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Investigation of Mothers' Fear of COVID-19 and the Status of Receiving Antenatal Care During the Pandemic Process

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ABSTRACT

This study was carried out to examine the mothers' fear of COVID-19 and their status of receiving antenatal care during the pandemic process. This descriptive and cross-sectional study was carried out between January 1 and May 31, 2022. Data were collected using a socio-demographic characteristics data form and the Fear of COVID-19 Scale. It was determined that 98% of the mothers had received antenatal care services in pandemic and more than half of them (50.2%) had received the first service before the 14th week of their pregnancy. The mean score of mothers on the Fear of COVID-19 Scale was calculated as 19.60±6.51. It was determined that the level of fear of COVID-19 was higher in mothers who had been diagnosed with COVID-19 during pregnancy, had been in quarantine due to COVID-19 contact, had received antenatal care services, had received the first antenatal service before the 14th week of pregnancy, had a chronic disease requiring medication before pregnancy and a medical condition occurring during pregnancy, lived in a province, and had a nuclear family. It was found that the older the mothers were, the more fear they felt ($p<0.05$).

Keywords: Antenatal care, COVID-19, Fear of COVID-19, Mother, Pandemic

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Introduction

The coronavirus (COVID-19) pandemic made a big impact worldwide in 2019 and brought about big changes in the delivery of health services (WHO, 2020). Many measures were taken to combat the COVID-19 pandemic in almost every country, and some restrictions were put into practice in social life to prevent transmission and control the pandemic (WHO, 2021). The measures affected every individual. One affected group was pregnant women (Hossain et al., 2020; Nazik et al., 2022). The COVID-19 pandemic triggered fear and stress by creating a negative emotional effect on pregnant women (Dymecka et al., 2021). Corbett et al. (2020) reported that the COVID-19 pandemic augmented the level of fear in pregnant women, and Hossain et al. similarly reported that 84.6% of pregnant women were afraid of COVID-19 infection (Hossain et al., 2020). In addition to these problems, this situation also affected the provision of antenatal care services (ANC) for pregnant women (Fryer et al., 2020; Wu et al., 2020).

Antenatal care is a model of care in which a careful, systematic evaluation and follow-up of pregnant women is performed and which includes education, counseling, screening, and treatment to support the health of the mother and fetus and to detect abnormal conditions early (Al-Ateeq & Al-Rusaiess, 2015). Within the scope of the ANC model recommended by the World Health Organization (WHO), the importance of establishing at least 8 contacts with the expectant mother, providing respectful, person-centered care to pregnant women during these contacts, and providing effective, integrated clinical care practices at each contact (WHO, 2016). Antenatal care is a key health service for maintaining maternal and fetal health. The delivery of this service is affected by many factors. These factors can be detailed as sociodemographic characteristics, obstetric characteristics, cultural structure, and place of residence (Zhao et al., 2012; Erdogan & Cetinkaya, 2019; Tekelab et al., 2019; Tadesse, 2020). Along with these factors, the COVID-19 pandemic has also revealed the existence of difficulties, such as isolation measures, quarantine processes, and the density of health institutions, in maintaining antenatal services. In a study on the subject, it was reported that 35% of pregnant women postponed receiving ANC during the pandemic (Kaya Senol & Ucar 2022). Another study showed that during the COVID-19 pandemic, 61.3% of pregnant women received less than four antenatal care services during their pregnancy and had problems accessing these care services (Nazik et al., 2022).

Various studies have shown that the COVID-19 pandemic affected receiving ANC (Fryer et al., 2020; Wu et al., 2020; Kaya Senol & Ucar, 2022; Nazik et al., 2022). This study was carried out to examine the mothers' fear of COVID-19 and their status of receiving antenatal care during the pandemic process.

Material and Methods

Type of the study

A descriptive and cross-sectional study outline was used (January 1–May 31, 2022).

Population and sample of the study

The study population consisted of mothers who gave birth in the last month in a university hospital in Turkey. Sampling was not carried out. The sample consisted of mothers who gave birth in the relevant hospital on the specified dates (January 1 - May 31, 2022) and met the inclusion criteria. The study was completed with 253 mothers.

Inclusion

Women who volunteered to complete the questionnaires gave birth in the last month in the relevant hospital between the dates of the study, were at least primary school graduates, did not have a condition that required emergency intervention, and did not have severe psychiatric disorders including in the study.

Data collecting

Due to the pandemic process, social isolation measures were followed. Data were collected via a socio-demographic information questionnaire and the Fear of COVID-19 Scale (FCV-19S) designed and distributed on Google Forms.

Socio-demographic Questionnaire: This form, which consists of 16 questions about descriptive characteristics of mothers and their status of receiving antenatal care, was created by the researchers following the literature (Erdogan & Cetinkaya, 2019; Kissal & Kartal, 2019; Aksu & Akgun, 2020).

The Fear of COVID-19 Scale: The scale was elaborated by Ahorsu et al. (2020), and Bakioglu et al., adapted it to Turkish, validated and checked its reliability (2020). The scale is made of 7 items and one dimension. The highest score that can be obtained from the scale is 35 and the lowest score is 7. An increase in the scores obtained from the scale indicates an increase in the fear of COVID-19. Cronbach's Alpha coefficient of the original form of the scale was reported as 0.82; meanwhile, Bakioglu et al. (2020) found it to be 0.88, which was calculated to be 0.90 in this study. The authors stated that the scale could be used without permission with an appropriate citation (Ahorsu et.al., 2020; Bakioglu et al., 2020).

Ethical aspects of the study

The permission to carry out this research was obtained from the Ministry of Health, Republic of Turkey. Ethical approval was received from the Research Ethics Committee on Social and Human Sciences XXXXX (date: June 8, 2021; no: E-33490967-044-45654, 12.12), and then the hospital allowed the study to be conducted. The participants were informed about the research. When participants accessed the online questionnaire, they first checked a box to confirm their voluntary participation in the study on the first page.

Data analysis

Data were analyzed using an appropriate software package. Descriptive analyses were used to evaluate quantitative data. Skewness and Kurtosis values were checked to check the normality distribution of the data. If the Kurtosis and Skewness values were between -1.5 and +1.5, the data was considered to be normally distributed. When data showed a normal distribution in independent groups, T-test and One Way ANOVA test were applied. When the distribution was not normal, Mann-Whitney U and Kruskal-Wallis tests were performed. For post hoc analyses, the Tukey test was used. The statistical significance level was evaluated as $p<0.05$.

Limitations of the study

Even though pandemic conditions limited access to all mothers during online data collection, this study can only be generalized to women in pandemic conditions, not all women.

Results

The mean age of mothers was 29.29±5.57 (min=18-max=43) years, but 32.4% of them were in the 25-29 age group. Most of them were high school graduates (41.1%), had a nuclear family (71.1%), and lived in a province (46.6%). Of the mothers, 48.6% had an equal income and expenses (Table 1).

Table 1. Descritpive characteristics of mothers (N=253)

Descritpive characteristics	n	%
Age groups		
18-24	51	20.1
25-29	82	32.4
30-34	71	28.1
≥35	49	19.4
Education		
Primary school	95	37.5
High school	104	41.1
University and above	54	21.4
Family type		
Core	180	71.1
Extended	73	28.9
Place of residence		
Province	118	46.6
County	103	40.8
Town/village	32	12.6
Income		
Income<expenses	108	42.7
Income=expenses	123	48.6
Income>expenses	22	8.7
	Mean±SD (min-max)	
Age	29.29±5.57 (min=18-max=43)	

In the study, the mean birth week of mothers was 37.26±2.78 (min=23-max=42), the mean number of pregnancies was 2.59±1.47 (1-8), and the mean number of births was 1.92±1.02 (min=0-max=6). Of the mothers having the last planned pregnancy (60.9%), 19% had been diagnosed with COVID-19, and 40.3% had been in quarantine due to COVID-19 infection. Of the mothers, 82.6% did not

have a chronic disease, but 36% developed a health problem during their pregnancy. The health problems were mostly bleeding (12.3%), threatened abortion (7.9%), gestational hypertension (5.9%), and gestational diabetes (5.9%). Of the mothers, 98% received antenatal care services during their pregnancy and more than half of them (50.2%) received the first service before the 14th week of their pregnancy. Mothers who had not received antenatal care services (2%) stated that they had not received this service due to the pandemic. Most of the mothers who had received antenatal care received it from a state hospital (21.3%) or from a doctor (37.2%), with an average of 8 times or more (60.9%). The mean score of mothers on the FCV-19S was calculated as 19.60±6.51 (min=7-max=35) (Table 2).

Table 2. Distribution of mothers according to their obstetric characteristics, total mean scores of the FCV-19S and status of receiving ANC

Obstetric characteristics	Mean±SD (min-max)	
Birth week	37.26±2.78 (min:23-max:42)	
Number of pregnancies	2.59±1.47 (min:1-max:8)	
Number of births	1.92±1.02 (min:0-max:6)	
Mean score on the total FCV-19S	19.60±6.51 (min: 7-max:35)	
	n	**%**
Status of planning the pregnancy		
Planned	154	60.9
Unplanned	99	39.1
Status of having been diagnosed with COVID-19 during pregnancy		
Yes	48	19.0
No	205	81.0
Status of having been in quarantine due to COVID-19 contact during pregnancy		
Yes	102	40.3
No	151	59.7
Status of having chronic disease requiring medication before pregnancy		
Yes	44	17.4
No	209	82.6
Presence of a medical condition that occurred during pregnancy		
Yes	91	36.0
No	162	64.0
Medical conditions occurring during pregnancy (n=91)		
Gestational hypertension	15	5.9
Gestational diabetes	15	5.9
Bleeding	31	12.3
The threat of premature birth	5	2.0
Hypothyroidism	5	2.0
Threat of miscarriage	20	7.9
Status of receiving ANC during pregnancy		
Yes (home care)	248	98.0
No (due to the pandemic)	5	2.0
Time of the first ANC that was received (n=248)		
Before the 14th week	127	50.2
After the 14th week	47	18.6
Does not remember	74	29.2
Place of ANC that was received (n=248)		
Family health center	8	3.2
State hospital	54	21.3
University hospital	24	9.5
Private hospital	23	9.1
Family health center, state and university hospital	34	13.4
Family health center and state hospital	53	20.9
Family health center and university hospital	27	10.7
Other	25	9.9
The person that provided the ANC (n=248)		
Midwife	7	2.8
Physician	94	37.2
Midwife and doctor	71	28.0
Midwife, nurse, and doctor	71	28.0
Doctor and nurse	5	2.0
Mean number of ANC services that were received (n=248)		
1	3	1.2
2-4	21	8.2
5-7	70	27.7
≥8	154	60.9

The mean score of mothers on the FCV-19S did not statistically differ by age group, educational status, income and expenses, the status of planning pregnancy, and the mean number of antenatal care services received (p>0.05; Table 3). However, they differed with respect to family type (p<0.05; Table 3). Accordingly, they were significantly higher for mothers living in a nuclear family than that living in an extended family. The statistical difference between the place where mothers lived and their mean scores on the FCV-19S (p<0.05; Table 3) was significant. The source of the difference was between the province-town/village and district/town/village in the post hoc analysis. Accordingly, the mean scores of the mothers living in a province on FCV-19S were higher than those living in a district or town/village.

Table 3. Comparison of the mean scores of mothers on the FCV-19S by some of their descriptive characteristics

Characteristics	Mean score on the FCV-19S ±SD	Test value
Age groups		
18-24	19.15±5.60	F=1.623
25-29	18.56±7.34	p=0.185
30-34	20.33±5.98	
≥35	20.77±6.52	
Education		
Primary school	18.37±6.25	F=2.756
High school	20.30±6.48	p=0.065
University and above	20.42±6.80	
Family type		
Core	20.26±6.74	t=2.551
Extended	17.98±5.60	p=0.011
Place of residence		
Province	20.14±7.18	F=3.969
County	19.92±5.92	p=0.020
Town/village	16.62±4.86	
Income		
Income<expenses	19.94±6.52	F=0.498
Income=expenses	19.52±6.44	p=0.608
Income>expenses	18.45±6.98	
Status of planning the pregnancy		
Planned	19.61±6.53	t=0.025
Unplanned	19.59±6.50	p=0.980
Status of having been diagnosed with COVID-19 during pregnancy		
Yes		t=2.203
No	21.45±7.34	p=0.029
	19.17±6.24	
Status of having been in quarantine due to COVID-19 contact during pregnancy		t=4.801
Yes	21.90±6.54	p<0.000
No	18.05±6.03	
Status of having chronic disease requiring medication before pregnancy		
Yes		t=2.528
No	21.84±6.39	p=0.012
	19.13±6.45	
Presence of a medical condition that occurred during pregnancy		
Yes		t=1.995
No	20.69±6.03	p=0.047
	19.00±6.70	
Status of having received ANC service during pregnancy		Z=-2.147
Yes	19.71±6.51	p=0.032
No	14.20±3.63	
Time of the first ANC that was received (n=248)		KW=17.437
Before the 14th week	18.26±7.19	p<0.000
After the 14th week	22.89±5.00	
Does not remember	20.18±5.31	
Mean number of ANC services that were received (n=248)		
1	23.33±6.42	
2-4	18.42±5.87	F=0.988
5-7	19.08±6.28	p=0.399
≥8	20.11±6.69	

F: One-way Anova test value, t:t test value , Z: Mann-Whitney U test value, KW: Kruskal-Wallis test value

The mean scores of mothers, who had been diagnosed with COVID-19 during their pregnancy and quarantined due to COVID-19 contact, on FCV-19S were significant ($p<0.05$; Table 3). Accordingly, the mean scores of mothers who had been diagnosed with COVID-19 during their pregnancy on FCV-19S were significantly higher than those who had been in quarantine due to COVID-19 contact. Additionally, the mean scores of mothers on the FCV-19S differed according to the presence of a chronic disease requiring medication before pregnancy and a medical condition occurring during pregnancy ($p<0.05$; Table 3). Suitably, the mean score of mothers who had a chronic disease that required medication before pregnancy and a medical condition that occurred during pregnancy on the FCV-19S was higher.

The difference between the mean score of mothers on the FCV-19S and those having received ANC services during pregnancy ($p<0.05$; Table 3) was significant. Appropriately, the mean scores of mothers who received ANC services during their pregnancy on the FCV-19S were higher. The difference between mothers' scores on the FCV-19S and the time when they had first received the ANC service ($p<0.05$; Table 3) was statistically significant. In the posthoc analysis, it was understood that the source of the difference was between the group who had received the ANC after the 14th week and the group who did not remember the time of the service they had received. Thus, it was determined that the mean scores of mothers with COVID-19 who received antenatal care after the 14th week of pregnancy were significantly higher than the scores of those who did not remember the time of the service.

As a result, the correlation analysis performed to determine the relationship between the quantitative variables of the mothers and their mean scores on the total FCV-19S did not produce a significant relationship between the birth week, the number of pregnancies, and the number of births and the total score on the FCV-19S ($p>0.05$). A low-level positive correlation was found between mothers' age and the total score on the FCV-19S ($r=0.153$, $p<0.05$). Thus, it can be said that as the age of mothers increased, their fear of coronavirus increased, as well (Table 4).

Table 4. Correlation between the quantitative variables of mothers and their total score on the FCV-19S

		Total score on the FCV-19S
Age	r	.153
	p	0.015
Birth week	r	-.048
	p	0.448
Number of pregnancies	r	0.021
	p	0.740
Number of births	r	0.008
	p	0.895

r: Pearson correlation coefficient; p<0.05

Discussion

Antenatal care is a service model that involves monitoring the health status of the pregnant woman and fetus with a specialist at regular intervals (Basar & Cicek, 2018). It is critical for a healthy pregnancy. Receiving antenatal care can be affected by various factors or care is not received or delayed. It was said that the COVID-19 pandemic heavily affected antenatal care (Fryer et al., 2020; Wu et al., 2020; Kaya Senol & Ucar, 2022; Nazik et al., 2022). For this reason, this study was performed to examine the fear of COVID-19 and the status of receiving ANC during the pandemic in the region where we live.

In the study, it was determined that almost all of the mothers (98%) had received antenatal care services during the pandemic process. The 2%, who had not received the service, stated that they had not received it due to the pandemic. Although this rate may seem low, it is critical regarding maternal and infant health. In this group, which had not received service during the pandemic, maternal and newborn health may have been threatened and thus affected. The Ministry of Health of the Republic of Turkey states that the first ANC should be received before the fourteenth week of pregnancy (Ministry of Health Republic of Turkey, 2018). According to our results, 50.2% of mothers who had received antenatal care in the study reported that they had started receiving prenatal care before the 14th week. Early initiation of ANC is important for mother and baby health, and it can be thought that expectant mothers may have presented to the service earlier due to the anxiety caused by the pandemic. One study reported that 46.8% of women missed their routine antenatal clinic visits during the COVID-19 pandemic (Patabendige, Gamage, and Jayawardane, 2021). In the research, it is thought that failure to receive this service on time was related to the social isolation measures brought along by the COVID-19 pandemic and the fear of contracting the disease.

Nazik et al. (2022) reported that 61.3% of pregnant women had received ANC less than four times and 60.0% had received it from a state hospital (Nazik et al., 2022). In this study, 21.3% of mothers reported that they had received the ANC service from a state hospital and 60.9% of them had received it eight times or more. The low rate of women receiving care from a state hospital in the study was because the relevant hospital was a pandemic hospital and could not provide other services. The rate of receiving service in our study was higher than in the other study, and this was important in terms of affecting mother and baby health positively despite the pandemic.

In the literature, the fear of pregnant women is related to not receiving antenatal care during the COVID-19 pandemic (Latha & Devi, 2021). Rabbani et al. (2021) reported that 30% of mothers missed or postponed their antenatal appointments during the COVID-19 pandemic and stated their fear of COVID-19 as a reason (Rabbani et al., 2021). In another study on the subject, it was reported that fear of COVID-19 was one of the barriers to receiving a full ANC service during the pandemic (Tadesse, 2020). In

a study conducted in Turkey, it was reported that 55.0% of mothers experienced fear of contracting COVID-19 during pregnancy (Kaya Senol & Ucar, 2022). In a different study, 77.6% of pregnant women stated that they feared contracting coronavirus. Sixty percent of pregnant women gave "contracting the virus" as a reason for their fear, while 60.6% stated it as "transmission of the virus to the baby" (Yesilcinar et al., 2022). Similar to the literature, it was determined in this study that 18.2% of mothers had received their first antenatal care service after the 14th week of pregnancy, and mothers had a tendency to delay receiving this care service. In addition, it was determined in the present study that mothers had a moderate fear of coronavirus, and it can be said that this was a reason for delaying receiving antenatal care services. The literature supports the results of the study. In addition, the continuous and long hours of filiation and pandemic patient follow-up services of family health centers during the pandemic process may have caused both late detection of pregnancies and delays in providing antenatal care services.

In the study, the mean score of mothers on the FCV-19S was found to be 19.60±6.51, and it was understood that they feared coronavirus above a moderate level. In a study in the literature conducted with pregnant women, it was reported that the mean score on the FCV-19S was 21.39±6.38, and according to this result, pregnant women were afraid of the coronavirus (Eroglu, Citak Tunc, and Kilinc, 2021). In another study, it was reported that the mean score of pregnant women on the FCV-19S was 18.33 ± 7.15 (Kaplan et al., 2022). In a study conducted to determine the relationship between coronavirus fears and anxiety levels of pregnant women, it was reported that the fear of coronavirus score was 21.29±6.08 (above moderate) (Durmus, Sener, and Ersogutcu, 2022). The findings of this study are consistent with the literature, and as results show, this situation affects pregnant women's receiving ANC services.

Durmus et al. (2022) reported that there was no relationship between family type and total fear of COVID-19 score. In this study, the fear of COVID-19 in mothers with nuclear families was found to be higher than in those with extended families ($p<0.05$). It is thought that this situation may be related to the lack of social support systems for women with nuclear families during the pandemic process.

In the study, it was determined that there was a statistically significant difference between mothers' place of residence and their mean scores on the FCV-19S. It was determined that the mean scores of the mothers living in a province on the FCV-19S were higher than the scores of those living in a district or town/village. In a study, it was reported that women living in a province experienced a higher level of fear of COVID-19 (Zacharias et al., 2021). This result, which was like the literature, was thought to be related to the fact that mothers living in the city were more likely to have access to more media and information, and that this information may have fed their fear.

In the study, it was found that the mean FCV-19S score of mothers who had a chronic disease that required medication before pregnancy and a medical condition that occurred during pregnancy, who had been diagnosed with COVID-19 during pregnancy, and who had been in quarantine due to COVID-19 contact was higher. It was reported in the literature that there was a significant difference between the presence of chronic disease in pregnant women and the fear of COVID-19. It was reported that pregnant women with chronic diseases had higher fear of COVID-19 and anxiety levels than those without chronic diseases (Durmus et al., 2022). It can be said that this may be since the disease progresses more severely in individuals who are diagnosed with COVID-19 and have a chronic disease and that they have a high level of access to information about the disease through the media.

It was determined that mothers who had received antenatal care services during pregnancy and received their first prenatal care service before the 14th week of pregnancy experienced a higher level of fear of COVID-19. It was thought that this situation was related to the fact that the mothers in this group had higher health-seeking behaviors and awareness about health, and that they were able to access information faster and comprehensively.

As the age of mothers increased, their fears increased, as well. As the mother's age increases, the chances of having another baby increase, so mothers may have been anxious about who would look after their children if something bad happened to them due to COVID-19.

Conclusion

According to the results of the study, the fear of COVID-19 was higher in mothers who had been diagnosed with COVID-19 during pregnancy, had been in quarantine due to COVID-19 contact, had received antenatal care, had received their first ANC service before the 14th week of pregnancy, had a chronic disease that required medication before pregnancy and a medical condition occurring during pregnancy, lived in a province, and had a nuclear family. It was determined that as the mother's age increased, their fear also increased.

Considering the effects of the media, it is necessary to support the antenatal services of family health centers even during the pandemic and not interrupt the midwifery and antenatal services. It is recommended to support midwives in this direction, strengthen them quantitatively in primary health care services, and make plans to ensure that existing services are not disrupted.

Conflict of Interest

All authors declare no conflict of interest.

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