

Original Research Article


# A comparative study of prevalence of postnatal depression among subjects with normal and cesarean deliveries

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## Abstract

**Background:** Postpartum depression (PPD) is a type of clinical depression which can affect woman after childbirth. PPD is very common among women and is a major public health problem. It is estimated that overall 10 to 15% women experience PND while it ranges from 3.5 to 63.3% in Asian countries. But it is one of the most underdiagnosed conditions due to lack of adequate number of studies on the subject. Hence the current study was conducted with an objective of assessing the prevalence of postnatal depression among subjects with normal and cesarean deliveries and to compare the socio-demographic profile between normal and cesarean deliveries.

**Materials and methods:** The study was a cross sectional study, conducted in the Department of Pediatrics, Apollo institute of medical sciences and research (AIMSR), Chittor. The data collection for the study was done between January 2015 to November 2015. The study population included people who were undergoing normal and cesarean deliveries. Post natal depression was assessed by EPDS score.

**Results:** The highest proportion of patients belonged to 21-25 years and 26-30 years age groups in both the study groups Normal delivery and Caesarean delivery, the association of age groups between the study groups was statistically significant (P value<0.001). The maximum proportion of patients were housewives in both the study groups. The rural area patients were more in normal and caesarean deliveries as 44% and 39% respectively, the locality showed statistically significant association with the study groups (P value<0.05). All the individual EPDS scores mean values were high in cesarean group when compared to normal delivery group. The mean Total EPDS score mean in normal

delivery patients was 8.85 and in cesarean delivery patients 10.85 with t value=-4.766. The proportion of patients with postnatal depression prevalence was high (30%) in cesarean group where as it was only 15% in normal delivery group. The t value was 6.452.

**Conclusions:** Prevalence of postnatal depression was comparably high in caesarean sections compared to normal deliveries with clear statistics about the same, EPDS scores also reflected the higher risk of depression in caesarean section when compare with normal deliveries knocking the alarm to concentrate on the patients more with caesarean sections by providing good counselling, better medication and positive environment in each stage during and after pregnancy from both the patient's family side and medical staff side.

## Key words

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Postnatal depression, Normal delivery, Cesarean delivery, EPDS score.

## Introduction

World Health Organization ranked depressive disorders as 4th leading cause of morbidity in their global burden of disease, which is expected to be reach 2<sup>nd</sup> position by 2020 [1]. Women are vulnerable to depression during postnatal period [2]. Postpartum depression (PPD) is a type of clinical depression which can affect woman after childbirth. PPD is very common among women and is a major public health problem [3]. However, there is a wide range of the prevalence of PPD among mothers with lower segment cesarean section (LSCS) and vaginal delivery from different countries. PPD is found across the globe.

Like depression, PND doesn't have any definite cause but is likely to result from a mixture of physical, biological and hormonal factors [5]. Similarly, social and psychological risk factors may also play a role in contributing to cause depression. It is estimated that overall 10 to 15% women experience PND while it ranges from 3.5 to 63.3% in Asian countries, where Malaysia has the lowest and Pakistan has the highest percentages, respectively [4]. In medical literature, it has been defined three types of mental disorders for the postpartum period as postpartum blues, postpartum depression, and postpartum psychosis. The former is a state of spontaneously regressive and does not require treatment. But, the next states are important due to their impacts on the family, becoming chronic, and returning of the disease [5, 6].

According to the National Institutes of Mental Health studies, the childbearing years are when a woman is most likely to experience depression in her lifetime [7]. Approximately 15% of all women will experience PPD following the birth of a child [7]. Thus, the recognition and assessment of this psychological disorder is important. Symptoms of PPD can occur anytime in the postpartum period. These include sadness, hopelessness, low self-esteem, guilt, exhaustion, emptiness, social withdrawal, low or no energy, feeling of being overwhelmed, becoming easily frustrated, sleep and eating disturbances, inability to be comforted, and feeling inadequate in taking care of the baby [8, 9]. Wide variations in the assessment methods are also one of the reasons for wide variations in the reported prevalence [10]. Edinburgh Postnatal Depression Scale (EPDS). The EPDS is one of the valuable and efficient ways of identifying patients at risk for PPD [11, 12].

However, Post-natal depression (PND) is diagnosed in only 50% of the women with prominent symptoms during first year after delivery. On the contrary, untreated PND can cause chronic depression and interferes in mother child bonding and even to the extent of suicide as well as infanticide in rare cases [13]. However, it is important to distinguish PND from the "baby blues" that occurs between three and 10 days after giving birth; and "Postnatal psychosis" which affects one in 500 women in the first week or so after child birth [4].

The present study was conducted with an objective to assess the burden of postpartum depression in a group of Indian women attending a tertiary care teaching hospital using EPDS score.

## Objectives

- To study the prevalence of postnatal depression among subjects with normal and cesarean deliveries.
- To compare the socio-demographic profile, Edinburg postnatal depression scale (EPDS) scores and prevalence of postnatal depression among subjects with normal and cesarean deliveries.

## Materials and methods

The study was an analytical cross sectional study, conducted in the department of Pediatrics, Apollo Institute of Medical Sciences and Research (AIMSR), Chittor. The data collection for the study was done between January 2015 to November 2015, i.e. almost for a period of one year. The study population included people who were undergoing normal and cesarean deliveries.

The sample size included 100 subjects in each of the intervention groups, which was assessed basing on the published data, assuming 80% power of study and 5% alpha error, using STATA IC software version 13.

The study was approved by the institutional human ethics committee. Informed written consent was obtained from all the study participants, after explaining the risks and benefits involved in the study and voluntary nature of participation. All the personal data of the participants was kept confidential throughout the study.

After obtaining informed written consent, thorough history and clinical examination was done on each participant. EPDR Score was applied to each participant.

Two study groups were compared with respect to all socio demographic variables. The key outcome parameters and Post-natal depression were compared among the two study groups. Quantitative variables were compared by mean and standard deviation, using Independent sample t-test. Categorical variables were compared by using Chi square test. P value < 0.05 was considered as statistically significant. IBM SPSS version 22 was used for statistical analysis.

## Results

The highest proportion of patients belonged to 21- 25 years and 26-30 years age groups in both the study groups Normal delivery and Caesarean delivery, the association of age groups between the study groups was statistically significant (P value<0.001). The maximum proportion of patients were Illiterate in both the study groups as normal delivery (58%) and caesarean delivery (65%), there was no statistical significance about the education between two study groups (P value>0.05). The proportion of upper class and lower class patients were more in both the study groups as compared to other socio economic classes. The maximum proportion of patients was housewives in both the study groups. The rural area patients were more in normal and caesarean deliveries as 44% and 39% respectively, the locality showed statistically significant association with the study groups (P value<0.05) (**Table - 1**).

All the individual EPDS scores mean values were high in Cesarean group compare to normal delivery group. The mean total EPDS score mean in normal delivery patients was 8.85 and in cesarean delivery patients 10.85 with t value=-4.766 (**Table - 2**). The proportion of patients with postnatal depression prevalence was high (30%) in Cesarean group where as it was only 15% in Normal delivery group. The t value was 6.452 (**Table - 3**).

**Table - 1:** Comparison of Socio- demographic parameters between two study groups in study population (N=200).

Parameter	ND group (N=100)	CD group (N=100)	P value
<b>Age groups</b>			
<=20	10 (10%)	8 (8%)	<0.001
21-25	22 (22%)	52 (52%)	
26-30	42 (42%)	33 (33%)	
>30	26 (26%)	7 (7%)	
<b>Education</b>			
Illiterate	58 (58%)	65 (65%)	0.31
Educated	42 (42%)	35 (35%)	
<b>Socio economic class</b>			
Upper	33 (33%)	34 (34%)	0.54
Upper middle	12 (12%)	16 (16%)	
Lower middle	15 (15%)	19 (19%)	
Upper lower	16 (16%)	16(16%)	
Lower	24 (24%)	15(15%)	
<b>Occupation</b>			
House wives	69 (69%)	62 (62%)	0.29
Working	31 (31%)	38 (38%)	
<b>Locality</b>			
Rural	44 (44%)	39 (39%)	0.03
Semi urban	35 (35%)	51 (51%)	
Urban	21 (21%)	10 (10%)	

**Table - 2:** Comparison of EPDS items between two study groups in study population (N=200).

EPDS Items	ND Group (N=100) (Mean ±SD)	CD Group (N=100) (Mean ±SD)	T value
I have been able to laugh and see the funny side of things	0.70±0.65	0.87±0.69	-1.780
I have looked forward with enjoyment to things	0.82±0.67	1.18±0.60	<b>-3.967</b>
I have blamed myself unnecessarily when things went wrong	0.87±0.63	1.17±0.51	<b>-3.690</b>
I have been anxious or worried for no good reason	0.98±0.63	1.09±0.40	-1.461
I have felt scared or panicky for no very good reason	0.98±0.58	1.06±0.34	-1.179
Things have been getting on top of me	0.99±0.59	1.09±0.40	-1.391
I have been so unhappy that I have had difficulty sleeping	0.90±0.57	1.05±0.35	<b>-2.207</b>
I have felt sad or miserable	0.98±0.61	1.12±0.40	-1.887
I have been so unhappy that I have been crying	0.88±0.67	1.15±0.53	<b>-3.138</b>
The thought of harming myself has occurred to me	0.74±0.76	1.09±0.79	<b>-3.187</b>
EPDS (Total)	8.85±3.27	10.85±2.63	<b>-4.766</b>

**Table - 3:** Comparison of prevalence of postnatal depression between two study groups in study population (N=200).

Prevalence of Postnatal depression	ND group (N=100) N (%)	CD group (N=100) N (%)	T value
Present	15(15%)	30(30%)	<b>6.452</b>
Absent	85(85%)	70(70%)	

## Discussion

The proportion of patients with 20 -30 years age was high in both the study groups normal delivery and caesarean section whereas the most common age group included in the study belonged to 18-35 years. The results were comparable with the results of Goker A., et al. The mean age of the women was  $27.74 \pm 5.00$  years ranging between 18 and 43. When categorized, most of the patients were under 35 (90.3%) [14].

The study results of previous studies also discussed about the prevalence of postnatal depression was more in Caesarean group of patients when compared to Normal delivery group of patients, which was reflected the same in our present study [4].

Malik F., et al. described that Postnatal depression was present in both the groups as normal delivery (24%) and caesarean group (58%), With this results authors confirmed that there was a presence of PND even in both normal and caesarean section deliveries but the risk was little more in caesarean section deliveries [4]. According to Mahishale A. and J. Bhatt, et al., the postpartum depression was 21.17% in caesarean section women and 8.23% in normal delivery women in India [12]. Goker A., et al. studied about postpartum depression as 27.6% risk was present in normal deliveries whereas around 30-34% risk present in caesarean section deliveries [14]. There were more or less similar results found in the present study as prevalence of postnatal depression was only 15 % in normal deliveries but it was 30% in caesarean section deliveries.

A study conducted by Rauh, et al. reported the depression before and after delivery and how it varies based on the mode of delivery using EPDS with the help of telephone interview method and concluded that women who underwent cesarean section had the highest EPDS scores and those with spontaneous vaginal delivery had the lowest EPDS scores [15]. The present study statistics also more or less similar as the mean scores of all individual EPDS scores were high in caesarean section deliveries compared to normal deliveries. Total EPDS scores mean also reflected the same scenario with high mean value (10.85) in caesarean section and (8.85) in normal delivery.

The present study results provide the conclusion as there is no dependency for the postnatal depression on mode of delivery but only the risk was more in caesarean sections when compare with normal deliveries.

## Conclusion

Prevalence of postnatal depression was comparably high in caesarean sections compared to normal deliveries with clear statistics about the same, EPDS scores also reflected the higher risk of depression in caesarean section when compared with normal deliveries knocking the alarm to concentrate on the patients more with caesarean sections by providing good counselling, better medication and positive environment in each stage during and after pregnancy from both the patient's family side and medical staff side.

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