

Research Article

Sociodemographic and Obstetric Factors of Postpartum Depression in Cesarean Section

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ABSTRACT

Background: Postpartum depression is a major international public health problem. It most commonly occurs 4 to 6 weeks after giving birth. A number of sociodemographic, obstetric, and psychological factors have been identified as likely contributors to postpartum depression.

Objectives: To determine the frequency of postpartum depression in women underwent cesarean section and to study the frequency of contributing factors of postpartum depression in women underwent cesarean section.

Methodology: This descriptive case series was conducted at Department of Obstetrics & Gynaecology, Sughra Shafi Medical Complex, Narowal from 1st August 2024 to 31st January 2025. A total of 135 women aged 18-40 years who underwent cesarean delivery during the last 48 hours using nonprobability consecutive sampling technique. The study assessed obstetric factors like gestational age, pregnancy loss, preterm delivery, newborn sex, and birth weight. Postpartum depression was evaluated eight weeks postpartum using the Edinburgh Postnatal Depression Scale. Data analysis procedure was done by using SPSS-25.

Results: The study analyzed the demographic characteristics of 135 women who underwent caesarean delivery. The mean age of mothers was 26.59±4.90 years, of which most (73.3%, n = 99) were 30 years and younger, and 26.7% (n=36) were aged between 31 and 40 years. The mean gestational age at delivery was 36.92±2.52 weeks, with 63.0% (n = 85) delivered at ≥37 weeks and 37.0% (n = 50) receiving preterm birth at ≤36 weeks. The newborn male: female ratio was nearly a clean split, with 51.9% (n=70) male and 48.1% (n=65) female. These demographic data supply crucial information regarding the maternal and neonatal profiles of the study population, which may be a postpartum health outcome factor, e.g., the potential risk factors for postpartum depression. Among the 135 women who were delivered by caesarean, 31.9% (n=43) experienced postpartum depression and 68.1% (n=92) did not experience postpartum depression. Multiparity, unplanned caesarean deliveries, and low education were highly correlated with postpartum depression in women who had C-sections. Conversely, young maternal age, low income, and prior pregnancy loss had no significant relationship with postpartum depression. These results indicate that certain obstetric and socioeconomic factors are of significant importance in the etiology of postpartum depression in this population.

Conclusion: In conclusion, the study found a higher rate of postpartum depression among women who underwent cesarean delivery, particularly those with unplanned procedures, low educational levels, and multiparity. These findings highlight the need for increased awareness, early screening, and strong support systems to promote maternal mental health during the postpartum period.

Keywords: Caesarean Section, Postpartum Depression, Obstetrics and Sociodemographic Factors.

INTRODUCTION

Postpartum depression (PPD) is a type of major depression that develops without psychotic symptoms. It occurs in about one in seven

women.¹ The condition has serious negative impacts on the psychological health and overall quality of life of both the child and mother.² A number of sociodemographic, obstetric, and

psychological factors account for the risk of PPD development, including maternal age, education, employment, low socioeconomic status, poor social support, childcare duties, single marital status, marital dissatisfaction, past depression and anxiety, unplanned pregnancy, and unwanted newborn sex.³

A cohort study published that the incidence of PPD at six weeks postpartum was 21.0%. Pregnancy complications (OR = 1.05; 95% CI 1.00–1.11), fear of giving birth (OR = 1.12, 95% CI 1.05–1.19), and prenatal depression (OR = 1.08, 95% CI 1.03–1.14) were identified as risk factors for PPD. Nevertheless, no association was observed between PPD and mother's age, education, income, smoking, history of abortion, newborn sex, or weight at birth.⁴

In observational study, the incidence of PPD at six weeks post-caesarean delivery was 3.79%. Younger women below 25 years had increased risk (aOR = 2.10, 95% CI 1.21–3.65), while income status, education level, occupation, and gender of the newborn did not have a significant correlation with PPD.⁵ A cross-sectional study has found associations between PPD and low levels of education, unemployment, caesarean section, and having two or more young children. No association was, however, observed with maternal age, income, or the newborn's gender.⁶ A Pakistani study indicated a prevalence of PPD to be 37.3%, which was 28.8% in cases of vaginal delivery and 45.7% in the case of caesarean delivery. The risk factors that had significant associations were maternal age, education, income, type of delivery, parity of pregnancy, and history of infant loss or miscarriage ($p < 0.05$).⁷ Another Pakistani study reported a 33.8% prevalence of PPD, with risk factors being illiteracy (84.7%), being a housewife (77.7%), and residing in an extended family (68.0%). Mothers with PPD were also less likely to breastfeed their children ($p = 0.046$).⁸

MATERIALS AND METHODS

This case series was carried out from 1st August 2024 to 31st January 2025 at the Department of Obstetrics and Gynaecology, Sughra Shafi Medical Complex, Narowal. The sample size was determined as 135 participants on an assumed postpartum depression (PPD) prevalence of 33.8%⁸, at a 95.0% confidence level with an 8.0% margin of error. Women who had a cesarean delivery in the last 48 hours were recruited through a non-probability consecutive sampling technique. Following registration, a

standardized questionnaire was employed to obtain demographic information, such as maternal age, level of education, and household income. The EPDS was administered to all the participants at eight weeks after delivery to screen for PPD. Women who had an EPDS score of 13 and above were labeled as having PPD. Appropriate management, as per hospital protocol, was offered to the diagnosed women. Quantitative data, including maternal age and gestational age, were presented as mean $\pm$ standard deviation, whereas PPD prevalence in women who had undergone cesarean section was reported as frequency and percentage. Factors contributing to PPD, e.g., young maternal age (<25 years), low educational status (below middle school), low income (<Rs. 25,000), multiparity, unplanned cesarean delivery, and past history of pregnancy loss, were recorded among those affected and given as frequency and percentage.

RESULTS

The current study examined the demographic variables of 135 women who had caesarean delivery. The average maternal age was 26.59 ± 4.90 years, of which the bulk (73.3%, $n = 99$) were 30 years and below, and 26.7% ($n=36$) were between the ages of 31 and 40 years. The average gestational age at birth was 36.92 ± 2.52 weeks, with 63.0% ($n = 85$) born at 37 weeks or more, and 37.0% ($n = 50$) given preterm birth at ≤ 36 weeks. The male:female ratio of newborns was close to a straight split, with 51.9% ($n=70$) male and 48.1% ($n=65$) female. These demographic findings provide vital information on the maternal and neonatal characteristics of the study population, which can be a factor in postpartum health outcomes, such as the possible risk factors for postpartum depression (Table-1).

Out of the 135 women who received caesarean delivery, 31.9% ($n=43$) had postpartum depression (PPD) and 68.1% ($n=92$) did not have PPD. The results point out that almost a third of women developed PPD after caesarean section, emphasizing the importance of early screening and intervention methods to tackle maternal mental health in the postpartum phase (Table-2).

Table 3 showed the prevalence of different contributing factors to postpartum depression (PPD) among women undergoing cesarean section. Young maternal age (<25 years) was not found to be significantly related to PPD, with almost equal percentages of women with and

without PPD being noted in both age categories ($p=0.951$). Nonetheless, low educational status (below middle school) revealed statistically significant correlation with PPD, with 33 (38.4%) women suffering from PPD versus only 10 (20.4%) in the higher education category ($p=0.031$). Likewise, multiparity was significantly correlated with PPD, where 30 (40.5%) of the multiparous women suffered from PPD versus 13 (21.3%) of the primiparous category ($p=0.017$). Unplanned cesarean deliveries were also strongly linked with

increased levels of PPD, documented in 30 (40.0%) of them compared to 13 (21.7%) in the case of planned ones ($p=0.023$). On the contrary, low income (Rs. <25,000) and history of pregnancy loss did not have statistically significant relations with PPD, having p-values of 0.824 and 0.298 respectively. Overall, the results indicate that low education, multiparity, and unplanned cesarean delivery are important factors for the occurrence of postpartum depression in this group (Table 3).

Table 1: Demographic Profile of the Patients (N=135)

Table 1: Demographic Profile of the Patients (N=155)		
Age (Year)	Number	Percentage
≤ 30	99	73.3
31-40	36	26.7
Mean±SD	26.59±4.90	
Gestational age (week)		
≤ 36	50	37.0
≥ 37	85	63.0
Mean±SD	36.92±2.52	
Gender		
Male	70	51.9
Female	65	48.1

Table 2: Frequency Of Postpartum Depression in Women Underwent Cesarean Section (N=135)

PPD	Number	Percentage
Yes	43	31.9
No	92	68.1

Table 3: Frequency of Contributing Factors of Postpartum Depression in Women Underwent Cesarean Section

Section

Contributing factors	Postpartum Depression		Total
	Yes	No	
Young age (< 25 year)			
Yes	18 (32.1%)	38 (67.9%)	56 (100%)
No	25 (31.6%)	54 (68.4%)	79 (100%)
Total	43 (31.9%)	92 (68.1%)	135(100%)
p=0.951			
Low education (< middle)			
Yes	33 (38.4%)	53 (61.6%)	86 (100%)
No	10 (20.4%)	39 (79.6%)	49 (100%)
Total	43 (31.9%)	92 (68.1%)	135(100%)
p=0.031			
Low income (Rs. <25,000)			
Yes	12 (33.3%)	24 (66.7%)	36 (100%)
No	31 (31.3%)	68 (68.7%)	99 (100%)
Total	43 (31.9%)	92 (68.1%)	135(100%)
p=0.824			
Multiparity			
Yes	30 (40.5%)	44 (59.5%)	74 (100%)
No	13 (21.3%)	48 (78.7%)	61 (100%)
Total	43 (31.9%)	92 (68.1%)	135(100%)
p=0.017			
Unplanned C section			

Yes	30 (40.0%)	45 (60.0%)	75(100%)
No	13 (21.7%)	47 (78.3%)	60(100%)
Total	43 (31.9%)	92 (68.1%)	135(100%)
p=0.023			
Previous pregnancy loss			
Yes	16 (27.1%)	43 (72.9%)	59 (100%)
No	27 (35.5%)	49 (64.5%)	76 (100%)
Total	43 (31.9%)	92 (68.1%)	135(100%)
p=0.298			

DISCUSSION

Postpartum depression (PPD) is a major mental health issue among women following childbirth. In high-income nations, the prevalence of PPD is generally between 10% and 15%. A systematic review described a worldwide average prevalence of 17%, with regional variation 8% in Europe and 26% in the Middle East.⁹

The present study reveals that 31.9% of the 135 women who underwent caesarean deliveries were found to have postpartum depression. This figure is notably higher than the typical PPD rates for postpartum women. This suggests there might be a connection between having a caesarean section and an increased risk of developing PPD. By comparison, developing nations tend to report higher rates of prevalence. In Pakistan, prevalence rates have ranged from 28% to 63% as found in studies. Likewise, rural Bangladesh has reported prevalence rates ranging from 18% to 35%. These higher rates are also often linked with such factors as restricted access to mental health services, socioeconomic adversity, and cultural stigmas related to mental health.^{10,11}

To back up this finding, a comprehensive review of 28 studies with over 532,000 participants found that having a caesarean delivery was linked to a 26% greater chance of experiencing postpartum depression compared to vaginal delivery. The review also pointed out that emergency cesarean sections carry more risks than those that are planned.¹²

The high rates of postpartum depression following cesarean sections can be attributed to several factors. These might include the emotional impact of having an unplanned cesarean, heightened physical discomfort during recovery, and challenges in forming a bond with the baby. A French multicenter study highlighted that emergency cesarean deliveries, significant postoperative pain, and negative birth experiences are key contributors to the onset of PPD.¹³

Asif et al⁷ reported that in their study, 37.3% of

the women suffered from postpartum depression. In another study on maternal mental health among low and middle-income countries, postpartum depression rates also differed considerably with results indicating 10.7% in Nigeria and up to 50% in Guyana.¹⁴ When looking at global studies, postpartum depression varies quite a bit, with rates as low as 4% in Japan and soaring up to 63.9% in the United States.¹⁵ An Asian country survey highlighted that the lowest prevalence of postpartum depression was 3.5% in Malaysia and highest was 63.3% in Pakistan.¹⁶

The study's findings highlight a link between postpartum depression and various sociodemographic and obstetric factors in women who have undergone caesarean sections. These findings reflect that less-educated women tended to have a greater incidence of postpartum depression, as 38.4% experienced the condition compared with just 20.4% of the participants who were educationally equipped to at least the middle school level or higher ($p=0.031$). This aligns with previous research suggesting that a lack of education may lead to reduced access to health information and support services.¹⁷

The study revealed that 40.5% of multiparous women experienced postpartum depression, compared to just 21.3% of the primiparous mothers. This aligns with other study suggesting that having multiple children can increase the risk of PPD, likely due to the combined physical and emotional demands of caring for several kids.¹⁸

Additionally, unplanned cesarean deliveries were linked to a higher incidence of postpartum depression 40% compared to 21.7% in the case of elective caesarean section ($p=0.023$), reinforcing the idea that unplanned surgeries can contribute to psychological distress.¹⁹

We did not find any correlation between young maternal age (<25 years) and the incidence of postpartum depression in our study. Smorti and colleagues.³ found that older maternal age was a strong predictor of postnatal depression.

Furthermore, Matsumura et al, also pointed out similar associations in their study.¹⁷

Dadi et al.²⁰ and Huang et al.²¹ pointed out the importance of maternal education in the evolution of postnatal depression, noting that mothers with lower education levels were at a significantly higher risk of developing symptoms of depression following delivery. Their results highlight the possible vulnerability of women with few years of formal education, possibly because of lesser awareness about mental health concerns, inability to secure proper help-giving services, or greater strain in accommodating motherhood. The combined research studies, when paired with research correlating postpartum depression and maternal age, indicate that social determinants relevant to postpartum mental wellbeing include education levels and ages. These mechanisms could involve differences in access to healthcare, reduced emotional or economic support, and difficulties with managing the psychological expectations of early parenthood.

CONCLUSION

This study demonstrated that an association of cesarean delivery and the occurrence of a higher rate of PPD. This warrants better awareness, prompt screening, and wide support structures to safeguard mental well-being during the postpartum period for mothers. Further, it establishes that unplanned cesarean delivery, being multiparous, and a lower educational background have a higher association with PPD, while other risk factors have a less association.

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