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Evaluation of the Anxiety and Depression Scores in Women with Uncomplicated Pregnancies in the Era of Coronavirus Disease 2019: The Experience of a Single Tertiary Center**Koronavirüs 19 Hastalığı Döneminde Komplike Gebeliği Olmayan Kadınlarda Anksiyete ve Depresyon Puanlarının Değerlendirilmesi: Bir Üçüncü Basamak Tek Merkez Deneyimi**BARIŞ ÇIPLAK¹EYÜP GÖKHAN TURMUŞ¹YAVUZ ŞİMŞEK²YAHYA ŞAHİN³SERCAN EROĞLU³SELDA SONGUR DAĞLI¹MUSTAFA KARA¹

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Amaç: Son zamanlarda meydana gelen koronavirüs salgını küresel ölçekte son derece önemli bir sağlık sorunu haline geldi. Gebe kadınların psikolojik durumu üzerindeki etkisi hala araştırılmaktadır. Bu çalışma, koronavirüs hastalığı döneminde komplike olmayan gebeliklerin anksiyete ve depresyon puanlarını değerlendirmeyi amaçladı.

Gereçler ve Yöntem: Çalışmaya toplam 98 gebe dahil edildi. Hastalar gebeliğin trimesterlerine göre üç gruba ayrıldı; 1–12 hafta (grup 1, birinci trimester), 13–24 hafta (grup 2, ikinci trimester); ve 24 haftadan gebeliğin bitişine (grup 3, üçüncü trimester). 21 maddelik Beck anksiyete ve Beck depresyon ölçekleri tüm katılımcılar tarafından tamamlandı. Anksiyete ve depresyon skorları ile grupların demografik bilgileri karşılaştırıldı.

Bulgular: Grup 3'ün anksiyete düzeyi 2. ve 1. gruplardan anlamlı olarak yüksek bulunmuştur ($p < 0.001$). Grup 3'ün ortalama depresyon skoru grup 1'den anlamlı olarak yüksekti. Farklı eğitim düzeylerinden hastaların depresyon puanları benzerdi. Ancak hastaların eğitim düzeyleri arttıkça anksiyete skorları anlamlı olarak arttığını gözlemledik ($p < 0.001$).

Sonuç: COVID-19 döneminde, doğuma yaklaşan gebe kadınların depresyon ve anksiyete puanlarının erken gebelikleri olan kadınlara göre önemli ölçüde daha yüksek olabileceğini göstermiştir. Üçüncü trimesterde gebe kadınların antenatal dönem izleminde psikolojik desteğe önem verilmesi gebelik ve doğum sonuçlarını iyileştirmek için gereklidir.

Anahtar Kelimeler: Gebelik, COVID-19, Depresyon, Anksiyete, Psikoloji

ABSTRACT

Aim: The recent outbreak of coronavirus has become an extremely significant health issue on a global scale, and its impact on the psychological status of pregnant women is still under investigation. This study aimed to assess the anxiety and depression scores of uncomplicated pregnancies in the age of coronavirus disease 2019 (COVID-19).

Materials and Method: A total of 98 pregnant women were included in the study. The patients were divided into three groups according to the timing of pregnancy: 1–12 weeks (group 1, first trimester), 13–24 weeks (group 2, second trimester); and 24 weeks to the end of pregnancy (group 3, third trimester). The 21-item Beck anxiety and Beck depression scales were completed by all participants. Anxiety and depression scores and the demographic information of the groups were compared.

Results: The anxiety level of group 3 was found to be significantly higher than those of groups 2 and groups 1 ($p < 0.001$). The mean depression score of group 3 was significantly higher than that of group 1. The depression scores of patients from different educational levels were similar; however, it was observed that the higher educational level of patients was significantly correlated with higher anxiety scores ($p < 0.001$).

Conclusion: Our study showed that during COVID-19, the depression and anxiety scores of pregnant women approaching childbirth may be significantly higher than those of women with early pregnancies. The inclusion of psychological support in routine antenatal care for pregnant women in the third trimester should be considered to improve maternal and fetal outcomes.

Keywords: Pregnancy, COVID-19, Depression, Anxiety, Psychology

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INTRODUCTION

Anxiety and depression are common disorders that significantly reduce the quality of life of those affected and are considered serious health problems according to the World Health Organization (1). Currently, it is discussed that pregnancy itself may be associated with increased stress, anxiety, and depressive mood swings for a variety of reasons. These include the dramatic changes in body shape and physiology, occurrence of hormonal changes compared with the nonpregnant state, expectation of having a healthy baby, and fear of childbirth (2, 3). It has been shown that women with more anxiety or stress during pregnancy have a higher rate of spontaneous abortions and are more likely to deliver premature infants (4-6). There is also evidence that if a mother is highly stressed during pregnancy, her child is more likely to have emotional or cognitive problems, including an increased risk of attention-deficit/hyperactivity disorder, anxiety, and language delay (7, 8).

In late 2019, the outbreak named "novel coronavirus disease 2019" (COVID-19) caused by severe acute respiratory syndrome coronavirus-2, in Wuhan, China, became a global pandemic with an overall case fatality rate of 2.3% (9). The economic and social life of the whole world has changed significantly since the outbreak of the COVID-19 pandemic. However, to date, neither the impact of COVID-19 on fetomaternal health nor the specific treatment of the infection has been clarified (10, 11). It is reasonable to assume that this uncertainty must have increased the baseline anxiety and stress levels of pregnant women. Therefore, the present study used the Beck Inventory to determine the psychological status of women with uncomplicated pregnancies in the COVID-19 era to investigate a possible association between COVID-19 and increased depression and anxiety levels in these women.

MATERIALS AND METHODS

A cross-sectional clinical study was conducted involving a total of 98 pregnant women with uncomplicated pregnancies. The women were selected from the outpatient obstetrics clinic of the Department of Obstetrics and Gynecology, xxx xxxxx University, Faculty of Medicine, between April 01, 2020, and September 01, 2020. The patients were divided into three groups according to the timing of pregnancy: 1–12 weeks (group 1, first trimester), 13–24 weeks (group 2, second trimester); and 24 weeks to the end of pregnancy (group 3, third trimester).

Sample size calculation

Power analysis was performed using the post hoc power calculator program. In previous studies on anxiety and depression scores in the pregnant population, a twofold increase in anxiety and depression scores in pregnant women compared with those in the healthy pregnant population was found to be statistically significant (12). Therefore, it was planned to include at least 30 patients in each trimester in the present study to achieve a power of 80% and an alpha value of 0.05 to detect a significant difference.

Ethical approval

All participants were informed about the study, informed consent was obtained, and the study protocol was approved by the xxx xxxxx University Ethics Committee (date, June 10, 2020; approval number, 2020-08/52). All steps of the study were conducted under the basic principles of the Declaration of Helsinki.

Selection of patients

The inclusion criteria for the study were as follows: (1) spontaneous and uncomplicated singleton pregnancy; (2) ability to speak Turkish and no physical or mental disabilities that would prevent participation in the interventions; (3) no evidence of antenatal bleeding; (4) no preexisting medical or psychiatric comorbidities; and (5) no use of medications other than folic acid, vitamin, or iron supplements.

A comprehensive medical history was obtained from all pregnant women, including educational status, pregnancy history, history of medical illness, and chronic medication use, to rule out any mental or medical disorders before pregnancy. In all cases, an ultrasound examination was performed, including fetal biometry, placental location, and amount of amniotic fluid and excluding relevant obstetric conditions (e.g., twin pregnancy, molar pregnancy, or missed abortion).

In the Turkish health system, blood samples were routinely collected from all pregnant women at the baseline visit, at 24 weeks of gestation, and at the end of pregnancy. Blood samples were collected for biochemical tests and hemograms on the admission of all patients. Urinalysis for ketones was also carried out to detect hyperemesis gravidarum in pregnant women in the first trimester.

Data collection

Data were collected at the time of admission using a series of forms completed during face-to-face interviews by the same trained interviewers to ascertain the psychological status of the patients. After obtaining written informed consent, one of the coauthors (BC or YS) conducted the interviews. The first form

consisted of questions about the patients' basic demographic characteristics. The second form contained the Turkish versions of the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI). The BDI and BAI are 21-item self-report instruments used to assess the severity of depression and anxiety symptoms, respectively (13, 14). Each response is assigned a score, ranging from 0 (not disturbed at all) to 3 (severely disturbed), indicating the severity of symptoms. Individual questions of the BDI assess mood, pessimism, sense of failure, self-dissatisfaction, guilt, punishment, self-loathing, self-reproach, suicidal ideation, crying, irritability, social withdrawal, body image, work difficulties, insomnia, fatigue, appetite, weight loss, body preoccupation, and loss of libido. The instruments were translated into Turkish, and their reliability was recalculated by Kamyş et al. (15). For the Turkish population, a score of 17 or more represents depression according to Kamyş et al. (15). We used these cutoff scores to determine the depression level in the study population.

The BAI is used to measure anxiety. It is scored by summing the responses, with higher total scores indicating higher anxiety levels. The validity and reliability of the BAI in the Turkish population were shown by Ulusoy et al. (16).

Statistical analysis

Statistical analyses were performed using SPSS version 22.0 (SPSS Inc., Chicago, IL). Continuous variables are expressed as mean \pm standard deviation. Categorical variables are presented as numbers and percentages. Normality for continuous variables in groups was determined using the Kolmogorov-Smirnov test. The comparison of normally distributed variables was performed using the one-way ANOVA test, and non-normally distributed variables were compared using the Kruskal-Wallis H test. A P value of <0.05 was considered statistically significant.

RESULTS

Baseline and obstetric characteristics of the groups in terms of age, parity, educational status, gestational age, and BMI values at admission were similar, as shown in Table 1.

Table 1: Basic, educational, and obstetric characteristics of the groups.

	Age	<i>p</i>	BMI	<i>p</i>	Parity	<i>p</i>	Educational status			<i>p</i>
							Primary education (n,%)	High school (n,%)	University (n,%)	
Group 1 n:30	28 \pm 4,5	0,76	25,5 \pm 3,9	0,15	3 (0-3)	0,07	8 (26,6%)	12 (40%)	10 (33,3%)	0,75
Group 2 n:30	27 \pm 4,4		26,0 \pm 4,5		2 (0-3)		7 (23,3%)	16 (53,3%)	7 (23,3%)	
Group 3 n:38	27 \pm 4,8		27,3 \pm 3,3		4 (0-5)		11 (28,9%)	19 (50%)	8 (21%)	

Note: The one-way ANOVA test was used.

The anxiety and depression scores of the pregnant women in each trimester are shown in Table 2.

Table 2: Comparison of the Beck anxiety and Beck depression scores of the groups.

	Beck anxiety	<i>p</i>	Beck depression	<i>p</i>
Group 1 n:30	17,0 \pm 7,1	<0.001	14,4 \pm 6,3 †	0,015
Group 2 n:30	20,0 \pm 6,2		16,4 \pm 7,3	
Group 3* n:38	24,9 \pm 7,6		19,4 \pm 7,3 †	

Note: * Significantly different from others. † Significantly different from each other.

The one-way ANOVA test was used.

It was found that the pregnant women in group 3 had significantly higher anxiety scores than those in groups 1 and 2 ($p < 0.05$). The depression scores of groups 2 and 3 were similar, and both were higher than that of the women in group 1. The difference between the depression scores of groups 3 and 1 was statistically significant ($p = 0.0015$). The mean BDI scores of the women in group 3 were greater than 17 points, which is considered a cutoff value for depression in the Turkish population according to Kamyş et al. (15). The mean BDI scores of pregnant women in groups 1 and 2 were lower than the established cutoff value of 17.

In addition, the higher educational level of the patients was correlated with their higher anxiety scores, and the correlations were statistically significant ($p < 0.001$) (Table 3).

Table 3: Relationship between the educational level and anxiety and depression scores of the patients.

	Beck anxiety	<i>p</i>	Beck depression	<i>p</i>
Primary education	15,4 ± 4,6 *	<0,001	16,4 ± 7,7	0,905
High school	20,6 ± 6,0 *		17,0 ± 7,9	
University	27,3 ± 8,7 *		17,2 ± 5,5	

Note: * Significantly different from each other. The one-way ANOVA test was used.

However, no such correlation was observed between depression scores and patients' educational level ($p = 0.905$).

DISCUSSION

The results of the present study showed that Turkish women with uncomplicated pregnancies approaching delivery had significantly increased anxiety symptoms and depressed mood during the first pandemic of the 21st century.

In our single-center study, pregnant women in the second and third trimesters of their pregnancies showed significantly higher anxiety scores than women in the first trimester of pregnancy. The depression scores were also higher in women in the second and third trimesters of pregnancy than that in pregnant women in the first trimester. The mean depression scores of pregnant women in the third trimester were higher than the previously established threshold for depression in the Turkish population (15).

An increasing number of studies show similar findings of increased depressive and anxious mood changes in pregnant women from different societies since the onset of the COVID-19 pandemic. Recently, Mappa et al. (17) from Italy reported that 38.2% of pregnant women had significantly elevated anxiety scores during the first days of COVID-19 (17). Similarly, Lebel et al. (18) compared the anxiety and depression symptoms of pregnant Canadian women during the pandemic period with a pre-pandemic pregnant cohort and reported a 37% increase in clinically relevant depression symptoms and 57% reporting clinically relevant anxiety symptoms (18). In Israel, Taubman-Ben-Ari et al. (19) subjectively measured the anxiety and stress levels in pregnant women and reported significantly high COVID-19-related anxiety levels in both Arab and Jewish pregnant women. Recently, Durankuş and Aksu (20) from Turkey reported significant effects of COVID-19 on the mean scores in the BDI and BAI of pregnant women. When compared with a similar study conducted in our country; In our study, the depression and anxiety level of the pregnant women; It is seen that there is a significant increase compared to the pre-pandemic period (21). COVID-19-related negative mood changes in the

pregnant population have been associated not only with the pandemic itself but also with disease control measures, such as social isolation, social distance, and a sense of diminished freedom.

Another interesting finding of the current study was that a higher educational level was associated with higher anxiety level in the pregnant population. Consistent with our findings, an association between the educational level and elevated anxiety and depression scores was recently reported during the COVID-19 pandemic (22, 23). The association between the higher prevalence of psychological symptoms in individuals with higher educational levels may be due to the fact that this group has easier access to scientific and popular knowledge about the harmful effects of pandemics on pregnancy and greater self-awareness about their health.

This study has some limitations. One major limitation of the study was that the results were from a single tertiary center. Another limitation was that the assessment of the psychological impact of viral illness was based on relatively subjective methods. Finally, the number of pregnant women in each group was limited to accurately assess a clear relationship between the COVID-19 pandemic and the stress levels of the pregnant women.

CONCLUSION

In conclusion, it is evident that COVID-19 has become a chronic stressor for all humanity, including the pregnant population. The results of the current study suggest that in the COVID-19 era, psychological support for pregnant women approaching delivery is critical during prenatal follow-up, as increased anxiety and depressed mood have been associated with pregnancy complications, including abortion, preterm birth, small for gestational age, and intrauterine growth restriction. Larger multi-center studies are needed to clarify our findings.

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