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Original Article

Frequency of Postpartum Depression Among Covid-19 Affected Mothers

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ABSTRACT

Objective: To evaluate the frequency of Postpartum depression among COVID-19 affected mothers.
Study Design: Comparative cross-sectional study.
Place and Duration of Study: Obstetrics and Gynaecology Department of PEMH, Rawalpindi Pakistan, from Jun to Aug 2020.
Methodology: A validated questionnaire was used to collect patient data regarding demographic profile and after which questions were asked to calculate Edinburgh Postnatal Depression Score from both COVID-19 positive and negative mothers, 6 weeks after delivery. A score of more than 12 was considered statistically significant for postnatal depression.
Results: Total number of women included in the study were 50(38% COVID-19 positive). The frequency of postpartum depression was 9(47.4%) among COVID-19 affected mothers and 16(51.6%) in COVID-19 negative mothers. Amongst COVID-19 positive cases, 14(73.7%) were found to be having less than 1 week of COVID-19 positivity, all 19(100%) were practising isolation, 12(63.7%) had less than 7-days of hospitalization,1(5.3%) was admitted in Intensive Care Unit, all were satisfied with staff support, 13(68.5%) had a fear of stigma and 1(5.3%) was found to have fear of unemployment.
Conclusion: COVID-19 pandemic has had a strong psychological impact on all postpartum mothers irrespective of their infectivity level. This study has highlighted the alarmingly high frequency of postpartum depression in both COVID-19 positive and negative mothers as indicated by high Edinburgh Postpartum Depression Scores (EPDS)

Keywords: COVID-19, Obstetrics, Postpartum Depression

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INTRODUCTION

The novel Coronavirus disease, which originated from Wuhan, China, was declared as a pandemic by WHO in January 2020 due to its worldwide spread.[1,2] The clinical features vary from asymptomatic state to severe respiratory distress requiring the need of intensive care with artificial ventilation. Due to the contagious nature of the disease, severity of its effects and extensive lockdowns all over the world, people's lives were put under extreme psychological distress.[3] Despite stringent measures of mass lockdown, isolation, quarantine, with all its negative impact on world economy and business, the disease still ran rampant. Lockdowns and isolation blocked the spread of the virus but have had a major impact on mental health globally and the stress can initiate or reawaken existing psychiatric disease.[4] Previously, Severe Acute Respiratory Syndrome (SARS) and Swine flu in 2009 and Ebola in 2013 showed the psychological implications of pandemics, with many manifestations like fear, anxiety, panic, boredom, monotony, anxiety and depression. According to expert opinion, special emphasis should be given to an overlooked group of people affected from COVID-19, which includes children, pregnant women, those with preexisting psychological problems and immigrants.[5,6] As most women who become depressed post-partum do not have a personal or family history of depression, it is pertinent to look for exogenous causes that can precipitate stress.[7] Several studies have been conducted to assess the psychological impact of COVID-19 on different groups of people. Postpartum period is a crucial time period for women, as during this time, women suffer from postpartum blues or depression.[8,9] Thus, the impact on pregnant women giving birth during this pandemic must be assessed to help women who need early psychological intervention. Our hypothesis was that COVID positive patients would suffer from more depression than their non-COVID counterparts. The objective of this study was to evaluate the frequency of postpartum depression among both COVID positive and negative mothers.

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METHODOLOGY

After taking ethical approval (EC 123), the study was conducted at Obstetrics and Gynaecology Department of PEMH, Rawalpindi Pakistan, from June to August 2020. All full-term pregnant women being admitted in the labour ward were screened for

COVID-19 using consecutive sampling. Sample size was calculated using WHO calculator.[10]

Inclusion Criteria: Patients who screened positive for COVID-19 were recruited into the study as positive COVID-19 Group and those who screened negative for COVID-19 were recruited as negative COVID-19 Group (Control Group).

Exclusion Criteria: Patients with intrauterine fetal demise, early neonatal deaths, preterm labour and congenital anomalies were excluded.

After explaining the objectives of the study, a verbal informed consent was taken from participants before their recruitment into the study. A validated questionnaire in Urdu version was used to collect the data regarding demographic profile of the women, neonatal characteristics and then questions were asked to calculate Edinburgh postnatal depression score (EPDS).[11] A score of more than 12 was considered significant for postnatal depression.

Data were analyzed using Statistical Package for Social Sciences (SPSS version 23.0. Counts with percentages were given for baseline characteristics of participants, outcomes on Neonatal Parameters and COVID positive cases. Pearson Chi Square test was used to check the association of Depression parameters with COVID status. The *p*-value of ≤0.05 was considered statistically significant.

RESULTS

Total number of women included in the study were 50. Table-I shows the baseline characteristics of the study participants. Among them 34(68%) were in the age group of 20–29 years, 25(50%) were educated up to matriculation, 34(68%) had Punjabi ethnicity, 43(86%) were housewives and 19(38%) were belonging to lower social class. None of the women reported doing smoking or consuming alcohol. Almost 21(42%) of the women were found in the BMI range of 18.5–24.9 kg/m2, 23(46%) women delivered via Spontaneous vaginal delivery and 41(82%) were found to fear COVID-19. Pearson Chi Square test showed a significant association of COVID-19 positivity with education (p<0.05). Literate women suffered more from COVID-19 as compared to illiterate women.

The characteristics of Neonatal outcomes of the study participants are shown in Table-II.

Amongst COVID-19 positive cases, 73.7% were found to be having less than 1 week of COVID-19 positivity, all 100% were practising isolation, 63.7% had less than 7-days of hospitalization, 5.3% were admitted in Intensive care Unit (ICU), all were satisfied with staff support, 68.5% had a fear of stigma and 5.3% were found to be afraid of unemployment as shown in Figure-1.

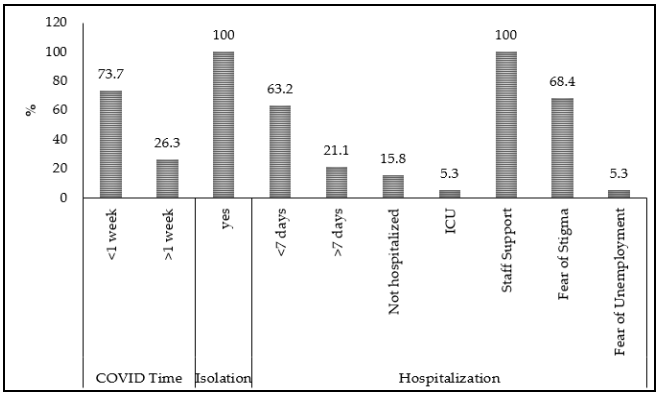

Figure-1: Characteristics of COVID-19 Positive Cases (n=50)

The association of COVID-19 with parameters of depression showed no significant association and both groups were comparable, as shown in Table-III.

Table-I: Baseline Characteristics of Study Participants (n= 50)

Characteristics		Total (n=50)		Positive COVID (n=19)		Negative COVID (n=31)		*p*-value
		n	%	n	%	n	%	
Age (Years)	20-29	34	68.0	12	63.2	22	71	0.78
	30-35	10	20.0	4	21.1	6	19.4	
	>35	6	12.0	3	15.8	3	9.7	
Education	Illiterate to Class 9	6	12.0	0	0	6	19.4	0.04*
	Matriculate	25	50.0	13	68.4	12	38.7	
	Graduate	19	38.0	6	31.6	13	41.9	
Ethnicity	Punjabi	34	68.0	13	68.4	21	67.7	0.88
	Urdu Speaking / Others	16	32	6	31.6	10	32.2	
Occupation	Housewife	43	86.0	15	78.9	28	90.3	0.26
	Working	7	14.0	4	21.1	3	9.7	
Socioeconomic status	Lower	19	38.0	9	47.4	10	32.3	0.28
	Middle	31	62.0	10	52.6	21	67.7	
Smoking	Yes	0	0.0	0	0	0	0	–
	No	50	100.0	19	100	31	100	
Body Mass Index	18.5-24.9	21	42.0	6	31.6	15	48.4	0.14
	25-29.9	23	46.0	12	63.2	11	35.5	
	>30	6	12.0	1	5.3	5	16.1	
Mode of Delivery	Vaginal Delivery	23	46.0	7	36.8	16	51.6	0.30
	Caesarean Section	27	54.0	12	63.2	15	48.4	
Fear of COVID	Yes	41	82.0	16	84.2	25	80.6	0.75
	No	9	18.0	3	15.8	6	19.4	

**p≤0.05 was considered significant using Pearson Chi Square test*

Amongst COVID-19 positive participants, 66.7% successfully started breastfeeding, 33.3% bottled fed their child, 47.4% were found to be having more than 12 EPD score. The baby's length of hospital stay gives a significant association with COVID-19 samples, $p<0.01$. During the early neonatal and neonatal period, 44.4% and 22.2% of the babies born to COVID-19 positive mothers remained admitted in the hospital while this figure was far less for the COVID-19 negative mothers. These findings are illustrated by Figure-2

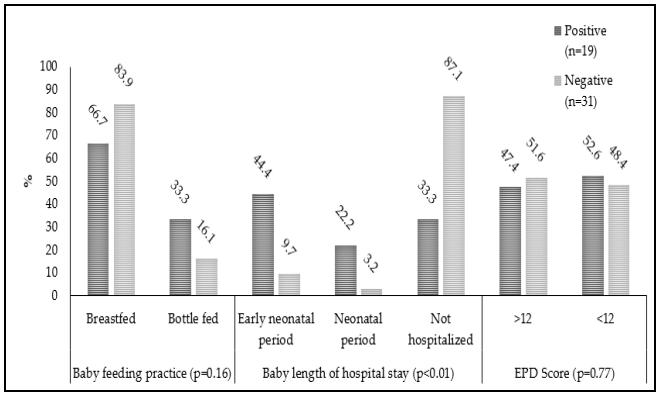

Figure-2: Association of COVID-19 with Feeding Practices, Length of Baby's Hospital Stay and Edinburgh Postpartum Depression Score (n=50)

Table-II: Neonatal Characteristics of Study Participants (n=50)

Characteristics		n	%
Gestational Age (weeks)	≤39 weeks	33	66.0
	>39 weeks	17	34.0
Parity	1	12	24.0
	2-3	35	70.0
	4 or more	3	6.0
Baby birth Weight (kg)	1-1.5kg	1	2.0
	1.6-2.5 kg	2	4.0
	>2.5kg	47	94.0
Maternal Co-morbidity	Yes	5	10.0
	No	45	90.0
Baby Gender	Boy	24	48.0
	Girl	26	52.0

DISCUSSION

Postpartum depression is a debilitating and very common disorder as it affects 1 in 7 women in the form of mood changes, crying spells, sleeplessness, irrational thoughts and inadequate care of the baby. It lasts for almost a month but can get prolonged if it is ignored. Several risk factors have already been identified but, in the era of COVID-19 pandemic, COVID-19 positivity and its associated effects including isolation and lack of emotional support have placed all the individuals at higher risk of negative psychological consequences.[10,11] Even the frontline healthcare workers who are dealing with COVID-19 affected patients are also suffering from variable levels of stress, anxiety and depression. The present study evaluated the prevalence of postpartum depression in the era of COVID-19 pandemic and to the best of our knowledge, there are few studies which looked at this important issue.

Table-III: Association of COVID-19 with Parameters of Depression (n=50)

Depression Parameters	COVID Status				*p*-value
	Positive (n=19)		Negative (n=31)		
	n	%	n	%	
Antenatal Depression	2	10.5	8	25.8	0.19
Family History	1	5.3	2	6.5	0.86
History Of Postpartum Depression	0	0.0	3	9.7	0.16
Stressful Life Event	1	5.3	2	6.5	0.86
Social Support by Husband	18	94.7	30	96.8	0.72
Social Support by In Laws	16	84.2	28	90.3	0.59
Use Of Antidepressants	0	0.0	1	3.2	0.42
Baby With Mother in Postnatal Period	16	84.2	30	96.8	0.11
Relationship Difficulties with Husband	1	5.3	0	0.0	0.19
Relationship Difficulties with In-Laws	0	0.0	2	6.5	0.25
Sleep Deprivation	0	0.0	2	6.5	0.25

The frequency of postpartum depression was 47.4% among COVID-19 affected mothers and 51.6% in COVID-19 negative mothers. Though the prevalence rates are almost similar in both groups in current study, but this is far higher than that in the previous published literature. In 2018, Dennis *et al*. conducted a study on Chinese women which are considered to be at high risk of postpartum depression, and found that the prevalence of postpartum depression was 24.4% at 4 weeks which gradually declined to 17.9% at 52 weeks.[12] Other studies by Hassani *et al*.[13] and Shorey *et al*.[14] with the similar demographic profile like our study, highlighted the overall prevalence of postpartum depression to be 13.1% and 17%, respectively which is very less as compared to the present study. This clearly represents the negative impact of COVID-19 pandemic on the mental health of mothers giving birth during this time regardless of their positivity for this disease. This may be because of the common post-partum problems, fear of virus acquisition or transmission to others, non-supportive attitude of the

partners due to frustration and lack of employment, and the negative impact of social media coverage as well. Similar to our study, the most recent literature showed higher rates of postpartum anxiety, depression and anhedonia in COVID-19 pandemic. Lebel *et al*. recruited participants from Canada to evaluate the level of depression and anxiety in pregnancy during this Pandemic and found that 37% of the mothers were suffering from depression and 57% had anxiety related symptoms. This actually raises the concern about the mental health of the mothers and its effect on the obstetrical and neonatal outcomes as mothers are not getting proper antenatal care during this pandemic and are socially isolated too.[15]

Our study showed that the parameters of depression had no association with COVID-19 positivity status. According to the published literature, major risk factors of postpartum depression needs to be identified early in pregnancy especially past history of mental health problems, sleep deprivation and conflicting relationship with partner.[16,17] Social support, which is considered to be an important factor in alleviating stress and depressive symptomatology, is very important. Postpartum period is the crucial time when the mothers must take care of them and their newborn child and, supportive relationships can play an integral role by changing negative thoughts and reducing behavioural problems by encouraging positive attitudes.[18,19]

Keeping in mind this alarming situation of higher levels of postpartum depression during COVID-19 pandemic, this issue needs to be addressed by early screening strategies and timely psychological interventions. Cognitive behavioural therapy and interpersonal therapy are the first line treatment modalities for postpartum depression.[20,21] Several tertiary care hospitals are trying to provide services of telemedicine through which contact with the doctor can be made early without waiting for face to face interaction and e-health services are also finding its place in this pandemic. Studies to date, on e-health services, are relatively small and larger trials are needed.[22] There is also a suggestion that online workshops can also help to reduce the anxiety of the women who are getting delivered during this pandemic. Trials on the efficacy of online workshops have not been conducted so far and there is a need of research in this area.

This is the first study conducted in this area to see the effects of this pandemic in postpartum mothers and this surprisingly showed very high levels of postpartum depression in both COVID-19 positive and negative mothers. This study will help in implementation of early screening strategies and timely intervention for postpartum depression to help those mothers who are suffering from it.

LIMITATIONS OF STUDY

Women were also not longitudinally followed for a prolonged duration of time, so more studies are required to see the effects of postpartum depression at various intervals during postpartum period.

CONSLUSION

COVID-19 pandemic has strong psychological impact on all postpartum mothers irrespective of their infectivity level. This study has highlighted the alarmingly high frequency of postpartum depression in both COVID-19 positive and negative mothers as indicated by high Edinburgh Postpartum Depression Scores (EPDS).

Conflict of Interest: None.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

AC & FC: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

HS & AS: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

ZA & MH: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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