Araştırma Makalesi
Research Article

Adnan Menderes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi 2023: 7(3); 497-508
Journal of Adnan Menderes University Health Sciences Faculty
doi: 10.46237/amusbfd.1169966

Gebelerin COVID-19 Nedeniyle Yaşadıkları Kaygılar ve Bu Kaygılarla Baş Etme Yöntemleri

Anxiety of Pregnant Women Due to the COVID-19 Pandemic and Their Coping Methods

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ÖZ

Amaç: Bu çalışma, gebelerin koronavirüs pandemisi nedeniyle yaşadıkları kaygı ve bu kaygıyla baş etme yöntemlerini incelemek amacıyla yapılmıştır.
Yöntem: Araştırma analitik-kesitsel olarak, Haziran-Aralık 2020 tarihleri arasında bir kamu hastanesinin kadın hastalıkları ve doğum polikliniğinde yapılmıştır. Araştırmanın evrenini bu polikliniğe başvuran gebeler, örneklemini 230 gebe oluşturmuştur. Veriler "Gebe Tanıtım Formu ve Durumluk Kaygı Ölçeği" ile toplanmıştır.
Bulgular: Araştırmaya katılan gebelerin Durumluk Kaygı Ölçeği puan ortalamalarının 47.92 ± 4.82 olduğu, %90.4'ünün yüksek düzeyde kaygı yaşadığı, kaygı yaşayan gebelerin %49.4'ünün kaygılarıyla baş edebilmek için bir girişimde bulunduğu ve bu girişimlerin başında genel korunma yöntemlerine uyma (%27.8), dua etme (%20.0), evden dışarı çıkmama ve misafir kabul etmemenin (%18.3) geldiği tespit edilmiştir.
Sonuç: Çalışmamızda COVID-19 enfeksiyonu nedeniyle gebelerin yüksek düzeyde kaygı yaşadıkları, gebelerin ve eşlerinin yaşlarının, gelir düzey algılarının, aile tiplerinin, gebelik haftalarının, yaşayan çocuk ve gebelik sayılarının gebelerin kaygılarını etkilediği sonuçlarına ulaşılmıştır. Ebelerin bakım verirken gebelerin korku ve kaygılarını sorgulamaları ve gebelerin kaygılarıyla baş edebilmeleri için gerekli danışmanlığı vermeleri önerilebilir.

Anahtar Kelimeler: Gebe, Kaygı, Koronavirüs, Pandemi.

ABSTRACT

Objective: This study was conducted to examine the anxiety experienced by pregnant women due to the coronavirus pandemic and the methods of coping with this anxiety.
Methods: The research was carried out analytically and cross-sectionally in the obstetrics and gynecology outpatient clinic of a public hospital between June and December 2020. The population of the study consisted of pregnant women who applied to this polyclinic, and the sample consisted of 230 pregnant women. The data were collected with the "Pregnant Information Form and State Anxiety Scale".
Results: The State Anxiety Scale mean score of the pregnant women participating in the study was 47.92 ± 4.82, 90.4% of them had high levels of anxiety, 49.4% of the pregnant women who had anxiety made an attempt to cope with their anxiety, and at the beginning of these interventions, they followed general contraception methods (27.8%), praying (20.0%), not leaving the house and not accepting guests (18.3%).
Conclusion: In our study, it was concluded that pregnant women experienced high levels of anxiety due to COVID-19 infection, and that the ages of pregnant women and their spouses, their perception of income levels, family types, weeks of pregnancy, and the number of living children and pregnancies affected the anxiety of pregnant women. It can be recommended

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Geliş Tarihi: 01.09.2022 – Kabul Tarihi: 15.06.2023
* This study was presented as an oral presentation at the 1st Uluslararasi Anadolu Ebeler Dernegi Kongresi held online between 21-22 / November 2020.
Yazar Katkıları: A) Fikir/Kavram, B) Tasarım, C) Veri Toplama ve/veya İşleme, D) Analiz ve/veya Yorum, E) Literatür Taraması, F) Makale Yazımı, G) Eleştirel İnceleme

that midwives question the fears and anxieties of pregnant women while giving care, and provide necessary counseling for pregnant women to cope with their anxieties.

Key words: Pregnant, Anxiety, Coronavirus, Pandemic.

1. INTRODUCTION

The new coronavirus (COVID-19) infection, which has emerged first in Wuhan, Hubei province, China and rapidly spread around the world, is one of the major public health issues the world has faced in recent years (1). The World Health Organization (WHO) has declared this infection pandemic causing public health emergency of international concern (2). The virus has high contagion ability and can be transmitted very quickly from person to person, whereby its transmission rate significantly increased in January 2020 and virus cases have been reported in all countries on a global scale (1,3). The virus can be transmitted from infected individuals through respiratory droplets and by contact with contaminated surfaces and oral, nasal, and eye mucous membranes. The infected people commonly have respiratory symptoms, fever, cough and dyspnea, and pneumonia, severe acute respiratory infection and death may develop in severe cases (3,4).

During pregnancy, pregnant women become more susceptible to viral infections, especially respiratory pathogens and severe pneumonia, due to partial suppression of their immune system. In addition, with the progression of pregnancy, they become intolerant to hypoxia due to the increased oxygen consumption and edema in the respiratory tract mucosa, increasing morbidity during pregnancy even because of seasonal flu (5-7). Although it is not known whether pregnant women have a higher risk of being affected by COVID-19 infection compared to other people, pregnant women and fetuses constitute a high-risk population during pandemics, and the morbidity and mortality of viral infections are higher in pregnant women than in the society (8-10). Although vaccination has started against COVID-19 infection, pregnant women are not recognized as a high priority group for COVID-19 vaccination, and are excluded from COVID-19 drug and vaccine studies due to concerns about its effects on the fetus, despite the poor perinatal outcomes of COVID-19 infection in the current literature (11). On the other hand, although the necessity of including pregnant women in clinical trials is accepted, the speed of development of COVID-19 vaccines and the trials have prevented the inclusion of pregnant women in this process and has led to uncertainty in this regard. Therefore, COVID-19 infection may cause serious maternal and fetal consequences in pregnant women, which may increase the anxiety levels of pregnant women (12).

Anxiety is defined as "a symptom of mental illness" and "a stressful state of tension that can cause fear in people" (13). During the present days of COVID-19 pandemic, pregnant women are psychologically worn out due to restriction of freedom, anxiety and fear, including fear of losing their baby, separation from the baby after birth, being unable to breastfeed the baby, and death, which may harm both themselves and their fetus. The risk of both infant complications such as low birth weight, intrauterine growth restriction and fetal distress, and maternal complications such as premature birth, bleeding and prolonged/rapid labor increases due to the difficulties caused by pandemic-induced current and future anxiety in pregnant women (14-17). Studies report that pregnant women who have anxiety disorders during pregnancy are more prone to depression after childbirth, therefore it is very important to

diagnose prenatal anxiety disorders and apply proper treatments in order to prevent depression in the postpartum period (14-17). In order to prevent all these risks, it is important to provide pregnant women with necessary support in order to examine and reduce their anxiety during the pandemic (17). It is important to support women in high-risk groups, such as pregnant women, who may be more adversely affected by the epidemic at the point of prevention and intervention of the negative consequences of stress and anxiety caused by the epidemic, and to offer various suggestions to cope with anxiety (18). Therefore, this study was conducted to examine the anxiety experienced by pregnant women due to the coronavirus pandemic and the methods of coping with this anxiety.

Research Questions:

1. What are the levels of anxiety experienced by pregnant women due to COVID-19 infection?
2. What are the factors associated with the anxiety levels of pregnant women due to COVID-19 infection?
3. What are the methods used by pregnant women to cope with their anxieties due to COVID-19 infection?

2. MATERIALS AND METHODS

Study Type and Place

This analytical cross-sectional study was conducted at Tekirdag State Hospital between June and December 2020.

Study Population and Sample

The population of the study consisted of pregnant women who applied to the gynecology and obstetrics outpatient clinic of Tekirdag State Hospital for routine pregnancy follow-ups. The size of the sample was calculated based on the data of a study (19) previously conducted with 184 pregnant women in Turkey, and the minimum number of individuals to be included in the sample was determined as 204 in the analysis performed by G*Power 3.1.9.2 where power=0.80, α=0.05 and effect size=0.18. Due to possible missing data, the study included 230 pregnant women. Pregnant women aged between 18-35 years who completed the 28th gestational week, were at least primary school graduates, could speak and understand Turkish and agreed to participate in the study were included in the study. Pregnant women who had physical or mental illnesses that might prevent data collection and who had complications (bleeding, multiple pregnancy, etc.) during pregnancy were not included in the study.

Data Collection Tools

TData were collected using a Pregnancy Information Form and the State-Trait Anxiety Inventory (STAI). Before data collection, pregnant women who met the study inclusion criteria were informed about the study and how to fill in the form and the scale. The form was filled out by the first researcher through face-to-face interviews with pregnant women, and the STAI was filled out by the pregnant women. During the data collection phase, the necessary COVID

measures (mask, distance etc.) were taken by the researchers. It took about 15-20 minutes to fill out the data collection tools.

Pregnancy Information Form: This form was prepared by the researchers in line with the literature (14,20,21) and included questions about the pregnant women's socio-demographic and obstetric characteristics such as age, education level, employment, perceived income, type of family, number of pregnancies, number of living children, anxieties due to COVID-19 infection and methods to cope with them. This form was administered to 10 pregnant women before collecting data in order to evaluate its comprehensibility and applicability, and the form was finalized after the incomprehensible questions were fixed. The data of these pre-tested pregnant women were not evaluated in the study.

The State-Trait Anxiety Inventory: The scale was developed by Spielberger et al. (1970) to determine the anxiety levels of people over the age of 14 years and adapted into Turkish by Oner and Le Compte (1983) (25). It consists of 20 items to determine how individuals feel in their current situation. The behaviors and emotions expressed in the items of the scale are scored as (1) none, (2) some, (3) much, and (4) completely (25). The total scale score ranges between 20 and 80. In addition, the scale includes reverse and straight scored items, where a score of 4 refers to high anxiety in straight scored items and 1 refers to high anxiety in reverse scored items, respectively. Items of 1, 2, 5, 8, 10, 11, 15, 16, 19 and 20 are scored reversely. A higher total scale score indicates a higher level of anxiety, where 20 and 80 refer to the lowest and highest levels of anxiety, respectively. When the score obtained from the scale is below 36 points, it is considered as no anxiety, when it is between 37-42 points, it is considered as mild anxiety, and when it is over 42 points, it is considered as high anxiety. (22). The Cronbach's alpha value of the study was found to be 0.896.

Data Evaluation

The data was evaluated using the Statistical Package for the Social Sciences (SPSS) 24.0. The descriptive data were presented in number, percentage, mean, standard deviation, the median and interquartile range (IQR) values of the data are given. The normality of the data was checked using the Kolmogorov Smirnov test. As the data did not have normal distribution, the Mann Whitney U and Kruskal Wallis tests were used to compare the data. In variables that were found to be significant as a result of Kruskal Wallis Variance analysis, the group causing the difference was determined by the Mann Whitney U test. A p value less than 0.05 was considered statistically significant for all analyzes.

Ethical Considerations

For conducting the study, an ethical committee approval was obtained from the Faculty of Health Sciences Non-Interventional Clinical Research Ethics Committee (01.06.2020 and 53875521-050-E.260) and institutional permission from Tekirdag Provincial Health Directorate (01.07.2020 and 12641312-044). The pregnant women included in the study were informed about the study and their verbal and written consents were obtained. Permission was obtained from the authors of the scales to use them in the study. In addition, the principles of the Declaration of Helsinki were followed in the study.

3. RESULTS

The mean age and duration of marriage of the pregnant women were 26.62±3.73 and 6.27±3.14 years, respectively. Of the pregnant women, 40% were primary school graduates, 9.6% were employed, 68.7% had moderate income, and 83.5% had nuclear family. In this study, it was determined that the age of the pregnant women, the perception of income level, and the age of the spouse statistically affected the STAI scores ($p < 0.05$), (Table 1).

Table 1. Socio-Demographic Characteristics and Corresponding STAI Mean and Median Scores of Pregnant Women (n=230)

Socio-Demographic Characteristics	n (%)	Mean±SD*	Median (IQR)	Significance Test
Age				
19-24 (a)	72 (31.3)	46.43 ± 4.68	46.00 (44.00-50.00)	KW=26.130
25-30 (b)	138 (60.0)	48.27 ± 4.87	49.00 (46.00-51.00)	**p<0.001**[1]
31-36 (c)	20 (8.7)	50.90 ± 2.98	51.00 (48.00-54.00)	
Mean ± SD* 26.62±3.7				
Education Level				
Primary School	92 (40.0)	47.40 ± 5.79	49.00 (45.50-51.00)	KW=4.177
Secondary School	73 (31.7)	48.41 ± 4.30	47.00 (42.00-51.00)	p=0.243
High School	51 (22.2)	47.49 ± 3.41	48.00 (45.00-51.00)	
University and above	14 (6.1)	50.42 ± 4.21	48.00 (48.00-52.00)	
Employment Status				
Employed	22 (9.6)	48.27 ± 5.14	49.00 (45.00-51.00)	U=2175.000
Unemployed	208 (90.4)	47.88 ± 4.80	48.00 (45.00-51.00)	p= 0.702
Perceived Income Level				
Low (a)	47 (20.4)	49.04 ± 4.92	50.00 (48.00-51.00)	KW=11.219
Moderate (b)	158 (68.7)	47.31 ± 4.83	48.00 (45.00-51.00)	**p=0.004**[2]
High (c)	25 (10.9)	49.72 ± 3.85	50.00 (48.00-51.00)	
Type of Family				
Nuclear	192 (83.5)	47.66 ± 5.072	48.00 (45.00-51.00)	U= 2855.000
Extended	38 (16.5)	49.23 ± 3.06	50.00 (48.00-51.00)	p=0.030
Spouse's Age				
20-24 (a)	24 (10.4)	45.87 ± 3.45	46.00 (43.00-48.00)	KW= 10.962
25-30 (b)	135 (58.8)	47.97 ± 4.92	49.00 (45.00-51.00)	**p=0.004**[3]
31-38 (c)	71 (30.8)	48.60 ± 4.92	49.00 (47.00-51.00)	
Mean±SD* 29.15±3.28				
Spouse's Education Level				
Primary School	9 (3.9)	50.88 ± 3.29	50.00 (49.00-55.00)	KW=2.712
Secondary School	107 (46.5)	48.09 ± 4.22	49.00 (46.00-51.00)	p=0.100
High School	89 (38.7)	47.03 ± 5.558	48.00 (45.00-51.00)	
University and above	25 (10.9)	49.32 ± 4.29	50.00 (45.00-51.00)	
Duration of Marriage (year)				
1-5	94 (40.9)	47.89 ± 3.40	48.50 (46.00-50.00)	KW=3.764
6-10	126 (54.8)	47.76 ± 5.72	48.00 (45.00-51.00)	p=0.152
11-13	10 (4.3)	50.30 ± 3.30	51.00 (48.00-54.00)	
Mean± SD (year) 6.27±3.14				

*Standard deviation [1] a<b<c [2] b<a=c [3] a<b=c

The mean week of gestation of the pregnant women was 32.42±3.14 weeks, the mean number of pregnancies was 2.59±1.17 and the mean number of living children was 1.61±0.74. As the gestational week of the pregnant women increased, the mean STAI scores increased and this difference was caused by the 36-39 week group were found to be higher than those in the

week group (p <0.05). It was found that as the number of previous pregnancies increased, the STAI scores of the pregnant women increased statistically and the mean STAI score of the pregnant women who had no surviving children (46.94 ± 3.84) was statistically significantly lower than the ones who had surviving children (48.11 ± 4.98) (p <0.05) (Table 2).

Table 2. Obstetric Characteristics and Corresponding STAI Mean and Median Scores of Pregnant (n=230)

Obstetric Characteristics	n (%)	Mean±SD*	Median (IQR)	Significance Test
Gestational Week				
28-31 (a)	98 (42.6)	47.02 ± 5.29	48.00 (45.00-51.00)	**KW=11.630**
32-35 (b)	77 (33.5)	47.58 ± 4.44	48.00 (45.00-51.00)	**p=0.003[1]**
36-39 (c)	55 (23.9)	50.01 ± 3.81	49.00 (48.00-53.00)	
Mean ± SD* 32.42 ± 3.14				
Number of Pregnancy				
First Pregnancy (a)	40 (17.4)	46.72 ± 3.77	46.00 (44.00-50.00)	**KW=12.196**
2-3 (b)	139 (60.4)	47.99 ± 5.08	49.00 (45.00-50.00)	**p=0.002[2]**
4 -5 (c)	51 (22.2)	48.68 ± 4.74	51.00 (48.00-51.00)	
Mean ± SD* 2.59 ± 1.17				
Number of Living Children				
None	37(16.1)	46.94 ± 3.84	46.00 (44.00-50.00)	**U=4366.000**
1-4	193 (83.9)	48.11 ± 4.98	48.00 (45.00-51.00)	**p=0.025**
Mean ± SD* 1.61±0.74				
Planned/Wanted Pregnancy				
Yes	177 (77.0)	47.76 ± 5.21	48.00 (45.00-51.00)	U=4298.000
No	53 (23.0)	48.45 ± 3.18	49.00 (46.00-51.00)	p=0.353
Prenatal Training				
Yes	97 (42.2)	48.21 ± 4.44	49.00 (45.00-51.00)	U=6285.000
No	133 (57.8)	47.71 ± 5.09	48.00 (45.00-51.00)	p=0.739
Prenatal Training Instructor (n=97)				
Midwife / Nurse	69 (71.2)	48.53 ± 4.74	49.00 (45.00-51.00)	KW=2.152
Physician	10 (10.3)	48.20 ± 3.88	49.00 (48.00-51.00)	p=0.341
Midwife / Nurse + Physician	18 (18.5)	47.00 ± 3.41	48.00 (45.00-51.00)	
Perceived Sufficiency of Prenatal Training (n=97)				
Sufficient	56 (57.7)	47.69 ± 4.49	48.00 (45.00-51.00)	KW=2.162
Insufficient	24 (24.7)	49.75 ± 4.51	49.00 (47.00-52.00)	p=0.339
No idea	17 (17.6)	47.76 ± 3.92	47.00 (45.00-50.00)	
Having Supporting Person(s) During Pregnancy				
Yes	86 (37.4)	48.86 ± 4.16	49.00 (45.00-51.00)	U=5265.500
No	144 (62.6)	47.36 ± 5.11	48.00 (45.00-51.00)	p= 0.056
Having Supporting Person(s) After Pregnancy				
Yes	82 (35.7)	48.40 ± 3.62	49.00 (45.00-51.00)	U=5768.000
No	148 (64.3)	47.66 ± 5.37	48.00 (45.00-51.00)	p=0.533

*Standard deviation [1] a=b <c [2] a<b<c

In the study, 17.8% of the pregnant women knew people with COVID-19 infection around them. In addition, 15.2% of the pregnant women reported to have sufficient information about COVID-19 infection, 84.6% of them obtained this information only from television. In this study, it was determined that the presence of familiar persons with COVID-19 infection, having sufficient knowledge about COVID-19 infection, source of information about COVID-19 infection of the pregnant women, statistically not affected the STAI scores (p>0.05), (Table 3).

The mean STAI score of the pregnant women was 47.92±4.82, and 90% of them were found to have high levels of anxiety. Pregnant women had anxiety about themselves due to COVID-19 infection, 27.8% had partial anxiety and 29.1% had no anxiety. The mean STAI score (45.56±5.25) of pregnant women who had no anxiety about themselves due to COVID-

19 infection was lower than those who had anxiety (48.16±4.57) and those who had partial anxiety (50.03±3.57). the difference was statistically significant. While the anxiety of the pregnant women about their babies affected the mean STAI score, it was seen that those with partial anxiety had the highest STAI score (50.34 ± 2.96), and those who had no anxiety had the lowest STAI score (44.70 ± 5.51) (Table 4).

Table 3. Features of Pregnant Women Regarding COVID-19 Infection and Their STAI Mean and Median Scores According to These Features (n=230)

Features	n (%)	Mean±SD*	Median (IQR)	Significance Test
Presence of Familiar Persons with COVID-19 Infection				
Yes	41 (17.8)	48.92 ± 2.11	49.00 (45.00-53.00)	U= 3353.000
No	189 (82.2)	47.70 ± 5.21	48.00 (45.00-51.00)	p=0.175
Having Sufficient Knowledge about COVID-19 Infection				
Yes	35 (15.2)	48.97 ± 4.02	48.00 (46.00-51.00)	KW=5.500
No	80 (34.8)	46.87 ± 4.68	46.00 (45.00-50.00)	p=0.064
Partially	115 (50.0)	48.33 ± 5.05	49.00 (45.00-51.00)	
Source of Information about COVID-19 Infection				
Television	127 (84.6)	47.98 ± 4.78	49.00 (47.00-51.00)	U=2598.000
Television + Internet + Physician	23 (15.4)	47.66 ± 2.88	46.00 (45.00-51.00)	p=0.254

*Standard deviation

Table 4. Reasons of Anxiety in Pregnant Women and Corresponding STAI Mean and Median Scores (n=230)

Features	n (%)	Mean±SD*	Median (IQR)	Significance Test
Anxiety Level				
None (a)	8 (3.5)	31.50 ± 2.92	30.00 (29.00-35.00)	**KW=60.173**
Mild Anxiety (b)	14 (6.1)	41.71 ± 0.46	42.00 (41.00-42.00)	**p<0.005[1]**
High Anxiety (c)	208 (90.4)	48.97 ± 3.36	49.00 (46.00-51.00)	
STAI Mean ± SD*	**47.92±4.82 (min:29-max:58)**			
Anxiety of Pregnant Women about Themselves (According to Their Own Expressions)				
Yes (a)	99 (43.1)	48.16 ± 4.57	49.00 (45.00-51.00)	**KW=22.476**
No (b)	67 (29.1)	45.56 ± 5.25	46.00 (44.50-50.00)	**p<0.001[2]**
Partially (c)	64 (27.8)	50.03 ± 3.57	49.00 (48.00-54.00)	
Reasons of Anxiety for Themselves (n=163)**				
Transmitting COVID-19 Infection to the Baby	72 (44.2)	49.90 ± 49.90	50.00 (48.00-52.00)	
Getting COVID-19 Infection	50 (30.6)	49.08 ±3.37	50.00 (48.00-51.00)	
Fear of Dying	25 (15.4)	46.32 ± 5.99	48.00 (44.00-51.00)	KW= 5.263
I Do not Know	7 (4.3)	47.28 ± 3.49	45.00 (44.00-51.00)	p=0.072
All	6 (3.7)	49.16 ± 4.91	50.00 (43.00-51.50)	
Having a Cesarean Section Due to COVID-19 Infection	3 (1.8)	46.33 ± 2.30	45.50 (45.00-53.00)	
Anxiety of Pregnant Women for Their Babies				
Yes (a)	133 (57.8)	48.28 ± 4.46	49.00 (45.00-51.00)	**KW=30.760**
No (b)	50 (21.7)	44.70 ± 5.51	46.00 (44.00-48.00)	**p<0.001[3]**
Partially (c)	47 (20.5)	50.34 ± 2.96	50.00 (48.00-54.00)	
Reasons of Anxieties About the Baby (n=180)*				
Malformation/Sequellae in the Baby Due to COVID-19 Infection	102(56.6)	49.23 ± 3.68	50.00 (47.00-51.00)	
Getting Coronavirus by the Baby	39 (21.6)	48.79 ± 3.47	49.00 (46.50-51.00)	
Getting Coronavirus by the Baby+ The Baby's Death+Sequellae	24 (13.4)	47.75 ± 3.42	47.00 (46.00-50.00)	KW=3.311 p=0.346
Death of the Baby	15 (8.4)	47.80 ± 8.54	47.50 (45.00-51.00)	

*Standard deviation **Multiple responses. [1] a<b<c [2] b<a=c [3] b<a<c

Table 5 presents the methods and practices of pregnant women to cope with their anxiety due to COVID-19 infection. Accordingly, 49.4% of the pregnant women used methods to cope with their concerns due to COVID-19 infection, mainly including obeying the rules of general protection methods (cleaning / mask / social distancing) (27.8%), praying (20%), staying at home / not accepting guests (18.3%), and distracting themselves by doing hobbies (14.4%). The pregnant women's methods to cope with their anxiety due to COVID-19 infection did not statistically affect their STAI mean scores (Table 5).

Table 5. Methods and Practices of Pregnant Women to Cope with Their Anxiety Due to COVID-19 Infection (n=230)

Features	n (%)	Mean±SD*	Median (IQR)	Significance Test
Having Methods of Pregnant Women to Cope with Their Anxiety (n=180)				
Yes	87 (49.4)	49.03 ± 4.60	49.00 (48.00-51.00)	U= 3593.500 p=0.193
No	93 (51.6)	48.62 ± 3.84	48.00 (45.00-51.00)	
Coping Methods (n=180)**		**n**	**%**	
Using General Protection Methods (Cleaning / Mask / Social Distancing)		50	27.8	
Praying		36	20.0	
Staying at Home / Not Accepting Guests		33	18.3	
Distract Herself by Doing Hobbies		26	14.4	
Trying Not to Think about the Coronavirus		23	12.8	
Not Watching TV/Listening to the News.		12	6.7	

4. DISCUSSION

There are several unknowns and uncertainties about the COVID-19 pandemic, causing changes in our lives and making us feel anxious. This study was conducted to examine the anxieties of pregnant women due to COVID-19 infection and their methods of coping with these anxieties. The majority of pregnant women in the study were highly concerned about COVID-19 infection, and the mean STAI score was 47.92 ± 4.82. Pandemics cause great trauma and increase anxiety in humans (23-25). Liu et al. (2020) evaluated the anxiety levels of pregnant women in Wuhan and Chongqing, the city's most and least affected by the COVID-19 pandemic, respectively. They found that pregnant women in Wuhan had higher anxiety (18). Mappa et al. (2020) assessed the psychological effects of COVID-19 pandemic on pregnant women in Italy, and determined that they had high STAI mean score (26). Berthelot et al. (2020) reported that pregnant women who were evaluated during the COVID-19 pandemic had higher anxiety and psychiatric problems than those who were evaluated before the pandemic (17). Compared to these studies conducted, the present study found that pregnant women had higher anxiety scores during the pandemic. Due to the high level of anxiety in pregnant women and the negative impact of anxiety on both maternal and fetal health, it is important to examine the anxiety levels of pregnant women during the pandemic and to provide them with necessary support (17,18,23-26).

The present study found that the age of both pregnant women and their spouses affected the state anxiety of pregnant women, whereby as the age of pregnant women and their spouses increased the state anxiety of pregnant women increased. This result is consistent with those found by Yücel et al. (2013) (21) and Liu et al. (2020) (18). The fact that as the age of pregnant

women and their spouses increases the state anxiety of pregnant women increases may be because of the increased number of children and responsibility by age. This may be also because COVID-19 infection develops more frequently with more severe symptoms in older ages.

The present study also found that the perceived income level of the pregnant women affected their STAI mean scores, whereby those with high and low perceived income levels had higher anxiety than those with moderate perceived income level. These results are similar to those in the study conducted to determine the level of prenatal anxiety and obstetric decisions of pregnant women in Wuhan and Chongqing during the COVID-19 epidemic (18). Although it is known that future anxiety is experienced less as the income level increases, the self-report and subjective assessment of pregnant women about their income levels may be the reason why those who perceived their income as moderate had less anxiety.

Prenatal attachment starts before the baby is born, increases gradually as the pregnancy progresses, and becomes stronger after the baby is born (27). The present study found that gestational week of the pregnant women affected their STAI mean scores, whereby as the gestational week increased, their STAI mean scores increased. This may be because as birth gets closer the mother-baby attachment and the fear of pregnant women for losing their baby increase. The results of the present study are similar to those in the literature (26,28).

The feeling of the unknown is one of the most important factors that increase anxiety and fear. Uncertainties about coronavirus can cause some concerns in people. In this study, the majority of the pregnant women reported to have anxiety about both themselves and their baby due to the COVID-19 infection, and those who had anxiety about themselves and their baby had higher state anxiety scores. The main reasons reported by the pregnant women for having anxiety included transmitting COVID-19 infection to the baby, getting the virus, fear of dying, the possibility of malformation/sequalae in the baby due to the infection and the risk of developing the disease in the baby (21.6%). In the literature, studies report that the anxiety associated with the negative effects of COVID-19 infection on the fetus can cause psychological fluctuations and serious psychological problems during pregnancy, that anxiety occurs during pregnancy as pregnant women focus on their babies rather than themselves, and that pregnant woman have fear of losing their babies during pregnancy, causing them to feel hopeless and helpless (15,18,29). Therefore, pregnant women should be monitored more carefully in terms of the increased risk of psychological diseases specific to the postpartum period. They should be evaluated psycho-socially and physically, and be provided with psychological support when they need, which will positively affect both maternal and fetal health (1,24). Although anxiety is a part of life, it is an alarm system to protect people from danger and take precautions. A manageable anxiety is considered protective for human health, but it may cause several psychological problems if it is not under control. It is normal to be anxious during pandemics, but it is necessary to continue life by taking the most effective measures possible without worrying (25).

In this study, although there was no statistically significant difference between the STAI mean scores of the pregnant women who had and did not have methods to cope with their anxieties due to COVID-19 infection, those who had methods to cope with their anxiety had higher STAI mean score. This suggests that those taking precautions to cope with COVID-19 infection are aware of the seriousness of the pandemic and therefore have more anxiety. Although their methods to cope with anxiety varied, their methods mainly included following

general protection methods (mask, social distancing and cleaning), praying, and staying at home/not accepting guests. One Chinese study determined that most of the pregnant women took preventive measures such as wearing a mask, frequent hand washing and staying at home (30). It is pleasing that pregnant women who participated in the present study used methods for the protection from COVID-19 infection in order to cope with their anxieties. In addition to the application of personal protection methods, pregnant women should be informed about contacting health institutions for case reporting and research when they have suspicious symptoms (16).

5. CONCLUSION

In our study, it was found that pregnant women experienced high levels of anxiety due to COVID-19 infection, the age of pregnant women and their spouses, perception of income level, gestational week, number of pregnancies, number of living children and anxiety according to their own statements were associated with STAI, and pregnant women were associated with COVID-19 infection. It was concluded that they resorted to various prevention methods in order to cope with the anxiety they experienced. In line with these results,

- Midwives who provide prenatal care should question the fears and anxieties of pregnant women,
- The number of course where expectant mothers and fathers can receive training about the pandemic should be increased, and they should be directed to the places where they can receive counseling during pregnancy,
- Screening programs should be initiated and implemented to determine the mental health of pregnant women,
- The needs of pregnant women and relevant health services should be addressed in preparedness and response plans for the pandemic,
- In-service trainings should be organized to train midwives with necessary knowledge and equipment in order to support pregnant women in coping with their anxieties,
- Further studies to create comprehensive and strong evidence on this subject should be conducted.

Study Limitations

As the study was conducted in one hospital, it cannot be generalized to other institutions.

Conflict of Interest

All authors declare no conflict of interest.

KAYNAKLAR

1. Wu, Z., & McGoogan, J. M. (2020). Characteristics of and important lessons from the coronvirus disease 2019 (COVID-19 outbreak in China: Summary of a report of 72314 case from the Chinese center for disease control and prevention. *JAMA*, *323*(13), 239-1242. doi:10.1001/jama.2020.2648.

2. World Health Organization. Director-General's remarks at the media briefing on 2019-nCoV on 11 February 2020. https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media briefing-on-2019-ncov-on-11-february-2020. (Avaible date: 11 Jan 2021).
3. T.C. Ministry of Health, General Directorate of Public Health. (2022). COVID-19 Guide.https://covid19.saglik.gov.tr/TR-66393/covid-19-salgin-yonetimi-ve-calisma-rehberi.html (Avaibledate: 21 March 2023).
4. Pal, M., Berhanu, G., Desalegn, C., & Kandi, V. (2020). Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2): An Update. *Cureus, 12*(3), 26. e7423. doi: 10.7759/cureus.7423.
5. Özcan, H., Elkoca, A., & Yalçın, Ö. (2020). COVID-19 Infection and Its Effects on Pregnancy. *Anatol Clin*, *25*(1), 43-50. doi: https://doi.org/10.21673/anadoluklin.708151
6. Ovalı, F. (2020). COVID-19 Infections in Newborns. *Anatol Clin*, *25*(1), 23-35. doi: https://doi.org/10.21673/anadoluklin.708589
7. Desdicioğlu, R., & Yavuz, A. F. (2020). COVID-19 and pregnancy. *Ankara Med J, 2,* 482-487. doi: 10.5505/amj.2020.74318.
8. Rasmussen, S. A., Smulian, J. C., Lednicky, J. A., Wen, T., & Jamieson, D. J. (2020). Coronavirus disease 2019 (COVID-19) and pregnancy: What obstetricians need to know. *Am J Obstet Gynecol*, *222*(5), 415-426. doi: https://doi.org/10.1016/j.ajog.2020.02.017
9. Qiao, J. (2020). What are the risks of COVID-19 infection in pregnant women? The *Lancet, 395*(10226), 760-762. doi: https://doi.org/10.1016/S0140-6736(20)30365-2.
10. Taşkın, L. (2016). *Doğum ve Kadın Sağlığı Hemşireliği*, Ankara: Akademisyen Tıp Kitabevi; p.462-90.
11. United States Food and Drug Administration. (2022). "Emergency use authorization". Erişim adresi: https://www.fda.gov/emergency-preparednessandresponse/mcm legal-regulatory-and-policyframework/emergency-use-authorization (Avaible date: 25.02.2023).
12. World Health Organization. (2020). "WHO Sage Roadmap for Prioritizing Uses of Covıd-19 Vaccines in The Context of Limited Supply". Erişim adresi: https://www.who.int/publications/m/item/who-sage-roadmap-for prioritizing-uses-of-covid-19-vaccines-in-the-context-of-limited-supply (Avaible date: 27.03.2023).
13. Türkmen, H., Yalnız, H.D., & Özçoban, F.A. (2021). Traumatic childbirth perception during pregnancy and the postpartum period and its postnatal mental health outcomes: a prospective longitudinal study. *J Reprod Infant Psychol*, *39*(4), 422-434. doi: 10.1080/02646838.2020.1792429.
14. Yang, P., Liu, P., Liu, P., Li, D., & Zhao, D. (2020). Corona Virus Disease 2019, A growing threat to children? *J Infect*, *80*(6), 671-693. doi: 1016/j.jinf.2020.01.022.
15. Şen, E., & Şirin, A. (2013). The factors affecting depression, anxiety and perceived social support level of pregnant women who have the diagnosis of preterm labor. *Gaziantep Med J. 9*(3), 159-163. doi: 10.5455/GMJ-30-2013-149.
16. Mirzadeh, M., & Khedmat, L. (2020). Pregnant women in the exposure to COVID-19 infection outbreak: the unseen risk factors and preventive healthcare patterns. *J Matern Neonatal Med, 7*, 1–2. doi: 10.1080/14767058.2020.1749257.
17. Berthelot, N., Lemieux, R., Garon-Bissonnette, J., Drouin-Maziade, C., & Martel Mazide M. (2020). Uptrend in distress and psychiatric symptomatology in pregnant women during the coronavirus disease 2019 pandemic. *Acta Obstet Gynecol Scand*, *99*(7), 848-855. doi: 10.1111/aogs.13925.
18. Liu, X., Chen, M., Wang, Y., Sun, L., Zhang, J., Shi, Y., et al. (2020). Prenatal anxiety and obstetric decisions among pregnant women in Wuhan and Chongqing during the

COVID-19 outbreak: A cross-sectional study. *BJOG, 127,* 1229-1240. https://doi.org/10.1111/1471-0528.16381.

19. Altuntuğ, K., Ege, E., Anık, Y., Öney, Y., Acar, A., Sayal, H. B., et al. (2019). Anxiety status in pregnant women admitted for amniocentesis and cordocentesis. *Necmettin Erbakan University Faculty of Health Sciences Journal*, *2*(1), 1-9.

20. Zhang, W. R., Wang, K., Yin, L., Zhao, W. F., Xue, Q., Peng, M. et. al. (2020). Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. *Psychotherapy and Psychosomatic, 89*(9), 1-9.

21. Yücel, P., Çayır, N., & Yücel, M. (2013). Depression and Anxiety Among First Trimester Pregnancies. *Clinical Psychiatry, 16,* 83-87.

22. Öner, N. &Le, Compte, A. (1985). *Süreksiz durumluk/sürekli kaygı envanteri el kitabı.* İstanbul: İstanbul Boğaziçi Üniversitesi Yayınları.

23. Kira, I.A., Shuwiekh, H.A.M., Ashby, J.S., Elwakeel, S.A., Alhuwailah, A., Sous, M.S.F., et al. (2023). The Impact of COVID-19 Traumatic Stressors on Mental Health: Is COVID-19 a New Trauma Type. *Int J Ment Health Addict, 21*(1), 51-70. doi: 10.1007/s11469-021-00577-0.

24. Poon, L. C., Yang, H., Lee, J. C. S., Copel, J. A., Leung, T. Y., Zhang, Y., et al. (2020). ISUOG Interim Guidance on 2019 novel COVID-19 infection during pregnancy and puerperium: information for healthcare professionals. *Ultrasound Obstet Gynecol, 55*(5), 700-708. doi: 10.1002/ uog.22013.

25. Esterwood, E., & Saeed, S.A. (2020). Past epidemics, natural disasters, COVID19, and mental health: Learning from history as we deal with the present and prepare for the future. *Psychiatr Q, 91*(4), 1121-1133. doi: 10.1007/s11126-020-09808-4.

26. Mappa, I., Distefano, F.A., & Rizza, G. (2020). Effects of coronavirus 19 pandemic on maternal anxiety during pregnancy: a prospectic observational study. *J Perinat Med 48*(6), 545–550. doi: 10.1515/jpm-2020-0182.

27. Bekmezci, H., & Özkan, H. (2016). Psychosocial health care in pregnancy, prenatal attachment and responsibilities of midwife-nurse. *International Refereed Journal of Gynaecology and Maternal Child Health, 8,* 50-62.

28. Madhavanprabhakaran, G.K., D'Souza, M.S., & Nairy, K. S. (2016). Effectiveness of childbirth education on nulliparous women's knowledge of childbirth preparation, pregnancy anxiety and pregnancy outcomes. *Nurs Midwiferey Stud*, (November). doi: https://doi.org/10.17795/nmsjournal32526.

29. Dağlar, G., Nur, N., Bilgiç, D., & Kadıoğlu, M. (2015). Affective disorders in pregnancy. *KASHED, 2*(1), 27-40.

30. Yue, C., Liu, C., Wang, J., Zhang, M., Wu, H., Li, C., et al. (2020). Association between social support and anxiety among pregnant women in the third trimester during the coronavirus disease 2019 (COVID-19) epidemic in Qingdao, China: The mediating effect of risk perception. International Journal of Social Psychiatry, *0,* 1-20. doi: 10.1177/0020764020941567.