

Assessment of Psychological Impact of COVID-19 Pandemic in Pregnant Women

Dr Savitha T S^{1*}, Dr Manjari¹

¹Department of OBG, Kempegowda Institute of Medical Sciences, Bengaluru, Karnataka, India

*Corresponding Author: Dr. Savitha T S

Department of OBG, Kempegowda Institute of Medical Sciences, Bengaluru, Karnataka, India

Phone (or Mobile) No.: +91 9880252579

Email: drsavithats[at]gmail.com

Abstract: **Background:** To evaluate the psychological impact of the COVID-19 pandemic in pregnant women and to assess the impact on the mode of delivery. **Methods:** A cross-sectional survey study of all pregnant women regardless of gestational age and COVID status from December 2020 to May 2021 to assess the psychological impact and anxiety using the two scoring system - Kessler Psychological Distress Scale (K10) and visual analogue scale (VAS) for anxiety. **Results:** Psychological impact of the COVID-19 outbreak was comparatively more severe among COVID positive pregnant women (mean k10 of 19.67 with SD 1.86 and mean VAS score of 7 with SD 0.63) when compared to COVID negative and unknown status pregnant women, which was statistically significant (k10 - p value 0.001, vas score - p value <0.001). Anxiety levels with respect to vas scores were relatively higher in primi gravidas with mean vas scores of 4.43 (SD 1.32) which was statistically significant (p value 0.006). Of the 42 women enrolled in the third trimester, 31 delivered during the study period. 17 women underwent caesarean delivery - emergency LSCS done in view of foetal distress were 7, planned caesarean deliveries on maternal request were 4 (3 were elective LSCS for previous LSCS not willing for TOLAC), emergency caesarean deliveries performed for other obstetric indications were 6. **Conclusions:** Psychological impact and anxiety of the COVID-19 was relatively more among COVID positive pregnant women and there was no significant influence of psychological impact on the mode of delivery.

Keywords: COVID-19 pandemic, psychological impact, anxiety, mode of delivery

1. Introduction

The novel coronavirus was first discovered in Hubei province in December of 2019.² On January 30, 2020, the first case of COVID-19 in India, was registered. COVID-19's widespread transmission, as well as the rising number of infected cases and deaths, has resulted in widespread psychological distress, including depression, anxiety, and stress, among a wide range of people in many countries.^{1, 9, 10} The COVID-19 infection, as an acute life-threatening stressor for pregnant mothers, is detrimental to the course of pregnancy and the baby, including lower infant birth weight, an increased risk of pregnancy complications, and a higher degree of depression, anxiety, and dissociative symptoms.⁷ During the COVID-19 pandemic, the stigma associated with the disease could contribute to poor antenatal and postnatal care. For example, the COVID positive mother who has delivered, is separated from her baby and is not allowed to breastfeed until she has completely recovered.¹¹ This procedure not only obstructs early bonding and lactation, but often causes psychological trauma during the postnatal era.^{11, 12} This study was done to evaluate the psychological impact of the present pandemic in pregnant women and to assess the impact on the mode of delivery.

2. Methods

Aim: This study aimed to survey pregnant women to evaluate psychological impact during the COVID-19 pandemic.

Objective: Primary outcome: To assess psychological impact of COVID-19 pandemic on pregnant women.

Secondary outcome: To assess the influence of psychological impact on the mode of delivery.

Source of Data: All pregnant women visiting OBG Department KIMS Hospital Bengaluru from December 2020 to may 2021.

Study Design: Cross-sectional survey study.

Sampling Method: Random sampling

Inclusion Criteria: All pregnant women were eligible to participate in the Study regardless of gestational age.

Exclusion Criteria: Pregnant women suffering from past psychiatric illness, as reported by patient and family.

Procedure: A combination of validated measures in the questionnaires is used to assess the psychological impact and anxiety.

The following questionnaires were used in this study -

Kessler Psychological Distress Scale (K10)³: This is a 10-item questionnaire intended to yield a global measure of distress based on questions about anxiety and depressive symptoms that a person has experienced in the most recent 4 week period. The Kessler Psychological Distress Scale (K10) is a simple measure of psychological distress. The K10 scale involves 10 questions about emotional states

each with a five - level response scale. The measure can be used as a brief screen to identify levels of distress. Scoring instructions: Each item is scored from one ‘none of the time’ to five ‘all of the time’. Scores of the 10 items

are then summed, yielding a minimum score of 10 and a maximum score of 50. Low scores indicate low levels of psychological distress and high scores indicate high levels of psychological distress.

Figure 1: Kessler 10 Psychological distress scale³

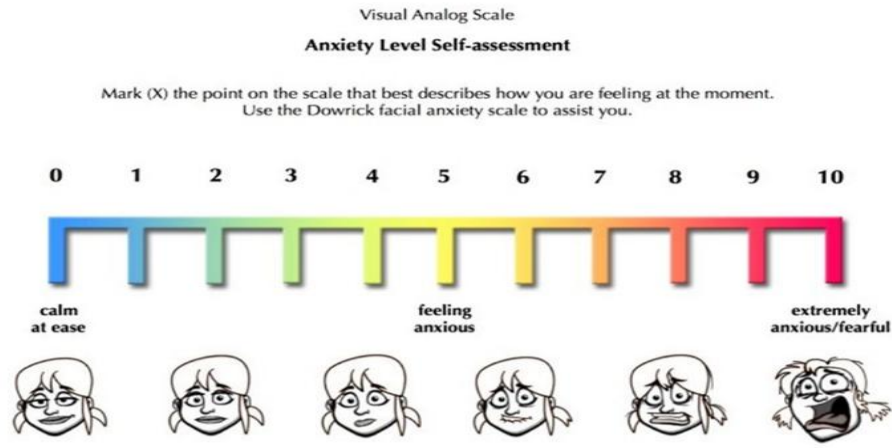
K10 Score	Level of psychological distress
10 - 15	Low
16 - 21	Moderate level of psychological distress
22 - 29	High level of psychological distress
30 - 50	Very high level of psychological distress

Key to scoring the K10

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
In the past four weeks, how often did you feel worn out for no real reason?	1	2	3	4	5
In the past 4 weeks, how often did you feel nervous?	1	2	3	4	5
In the past 4 weeks, how often did you feel so nervous that nothing could calm you down?	1	2	3	4	5
In the past 4 weeks, how often did you feel hopeless?	1	2	3	4	5
In the past 4 weeks, how often did you feel restless or fidgety?	1	2	3	4	5
In the past 4 weeks, how often did you feel so restless you could not sit still?	1	2	3	4	5
In the past 4 weeks, how often did you feel depressed?	1	2	3	4	5
In the past 4 weeks, how often did you feel that everything was an effort?	1	2	3	4	5
In the past 4 weeks, how often did you feel so sad that nothing could cheer you up?	1	2	3	4	5
In the past 4 weeks, how often did you feel worthless?	1	2	3	4	5

Visual Analogue Scale (VAS)⁵: Women are also asked to fill out the visual analogue scale (VAS) for anxiety. VAS for anxiety ranged from 0 (not at all anxious) to 10 (extremely anxious) and referred to the following

question: How anxious are you regarding the coronavirus pandemic and the possibility of vertical transmission to your offspring?



Statistical Analysis:

Statistical package of social sciences [SPSS] for windows version 22.0 released 2013. Armonk, NY: IBM Corp, is used to make statistical analysis. Descriptive Statistics: done using frequency and proportions for categorical variables, whereas in Mean and SD for continuous variables. Inferential Statistics: Independent student t Test is used to compare the mean K10 and VAS scores based on sociodemographic characteristics and gestational status. One way ANOVA Test followed by Tukey’s post hoc test is used to compare the mean K10 and VAS scores based on sociodemographic and gestational characteristics and COVID status. The level of significance was set at $p < 0.05$.

3. Results

During the study period, a total 100 women were enrolled; 20, 38, and 42 women were in the first, second, and third trimester of pregnancies, respectively. None of the enrolled women had a history of postpartum depression in a prior pregnancy or of psychiatric disorders. In this study the majority of the patients were in the age group of 21 - 30 (80%) and the mean age was 26.3 (SD of 3.8). Among the sociodemographic characteristics, those belonging to

urban domicile were 56%, rural were 44%. Majority were employed 62%, and 38 % were unemployed. primigravida were 53% and multigravida were 47%. Anxiety levels with respect to vas scores were relatively higher in primi gravidas with mean vas scores of 4.43 (SD 1.32) which was statistically significant (p value 0.006) (TABLE 1)

Psychological impact of the COVID-19 outbreak was comparatively more severe among COVID positive pregnant women (mean k10 of 19.67 with SD 1.86 and mean VAS score of 7 with SD 0.63) when compared to COVID negative and unknown status pregnant, which was statistical significant (k10 - p value 0.001, vas score –p value - <0.001). (TABLE 2)

of the 42 women enrolled in the third trimester, 31 delivered during the study period. 17 women underwent caesarean delivery - emergency LSCS done in view of foetal distress were 7, planned caesarean deliveries on maternal request were 4 (3 were elective LSCS for previous LSCS not willing for TOLAC), emergency caesarean deliveries performed for other obstetric indications were 6. There was no psychological impact on mode of delivery seen with respect to both k 10 and VAS scores as p value was 0.22 and 0.34 respectively, which was statistically insignificant.

Table 1

Comparison of mean K10 & VAS scores based on Gestational Status using Independent Student t Test						
Variable	Category	N	Mean	SD	Mean Diff	P - Value
K10 scores	Primi	53	15.25	3.05	- 0.07	0.91
	Multi	47	15.32	3.68		
VAS scores	Primi	53	4.43	1.32	0.69	0.006*
	Multi	47	3.74	1.13		

Table 2

Comparison of mean K10 & VAS Scores based on COVID Status using One - way ANOVA Test followed by Tukey's Post hoc Test							
Variable	Category	N	Mean	SD	P - Value ^a	Sig. Diff	P - Value ^b
K10 Score	Positive	6	19.67	1.86	0.001*	P vs N	0.02*
	Negative	31	15.90	3.77		P vs U	0.001*
	Unknown	63	14.56	2.84		N vs U	0.13
VAS Score	Positive	6	7.00	0.63	<0.001*	P vs N	<0.001*
	Negative	31	3.71	0.82		P vs U	<0.001*
	Unknown	63	4.03	1.16		N vs U	0.34

4. Discussion

This study was conducted in Kempegowda institute of medical sciences, Bengaluru during the COVID-19 pandemic from December 2020 to May 2021 to evaluate the psychological impact of the COVID-19 pandemic in pregnant women and to assess the impact on the mode of delivery. The study used two validated questionnaires - Kessler 10 Psychological distress scale, to evaluate the psychological distress and visual analogue scale (VAS) for anxiety.

This was a cross - sectional survey study, which enrolled 100 pregnant women irrespective of their gestational age - 20, 38, and 42 women were in the first, second, and third trimester of pregnancies, respectively. It was seen that the anxiety levels with respect to the pandemic which was evaluated using the visual analogue scale for anxiety (vas scores) was relatively higher in primi gravidas with mean vas scores of 4.43 (SD 1.32) which was statistically significant (p value 0.006). (TABLE 1) This suggested that the lack of experience about the pregnancy and its outcomes added on to the stress and anxiety levels amongst primigravidas during the pandemic.

Also, in this study it was found that the Psychological impact of the COVID-19 outbreak was comparatively more severe among COVID positive pregnant women (mean k10 of 19.67 with SD 1.86 and mean VAS score of 7 with SD 0.63) when compared to COVID negative and unknown status pregnant, which was statistical significant (k10 - p value 0.001, vas score -p value - <0.001). (TABLE 2) which suggested that adequate counselling and moral support must be given to pregnant women who turn out to be positive during pandemic to reduce the anxiety levels and adverse psychological outcomes.

Of the 42 women in third trimester, 31 delivered in the study period, 17 amongst these delivered by caesarean section. There was no statistical significance found on the mode of delivery and both k10 and vas scores. Findings from the study were limited by the single - center study design and small sample size.

5. Conclusion

COVID-19 is rapidly spreading across India and other countries. Quarantines and travel bans have been enacted on an unprecedented scale, with numerous cities being shut down. COVID-19 has killed thousands of people around the world so far. Suicide cases have been reported as a result of the disease's fear and psychological impact, which may be as devastating as the infection.⁴ Pregnancy is a well - known time of significant transformation. Adequate mental and physical health is a protective factor against mood disorders, and pregnancy may enhance the vulnerability to psychiatric disease like depression in some women. In developed countries, antenatal depression affects roughly 10% of women, and the number of pregnant women taking antidepressants has increased over the previous decade.⁶ Isolation, social alienation, and drastic changes in daily life may raise the risk of

depression in vulnerable population like pregnant women. As a result, determining the psychological impact of the COVID-19 outbreak is critical. Therefore, it is of paramount importance to assess the psychological impact of the COVID-19 outbreak⁴

Declarations

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Conflict of interest: None declared

Ethical approval: Institutional ethical clearance obtained.

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