

Incidence of Postpartum Depression in a Tertiary Care Hospital in Navi Mumbai amid COVID-19 Pandemic

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ABSTRACT

Introduction: Coronavirus disease-2019 (COVID-19) pandemic has changed health care drastically, especially looking at how obstetrics functions. This places mothers in a situation of greater psychological vulnerability and heightens the risk of postpartum depression and disrupted mother–infant bonding, which may be weighted or worsened by the balance of the couple. We expect this impact to be even greater in vulnerable mothers in the context of dysfunctioning social services. This study intends to identify the incidence of postpartum depression in women delivering during COVID-19 pandemic among lockdown protocols in a tertiary center in Navi Mumbai and identify its sociocultural triggers so that strategies may be evolved to reduce the morbidity costs attributable to the mother and child in the future.

Materials and methods: This study was a cross-sectional study, performed over a period of 2 months from June 2020 to August 2020 at DY Patil School of Medicine and Dr DY Patil Hospital, a teaching hospital in Western India. Two hundred postnatal mothers were recruited for the study in the postpartum period from 1 to 6 weeks after delivery. A specially designed questionnaire was used to record various determinants to assess the risk factors, which could contribute to postpartum depression. A predesigned and pretested questionnaire (EDPS—Edinburgh Postnatal Depression Scale) was used to detect the depressive symptoms in postnatal mothers. The results for qualitative data were presented in frequency and percentage. Binary logistic regression was used to predict the contribution of each independent risk factor to arrive at the depression level, which happens to be the dependent risk factor in this study. The statistical analysis was done by using SPSS 21.0. The significant level was used at $p < 0.05$.

Results: A total of 200 cases were studied. The average age of the study group was 27.5, with the average duration of postpartum period being 8 days. The total score obtained using EDPS was less than or equal to “8” in only “92” cases (46%). However, 20% of the cases studied had a score between 9 and 12, suggesting the possibility of depression. Thirty-four percent of the cases had a score of more than 12, indicating the presence of postpartum depression. Of the 200 women, 49% were primigravida, while 51% were multigravida. Fifteen percent of the women had a history of infertility. Forty-four percent of the women had a history of miscarriage. Six percent of the women had a history of intrauterine fetal demise. Forty-nine percent of the women had one living child. Of the 200 women, 55.5% of the women were living in a nuclear family setup (with husband and any existing children). One hundred percent of the women studied were aware of the prevalence of COVID-19. Sixty-seven percent were aware that their newborns were at risk of infection by this disease and 72.5% said they were worried about them and their newborns contracting COVID-19. Sixty-five percent said they were feeling significantly more anxious about their postpartum period due to COVID-19 pandemic.

Discussion: In the current study, the prevalence of postpartum depression was noted in 34% of the women studied. A prevalence of 20.4% was found in a study conducted in Western India by Modi et al. A rural study conducted in South India showed a prevalence of 19.8%. A study conducted in a military hospital in North India had a prevalence of 21.5%. The prevalence in our study was comparable, if not a little higher to these studies; however, the factor of a pandemic and the anxiety associated with it confirms our suspicions about COVID-19 and a worldwide lockdown causing widespread psychological problems as well as physical ones.

Conclusion: COVID-19 pandemic has had a significant impact on human history, especially that of medical history. Countless women with both planned and unplanned pregnancies have been thrown into a state of extreme fear and stress due to the unpredictability of the virus. Doctors should be concerned that if this disease was common before the pandemic, now it can affect even more women. A support system, plenty of transparent medical advice, and compassion must be applied to doctor visits—may they be in person or virtual. Doctors also need to familiarize themselves with postpartum depression scoring systems and also clinical symptoms to be able to reassure and diagnose women ahead of severe maternal morbidity.

Keywords: COVID-19, Edinburgh postnatal depression scale, Maternal morbidity, Pandemic, Postpartum depression.

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INTRODUCTION

Coronavirus disease-2019 (COVID-19) pandemic has changed health care drastically, especially looking at how obstetrics functions. Pregnant women in labor have been impacted as most small maternity hospitals and nursing homes have been shut during this pandemic and some district hospitals have been converted into COVID dedicated centers, making antenatally registered mothers stranded at the last minute and rushing to unknown hospitals for their delivery.

Most maternity wards have also restricted their visitors allowed during admission and only one visitor (usually the partner or parent)

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is allowed in the hospital premises. In Indian charitable hospitals, due to the density of the population, the laboring mother goes into the delivery room alone and no loved ones are allowed in during labor and delivery.

This places mothers in a situation of greater psychological vulnerability and heightens the risk of postpartum depression (PPD) and disrupted mother–infant bonding, which may be weighted or worsened by the balance of the couple. We expect this impact to be even greater in vulnerable mothers in the context of dysfunctioning social services.¹

Pregnancy and puerperium are a time of tremendous flux for women as they adapt to new roles and changing physiology. New mothers experience physical, mental, social, and psychological stress. Up to 85% of the women experience some type of mood disturbance in the postnatal period.² Postpartum psychiatric disorders can be divided into three categories depending on the severity: postpartum blues, PPD, and postpartum psychosis. Postpartum blues is usually mild and transient and resolves in few days to a week. PPD is a depressive disorder with serious consequences and amenability to treatment. PPD often remains unrecognized. Depression during this time of life affects bonding with the infant, which may lead to malnutrition and various complications in the infant. The infant may be neglected in its early growth phase in life, which may lead to a psychiatric illness later. Women affected with PPD are also at high risk for recurrent depression. Many mothers are not aware that they are depressed; others have a social stigma, which prevents them from seeking medical help. If the depression is undetected or detected but not taking treatment due to the lack of awareness of the disease, it has serious consequences for the mother, child, and the whole family.³ The prevalence of PPD is 10–15% in developed countries while most of the Indian and South Asian studies show a prevalence of 15%.⁴

PPD is the most common and serious medical complication of childbearing.⁵ Even then it is not given the importance it deserves and dismissed as a normal consequence of childbirth and motherhood. It is very important to recognize PPD because mothers with PPD unconsciously exhibit fewer positive emotions and more negative emotions toward their children, are less responsive and less sensitive to infant cues, are less emotionally available, have a less successful maternal role attainment, and have infants that are less securely attached; and in extreme cases, some women may have thoughts of harming their children and make mother insensitive with childcare.⁶

However, PPD is preventable with correct psychological support for pregnant and postnatal women and is also treatable. Early identification can be lifesaving and lead to early treatment and lower complications. The first and most important step to manage PPD is an accurate assessment of symptoms and early diagnosis. Screening helps in identifying mothers at risk and assists in the prevention of PPD.⁷

This study intends to identify the incidence of PPD in women delivering during COVID-19 pandemic among lockdown protocols in a tertiary center in Navi Mumbai and identify its sociocultural triggers so that strategies may be evolved to reduce the morbidity costs attributable to the mother and child in the future.

MATERIALS AND METHODS

This study was a cross-sectional study, performed over a period of 2 months from June 2020 to August 2020 at DY Patil School of

Medicine and Dr DY Patil Hospital, a teaching hospital in Western India. Two hundred postnatal mothers were recruited for the study in the postpartum period from 1 to 6 weeks after delivery. They were recruited from inpatient and postnatal clinics after applying inclusion and exclusion criteria. After explaining the nature and purpose of the study, written informed consent was taken from the participants.

A specially designed questionnaire was used to record various determinants to assess the risk factors, which could contribute to PPD. A predesigned and pretested questionnaire (EDPS—Edinburgh Postnatal Depression Scale) was used to detect the depressive symptoms in postnatal mothers. EDPS was created specifically for postpartum women for screening depression. It has been well validated and found to have high sensitivity, specificity, and accuracy. EDPS scale has ten components in it. Each item is rated from 0 to 3, yielding a total score of 0–30. Seven of its items are reverse scored. EDPS score cutoff of 13 or more was used to calculate the prevalence of postnatal depression in the study group. The scale was administered by the investigator in Hindi for the patients' ease of understanding.

Inclusion Criteria

- All postnatal mothers from day 4 to 6 weeks postpartum irrespective of age, parity, socioeconomic status, mode of delivery, and gestational age at delivery.

Exclusion Criteria

- Previously diagnosed to have depression
- Women under treatment for any psychiatric disorder.

Various Determinants That were Evaluated to Assess the Risk Factors

- Social and demographic factors: age, educational qualification, socioeconomic status, and whether working or not.
- Medical and obstetrical history: the presence of any comorbid illnesses, gravida (primi/multi), history of treatment for infertility, history of miscarriage, history of intrauterine fetal demise (IUFD), number of living children, presence of preexisting comorbid conditions, and presence of complications during pregnancy.
- Perinatal events: mode of delivery, gestational age at delivery, gender of the baby, NICU admission, and lactation failure.
- Family and relationship factors: family structure (nuclear/joint), financial difficulty, support from partner, and support from family.
- Awareness about COVID-19 and risk to newborn and worry associated with the disease.

Statistical Analysis

The results for qualitative data were presented in frequency and percentage. Binary logistic regression was used to predict the contribution of each independent risk factor to arrive at the depression level, which happens to be the dependent risk factor in this study. The statistical analysis was done using SPSS 21.0. The significant level was used at $p < 0.05$.

RESULTS

A total of 200 cases were studied. As tabulated in Table 1, the average age of the study group was 27.5, with the average duration of the postpartum period being 8 days. Among the participants,

88.5% were housewives. Ten percent were illiterate, 43.5% had received education up to sixth grade, 25% had passed high school (Class XII), 19.5% were graduates, and 2% had postgraduate qualifications. All subjects belonged to the low, lower middle, and middle socioeconomic groups.

EDPS Scoring

The total score obtained using EDPS was less than or equal to “8” in only “92” cases (46%). However, 20% of the cases studied had a score between 9 and 12, suggesting the possibility of depression. Thirty-four percent of cases had a score of more than 12, indicating the presence of PPD, as shown in Figure 1. As consolidated in Table 2, the mean difference of demographic variables between depressed

and nondepressed mothers was significant in two variables—the occupation of the woman and if she had any financial problems. In our study, housewives were significantly more predisposed to PPD compared to working women. Women who had current financial problems as well had a higher incidence of PPD.

Obstetric Factors

Of the 200 women, 49% were primigravida, while 51% were multigravida. Fifteen percent of the women had a history of infertility. Forty-four percent of the women had a history of miscarriage. Six percent of the women had a history of IUFD. Forty-nine percent of the women had one living child, whereas 31.5% of the women had two living children and 19.5% had more than two living children. Comorbid illnesses were present in 8.5% of the cases and obstetric complications were present in 18.5% of the cases.

Perinatal Events

Of the 200 women, 43% of women underwent a cesarean section and 57% had a vaginal delivery. Seventy-eight percent of the women delivered at term, while 32% delivered at preterm, and 49.5% gave birth to a male child. NICU admission was present in 30.5% of the cases. Lactation failure was present in 29% of the cases.

Family and Relationship Factors

Of the 200 women, 55.5% of the women were living in a nuclear family setup (with husband and any existing children), 35.5% were living in a joint family setup (in-laws, husband, and any existing children), and 9% were living with their parents. Partner’s emotional and physical support were noted in 43% of the women studied. Family support was noted in 29%. Financial difficulty was noted in 39% of the women.

Table 1: Sociodemographic characteristics of subjects (N = 200)

Variables	Category	Frequency	%
Age (years)	18–24	59	29.5
	25–30	103	51.5
	31–35	30	15
	36>	8	4
Education	Uneducated	20	10
	Up to 6th grade	87	43.5
	Up to 12th grade	50	25
	Graduate	39	19.5
Occupation	Housewives	177	177
	Working	23	23
Financial problems	Yes	78	39
	No	122	61

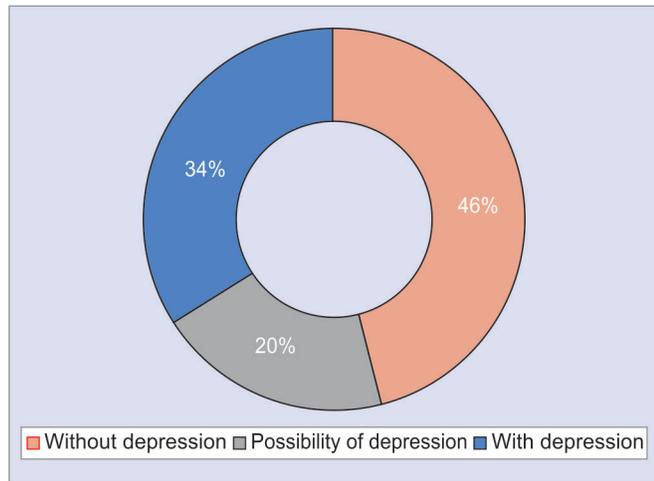


Fig. 1: Prevalence of postpartum depression among respondents (N = 200)

COVID-19

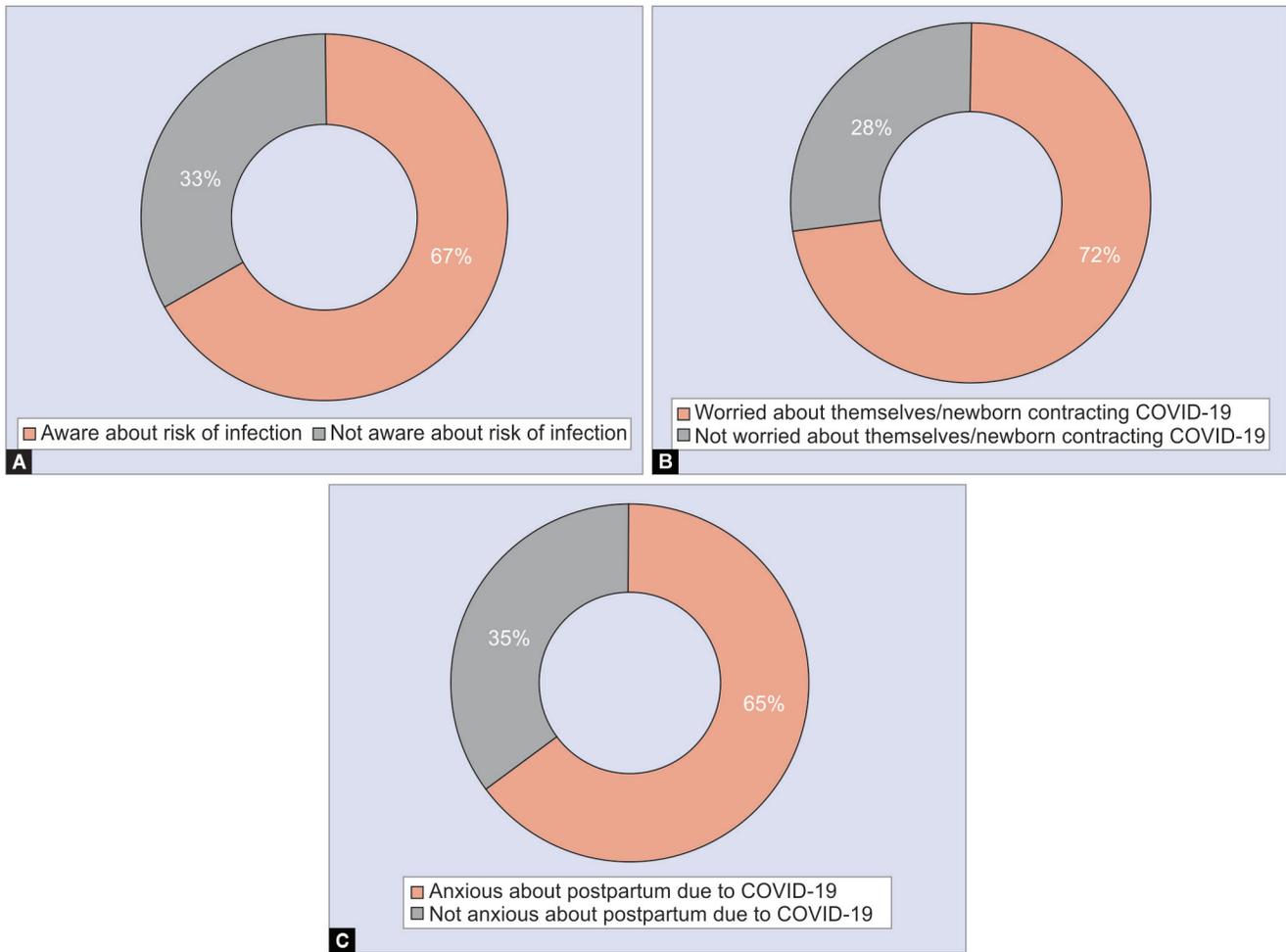
One hundred percent of the women studied were aware of the prevalence of COVID-19. Sixty-seven percent were aware that their newborns were at risk of infection by this disease. As highlighted in Figure 2, 72.5% said they were worried about themselves and their newborns contracting COVID-19. Sixty-five percent said they were feeling significantly more anxious about their postpartum period due to COVID-19 pandemic.

DISCUSSION

In the current study, the prevalence of PPD was noted in 34% of the women studied. A prevalence of 20.4% was found in a study conducted in Western India by Modi et al. A rural study conducted in South India showed a prevalence of 19.8%.⁸ A study conducted in a military hospital in North India had a prevalence of 21.5%.⁹ A systematic review and meta-analysis done by Upadhyay¹⁰ included 38 studies done in India with a total of 20,043 mothers included in

Table 2: Mean difference, odds ratio of demographic variables between depressed and nondepressed mothers

Variables	Category	Frequency	%	Without depression (N = 92)	Possibility of depression (N = 40)	With depression (N = 68)	Chi-square	p-value
Occupation	Housewives	177	88.5	83	37	57	2.357	
	Working	23	11.5	9	3	11	df = 2	<0.05
Financial problems	Yes	78	39	34	15	29	0.58	
	No	122	61	58	25	39	df = 2	<0.05



Figs 2A to C: Respondents' worries about COVID-19

these studies and the pooled prevalence of PPD in India was shown to be 22%. A study conducted at a tertiary care hospital in Andhra Pradesh by Bhuvana et al. showed a prevalence of about 31.4%.¹¹ The prevalence in our study was comparable, if not a little higher to these studies; however, the factor of a pandemic and the anxiety associated with it confirms our suspicions about COVID-19 and a worldwide lockdown causing widespread psychological problems as well as physical ones.

This study has outlined the fact that PPD is quite common in this part of the country. At this point, it will be pertinent to point out that the study was conducted at DY. Patil Hospital and School of Medicine which is situated on the outskirts of the city (Mumbai) and caters to a mix of the population largely from the rural and semiurban areas including small townships situated in the surrounding districts of Thane, Navi Mumbai, and Raigad. A study conducted in China studying the prevalence of PPD during COVID-19 pandemic¹² elicited the prevalence to be 30% which is close to the results in this study.

What is surprising in our study was a higher prevalence of housewives with PPD compared to their working peers. The significance of financial security was also an important factor to be noted as women who had financial problems were at a higher risk of PPD. This has been noted in several studies as well¹³ but is important to highlight as the burden of financial insecurity falls on the entire family, not just the breadwinner.

CONCLUSION

COVID-19 pandemic has had a significant impact on human history, especially that of medical history. Countless women with both planned and unplanned pregnancies have been thrown into a state of extreme fear and stress due to the unpredictability of the virus. Mental health has also been brought to the forefront, especially in countries like India, and this has shone a light on issues, such as PPD. This is a problem affecting women from all socioeconomic backgrounds, especially disadvantaged ones, and should be highlighted and looked for, regardless of their socioeconomic status. Doctors should be concerned that if this disease was common before the pandemic, now it can affect even more women. A support system, plenty of transparent medical advice, and compassion must be applied to doctor visits—may they be in person or virtual. Doctors also need to familiarize themselves with PPD scoring systems and also clinical symptoms to be able to reassure and diagnose women ahead of severe maternal morbidity.

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