Research Article

The Relationship Between COVID-19 Fear and Prenatal Attachment of Pregnant Women in the Pandemic

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Abstract

AIM: The aim of this study was to determine the relationship between COVID-19 fear and the prenatal attachment of pregnant women in the pandemic.

METHOD: The sample of this cross-sectional and descriptive study consisted of 377 participants aged 18–45. The study was conducted from August to December 2021 in the east of Turkey. The data were collected using the SocioDemographic Questionnaire, Fear of COVID-19 Scale, and Prenatal Attachment İnventory.

RESULTS: The mean Prenatal Attachment İnventory total score was 58.20 ± 10.61. The mean Fear of COVID-19 Scale total score of the women in the study was 24.43 ± 6.61. In this study, significant differences in prenatal attachment were observed for age, education, number of pregnancies, pregnancy week, and number of children. Moreover, the fear of COVİD-19 was detected as a statistically significant difference between the COVID-19 status and having several children ($p < .05$).

CONCLUSION: There was a link found between fear of COVID-19 and prenatal attachment in pregnant women. Health centers were recommended to provide training and support programs to solve the fear caused by COVID-19 and improve women's prenatal attachment.

Keywords: COVID-19 virus, fear, pregnant woman

Introduction

Coronaviruses are a broad group of ribonucleic acid (RNA) viruses that can infect humans and a variety of animals. In humans, coronaviruses can cause various ailments from typical cold to severe respiratory syndrome. Coronavirus disease illness in 2019 was caused by a coronavirus that caused severe acute respiratory syndrome, and the World Health Organization labeled the outbreak a pandemic on March 12, 2020 (World Health Organization, 2021). Moreover, when COVID-19-induced coagulopathy (CIC) first manifests, D-dimer and fibrin split products are noticeably elevated, while the activated partial thromboplastin time and prothrombin time show very minor or no change (Hadid et al., 2021). By January 27, 2021, over 385 million cases have been reported worldwide with a 5.7 million death rate (Johns Hopkins University, 2022). There is a scarcity of information about coronavirus disease in pregnancy in 2019. However, information on illnesses linked to other highly pathogenic coronaviruses may help researchers to better understand coronavirus disease impact caused in 2019 in pregnancy (Rasmussen et al., 2020), which could raise the chances of a negative pregnancy outcome (Yang et al., 2022). Coronavirus disease-2019 is more likely to develop in healthy pregnant women owing to their immune response, which predisposes them to develop COVID-19 (Phoswa & Khaliq, 2020).

Pregnancy is a significant life experience that causes social, psychological, and hormonal changes, as well as contributing to the development of mental illnesses such as depression and anxiety (Nouwen et al., 2010). According to Muller, prenatal attachment is "the special relationship that grows between a woman and her fetüs" (Muller, 1992). These emotions are unrelated to how the woman feels about herself as a pregnant woman or how she sees herself as a mother (Napoli et al., 2020). Individual variations have been reported in studies, ranging from high attachment early in the pregnancy to minimal, or no, attachment later in the pregnancy (Mikulincer & Florian, 1999). Recent studies, however, indicate that maternal–fetal attachment is linked to maternal–infant attachment, suggesting that the sentiments and bonds formed during pregnancy endure even after the baby is born (de Cock et al., 2016; Rossen et al., 2017).

Social support, twin pregnancies, miscarriage or stillbirth in previous pregnancy, maternal age, maternal personality, physical signs, body image, as well as depression and anxiety, have all been identified as important factors. The children seek their mothers to achieve comfort and safety under stress and this excessive and affective relationship was termed as "attachment" by John Bowlby (Napoli et al., 2020).

Attachment-related feelings emerge in the first trimester of pregnancy progress. One of the most important aspects of a child's social and emotional development is their bond. Other crucial processes like motherhood and maternal identity are intimately linked to maternal–fetal bonding (Salehi et al., 2019). Maternal–prenatal attachment is a once-in-a-lifetime opportunity for mother and child to build an important and valuable relationship (Abasi et al., 2012). As a result, it appears that a crucial component of the concept is fetus protection expressed through mother's attitudes about knowing the fetus, being with, protecting, and in accordance with attachment theory, preventing loss, which suggests that sensitive reactions by the mother to her baby's requirements form the foundation for a stable baby–mother relationship (Arguz Cildir et al., 2020). Even though attachment is characterized as a characteristic that develops during infancy and does not change in later years of life, some experts believe that there are critical aspects that can influence attachment. Some of these elements are linked to the mother's qualities, such as mental health, pregnancy planning, prenatal trauma, antenatal treatment, marital satisfaction, and birth method (Özcan et al., 2016, 2018; Schwarze et al., 2015).

The present study aimed to assess the relationship between covid-19 fear and the prenatal attachment of pregnant women in the pandemic.

Research Questions
1. What is the COVID-19 fear level in pregnant women?
2. What is the prenatal attachment in pregnant women?
3. Is there a relationship between the COVID-19 fear levels in pregnant women and prenatal attachment?

Methods

Study Design
This was a descriptive, cross-sectional study.

Samples
The study comprised of patients treated in a pregnant-perinatology clinic in the east of Turkey. The study data were collected between December 20, 2021, and August 30, 2021. Three hundred and seventy-seven pregnant women were included, and the non-probability sampling method was implemented to reach them. The sample size was calculated with an effect size of 50%, a margin of error of .5%, and a 95% CI in an unknown sampling size. All survey participants were screened for the following eligibility conditions before beginning the survey. Pregnant women aged 18–45 years, patients without psychiatric diseases, with no communication difficulties, and who gave their informed consent to attend were enrolled in the study. Patients who are not willing to participate were excluded from the study.

Data Collection Tools
The data were collected using the SocioDemographic Questionnaire developed by the researchers (Napoli et al., 2020; Özcan et al., 2018; Yılmaz & Beji, 2013), the Prenatal Attachment İnventory (PAI), and the Fear of COVID-19 Scale.

Socio-Demographic Questionnaire
Socio-demographics questionnaire was collected data information such as monthly household income, education status, employment status, family type. Moreover, obstetric data included age, planned pregnancy status, number of pregnancies, pregnancy week, number of childre and COVID -19 status.

Fear of COVID-19 Scale
The scale was developed by Ahorsu et al. (2020) . There are seven items on the scale. The total score derived from the scale represents the individual's amount of coronavirus exposure. It uses a five-point Likert-type scale. The scale produces scores ranging from 7 to 35. A high level of coronavirus dread is indicated by a high score on the scale. The FCV-19S has been translated and validated for adaptation in the Turkish community and has Cronbach's alpha identified as .88 (Ladikli et al., 2020). This scale was highly reliable in the current investigation. The scale's internal consistency was found to be .86.

Prenatal Attachment İnventory
The inventory, a self-report questionnaire, consists of 21 items. The items describe the mother's thoughts, feelings, and relationship with the fetus. Each item has four-point Likert-type options. The total number of points ranges from 21 to 84. The higher the score, the stronger the prenatal attachment (Muller, 1992). The PAI has been translated and validated for use in the Turkish population and has Cronbach alpha identified as .84 (Yılmaz & Beji, 2013). This scale was highly reliable in our study and Cronbach alpha of the scale was found to be .86.

Data Collection
Data collection tools were applied to the pregnant women in the sample. The interview was conducted at the hospital, the SocioDemographic Questionnaire and FCV-19S were used, and the researcher used face-to-face interviews with 377 women to fill out the PAI. The interview took place in the patient's room and it took approximately 15 minutes to fill out all the data forms.

Statistical Analysis
The data were analyzed using the software package Statistical Package for the Social Sciences 24.0. Numbers and percentages were used for categorical variables, and mean and standard deviation was used for numeric variables. The independent t-test was calculated for comparing continuous variables between two groups and one-way analysis of variance was used for more than two groups. Pearson's correlation test was used to determine the relationships between the FCV-19S and PAI scores and the sociodemographic data. $p < .05$ was set as statistically significant.

Ethical Consideration
The study protocol was approved by the local ethics committee at the Van Education and Research Hospital (no: 12,

Table 1.

Descriptive Characteristics of Demography and Obstetrics in Women (N = 377)

	n	%
Age		
18–22	58	15.4
23–27	140	37.1
28–32	110	29.2
33 and above	69	18.3
Income rate		
Low	139	36.9
Middle	164	43.5
High	74	19,6
Education		
Literate/primary school	97	25.7
Middle school	119	31.6
High school	98	26.0
University	63	16.7
Working status		
Working	91	24.1
Housewife	286	75.9
Family type		
Nuclear	216	57.3
Extended	161	42.7
Planned pregnancy status		
Yes	232	61.5
No	145	38.5
COVID-19 status		
No	265	70.3
Yes	112	29.7
Number of pregnancies		
1	88	23.3
2	101	26.8
3	96	25.5
4 and above	92	24.4
Pregnancy week		
First trimester	35	9.3
Second trimester	79	21.0
Third trimester	263	69.8
Number of children		
0	47	12.5
1	99	26.3
2	106	28.0
3	76	20.2
4 and above	49	13.0
	Mean $\pm$ SD	**Min-Max**
Age	27.74 $\pm$ 5.12	18–47
Pregnancy week	28.10 $\pm$ 9.52	2–42

Note: PAI = Prenatal Attachment İnventory; FCV = Fear of COVID-19 Scale; SD, standard deviation.

Table 2.

Mean Total FCV-19S and PAI Scores

FCV-19S and PAI (n = 377)	Min	Max	Mean $\pm$ SD
FCV-19S total score	7	35	24.43 $\pm$ 6.61
PAI total score	27	84	58.20 $\pm$ 10.61

Note: PAI = Prenatal Attachment İnventory; FCV = Fear of COVID-19 Scale; SD, standard deviation.

date: June 17, 2021), and written informed consents were taken from all pregnant women.

Results

The demographic and obstetric features of the pregnant women were presented in Table 1. The mean age of these participants was 27.74 $\pm$ 5.12 years and the mean of pregnancy week was 28.10 $\pm$ 9.52 weeks. 37.1% of pregnant women were in the age 23–27 years, 43.5% of them had a middle-income rate, 26% of participants graduated from high school, 75.9% were housewives, 57.3% had nuclear families, and more than half of women (61.5%) had pregnancy planned. Of the participants, 29.7% had COVID-19, 26.8% had two live pregnancies, 69.8% were in the third trimester, and 12.5% had no children (Table 1).

The mean total scores of FCV-19S and PAI were 24.43 $\pm$ 6.61 and 58.20 $\pm$ 10.61, respectively (Table 2).

Demographic and obstetric characteristics of FCV-19S and PAI scores of pregnant women were presented in Table 3. A statistically significant difference was found between the age groups ($p < .05$). Furthermore, PAI scores of those who were between 18 and 22 years of age were higher than the other groups. As a result of the statistical analysis test, there was a statistically significant difference between PAI mean scores and educational status ($p < .05$). According to this, mean PAI score of university graduates (62.43 $\pm$ 10.07) was higher than others. In terms of the COVID-19 status, there was a statistically significant difference ($p < .05$). The average of the non-COVID-19 patiens was significantly higher than patients with COVID-19. The mean PAI score of pregnant women in the third trimester was higher than first trimester and second trimester. A significant difference was observed for PAI scores in women without children compared to the women having children. Women with more than four children had higher FCV-19S scores than the participants who had three or less children. In post hoc comparisons, there was no statistically significant difference between groups (Table 3).

A positive and statistically significant relationship was found between the FCV-19S and the PAI ($r = .188$; $p < .001$). (Table 4).

Discussion

In this study, significant differences in prenatal attachment were observed for age, education, number of pregnancies, pregnancy week, and number of children. Moreover, the fear of COVİD-19 was detected as a statistically significant difference

Table 3.
Demographic and Obstetric Characteristics in Women with FCV-19S and PAI (N = 377)

	n	FCV-19S	PAI
Age		**Mean ± SD**	**Mean ± SD**
18–22(1)	58	21.47 ± 6.19	61.16 ± 9.46
23–27(2)	140	21.61 ± 6.90	59.75 ± 10.96
28–32(3)	110	21.15 ± 6.37	55.94 ± 10.63
33 and above(4)	69	21.48 ± 6.82	56.19 ± 9.78
		F = .102	F = 5.115
		p = .959	**p = .002**
			*Difference: 1–3,1–4,2–3
Income rate			
Low	139	22.09 ± 6.94	57.71 ± 10.73
Middle	164	20.98 ± 6.27	58.40 ± 10.59
High	74	21.16 ± 6.67	58.70 ± 10.51
		F = 1.321	F = .261
		p = .321	p = .770
Education			
Literate/primary school(1)	97	22.12 ± 6.57	56.08 ± 11.43
Middle school(2)	119	20.56 ± 6.88	57.63 ± 9.38
High school(3)	98	21.85 ± 6.78	58.28 ± 10.89
University(4)	63	21.33 ± 5.78	62.43 ± 10.07
		F = 1.174	F = 4.884
		p = .319	**p = .002**
			*Difference: 1–4,2–4
Occupational status			
Working	91	20.92 ± 6.41	59.34 ± 10.38
Housewife	286	21.59 ± 6.67	57.84 ± 10.67
		t = −.835	t = 1.176
		p = 0.405	p = 0.240
Family type			
Nuclear	216	21.54 ± 6.63	58.57 ± 11.43
Extended	161	21.28 ± 6.60	57.70 ± 9.40
		t = .374	t = .812
		p = .709	p = .418
Planned Pregnancy status			
Yes	232	21.50 ± 6.61	58.33 ± 10.73
No	145	21.23 ± 6.62	58.00 ± 10.44
		t = .366	t = .291
		p = .799	p = .771

	n	FCV-19S	PAI
COVID-19 status			
No	265	21.86 ± 6.39	58.71 ± 11.00
Yes	112	20.39 ± 7.02	56.99 ± 9.55
		t = 1.982	t = 1.527
		p = .048	t = .128
Number of pregnancies			
1(1)	88	21.57 ± 5.97	60.75 ± 11.32
2(2)	101	21.87 ± 6.69	58.07 ± 10.68
3(3)	96	19.89 ± 6.36	58.00 ± 9.65
4 and above(4)	92	22.41 ± 7.16	56.12 ± 10.45
		F = 2.621	F = 2.933
		p = .51	**p = .033**
			Difference: 1–4
Pregnancy week			
First trimester(1)	35	20.83 ± 6.48	56.06 ± 7.58
Second trimester(2)	79	22.19 ± 6.10	54.97 ± 9.57
Third trimester(3)	263	21.28 ± 6.77	59.46 ± 11.02
		F = .735	F = 6.383
		p = .480	**p = .002**
			**Difference: 2–3
Number of children			
0(1)	47	21.55 ± 7.00	64.11 ± 12.06
1(2)	99	22.46 ± 6.55	59.04 ± 10.31
2(3)	106	20.38 ± 6.48	57.65 ± 9.91
3(4)	76	20.33 ± 6.02	56.13 ± 10.45
4 and above(5)	49	23.18 ± 7.02	55.24 ± 9.36
		F = 2.719	F = 5.822
		p = .030	**p = .000**
			*Difference:1–3,1–4,1–5

*Note: *Bonferroni.
t = independent t-test; F = one way ANOVA; SD, standard deviation; PAI = Prenatal Attachment İnventory; FCV = Fear of COVID-19 Scale.*

between the COVID-19 status and having several children. Because of the mental instability and susceptibility to stress that leads to disturbance in hormonal cycles and other disorders, pregnancy is a risk factor for increased adverse consequences of COVID-19 disease. Because of the risk faced for not only themselves but also their children, pregnant women are a particularly susceptible population (Racine et al., 2018). According to the findings of a study, those who were suffering from COVID-19 had more negative emotions (anxiety, tension, and depression) than happy emotions and took better care of themselves with negative emotions (Fakari & Simbar, 2020). In a study of pregnant women, 44.6% of the participants reported

Table 4.
Examination of the Pearson Correlation Between FCV-19S and PAI Scores

		PAI
FCV-19S	r	.188
	p	**.000**

Note: PAI=Prenatal Attachment İnventory; FCV=Fear of COVID-19 Scale.

possible depression and 29.2% reported possible anxiety (Yang et al., 2021). A study conducted by Yassa et al. (2020) found that 61.6% of participants had a high level of obsessive symptom in relation to the COVID-19. Naghizadeh and Mirghafourvand, (2021) reported the fear of COVID-19 as 22.29 ± 7.08. In another study, the mean fear of COVID-19 was obtained as 21.39 ± 6.38 (Eroğlu et al., 2021) which was less than in our investigation. This could be owing to differences in the study population, as pregnant women report more anxiety and worry about COVID-19's harmful consequences. Another study of the prenatal attachment score was 60.08 ± 21.26 (Karaca et al., 2022). In a study carried out by Albayrak et al. (2021), the mean prenatal attachment was obtained as 63.67 ± 6.79 which was more than in our investigation.

The present study was tested whether the prenatal attachment was linked to symptoms caused by the COVID-19 pandemic using some of these new measuring measures. To our knowledge, there has not been any published research on prenatal attachment in relation to the fear COVID-19 pandemic. Our findings, however, were consistent with the literature, indicating that increased anxiety symptoms as a result of the pandemic may have a deleterious impact on prenatal bonding (Albayrak et al., 2021; Karaca et al., 2022).

Maternal–fetal attachment levels are reported to be high among young mothers in the literature (Daglar & Nur, 2018; Malm et al., 2016). A study concluded that a level of 35 age and younger is an important factor that increases prenatal attachment (Karaca et al., 2022). In this study detected the statistical significance between age and prenatal attachment by mean scores; women aged 18–22 years showed significantly higher scores.

A study conducted on the prenatal attachment state of women during the COVID-19 pandemic revealed that high education levels affected their level of prenatal attachment (Craig et al., 2021). The current study revealed that the term education affected the prenatal attachment of women. The prenatal attachment of the pregnant women who have been graduated from a University was significantly higher than those of the other women. The findings of the previous investigation were in accordance with our study.

Albayrak et al. (2021) conducted research during the epidemic on a sample composed of pregnant women, and the number of pregnancies affect not their prenatal attachment. The study showed that the number of pregnancy affects prenatal attachment. Participants with one pregnancy were higher than those of the other women. The results of that study were not consistent with the current study.

It has been reported in the literature that the third trimester may increase prenatal attachment (Karaca et al., 2022; Pehlivanoglu Çelik & Er Güneri, 2020). In our study, we have similar results. The level of preparation to give birth and mother–baby attachment may be increased while the weeks of pregnancy increases.

The women without children had increased prenatal attachment. Naghizadeh and Mojgan Mirghafourvand (2021) did not find any difference between the number of children and prenatal attachment. The difference with this study may be attributed to the fact that the study groups were different and there were cultural differences between them.

Fear of COVID-19 is one of the key factors that contribute to increased anxiety and the fear of infecting others or infecting beloved ones with the disease in the pandemic. One of the most common is the fear of spreading the disease to others or infecting loved ones (Colizzi et al., 2020). Our study detected statistical significance between COVID-19 status and COVID-19 fear.

Fear of COVID-19 during pregnancy may affect the fear induced by COVID-19 status. In this study, the women with four and above children were found to have an increased fear of COVID-19. It can be stated that COVİD-19 causes pregnant women to worry about the health and care of children and negatively affects their covid fear.

Study Limitations
The results of this study are limited to the opinions of the patients treated in the education and research hospital and who consented to participate in this study. The conclusions of the study can thus be generalized only to these pregnant women.

Conclusion and Recommendations

This study aimed to examine the effects of fear of COVID-19 on prenatal attachment. Prenatal attachment was affected by factors including age, education, number of pregnancies, pregnancy week, and number of children. Moreover, the fear of COVİD-19 was detected between the COVID-19 status and having several children. Fear of COVID-19 among pregnant women appeared on attachment, according to our findings.

Health centers emphasized providing training and support programs and other connected centers and making appropriate interventions necessary to eliminate the fear caused by COVID-19 and advance women's prenatal attachment. Given the importance of prenatal attachment, which may be addressed via a variety of intervention strategies, we believe that more research into the pandemic's effects and potential implications is required.

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