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EARLY DETECTION OF POSTPARTUM DEPRESSION USING EDINBURGH POSTPARTUM DEPRESSION SCALE (EPDS)

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ABSTRACT

Background: During the postpartum period, women are vulnerable to depression affecting about 10 to 20% of mothers during the first year after delivery. However, only 50% of women with prominent symptoms are diagnosed with postpartum depression (PPD). The Edinburgh Postnatal Depression Scale (EPDS) is the most widely used screening instrument for PPD. **Aims:** The main objectives of this study are to assess whether an EPDS score of 9 or more on day 2 (D2) postpartum is predictive of a depressive episode on day 15 (D15), to determine the risk factors as well as the prevalence of PPD in a sample of Indian women. **Methods:** A sample of 84 women were administered the EPDS on D2. An assessment for PPD was done on D15.**Results:** The over all prevalence of PPD in this study is 20%. Inadequate sleep ($p<0.0001$) and prolonged hospital ($p<0.033$) have shown to have an increased risk of development of PPD. This study also established that EPDS score of more than one equal to 9 on D2 is predictive of PPD on D15($p<0.000$). **Conclusion:** The EPDS may be considered as a reliable screening tool on as early as D2 after delivery. Women with EPDS score ≥ 9 and/or a positive personal history of major depressive disorder should benefit from a closerfollow-up during the rest of the post-partum period.

KEYWORDS : postnatal depression, EPDS, risk factors, screening.

INTRODUCTION

Depression is a major public health problem that is twice as common in women than in men during child bearing age. Its global prevalence is currently at 10-15%[1]. According to 2017 metanalysis conducted on Indian studies for Postpartum Depression (PPD), the prevalence of PPD is high in low-income countries and the pooled prevalence was found to be 22%.[2],[13].

From the first description of postpartum disorder by Hippocrates to emergence of PPD in 1970, postpartum disorders have been researched with significant developments.

Postpartum period makes a woman highly vulnerable and are also prone to various psychiatric disorders. It is generally difficult to differentiate from depression at any point of time in pregnancy. PPD is defined as a major depressive disorder with onset of depression within one-month of postpartum period or during the pregnancy or beyond the first month postpartum. There are a number of risk factors associated with PPD such as parity, socioeconomic status, pregnancy complications, mode of delivery, sex of the infant etc.

The prevention, detection and treatment of postpartum depression are of great importance because PPD outcomes are hazardous[3]. The hazards reported in various studies include distorted emotional and social interaction between infant and the mother, insecure attachment and negative consequences to emotional, cognitive, social and physical development of the child, some persisting up to adolescence[4]. In addition to that, they also reported distorted interactions with the family which could be deleterious. Edinburgh postpartum depression scale has been used widely to detect PPD.

Mood changes in women associated with postpartum and premenstrual periods and menopause have invited endocrine hypothesis for their aetiopathogenesis (Campell 1992 and Deaken 1998). Studies have also reported increase in levels of cortisol, thyroxine and prolactin than the normal in these women[5],[12].

Like nutrition and exercise, sleep is a determinant of health and illness. Adequate sleep at night is at least 7 hours and spending less than 10% of night awake (Lee1998, 2007)[6]. Nocturnal sleep either longer or shorter period have been associated with numerous health hazards including death[7] . Postpartum sleep disturbance is a combination of sleep deprivation and sleep fragmentation (Lee 1998). Among postpartum women, primiparous women experience greatest incidence of sleep disturbance (Kennedy, Gag, Gardner and Lee 2007). Postpartum sleep disturbance begins after birth and may persist for 6 to 12 Months until the infant sleeps through the night (Dennis and Ross, 2005; Hiscock et al, 2007)[8].

This study focuses to find the prevalence in our setup and also to establish a link between PPD and the various determinants that could cause it.

AIMS AND OBJECTIVES

The objective of the study is to

1. To assess whether an EPDS score equal or superior (≥) to 9 on day 2 postpartum (D2) is predictive of a depressive episode on day 15.
2. To identify risk factors associated with the diagnosis of PPD.
3. To determine the prevalence of PPD in a selected sample of Indian women.

MATERIAL AND METHODS

This study was conducted at Navodaya Medical College and Research Centre, Raichur. This is a longitudinal study conducted over a period of two months from May 2021 to June 2021. Study was conducted on a sample size of 80 women who delivered in Navodaya Medical College and Research Centre, Raichur. Ethical committee clearance was obtained. Difference between groups were evaluated using chi-square and student t-test and statistical significance was deemed at p value <0.05.

Inclusion Criteria

- Willing to participate in the study.
- All postpartum women within the age group of 19- 35 years
- Women delivering at Navodaya medical college only

Exclusion Criteria

Women with acute severe illness or cognitive impairment or not willing to consent for voluntary participation were excluded.

Procedure Of The Study

Women in postpartum state were subjected to a pre-tested, pre-structured, standardized questionnaire, after obtaining an informed written consent. Women with acute severe illness or cognitive impairment or not willing to consent for voluntary participation are excluded. Women with EDPS score of more than 9 were counselled and followed up on day 15 and reassessed either face to face or over voice call. Women who required psychiatric intervention were referred to a psychiatrist.

Primary outcome variable is the prevalence of postnatal depression.

Secondary outcome variable are various risk factors/ determinants for PND.

Data was collected using predesigned and pretested questionnaire. EPDS ("Edinburgh Postnatal depression scale") is used to detect the depressive symptoms and it will be been validated for both antenatal and postpartum use and also widely used as screening instrument for detecting symptoms of depression[9].

RESULTS

Table 1: Screening With EPDS On D2

		PPD D2				Total	Chi-square value	p-value
		< 9		> 9				
PARITY	P1	22	34%	9	45%	31	0.739	0.390
	P2-P5	42	66%	11	55%	53		
SES	2	2	3%	0	0%	2	3.075	0.380
	3	9	14%	2	10%	11		
	4	22	34%	11	55%	33		
	5	31	48%	7	35%	38		
GA	< 36+6	14	22%	6	30%	20	0.555	0.456
	>37	50	78%	14	70%	64		
PREG COMP	N	31	48%	11	55%	42	0.263	0.608
	Y	33	52%	9	45%	42		
MODE OF DELIVERY	LSCS	37	58%	10	50%	47	0.377	0.539
	ND	27	42%	10	50%	37		
SEX OF BABY	F	39	60%	10	48%	49	0.993	0.319
	M	26	40%	11	52%	37		
NICU ADMIN		49	77%	15	75%	64	0.021	0.886
	+	15	23%	5	25%	20		
SLEEP CYCLE	AB	21	33%	12	60%	33	4.722	0.030
	N	43	67%	8	40%	51		
PPD DAY 15 GP	< 9	61	95%	6	30%	67	40.268	0.000
	> 9	3	5%	14	70%	17		

A total of 84 patients were included in this study and were subjected to EPDS on day2 of the postnatal period. The patients were then subdivided into two groups following assessment i.e., EPDS <9 (n=64) and EPDS >9 (n=20). Both groups were then followed up on day 15 and reassessed.

Table 1 represents screening of patients on postnatal D2 for PPD. All the women were assessed based on parity, socioeconomic status(SES) , gestational age (GA), pregnancy complications, mode of delivery, sex of the baby, NICU admission and sleep cycle.

The mean age group of women who obliged to the study is 24.23 for EPDS score <9 and 24.0 for >9 and the age of the women did have any statistical significance for EPDS score (table 2). The patients were compared based on socioeconomic status according to BG Prasad classification to establish its correlation with PPD but this study failed to establish a statistical significance.

Table 2: Mean Age Of Women And Duration Of Hospital Stay In Women.

	< 9		> 9		T	p-value
	Mean	SD	Mean	SD		
AGE	24.23	3.159	24.00	2.261	0.209	0.836
HOSP STAY	5.94	2.468	7.65	4.568	-2.167	0.033

64% of the women were multiparous and 3.5% of the women delivered twins in our study. There was no higher order of multiple gestations like triplets or quadruplets. More than half of the patients delivered by cesarean section (58%) and the other 42% delivered vaginally and instrumental deliveries were not seen during the study period. 60% of all the delivered newborns were females and the rest were male infants. There was one case of IUD noted. 45% of all pregnant women had one or more pregnancy-related complications.

Prevalence of depressive symptoms on D2 postpartum and PPD on D15.

On day2 average score of EPDS was 8.2 and 20% of women had a score of >9. On D15 the average postpartum score was 7.0 and 17 women had a higher score indicating PPD. According to the current study, the prevalence was calculated to be 20%.

Table 3: Correlation Between D2 And D15 EPDS Score.

		PPD DAY				Total	Chi-square value	p-value
		< 9		> 9				
PPD DAY 15 GP	< 9	61	95%	6	30%	67	40.268	0.000
	> 9	3	5%	14	70%	17		
Total		64	100%	20	100%	84		

Association of early depressive symptoms with multiple variants.

The EPDS score on D2 was compared with multiple variants such as parity, socioeconomic status, pregnancy complications, mode of delivery, sex of the baby, NICU admission, mother's sleep cycle, and hospital stay. In this study, abnormal maternal sleep cycle (p=0.000) and duration of hospital stay (p=0.03) established a statistical significance.

Table 4: Assessment With EPDS On D15.

		PND D15		Total	Chi-square value	p-value
		NO PPD	PPD			
PARITY	P1	25	6	31	0.0237	0.877
	P2	42	11	53		
SES	2	2	0	2	3.787	0.285
	3	9	2	11		
	4	23	10	33		
	5	33	5	38		
GA	PRETERM	15	5	20	0.369	0.544
	TERM	52	12	64		
PREG COMP	NO	34	8	42	0.074	0.786
	YES	33	9	42		
MODE OF DELIVERY	LSCS	39	8	47	0.684	0.408
	ND	28	9	37		
SEX OF BABY	F	39	10	49	0.0188	0.891
	M	29	8	37		
NICU ADMIN	NOT ADMITTED	51	13	64	0.001	0.976
	ADMITTED	16	4	20		
SLEEP CYCLE	ABNORMAL	19	14	33	16.574	0.0001
	NORMAL	48	3	51		

DISCUSSION

This study is in accordance with many similar studies, a statistical significance could not be established with determinants such as the age of the mother, parity, and more.

Even though a majority of the patients belonged to higher socioeconomic status, no link could be established with PPD.

The overall prevalence of PPD in this study was calculated to be 20%, this prevalence rate is in accord with studies conducted by Aggarwala A et al[10], Chaaya et al[2] and more. There are studies conducted in India with varying degrees of prevalence for PPD as shown in figure 1. The current study also shows an increased risk of PPD with higher birth order. This finding is in accord with a study conducted by Aggarwala A et al[10].

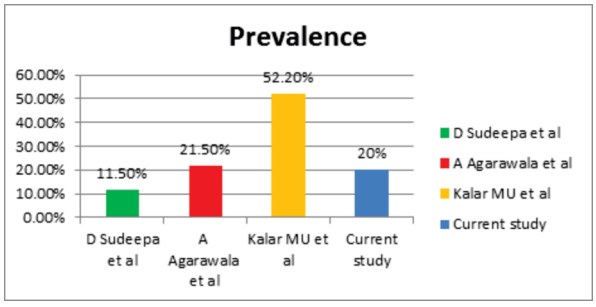

Figure 1: Prevalence Of PPD In Other Studies[10,15,16].

Studies have found a link between the sex of the baby, NICU admission, socioeconomic status with PPD[2]. However, the current study failed to establish a link between the above determinants and PPD, but these findings are in agreement with a similar study conducted by Aggarwala et a[10].

Women with pregnancy complications tend to develop PPD. Though medically complicated pregnancies such as gestational hypertension, pre-eclampsia, GDM, anemia, etc have a higher risk of developing PPD, this study failed to establish a statistically significant link[11]. These findings are seen in similar studies conducted in Lebanon. Mode of delivery and gestation age at delivery did not have any association with the development of PPD. Similar outcomes were seen in studies conducted in the Indian setting.

Postpartum sleep pattern is shown to affect maternal mental health. Inadequate sleep has an increased risk of developing PPD. The current study established a statistically significant association between inadequate sleep and PPD(p=0.0). These findings were also seen in similar studies conducted by Aggarwala A et al and a study conducted in rural Bangalore D Sudeepa et al[15].

Longer duration of hospital stay had a positive effect leading to an increase in EPDS score on 2(P=0.0) but on follow-up of the patient on postpartum period had a decreasing effect on EPDS score[14].

The present study also had an increasing EPDS score during the hospital stay on a postnatal day 2 (24%) and on reassessing on D15. It also established a significant correlation between EPDS score >9 on D2 and risk of developing PPD on D15 (p=0.000) in table 3. This also explains that EPDS can be used to detect postpartum depression as early as D15[9].

The prevalence and determinants of PPD are assessed based on self-reported depressive symptoms collected through EPDS and not confirmed diagnostically.

CONCLUSION

PPD symptoms usually go unnoticed. Hence it is essential to screen all women in the postpartum period due to its high prevalence. Pre-pregnancy counseling and regular antenatal care should focus on providing adequate information regarding pregnancy and delivery to the couple. It's also important to advise the patient to have adequate sleep and familial support as it has a positive effect on maternal mental well-being. Prevention of PPD will decrease the persistence or development of new psychological disorders in the future.

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