Determination of Depression, Anxiety and Stress in Pregnancy During the COVID-19 Pandemic

Fatma Yıldırım[1] , Nevin Günaydın[2] , Mevlüde Alpaslan Arar[3]

ABSTRACT

Objective: This study aims to determine the depression, anxiety and stress in pregnant women during the 2019 Coronavirus Disease (COVID-19) pandemic.

Materials and Methods: The sample of this descriptive study consisted of 203 pregnant women reached over online between May 15 and June 1, 2020. To collect data in the study, the 'Personal Information Form', 'COVID-19 Pandemic-Related Information Form' and 'Depression, Anxiety, Stress Scale-21 (DASS-21)' were used.

Results: In our study, it was determined that 81.7% of the pregnant women experienced anxiety, 56.1% depression and 24.1% stress, according to the median values obtained from DASS-21. The median values of anxiety and stress of unemployed women were higher than those of working women and the difference between them was statistically significant (p=0.011; p=0.023). The differences between social media use (p=0.044; p=0.048; p=0.015), thinking that they are positive for COVID-19 (p=0.009; p=0.014; p=0.001), thoughts about the end of the COVID-19 pandemic (p=0.001; p=0.001; p=0.001), worrying about their own health and the fetus (p=0.001; p=0.001; p=0.001), and experiencing abnormal physical symptoms (p=0.001; p=0.001; p=0.001) had statistically significant effects on the anxiety, depression and stress subscale median values of pregnant women.

Conclusion: Pregnant women were found to experience depression and anxiety during the COVID-19 pandemic. It is considered that knowing the negative psychosocial reactions experienced by pregnant women during the COVID-19 pandemic and taking protective measures will contribute to improving the health outcomes of the mother and the fetus.

Keywords: Mental health, pregnancy, depression, anxiety, stress, COVID-19

¹Department of Gynecology and Obstetric Nursing, Hitit University Faculty of Health Sciences, Çorum, Türkiye
²Department of Psychiatric Nursing, Ordu University Faculty of Health Sciences, Ordu, Türkiye
³Department of Gynecology and Obstetric Nursing, Ordu University Faculty of Health Sciences, Ordu, Türkiye

Correspondence
Fatma Yıldırım,
Hitit University Faculty of Health Sciences, Department of Gynecology and Obstetric Nursing, Çorum, Türkiye
Phone: +90 546 674 24 45
e-mail:
fatmadmryldrm@gmail.com

INTRODUCTION

The infectious epidemic that started in December 2019 in Wuhan China was recognized as the 2019 Coronavirus Disease (COVID-19) (1). COVID-19 is reported to be in the same category as viruses causing 'Middle East Respiratory Syndrome' (MERS) and 'Severe Acute Respiratory Syndrome' (SARS) (2). The virus may be asymptomatic or may progress with mild or severe symptoms (3). Depression and anxiety effects were reported in the general population in the early period of the COVID-19 pandemic (4).

In a study reviewing the literature about COVID-19, vulnerable groups (such as the elderly, migrant workers, homeless, pregnant women, Chinese students studying abroad and psychiatric patients) were mentioned in terms of COVID-19 (5). One of these vulnerable groups is pregnant women whose depression and anxiety levels are adversely affected, especially due to hormonal changes (6). Pregnancy causes partial suppression of the immune system and this process leaves women vulnerable to viral infections. In fact, it is reported that maternal or neonatal morbidity and mortality rates increase in pregnancy, including seasonal influenza seen in winter months (6, 7). As a result, the COVID-19 pandemic may lead to serious health outcomes in pregnant women. Concerns about pregnancy are increasing both for this reason and because of insufficient data on the effects of COVID-19 on mother and fetus. (7). Mothers may experience concerns about both the drugs used for treatment when they encounter the virus and the negative effects of the virus on the fetus, and whether the baby will be healthy or not. In addition to emotional fluctuations specific to pregnancy, concerns about their own health and the health of the fetus may also lead to serious mental problems (8). The COVID-19 pandemic is an unexpected negative life experience. Negative life experiences further increase depression and anxiety levels in pregnant women (9). There is a positive and triggering relationship between depression, anxiety and stress symptoms during pregnancy (10). Additionally, subsyndromal mental health problems (mixed syndrome in which the symptoms of anxiety and depression are not severe enough for diagnosis) are stated to be common during the COVID-19 pandemic (5). As a result, the risk of depression, anxiety and stress is further increased among pregnant women during the COVID-19 pandemic. Mental problems, especially anxiety and depression,

increase pregnancy complications, adversely affect fetal health, and are reported to cause low birth weight, prematerm birth and intrauterine growth retardation (11–13). As a result, nurses have significant responsibility in terms of early recognition, prevention and early intervention for emotional and mental problems that may occur in pregnancy (10). In the literature, there appears to be limited data about the depression, anxiety and stress of pregnant women during the COVID-19 pandemic (14). Additionally, the need to investigate the correlation between COVID-19-related stress and anxiety with adverse maternal and neonatal outcomes was stated (15). As a result, the aim of this article is to determine the depression, anxiety and stress experiences among pregnant women during the COVID-19 pandemic.

Hypotheses

H_1: The COVID-19 pandemic increases anxiety, depression and stress levels in pregnant women.

MATERIALS and METHODS

Model

This study is of descriptive type. Dependent variables were the depression, anxiety and stress levels of pregnant women.

Sample

The sample for the study was selected from women meeting the inclusion criteria, aged 18 and over, married, pregnant, who were reached via social media. The minimum number of pregnant women to be included in the study was calculated in the G-Power 3.1.9.2 program. Using the results of the study by Allison et al. (11), it was found to be 0.3 to obtain data and 203 pregnant women were included in the study.

Data Collection Tools

For collecting the data, the researchers prepared a descriptive information form using the literature, an information form on experiences during the COVID-19 pandemic, and the Depression, Anxiety, Stress Scale (DASS-21).

A descriptive information form consisting of 13 questions about sociodemographic data and 15 questions about quarantine days was developed by the researchers (5, 6).

The Depression, Anxiety, Stress Scale-21 (DASS-21) was developed by Lovibond and Lovibond (16) and adapted into Turkish by Sarıçam (17). The scale comprises 21 items with 7 items each for anxiety, depression and stress subdimensions. The scale assesses the presence and severity of depression, anxiety and stress symptoms within the past week as (0) never, (1) sometimes-occasionally, (2) very often and (3) all the time. Participants with a cut-off score of ≥10 for depression, ≥8 for anxiety, and ≥ 15 for stress dimensions were interpreted as having a high probability of experiencing these disorders (16). The Cronbach's alpha coefficients of the scale were found to be 0.81 for the stress subscale, 0.85 for the anxiety subscale and 0.87 for the depression subscale (17). In our study, the Cronbach's alpha coefficients were 0.85 for the stress subscale, 0.83 for the anxiety subscale, 0.80 for the depression subscale and 0.93 for the whole scale.

Table 1. Depression, anxiety, stress incidence and DASS-21 scale mean scores

	Having (%)	Not having (%)	Min.	Max.	Mean±SD
Depression	56.1	43.9	7	26	11.67±3.66
Anxiety	81.7	18.3	7	25	11.67±3.73
Stress	24.1	75.9	7	28	12.98±4.09

DASS-21: Depression, Anxiety, Stress Scale-21; Min: Minimum; Max: Maximum; SD: Standard deviation

Ethical Issues

The study was permitted by the Republic of Turkey Ministry of Health General Directorate of Health Services Scientific Research Platform and ethics committee approval was obtained from Ordu University Clinical Research Ethics Committee with the decision dated 14/05/2020 and numbered 101. The institutional permission numbered 2020-04-30T15_12_10 was obtained from the Ministry of Health on 30/04/2020. Consent was obtained from all participants. Data were collected online with Google Forms between 15.05.2020 and 01.07.2020.

Statistical Analysis

Quantitative data are given as percentage, mean and standard deviation. The Kolmogorov-Smirnov test, histogram and branch-leaf graphs, skewness-kurtosis coefficients were examined to test the distribution of the data. The Mann-Whitney U test was used to compare two groups. The Kruskal Wallis test was used to search for significant results in the comparison of more than two groups. The SPSS 21 program (SPSS Inc., Chicago, Ill, USA) was used for data analysis. P values of 0.05 were taken as the level of significance.

RESULTS

The mean age of the pregnant women was 27.60±5.41 years. Of pregnant women, 81.3% were under 35 years, 61.6% had a graduate or post-graduate degree, 48.8% were in the 3rd trimester of pregnancy and 62.1% were working in an income-generating job. Of partners, 58.1% were graduates or postgraduates, and 94.1% were working in an income-generating job. When the assessment of income levels was examined, 52.7% stated incomes were equal to expenses. Of pregnant women, 96.1% lived in a nuclear family. 66% of them were their first pregnancies, while 78.8% had no history of a risky pregnancy.

The majority of pregnant women (75.9%) used social media frequently during the COVID-19 pandemic. Of the pregnant women, 2% were quarantined due to a positive diagnosis of COVID-19. 72% of pregnant women stated that they were pessimistic about the end of the pandemic. When pregnant women were asked about the possibility of being positive for COVID-19, 56.7% stated that the probability was at moderate levels. In terms of anxiety, 39.9% of pregnant women were worried about their own health, while 61.1% were worried about the health of their babies. During this period, 52.2% of pregnant women experienced abnormal physical complaints. The majority of these complaints were identified to be insomnia (27%), headache (16.2%), stomach pain (16.2%) and excessive desire to eat (16.2%).

Table 2. Distribution of DASS-21 depression, anxiety or stress subscale median values by sociodemographic characteristics

Some sociodemographic characteristics	Depression		Anxiety		Stress	
	Median	p	Median	p	Median	p
Age (years)**						
18–34	11.00	0.608	11.00	0.813	12.00	0.378
35 and over	11.00		11.50		12.00	
Gestational week***						
4–13	11.00		10.00		13.00	
14–26	11.00	0.939	11.50	0.341	12.00	0.733
27–41	11.00		11.00		12.00	
Educational status***						
Primary school	11.00		9.00		11.00	
Secondery school	11.00		13.00		14.00	
High school	10.00	0.261	11.00	0.440	11.00	0.585
Associate degree	10.00		11.00		11.00	
University and over	12.00		11.00		13.00	
Working status***						
Working	10.50	0.081	10.50	**0.011***	12.00	**0.023***
Not working	12.00		11.00		13.00	
Number of pregnancy***						
1	11.00		11.00		13.00	
2	11.00	0.090	12.00	0.202	12.00	0.080
3 and over	7.50		9.50		9.00	
High risk pregnancy history**						
Having	11.00	0.999	11.00	0.996	13.00	0.525
Not having	11.00		11.00		12.00	
Presence of chronic disease**						
Having	12.00	0.524	12.00	0.414	14.50	0.536
Not having	11.00		11.00		12.00	

DASS-21: Depression, Anxiety, Stress Scale-21; *: p<0.05; **: It was evaluated by the Mann-Whitney U test; ***: It was evaluated by the Kruskall Wallis test

In Table 1, it was determined that the pregnant women experienced depression and anxiety, but their stress levels were normal. Accordingly, 81.7% of the pregnant women experienced anxiety, 56.1% depression and 24.1% stress.

As seen in Table 2, the anxiety and stress median values of unemployed women were higher than those of working women, and the difference was statistically significant (p<0.05), apart from the depression subscale median values (p>0.05).

When the median values of depression, anxiety and stress subscales were compared with regard to some characteristics of pregnant women during the COVID-19 pandemic, statistically significant differences were found in the mean test depression, anxiety and stress subscale median values according to social media use during the pandemic period, thoughts that they may be positive for COVID-19, thoughts about the end of the COVID-19 pandemic, concerns about their own or baby's health during the pandemic, and abnormal physical complaints during the pandemic (p<0.05) (Table 3). The difference created by the use of social media in the anxiety, depression

and stress subscales during the pandemic period was caused by the groups that answered the question 'moderate' and 'high'. The difference between the anxiety, depression and stress subscale median values associated with thoughts about the end of the COVID-19 pandemic resulted from the 'optimistic' and 'pessimistic', 'undecided' and 'pessimistic', and 'optimistic' and 'undecided' groups. In terms of concerns about their own or the baby's health, the differences in anxiety, depression and stress subscales were due to those who responded 'a lot' and 'a little', 'a lot' and 'rarely', and 'a lot' and 'absolutely not'. The differences in anxiety and stress subscales according to the state of thinking that they might be positive for COVID-19 were determined to be due to 'moderate' and 'a lot', and 'moderate' and 'too much' responses, while the difference in the depression subscale was due to responses of 'moderate' and 'too much'.

DISCUSSION

Pregnancy is a special period with unique changes. This uniqueness and differences involve a range of risks. Experiencing negative

Table 3. Distribution of DASS-21 depression, anxiety or stress subscale median values according to some information regarding the COVID-19 pandemic process of pregnant women

Information on the COVID-19 pandemic process	Depression		Anxiety		Stress	
	Median	p	Median	p	Median	p
Use of social media***						
Few	11.00		10.00		13.00	
Moderately	10.00	0.048*	10.00	0.044*	11.00	0.015*
Very much	11.00		11.00		12.00	
A lot	12.00		11.00		13.00	
Thoughts that they can be positive for COVID-19***						
Few	10.00		9.50		11.00	
Moderately	11.00	0.014*	11.00	0.009*	13.00	0.001*
Very much	12.00		12.00		13.50	
A lot	13.50		12.00		12.50	
Thoughts about the end of the COVID-19 pandemic***						
Hopeful	10.00		10.00		11.00	
Unstable	12.00	0.001*	12.00	0.001*	14.00	0.001*
Pessimistic	11.00		11.00		12.00	
Worrying about the health of herself***						
Yes, very much	13.00		12.00		14.00	
Yes, a little	10.00	0.001*	10.00	0.001*	12.00	0.001*
Rarely	9.00		9.00		10.00	
No way	9.00		9.00		8.50	
Worrying about the health of fetus***						
Yes, very much	12.00		11.00		14.00	
Yes, a little	10.00	0.001*	10.00	0.001*	11.00	0.001*
Rarely	9.00		9.00		10.00	
No way	9.00		8.50		8.50	
Experiencing abnormal physical symptoms**						
Having	12.00	0.001*	13.00	0.001*	14.00	0.001*
Not having	10.00		10.00		11.00	

DASS-21: Depression, Anxiety, Stress Scale-21; *: p<0.05; **: It was evaluated by the Mann-Whitney U test; ***: It was evaluated by the Kruskall Wallis test

events during this special period may increase the risks for both the fetus and mother and the probability of experiencing mental disorders (12). In the literature, pregnant women are reported to be more prone to depression, anxiety and stress, especially due to changes in reproductive hormones (18). Adding negative life experiences like the pandemic further increases the occurrence of depression, anxiety and stress among pregnant women.

In the last trimester of pregnancy, women experience anxiety and fear about the unpredictability of labor (19). Moyer et al. (2020) (20) reported that pregnant women experienced high levels of anxiety in their study with 2740 pregnant women during the COVID-19 outbreak. In a meta-analysis, the prevalence of depression and anxiety in pregnant women was found to be high during the pandemic (21). In our study, parallel to the literature, the rates of pregnant women who experienced depression and anxiety during the COVID-19 pandemic were found to be high.

Our study found higher levels of depression, anxiety and stress among pregnant women not employed in an income-generating job compared to employed pregnant women. The literature supports our findings, reporting the working status affects anxiety levels (22).

It is reported that pregnant women search for health information on the internet (23). Additionally, it is very common for participants to join in pregnancy-related forums (24). Groups like forums are well-known on social media. A study by Huberty et al. (2013) (25) reported that 65% of pregnant women obtained misinformation by using social media or the internet as a source of information. As the number of social media users increased during the COVID-19 pandemic, in our study, the levels of depression, anxiety and stress also increased. It is thought that the reason for this may be due to information pollution on social media.

Mothers who contract with infectious diseases during pregnancy are more concerned about the health of their babies (26). In line with the findings obtained from this research, the depression, anxiety and stress levels were found to be high in pregnant women who stated that they were worried about their own health or the health of the fetus. Supporting the results of our study, there are studies reporting that the health of the fetus and pregnant women affects depression and anxiety levels (6–27). Additionally, a study by Corbett et al. (2020) (14) reported that during the COVID-19 pandemic, 50.7% of pregnant women were not worried about their own health before, but they started to worry about the health status of the fetus or themselves. As a result of the findings obtained from this study and the literature, pregnant women are concerned about the health of the baby.

Pregnant women with 'pessimistic' thoughts about the course of the pandemic had higher stress levels in our study. This shows that negative thoughts about the COVID-19 pandemic increased stress levels.

In the literature, stress is reported to occur with physical symptoms like fatigue, headache, overeating and loss of appetite (28). In our study, an increase in depression, anxiety and stress levels was observed inpregnant women with abnormal physical complaints that started with the COVID-19 pandemic. This is important in terms of showing that stress perceived by pregnant women may occur somatically as physical symptoms.

CONCLUSION AND RECOMMENDATIONS

As a result, the depression and anxiety levels of pregnant women were found to be high during the COVID-19 pandemic. In addition, it was determined that the majority of the pregnant women were worried about the health of the baby, and despite all the measures and information, the majority of them were not optimistic about the pandemic. Therefore, to protect the mental health of pregnant women during the COVID-19 pandemic;

• Online or telephone (tele-psychiatry) supported training or consultancy programs should be prepared for pregnant women,

• The content of educational programs should include infant health and mental health issues,

• During crisis periods such as epidemics, it is recommended to develop programs specific to risk groups and to carry out necessary follow-ups.

Ethics Committee Approval: The study was permitted by the Republic of Turkey Ministry of Health General Directorate of Health Services Scientific Research Platform and ethics committee approval was obtained from Ordu University Clinical Research Ethics Committee with the decision dated 14/05/2020 and numbered 101. The institutional permission numbered 2020-04-30T15_12_10 was obtained from the Ministry of Health on 30/04/2020.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

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