



Research article

Influence of social, physical & antenatal stresses in perinatal women of tertiary health care setup during COVID-19 pandemic

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ABSTRACT

Corona Virus-19 had a detrimental effect on people's ability to live a healthy and active lifestyle. Social life is impacted by this outbreak, resulting in anxiety and psychosomatic illness. The purpose of this study is to determine the effect of social, physical, and psychological factors on perinatal women enrolled in tertiary health care facilities established during the COVID-19 pandemic. At Saifai' tertiary level hospital, a cross-sectional observational study was conducted. A questionnaire calibrated on the Likert scale was administered to 72 inpatient perinatal mothers to assess their levels of anxiety (n=04), social network dependency (n=03), and quality of life (n=02). Physical characteristics were derived from baseline data. Each section's scores were added together. Group C has the highest mean anxiety level, followed by Groups D, A, and B. When compared using one-way ANOVA, the results are statistically significant at $p < 0.05$. Group C and D have the highest mean of social network dependency and quality of life. The anxiety levels and quality of life in groups V (10.165.90) and N (20.073.28) were determined using an independent t-test with a significance level of $p < 0.05$. According to the findings of the above study, during the COVID-19 pandemic, a lack of knowledge and education about COVID and pregnancy-related procedures can increase anxiety levels among perinatal women admitted to tertiary care facilities. It is recommended to conduct the study on a larger sample size in order to validate and ascertain the result's accuracy.

Keywords: COVID-19 pandemic, Perinatal women, Physical, Psychological, Social factors.

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INTRODUCTION

COVID-19 outbreak was originated from China and was declared Pandemic in the year 2020 and has affected many aspects of life, including pregnancy, birth, and women's postnatal period. There was the prevalence of the second wave throughout the world, which had a devastating effect on the quality of life among different population groups.

Various researches found a negative impact of COVID-19 on people's healthy and active lifestyle [1-2]. Although it is evident that the current pandemic situation had changed the lifestyle of the population and influences have been highlighted. Pregnant women, where the stress is already pertaining, needs focus by the health care providers as the stress and Anxiety can impact both the mother and newborn. The perinatal period is one of the transitional periods as a family is formed or extended with physical and emotional changes [3]. This period begins at 22 completed weeks (154 days) of gestation and ends seven completed days after birth. Perinatal and maternal health is closely related. However, there is evidence of the disease outbreaks

on mental health in general populations. Depressive symptoms, stress, anxiety, insomnia, ignorance, frustration, and anxiety represent the most recorded mental health problems [4-6]. Similar adverse perinatal mental health outcomes are also identified in comparable circumstances, such as natural disasters and other stressful life events.

Women are likely to experience discomfort during the perinatal period due to movement limitations, socialization, and participation in daily routines. They are more likely to feel anxiety about their health and infection risk, as well as health threats to their children and loved ones. Not all women could cope with these changes leading to anxiety disorders. In the current Pandemic, apart from the stress related to childbirth, a physical and hormonal change, the women have to face the compact lifestyle. Due to Pandemic, the social life could be affected; resulting in Anxiety and psychosomatic illness [7-9]. Therefore, the aim of the study is to: 1) to compare the anxiety levels of perinatal women based on education level. 2) To

compare the social network dependency during COVID-19 among perinatal women based on level of education. 3) To assess the influence of anxiety due to covid-19 pandemic on quality of living in perinatal women. 4) To evaluate the physical factors for stresses 5) to determine the anxiety and quality of living based on the food preferences among perinatal women during COVID-19 pandemic.

MATERIALS AND METHODS

Enrollment and ethical approval

This study was conducted at the tertiary level hospital, Saifai, Etawah, UP, India. The study got its ethical clearance from the institutional ethical committee with the ethical number 81/2020-21.

Subject recruitment

It is a cross-sectional observational study. A total of 72 perinatal women admitted in the Obstetrics and Gynecology department were recruited for the study after written informed consent.

Method of data collection

The subjects were given bilingual English and Hindi questionnaires which are filled in the inpatient unit. A preliminary baseline data was taken. (Table-1) The questionnaire contained 3 sections with items related to antenatal stresses assessing levels of Anxiety (n=04), Social network dependency (n=03), and quality of living (n=02) based on the educational levels. Second, physical factors like weight and age were assessed based on the perinatal women's educational level, and the last section evaluates the social

factors on anxiety and quality of living based on food choices among perinatal women.

Table 1: Demographic characteristics among the studied population

Parameters	Group A	Group B	Group C	Group D	Group V	Group N
Age	25.5± 3.18	26.2± 3.30	26.3± 5.23	25.7± 5.44	27.3± 4.58	25.6± 25.6
Hb	9.92± 1.38	10± 1.19	9.92± 1.42	9.99± 1.45	9.63± 1.34	10.04± 1.7
Weight	53.8± 7.96	55± 7.23	56.8± 5.86	54.5± 8.98	55.6± 7.37	55.6± 6.88
Blood group (A:B:O:AB)	3:6:7:2	2:1:2:1	6:17:11:4	2:1:3:2	5:6:3:4	6:19:19:10

Measurement

To assess the antenatal stresses during COVID-19 pandemic, the subjects were divided into two groups based on their educational levels. The illiterates were grouped as A (0), primary level education as B (0-5class), secondary level education as C (6-12th class), and tertiary level as D (Graduation and above). The questionnaire (Table-2) was calibrated on Likert scale and contains sections to evaluate antenatal stresses on the level of anxiety, social network dependency and quality of living based on perinatal women educational levels. To evaluate the physical factors for stresses; the subjects were analyzed using age and weight, and to assess the social factors for stresses, the perinatal women's food preferences [Vegetarian (Group-V) and Non-vegetarian groups (Group-N)] were evaluated based on their educational levels. The scores were summed up for each section.

Table 2: Psychological Assessment Questionnaire

Factors	Question	Responses						
A LEVEL OF ANXIETY								
1	In general, what is the level of distress you have experienced about changes to your birth and post-natal experiences due to COVID-19?	All the time (1)	Most of the time (2)	Some of the time (3)	A little of the time (4)	None of the time (5)		
2	In general, how distressed you about your COVID-19 related symptoms are?	Not at all Distressed/ Extremely Calm (1)	Moderately Calm (2)	Slightly Calm (3)	Neither distress nor Calm (4)	Somewhat Distressed (5)	Moderately Distressed (6)	Extremely Distressed (7)
3	In general, what is the level of distress you have experienced with disruptions to your social support due to the COVID-19 outbreak?	Not at all Distressed/ Extremely Calm (1)	Moderately Calm (2)	Slightly Calm (3)	Neither distress nor Calm (4)	Somewhat Distressed (5)	Moderately Distressed (6)	Extremely Distressed (7)
4	In the past 7 days, including today, how often were you distressed by COVID-19 Outbreak?	Not at all (1)	A little bit (2)	Moderate (3)	Quite often (4)	Extremely Distressed (5)		
B SOCIAL NETWORK DEPENDENCY								
1	How are you currently trying to meet your needs for social support?	Phone calls, electronic media, virtual (0)			Other; please specify (1)			
2	Who are you receiving social support from?	Family, Friends, Religious community (0)			Others; please specify (1)			
3	Currently, how supported do you feel by your social network?	Not Supported (0)	Little support (1)	No support (2)	Somewhat Supported (2)	Somewhat well Supported (4)	Very well Supported (4)	
C QUALITY OF LIFE								
1	How has the COVID-19 outbreak changed your sleep?	No change (0)	Improved my sleep significantly (1)		Improved my sleep moderately (2)	Worsened my sleep moderately (-1)		Worsened my sleep significantly (-2)
2	Please indicate the extent to which you view the COVID-19 outbreak as having either a positive or negative impact on your life?	No Impact (0)	Extremely Positive (1)	Moderately Positive (2)	Slightly Positive (3)	Somewhat Negative (-1)	Moderate Negative (-2)	Extremely Negative (-3)

Statistical analysis

The baseline data were assessed for normality by D' Agostino Pearson test. All the data were expressed in mean +/- SD. The anxiety levels, social network dependency, and quality of life of Group A, B, C, D are analyzed for the statistically significant

difference at p<0.05 by one-way Anova. The anxiety levels and quality of life in group V and N was assessed by independent t-test at p<0.05 level significance to find the differences in anxiety levels and quality of life-based on food choice.

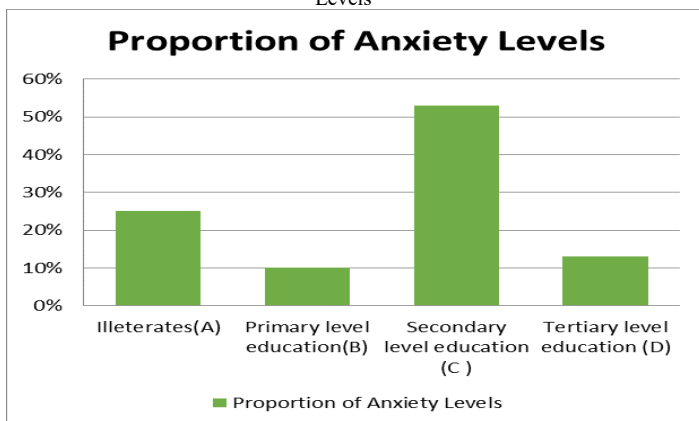
RESULTS

In this study, the baseline characteristics of the group passed the normality test. The mean anxiety levels of Group C are the greatest, followed by groups A, D, and B. The results, when compared by one-way Anova, are statistically significant at $p < 0.05$. (Table-3) (Figure-1)

Table 3: Analysis of Antenatal Anxiety Based on Educational Levels

Groups	A	B	C	D	p-value	Significance
observations (n)	18(25%)	7(10%)	38(53%)	9(13%)	0.026	P<0.05
sum	153.00	61.00	425.00	96.00		
mean	8.50	8.71	11.18	10.66		
sum of squares	1,541.000	567.000	5,135.000	1,104.000		
sample variance	14.14	5.90	10.31	10.00		
sample std.	3.76	2.43	3.21	3.16		
std. dev. of mean	0.88	0.91	0.52	1.05		

Figure 1: Figure Depicting Proportion of Anxiety Based on Educational Levels



Group (C) mean of social network dependency is the greatest, followed by groups A, D, and B. The results, when compared by one-way Anova, are not statistically significant at $p < 0.05$. (Table-4)

Table 4: Analysis of Antenatal stresses due to Social Network Dependency Based on Educational Levels

Groups	A	B	C	D	p value	significance
observations	18	7	38	9	0.91	P>0.05
sum	47.00	21.00	104.00	23.00		
mean	2.6111	3.00	2.73	2.55		
sum of squares	171.00	71.00	348.00	69.00		
sample variance	2.83	1.33	1.71	1.27		
sample std.	1.68	1.15	1.30	1.13		
std. dev. of mean	0.39	0.43	0.21	0.37		

The mean of quality of living of Group D are the greatest as compared with another educational group. The results when compared by one-way Anova, are not statistically significant at $p < 0.05$. (Table-5)

Table-5 Analysis of Antenatal Stresses on Quality of Living Based on Educational Levels

Groups	A	B	C	D	p value	significance
observations(n)	18	7	38	9	0.47	P>0.05
sum	0.00	-6.00	-21.00	-4.00		
mean	0.00	-0.85	-0.55	-0.44		
sum of squares	54.00	12.00	69.00	22.00		
sample variance	3.17	1.14	1.55	2.52		
sample std.	1.78	1.06	1.24	1.58		
std. dev. of mean	0.42	0.40	0.20	0.53		

To determine the educational-based physical stresses on Age and weight, all data were expressed as Mean \pm SD. The mean age of group B was higher (28.1 \pm 7.3) among other groups; whereas the mean weight of group C (57.1 \pm 7.07) is higher among other groups. This indicates that age and weight can be a factor for increased stresses among primary and secondary levels perinatal women at less than (0.05) level of significance. (Table-6)

Table-6 Analysis of Physical Factors of Stresses Based on Educational Levels

Groups	Age	Weight	P Value	Significance
Group A (n=18)	25.5 \pm 3.7	56.3 \pm 5.8	<.00001	P<0.05
Group B (n=7)	28.1 \pm 7.3	53.7 \pm 7.9	<.00001	
Group C (n=38)	25.7 \pm 4.6	57.1 \pm 7.07	<.00001	
Group D (n=9)	26.7 \pm 3.4	49.6 \pm 4.8	<.00001	

To determine the anxiety and quality of life based on the food choices in perinatal women, all the data were expressed in mean \pm SD. The mean of anxiety levels in Group V is (10.16 \pm 5.90), and of Group N is (20.07 \pm 3.28). The 't' value for anxiety levels is -0.05879, and $p = .476643$. The results are not significant at $p < 0.05$. The mean of quality-of-life scores in Group V is (-0.5 \pm 2.01), and N is (-0.90 \pm 1.48), the value for the quality of life is -0.04712, and the p-value is 0.481277. The results are not significant at $p < 0.05$.

DISCUSSION

This study analyzes the anxiety levels, social network dependency and quality of living among various groups based on their educational levels in perinatal women's during COVID-19 pandemic. It was found that the anxiety levels are highest in group C among as compared with the other groups. The subjects in group C have completed their secondary education. Michaela C. Pascoe MC and colleagues in the year 2020 concluded that stress-related anxiety is a major concern among secondary educational levels [10]. Moghahed S and colleagues in (2021) explained that education affects the cognitive system and information processing and positively affected education on the psychological dimensions (Anxiety) among the admitted perinatal women [11]. Whereas Madhava Prabhakaran GK and colleagues (2015) attribute pregnancy-related anxiety to, lack of knowledge and education about childbirth and parenting during the nuclear family era [12].

Among the groups, the C group (secondary-level education) has the highest level of antenatal stress (104) which makes them more bound to the social networking sites. The impact of the COVID-19 Pandemic on quality of living was analyzed in various education groups revealed that the COVID-19 outbreak did not affect the quality of living among illiterates. In contrast, a minimal impact with no statistical difference was observed in literates. In our study, it was also found that group C (Secondary-level education) has a higher level of antenatal stress (-21.0), which also has an impact on their quality of living. The possible reason for this could be that most

women are only able to complete their education up to the intermediate level, which could be due to monetary and social constraints, as well as rural proximity in and around the areas of Saifai and Etawah. It is also assumed that these women have many responsibilities to society and family, and in order to cope with the ongoing stresses, most of them prefer to attach themselves on social networking sites. On the other hand, women during the COVID-19 pandemic are much eager to learn about their current health scenarios, which may have a negative impact on their mental health outcomes and increase their stress levels. Rakhmanov, O and colleagues (2020) demonstrated anxiety as a major factor that positively impacted the level of education and the quality of living [13]. The social network dependency during COVID-19 Pandemic is highest in group B and least in group D. various studies reveals a potential impact of social network dependency by the women during their transition phase [14-16].

Nutrition plays a vital role in maintaining physical and psychological health. Maternal dietary intake and nutritional status, and psychosocial states and conditions during pregnancy are likely to significantly impact maternal metabolic health, fetal development, and offspring health outcomes [17]. Mostly, the women in India prefer vegetarian food, which may be attributed to various factors like religion, economic region, taboos, and regional differences. Various studies exemplified that deficit in nutrition during pregnancy can impact post-partum life resulting in depression and anxiety. Evidence suggests that polyunsaturated fatty acid omega-3 and associated nutritional levels in the diet play an important role in fetal development and support maternal mood and decrease the risk of unfavorable psychological states such as perceived stress, anxiety, and depression in the pre-and postnatal periods [18].

Many types of research claimed that the non-Vegetarian diet has a carbon dioxide footprint of around 1.9-3.3-ton CO₂ equivalent (CO₂e), which is lower in the Vegetarian diet of about 1.7t (CO₂e), and much lower in vegan diet 1.5t (CO₂e) [19]. The evidence suggests that carbon dioxide intake in the diet can increase anxiety, somatic symptoms, vital signs, and plasma cortisol levels [20].

CONCLUSIONS

From the above study it is concluded during the COVID-19 pandemic, lack of knowledge and education about COVID-19, physical factors, and the pregnancy related procedures can increase the stress levels among perinatal women admitted in tertiary care set up. It is recommended to study on a larger sample to validate and know the accuracy of the result.

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DECLARATIONS

CONFLICT OF INTEREST: Nil

ETHICAL APPROVAL

The study got its ethical clearance from the institutional ethical committee of Uttar Pradesh university of Medical Sciences, Saifai, Etawah, UP, India with the ethical number 81/2020-21. The written informed consent was taken from all the patients who participated in the study.

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