSM IV (Diagnostic and Statistical Manual of Mental disorders) criteria [1], post-partum depression falls under the diagnostic criteria for Major Depressive Episode with postpartum Onset. *It states that symptoms must begin within four weeks of delivery, last a minimum of two weeks and cause clinically significant impairment in daily functioning.* So our study aims to determine prevalence of depressive symptoms in mothers 6-8 weeks after delivery and to identify risk factors leading to these depressive symptoms.

MATERIALS AND METHODS
The cross-sectional study was done at two tertiary care hospitals (Vardhman Mahavir Medical College and Safdarjung Hospital; New Delhi and ESIC Medical College; Faridabad). The study universe included 106 women visiting the immunisation centre over a period of 14 months from April; 2016 to June; 2017. The inclusion criterion included women who had delivered a live child 6-8 weeks before the interview. The exclusion criteria were those coming before 6 weeks post partum, women who had been previously diagnosed with PPD, and those whose children had died at birth or in the period before being interviewed.

The study tools used were the Edinburgh Postnatal Depression Scale, Beck's Depression Inventory (Hindi) and a Structured Performa. The Edinburgh Postnatal Depression Scale (EPDS) is a 10-item self-administered questionnaire developed to assess depression in postpartum women and has been validated against the Research Diagnostic Criteria for MDD or Mn DD [2]. The EPDS has been validated in a variety settings and community samples, with the majority of studies focusing on the 6–8 week postpartum period [2-5]. Scores range from 0–30 with a cut-off point $\geq$ 10 recommended to detect MDD/MnDD with sensitivities greater than 90% and specificities between 77% and 88% [2, 6, 7]. A cut-point $\geq$ 13 is recommended to detect MDD with a sensitivity of 85–100% and specificity of 80–95% [2, 6, 7]. The EPDS form indicated the original reference and acknowledged the original authors as required for its use free of charge. The EPDS is a 10-item self-rating questionnaire that was developed in Edinburgh by Cox *et al.* [2] to screen for depression in the postnatal period. Each question has four alternative answers, scoring 0-3, giving a maximum total score of 30.

The Beck Depression Inventory – Second Edition II (BDI-II) [13] is a 21-item self-report questionnaire that assesses cognitive, behavioural, affective and somatic symptoms of depression and was developed to correspond to the criteria for DSM-IV depressive diagnoses. It has a high validity with depression severity ratings [8-11] Suggested cut-points are: 0–13 minimal, 14–19 mild; 20–28 moderate and 29–63 more severe depression. The BDI-II individual forms were purchased specifically for use in this study. It has 4 response options per item. Each item is representative of a particular symptom of depression and corresponds to the diagnostic criteria listed in the DSM-IV [1]. The respondent is asked to choose the statement that best reflects the way she has been feeling over the course of the last 2 weeks. Item scores range from absence of that symptom (0) to severe or persistent expression of that symptom [3].

STATISTICAL ANALYSIS
Data analysis was done using PASW Statistics version 18 (SPSS ™ Inc, Ill, USA). The descriptive analysis of the socio-demographic characteristics and maternal factors of the study participants were reported as total number and percentages first. The prevalence of depressive symptoms among post-partum mothers was reported as percentages and Pearson's correlation was used for factors associated with depressive symptoms. Chi-square analysis was used to test the significance of associations between outcome and explanatory variables. p value <0.05 value was considered to be significant.

RESULTS
Demographic profile
Most of the patients were from the age group 19-30 years in the present study. 75.5% patients were housewives, 46.2% had their husbands in permanent jobs while 52.8% worked temporarily and rest 0.94% was unemployed (Table 1).

Table-1

Variable	Groups	Number	Percentage
Age	<18	1	0.94
	19-22	32	30.2
	23-26	49	46.2
	27-30	18	16.9
	31-34	4	3.7
	35-38	2	1.9
Occupation	Housewife	80	75.5
	Working	26	24.5
Husband's occupation	Permanent	49	46.2
	Temporary	56	52.8
	Unemployed	1	0.94

Majority of the females in our study belonged to age group 23-26years, similar to the study conducted by Patel V *et al*. (average age 26years). 24.5% of the females were working while Patel V et al had majority of their subjects as non-working (91.5%) [13].

88.7% women were having parity of two or less than two while rest 11.3% were multiparaous with parity more than 2 though no significant relationship between PPDS and parity was found. Similarly Patel V *et al*. failed to prove a significant relationship wherein 42% of the females were primigravida in the study [13].

Educational status: Most of the women in present study were literate. 22.6% had high school certificate, 21.7% had intermediate or post high school certificate while 19.3% were graduate or post graduate and rest 5.7% were illiterate.

Socioeconomic status: Most of the women were from upper middle class i.e. 59.4% while 1.9% from lower class. 46.2% were from joint family and 38.7% from nuclear family while Patel V *et al*. found 66% of their subjects belonging to extended/joint families[13].

The literacy rate in our study was 94.34% which was higher than the average for the country which may be due to the fact that the study was conducted in major cities. The literacy rate in the study conucted by Gunnar *et al.* was 72% which was also substantially higher than the average for the country[14] Education has been suggested to protect against depression in the postnatal period in India as suggested by Patel V *et al.* [4]. However, in the study by Nepal *et al.* the proportion of literate women was 84% and yet they found a higher prevalence of depressive symptoms among postnatal mothers [15].

Table-2

Variable	Groups	Number	Percentage
No. Of children	<2 or =2	94	88.7
	>2	12	11.3
Educational status	Professional/honours	10	9.4
	Graduate/ post graduate	21	19.8
	Intermediate/Post high school		
	High school certificate	23	21.7
	Middle school certificate		
	Primary school certificate	24	22.6
	Illiterate	10	9.4
		12	11.3
		6	5.7
Socioeconomic status	Upper	8	7.5
	Upper middle	63	59.4
	Lower middle	24	22.6
	Upper lower	9	8.5
	Lower	2	1.9
Family Dynamics	Nuclear	41	38.7
	Joint	49	46.2
	3 generations	16	15.1

Table-3: Prevalence of depressive symptoms

EPDS (Edinburgh Postnatal Depression Scale)	32% (34)
Suicidal Ideation (EPDS Q10)	19.8% (21)
BDI II (Beck's Depressive Inventory II- Hindi)	45% (48)

Our study had a prevalence of PPDS of 32%. Study done by Patel V *et al*. found the same to be 23 % [13]. While Gunnar *et al*. found the same to be 4.9%[14].

Table-4: Risk factors

Variable	Pearson's coefficient	Confidence Interval	P value
Age	-0.26	-0.43 to -0.07	0.007
Socio economic status	0.24	0.05 to 0.41	0.013
No of children	-0.21	-0.38 to -0.02	0.03
Personal history of depression	-0.20	-0.38 to -0.01	0.04
Role in decision making	-0.20	-0.38 to -0.01	0.04
Decision regarding pregnancy issues taken by	0.38	0.21 to 0.53	<0.0001
Relationship with husband	-0.27	-0.44 to -0.09	0.004

Variable	Pearson's coefficient	Pearson's coefficient	P value
Family history of depression	-0.05	-0.23 to 0.15	0.64
Time since marriage	-0.03	-0.22 to 0.16	0.74
Spacing between children	0.01	-0.18 to 0.20	0.9
Mode of delivery	0.06	-0.14 to 0.24	0.57
Planned/unplanned pregnancy	0.06	-0.13 to 0.25	0.51
Prep for delivery	-0.16	-0.34 to 0.03	0.09
Difficulty in breast feeding	0.05	-0.14 to 0.24	0.63
Prep for breast feeding	0.01	-0.18 to 0.20	0.93
Knowledge of contraception	-0.01	-0.21 to 0.18	0.88
Use of contraceptive	0.10	-0.09 to 0.29	0.30
Birth weight	0.015	-0.18 to 0.21	0.88
Family dynamics	-0.15	-0.33 to 0.04	0.13
Household Decisions	-0.14	-0.32 to 0.06	0.16
Hobby	0.005	-0.19 to 0.19	0.96
Time spent in hobby	-0.01	-0.20 to 0.18	0.92
Time spent in TV viewing	0.04	-0.15 to 0.23	0.66
Occupation	-0.18	-0.36 to 0.008	0.06
Education	0.13	-0.07 to 0.31	0.2
Husband's Occupation	0.06	-0.14 to 0.25	0.56
Gender of baby	0.03	-0.16 to 0.22	0.72
Died child	-0.07	-0.26 to 0.12	0.48
No of abortions	0.09	-0.11 to 0.27	0.38

Our study found a significant relationship between PPDS and poor marital relationships while no significant relationship was found between gender of the baby and economic stability with PPDS. On the other hand study done by Patel V et al found economic deprivation, gender of the infant and poor marital relationships to be important risk factors for the occurrence and chronicity of depression [4]. Antenatal psychiatric illness also contributed to PPDS and the same was also suggested by Patel V *et al*. [4].

CONCLUSION
- Depressive symptoms - found to occur commonly in women, 6-8 weeks post partum.
- Identification and prompt treatment - significantly reduce harmful effects on the mother, her child and her family
- Government policies- to reduce gender bias, domestic violence and to encourage familial support during pregnancy

Limitations
- No objective method to study risk factors
- Small sample size

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