



ORIGINAL ARTICLE

## Psychological impact of COVID-19 among pregnant women in Karachi, Pakistan.

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**ABSTRACT... Objective:** To determine the psychological impact of COVID-19 in pregnant patients. **Study Design:** Cross-sectional study. **Setting:** Department of Obstetrics and Gynecology, Jinnah Postgraduate Medical Center, Civil Hospital, Lady Dufferin Hospital. **Period:** 1<sup>st</sup> September 2021 to 20<sup>th</sup> November 2021. **Material & Methods:** A total of 201 pregnant women without any history of mental illness were included in this cross sectional, multicenter hospital based study conducted in Karachi, Pakistan. An IES-R (impact of event-revised scale) based questionnaire was used to assess the psychological impact of the COVID-19 pandemic. **Results:** In total 182 (90.55%) pregnant women were mild to moderately psychologically affected while 19 (9.45%) were severely affected by the pandemic. Depression (p value 0.05), insomnia (p value 0.04), and feeling of loneliness (p value 0.007) were the statistically significant effects of COVID-19 in pregnancy. Antenatal care was also affected with 127 (63.2%) of the pregnant women being afraid to go to the hospital for antenatal visits. **Conclusion:** The pandemic had a mild to moderate effect on the mental health of majority of the pregnant women in Karachi, Pakistan, leading to behavioral changes and impacting antenatal care. These findings suggest that pregnant women need more support during the COVID-19 pandemic and it is important to take appropriate actions to prevent psychological distress.

**Key words:** Anxiety, COVID-19, Depression, Pregnancy, Pakistan.

### INTRODUCTION

Pregnancy is a period in which pregnant women undergo several physical and psychological transformation.<sup>1</sup> It is a time of increased vulnerability for the development of anxiety and mood disorders with many risk factors including high perceived stress such as that associated with the pandemic of COVID-19.<sup>2</sup> COVID-19 initially spread as pneumonia of unknown etiology and was first reported in Wuhan, China on 31<sup>st</sup> December 2019.<sup>3</sup> On 30<sup>th</sup> January 2020, the World Health Organization (WHO) declared it a public health emergency of international concern and at present, it is a pandemic.<sup>4,5</sup>

This pandemic has had an impact on the general public's emotional and physical health, as well as the health of pregnant women. Because the COVID-19 pandemic causes added stress on pregnant women, the prenatal period may be particularly susceptible.<sup>6</sup> According to a recent

study, pregnant women are considered a high-risk population in this current pandemic and may be particularly vulnerable to the negative psychological impacts of the abrupt COVID-19 epidemic.<sup>7</sup> Their psychological state is connected to their age, cultural level, and pregnant trimester. However, antenatal anxiety and depression are linked to a variety of negative perinatal outcomes and maintaining a good psychological state throughout pregnancy is critical to prenatal development.<sup>8,9,10</sup> Furthermore, pregnant women who had a pre-existing mental condition were more susceptible than those who did not.<sup>11</sup> Consultations were postponed or were cancelled, and treatments were discontinued as a result of the COVID-19 pandemic.

In a LMIC country like Pakistan, currently, there is insufficient data available on the impact of COVID-19 on the mental health of pregnant women in Karachi, Pakistan. Further given

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the above considerations, our study aimed at surveying pregnant women in the city of Karachi to evaluate the psychological effects of the COVID-19 pandemic.

## MATERIAL & METHODS

This was a cross sectional study which was conducted in a multicenter hospital setting in Karachi, Pakistan from 1<sup>st</sup> September 2021 to 20<sup>th</sup> November 2021. Participants were recruited from Obstetrics and Gynaecology department of Jinnah Postgraduate Medical Centre, Civil Hospital, Lady Dufferin Hospital.

Pregnant women regardless of gestational age with singleton pregnancy and those who were willing to participate in this study were included in this study. While those with (I) active COVID-19, (II) diagnosed foetal congenital anomalies, (III) a history of previous psychological disorders and (IV) on antipsychotic drugs were excluded. Sample size was calculated with open epi with a sample size formula  $[DEFF * Np(1-p)] / [(d^2 / Z^2_{\alpha/2} * (N-1) + p*(1-p)]$  with 95 % confidence interval and anticipated frequency of 85% +/-5<sup>12</sup>, the sample size calculated was 201.

The survey comprising of questionnaire was developed. First part of the survey consisted of socio-demographic characteristics including age, parity, gestational age, family and social issues, and knowledge regarding COVID-19. Second part comprised of an interview based questionnaire from the standardized tool, IES-R (impact of event-revised scale) to assess the psychological impact of the COVID-19 pandemic. The IES-R scale, developed by Andreas Maercker and Matthias Schutzwohl in 1998, was used to measure the effect of routine life stress, everyday trauma, and acute stress during the COVID-19 pandemic.<sup>13</sup>

Data was analyzed by using Statistical Package for the Social Sciences (SPSS) version-20. Descriptive statistics were calculated for socio-demographic characteristics using frequency and percentage. Anxiety scores and psychological impact scores were also expressed in frequency and percentage. The chi-square test was used

to determine the correlation between IES-R GAD-7 scores. A p-value of <0.05 is considered statistically significant.

Ethical approval was obtained from the institutional ethics committee with letter ref. no. 018SSCMS-Ethics/2021 dated 16/08/2021. An informed consent was obtained from each participant prior to conducting the survey.

## RESULTS

In this study, 201 pregnant women between the ages of 17 to 40 years, both primigravida and multigravida, in all three trimesters of pregnancy and with no history mental health condition were included. (Table-I) We used a questionnaire to assess the psychological impact of COVID-19 in pregnant women. (Table-II)

Total 188 (93.53 %) of the pregnant women were aware of the virus, its signs and symptoms, and the effects of the pandemic while 13 (6.47%) of pregnant women had no idea about COVID-19, confused it with other diseases or were doubtful regarding its existence. 147 (73.13%) of the pregnant women were affected by the pandemic with financial problems being faced by 86 (42.79%) of them.

A total of 182 (90.55%) pregnant women were mild to moderately psychologically affected while 19 (9.45%) were severely affected by the pandemic. The common psychological effects were depression, anxiety, insomnia, fear of unknown, and loneliness leading to behavioral changes like restlessness, anger, frustration, and hopelessness. Although, 33 (16.4%) of the pregnant women reported no such behavioral changes.

Daily lives of women were affected as 119 (59.2%) of the women surveyed believed that their mental health affected their daily routines and family relations.

Additionally, antenatal care was also affected, with 127 (63.2%) of the pregnant women being afraid to go to the hospital for antenatal visits due to the risk of contracting the virus.

Depression (p value 0.05), insomnia (p value 0.04), and feeling of loneliness (p value 0.007) were the statistically significant effects of COVID-19 in pregnancy. (Table-III)

## DISCUSSION

To the best of our knowledge, while some research have investigated into the psychological well-being of pregnant women during the COVID-19 pandemic, few have looked into the influence of the women's mental health during the pandemic in a low resource constraint setup. The study's results illustrate the severe impact that the COVID-19 pandemic can have on pregnant women. According to the findings of this study, pandemic-related stress during pregnancy is a multifaceted concept. This three month long cross-sectional questionnaire based study was conducted to assess the psychological impact of COVID-19 and its effect on daily life and antenatal care in pregnant women in Karachi, Pakistan.

According to our findings, the pandemic had a severe impact on 9.45% of the pregnant women. This was comparable to a similar study conducted in Hyderabad, Pakistan before the pandemic, suggested that 18% of pregnant women were anxious and/or depressed.<sup>14</sup> While many other studies have shown that if a mother is depressed, anxious, or stressed while pregnant, it increases the risk for her child having adverse outcomes.<sup>15</sup>

A multicenter study done in China showed that pregnant women assessed after the declaration of COVID-19 pandemic had significantly higher rates of depressive symptoms than women assessed before the epidemic declaration.<sup>16</sup> This was in contrast with our study results as we assessed the pregnant women during the ongoing pandemic only when the severity of COVID-19 pandemic was high and the cases were increasing.

Variable	Frequency (%)
Age	Mean = 27.23, SD = 5.899
<b>Gravida</b>	
G1	30 (15%)
G2	51 (25.5%)
G3	43 (21.5%)
G4	39 (19.5%)
G5	18 (9%)
G6	06 (3%)
G7	05 (2.5%)
G8	06 (3%)
G9	02 (1%)
G10	01 (0.5%)
<b>Para</b>	
P0	26 (13%)
P1	49 (24.5%)
P2	44 (22%)
P3	41 (20.5%)
P4	18 (9%)
P5	07 (3.5%)
P6	04 (2%)
P7	06 (3%)
P8	03 (1.5%)
P9	03 (1%)
<b>Gestational Age</b>	Mean = 26.7, SD = 8.48
<b>Trimester</b>	
Trimester 1	21 (10.4%)
Trimester 2	49 (24.4%)
Trimester 3	131 (65.2%)

**Table-I. Demographic characteristics [SD: Standard deviation]**

Question	Response
Do you know about COVID-19?	Yes = 188 (93.53%), No = 13 (6.47%)
Did this pandemic affect your life?	Yes = 147 (73.13%), No = 54 (26.87%)
What problems did you face during pandemic?	None: 38 (18.9%) Physical: 10 (4.98%) Mental: 21 (10.45%) Social: 13 (6.47%) Financial: 86 (42.79%) Family issues: 17 (8.46%) All of the above: 16 (7.96%)
Previous mental health condition	Yes = 0 (0%), No = 201 (100%)
How much did this pandemic affect you psychologically?	Mild: 135 (67.16%) Moderate: 47 (23.38%) Severe: 19 (9.45%)
Did you feel depressed?	Yes = 134 (66.7%), No = 67 (33.3%)
How depressed did you feel?	Mild: 72 (35.82%) Moderate: 46 (22.89%) Severe 16 (7.96%)
How much anxiety you felt during pandemic?	Mild: 128 (63.68%) Moderate: 54 (26.87%) Severe: 19 (9.45%)
How much insomnia you felt during pandemic?	Mild: 154 (76.62%) Moderate: 25 (12.44%) Severe: 22 (10.94%)
Fear of unknown?	Yes = 48 (23.9%), No = 153 (76.1%)
Feeling lonely?	Yes = 77 (38.3%), No = 124 (61.7%)
<b>Symptoms encountered during the pandemic:</b>	
Flu	43 (21.4%)
Headache	88 (43.8%)
Palpitation	28 (13.9%)
Nervousness	20 (10.0%)
Did your mental condition affect your daily routine and family relations?	Yes = 119 (59.2%), No = 82 (40.8%)
Were you afraid to go to hospital for initial check-up and catching cold?	Yes = 127 (63.2%), No = 74 (36.8%)
<b>Changes in behaviour during the pandemic:</b>	
Restless	70 (34.83%)
Anger	55 (27.36%)
Frustrated	21 (10.45%)
Hopeless	19 (9.45%)
Combination	03 (1.49%)
None	33 (16.42%)

Table-II. Questionnaire responses

The result of our study showed that the COVID-19 outbreak had a mainly mild to moderate psychological impact and only 19 (9.45%) of the pregnant women had a severe psychological impact during COVID-19 pandemic. While a study conducted in Bosnia, Herzegovina and Serbia reported that around 34.2% of pregnant women experienced a severe psychological impact, 9.9% had moderate and 23% had mild psychological impact<sup>17</sup> In another study performed in Italy,

around 53% of respondents reported severe psychological impact of COVID-19 pandemic.<sup>18</sup>

A study done in Pakistan specified a positive association of demographic variables with anxiety and psychological symptoms<sup>19</sup> Similar to our current study findings, a study from Belgium reported that 47% of pregnant women had a minimal level of anxiety, 39.4% had mild, 8.4% had moderate, and 5.2% had severe level of anxiety.<sup>20</sup>

	Trimesters			P-Value
	First	Second	Third	
<b>Depression</b>				
Mild	13 (9.6%)	38 (28.1%)	84 (62.2%)	0.05
Moderate	03 (6.4%)	08 (17.0%)	36 (76.6%)	
Severe	05 (26.3%)	03 (15.8%)	11 (57.9%)	
<b>Anxiety</b>				
Mild	14 (10.9%)	36 (28.1%)	78 (60.9%)	0.38
Moderate	04 (7.4%)	10 (18.5%)	40 (74.1%)	
Severe	03 (15.8%)	03 (15.8%)	13 (68.4%)	
<b>Insomnia</b>				
Mild	15 (9.7%)	38 (24.7%)	101 (65.6%)	0.04
Moderate	00 (0.0%)	07 (28.0%)	018 (72.0%)	
Severe	06 (27.3%)	04 (18.2%)	012 (54.5%)	
<b>Fear of unknown</b>				
Yes	05 (10.4)	12 (25.0%)	31 (64.6%)	0.99
No	16 (10.5%)	37 (24.2%)	100 (65.4%)	
<b>Feeling of loneliness</b>				
Yes	07 (9.1%)	10 (13.0%)	60 (77.9%)	0.007
No	14 (11.3%)	39 (31.5%)	71 (57.3%)	
<b>Afraid to go to hospital for initial check-up or catching cold</b>				
Yes	09 (7.1%)	30 (23.6%)	88 (69.3%)	0.095
No	12 (16.2%)	19 (25.7%)	43 (58.1%)	

Table-III. of COVID-19 on mental health by trimester of pregnancy

Another study in Colorado reported that 12% of the respondents had high depressive symptomatology and around 60% reported severe anxiety symptoms.<sup>21</sup>

The pandemic has caused a significant increase in the level of anxiety among pregnant women, which is mainly associated with their concern for their older relatives, other children, followed by concern for their unborn baby.<sup>22</sup> In the study from Italy, 46% of pregnant women reported a high level of anxiety due to fear of vertical transmission of the disease to their baby.<sup>18</sup> Similarly, a study from Canada reported that a greater proportion of pregnant women reported a higher level of anxiety symptoms, mainly associated with the fear of transmission to a baby as well as concern about poor antenatal care, relationship problems, and social isolation due to the COVID-19 pandemic.<sup>23</sup>

According to a review article, neither vaginal delivery nor caesarean section of a pregnant

woman with COVID-19 confers additional risks, and there is minimal risk of vertical transmission to the neonate from either mode of delivery. However, the true effect of the virus on both maternal and foetal morbidity and mortality will only be evident over time.<sup>24</sup>

### LIMITATIONS

This study had some potential limitations that should have been considered while drawing down the results. We were unable to analyse the temporal relationships between the explanatory factors and the research's results because this was a cross-sectional study. Because majority of the women in the sample were from government hospitals rather than private institutions, our findings may not be applicable to all mothers and pregnant women in Karachi. Furthermore, we did not assess or adjust for other social characteristics such as family cohesiveness and social support. This research, on the other hand, offers significant advantages. This is, to the best

of the authors' knowledge, the first research to assess psychological distress among pregnant women in Karachi.

## CONCLUSION

Our study suggests that the COVID-19 pandemic affected pregnant women and their daily lives, with a great proportion of the women being afraid to go for routine antenatal visits. These findings suggest that pregnant women require more support during the COVID-19 pandemic. It is, therefore, important to have effective strategies to identify pregnant women who are at risk of developing psychological distress and take appropriate actions to prevent it.

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2	Syeda Hira Naqvi	Helped in interpretation data, Drafting and revised the manuscript.	
3	Neelam Saba	Helped in literature search, data collection revising the manuscript.	
4	Nazia Hashim	Helped in data analysis and manuscript editing.	
5	Farzana Nasir	Helped in data analysis and manuscript revision.	
6	Sonia Naqvi	Helped in study concept & designing & the question & editing the manuscript.	