

## Research Article

## Concerns of High-Risk Pregnancies During Pandemic: COVID-19 and Fear of Birth

Öznur Tiryaki<sup>1</sup>, Hamide Zengin<sup>2</sup>, Koray Gök<sup>3</sup>, Mehmet Sühha Bostancı<sup>4</sup>, Selçuk Özden<sup>4</sup><sup>1</sup>Department of Nursing, Sakarya University, Institute of Health Sciences, Sakarya, Turkey<sup>2</sup>Department of Pediatric Nursing, Bilecik Şeyh Edebali University, Faculty of Health Sciences, Bilecik, Turkey<sup>3</sup>Department of Obstetrics and Gynecology, Sakarya Education and Research Hospital, Sakarya, Turkey<sup>4</sup>Department of Obstetrics and Gynecology, Faculty of Medicine, Sakarya University, Sakarya, Turkey**ORCID iDs of the authors:** Ö.T. 0000-0001-8788-3077, H.Z. 0000-0002-2389-6466, K.G. 0000-0002-7420-1484, M.S.B. 0000-0002-4776-6244, S.Ö. 0000-0002-3346-7227.**Cite this article as:** Tiryaki, Ö., Zengin, H., Gök, K., Sühha Bostancı, M., & Özden, S. (2022). Concerns of high-risk pregnancies during pandemic: COVID-19 and fear of birth. *Florence Nightingale Journal of Nursing*, 30(3), 274-280.

## Abstract

**AIM:** This study was conducted to determine the fear of birth and coronavirus disease 2019 in pregnant women who applied to the high-risk pregnancy outpatient clinic during the pandemic and investigate whether there is a relationship between these fears.**METHOD:** This study is a descriptive cross-sectional study using questionnaires. The Fear of COVID-19 Scale and Fear of Birth Scale for Pregnant Women were validated in Turkish in outpatient women with high-risk pregnancies. The study was carried out with 238 pregnant women between February 15 - April 15, 2021.**RESULTS:** The mean age of the pregnant women participating in the study was  $30.22 \pm 6.01$ , the mean week of gestation was  $30.87 \pm 5.56$ , the total mean of Fear of COVID-19 Scale score was found to be  $18.23 \pm 6.41$ , and Fear of Birth Scale for Pregnant Women total mean score was  $62.30 \pm 25.66$ . An increased prevalence of anxiety has been found in high-risk pregnant women during the coronavirus disease-2019 pandemic. It was observed that there was a significant, positive, and low-level relationship between Fear of COVID-19 Scale-19 and Fear of Birth Scale for Pregnant Women of high-risk pregnant women ( $r = .268$ ;  $p = .000$ ).**CONCLUSION:** Prenatal anxiety was prevalent among high-risk pregnant women who required routine anxiety screening and psychosocial support during the coronavirus disease-2019 pandemic.**Keywords:** COVID-19 pandemic, high-risk pregnancy, fear of Birth, fear of COVID-19, anxiety

## Introduction

The novel coronavirus disease 2019 (COVID-19) is a new condition that affects all countries around the world, from health to education and from economy to business life, and has been declared as a pandemic by the World Health Organization (World Health Organization-WHO, 2020). The high risk of transmission of COVID-19 drives people to both emotional and psychological vulnerability. Another psychological aspect of the COVID-19 pandemic is fear. While fear in a pandemic increases anxiety and stress levels in healthy people, it also causes intense symptoms in individuals with pre-existing psychiatric disorders (Shigemura et al., 2020). The current uncertainties and alarming situation of the COVID-19 pandemic can cause individuals to fear the transmission of infection, affecting psychological and physiological health (Spinelli et al., 2020). Studies have shown that women are significantly more fearful of COVID-19 than men and are more sensitive to psychological resilience (Broche-Pérez et al., 2020; Chi et al., 2021). Most people who are infected with COVID-19 can overcome the disease with mild to moderate symptoms, but infection leads to severe lung involvement and multiorgan failure in some cases with serious disease (Alzamora et al., 2020).

When COVID-19 infection develops in essential processes of a women's life (pregnancy, birth, and breastfeeding processes), it can cause physical, psychological, and hormonal changes. If these changes cannot be detected and controlled in the early period, they can have devastating effects on pregnant/maternal health (Alzamora et al., 2020). The severe acute respiratory syndrome outbreak in 2003 has shown that pregnant women experienced high levels of anxiety and worries about being infected, similar to the COVID-19 pandemic (Lee et al., 2005).

A high-risk pregnancy has been defined as an unexpected maternal or fetal factor that may adversely affect the obstetric outcome, and about 10% of all pregnancies are high-risk (Queenan et al., 2007). High-risk pregnancies increase the risk of depression and anxiety (Littleton et al., 2007). Prenatal anxiety has important maternal-fetal implications. Children with a history of in utero exposure to maternal anxiety are at increased risk for various neuropsychiatric conditions (Graham et al., 2020).

Anxiety about being infected with COVID-19 in pregnant women can cause many bad obstetric outcomes (e.g., preeclampsia,

**Corresponding Author:** Öznur Tiryaki

E-mail: oznuritiryaki@gmail.com



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premature birth, miscarriage, nausea, vomiting, depression, etc.) (Alzamora et al., 2020; Lee et al., 2005). The management of pregnant women, who are a particular group in the process of the COVID-19 pandemic, which has not yet been taken under control worldwide, also requires care.

This study was conducted to determine the fear of birth and the fear of COVID-19 in pregnant women who applied to the high-risk pregnancy outpatient clinic during the pandemic process and to investigate whether there is a relationship between these fears. For this purpose, the following research questions were set out:

### Research Questions

1. What is the level of fear of COVID-19 disease in high-risk pregnant women?
2. Is there a fear of childbirth in high-risk pregnant women?
3. Is there a relationship between fear of COVID-19 and fear of childbirth in high-risk pregnant women?

## Method

### Study Design

This study was carried out as a descriptive cross-sectional study.

### Sample

A study was conducted in the Perinatology Clinic between February 15 and April 15, 2021, at the Tertiary Education and Research Hospital. This study planned to include pregnant women aged 35 and over in the risky pregnancy age group, but since they were followed up as high-risk pregnancies between the ages of 18 and 49 in the polyclinic, the pregnant women aged between 18 and 49 years who were followed up by the perinatology clinic were included in the study. Inclusion criteria were gestational weeks between 20th and 40th week; no history of mental disorders; proficiency in reading and writing Turkish; ability to understand the questionnaire's content and complete it independently; and willingness to participate in the study. After the study was described, verbal and written informed consent was obtained from all research participants. Exclusion criteria were somatic diseases and those who cannot understand the questionnaire's contents. At the time of the study, 439 pregnant women with risky pregnancy diagnoses according to hospital information management system records constituted the study population. The study sample was calculated as 206 with 80% power, 95% CI, and 5% error (<https://www.psychologie.hhu.de/arbeitsgruppen/allgemeine-psychologie-und-arbeitspsychologie/gpower.html> Date of Access: April 6, 2021). During the pandemic, 238 pregnant women who met the inclusion criteria constituted the study sample.

### Data Collection

Pregnant women who came to the high-risk pregnancy outpatient clinic for control medical examination were invited to the study after being informed about the research. Considering the possibility of missing or empty data, 300 pregnant women who met the study's inclusion criteria were reached. However, only 238 pregnant women were included in the study because 40 pregnant women did not want to be included in the study and the questionnaire of 22 pregnant women was missing/blank. In

order to fill out the form, the pregnant woman was left alone in a room with suitable physical conditions, paying attention to the pandemic rules (social distance, mask, disinfectant, and gloves). Filling the form took approximately 10 minutes. The researcher hand-delivered the completed forms. High-risk pregnancies were defined as the presence of one or more of the following: cervical insufficiency, hypertensive diseases of pregnancy, gestational diabetes mellitus, poly/oligohydramnios, placenta previa/placental adhesion disorders, bad obstetric history, obesity, maternal systemic disease, fetal growth restriction, and fetal anomaly suspicion/presence (Aydemir & Uyar Hazar 2014; Coşkun 2012; Taşkın 2011; )

### Data Collection Tools

The first part of the data collection tools used in the study includes the Question Form for demographic information prepared by the researchers, the second part includes "The Fear of COVID-19 Scale (FCV-19S)," and the third part includes "Fear of Birth Scale for Pregnant Women."

### Socio-Demographic Information and Obstetric Medical History

Socio-demographic information and obstetric medical history were obtained through a questionnaire and included maternal age, gestational age, employment status, family type, smoking habit, education level, perceived household income, reproductive history, birth type of previous births, the status of getting support during pregnancy, time between pregnancies, postnatal support status (plan to get support in the postnatal period), the fear of getting COVID-19 infection during pregnancy and postnatal period, the fear of the baby to be born in the postnatal period of being infected with COVID-19.

### The Fear of COVID-19 Scale

The original scale was developed by Ahorsu et al. (2020) and validated in Turkish by Bakioğlu et al. (2020). The scale is one-dimensional and consists of seven items. There are no reverse-coded items on the scale. The scores that can be obtained from the scale range from 7 to 35. High scores on the scale mean experiencing a high level of fear of COVID-19. The original Cronbach alpha value of the scale was .88. In this study, the Cronbach alpha was found to be .85.

### The Fear of Birth Scale

The scale was developed by Haines et al. (2011) and validated in Turkish by Serçekuş et al. (2020). Women are asked to respond to the question "How do you feel right now about the approaching birth?" by placing a mark on two 100 mm lines, using the anchors(a) "calm" and "worried" and (b) "no fear" and "strong fear." The cut-off point of the scale is 50 points. It has been defined that people with a score of 50 and above experience birth fear. The scale can be applied to both pregnant women and their partners. The scoring of the scale is given as follows: the scores marked on two lines of 100 mm are added together and divided into two. The resulting score gives the Fear of Birth Scale (FOBS) score of the pregnant or spouse answering the scale. Individuals with a score of 50 or more are considered to fear birth. The original Cronbach alpha value of the scale was .92. In this study, the Cronbach alpha was found to be .85.

### Statistical Analysis

The Statistical Package for the Social Sciences for Microsoft Windows 23.0 (SPSS Inc., Chicago, Ill, USA) was used for statistical analyses. For categorical variables, frequency ( $n$ ) and percentage (%) were calculated, and for numerical variables, mean ( $X$ ) and standard deviation were calculated. Parametric statistical methods were used in the study because the data were suitable for normal distribution. An independent  $t$ -test examined the difference between the two independent groups; the difference between more than two independent groups was examined by one-way analysis of variance. Bonferroni test from post hoc paired comparisons was applied to find the group that made the difference. Relationship analysis between the two scales was examined with Pearson's Product Moments Correlation. Results were accepted at a 95% CI and statistical significance at  $p < .05$ .

### Ethical Considerations

The study protocol was approved by the written consent (2021-01-09T20\_15\_47) via the website of the Turkish Ministry of Health (<https://bilimselarastirma.saglik.gov.tr/>), and institutional permission from the pandemic hospital where the study will be conducted and ethics committee approval from Sakarya University Scientific Research Ethics Committee (Ethics Committee Date: January 29, 2021, No: 29/01/2021-64) were received.

## Results

A total of 238 pregnant women were recruited. The mean age of the pregnant women participating in the study is  $30.22 \pm 6.01$  years, and the average gestational week is  $30.87 \pm 5.56$  weeks. It was observed that 91.6% of pregnant women got pregnant spontaneously, 32.8% had their first pregnancy, 51.3% of those who gave birth before gave birth by cesarean section, 91.2% of them received social support during pregnancy, and 94.1% of them reported that they would receive postpartum support. While the mean body mass index (BMI) of the pregnant women before conception was found to be  $26.85 \pm 6.15$  kg/m<sup>2</sup>, it was found that 26.9% of them were 30 kg/m<sup>2</sup> and above (Table 1).

The most common reasons for presenting pregnancies to the high-risk pregnancy outpatient clinic are listed as cervical insufficiency (19.7%), hypertensive diseases of pregnancy (18.1%), and gestational diabetes mellitus (16.8%) (Table 2).

During the COVID-19 pandemic, 83.2% of the participants reported that they found the support of healthcare personnel sufficient. When the fears of the participants about COVID-19 were evaluated, it was observed that 79.4% worried about being COVID-19 patients before birth, 80.3% of them worried about being infected with postpartum COVID-19, and 87% had a fear of their baby being infected with COVID-19 after birth.

Independent  $t$ -test to compare FCV-19S and FOBS score averages of pregnant women participating in the study according to the anxiety of being infected with COVID-19 in the prenatal and postpartum period, the anxiety about their baby being

infected with COVID-19 disease after birth, social support during pregnancy, receiving postpartum support, and perinatology follow-up analysis has been applied. It is observed that there is a statistically significant difference between the mean FCV-19S score in pregnant women who are worried about being infected with COVID-19 before ( $p = .000$ ) and after birth ( $p = .000$ ) and those who are worried about their baby being infected with COVID-19 after birth ( $p = .001$ ). The FCV-19S total mean score used in the study was found to be  $18.23 \pm 6.41$ , and the FOBS was  $62.30 \pm 25.66$  (Table 3).

One-way analysis of variance was applied to compare the mean scores of FCV-19S and FOBS according to the reason for perinatology follow-up, BMI, income level, education level, duration of pregnancy, and family type participants. According to the analysis, there was no statistically significant difference between mean FCV-19S and FOBS scores according to perinatology follow-up reason, BMI, income level, education level, and duration between pregnancies ( $p > .05$ ). However, it is seen that there is a statistically significant difference between the family type ( $p = .034$ ) and the breastfeeding status with COVID-19 (+) and the mean FOBS score ( $p = .036$ ). Bonferroni test from post hoc paired comparisons was applied to find the group that made the difference and it was observed that the mean score obtained from FOBS by pregnant women with extended family type is higher than the participants with nuclear family type and the scores of those who are unstable in terms of breastfeeding status of a COVID-19 (+) mother than those who say they can breastfeed are higher (Table 3).

Participants who are worried about being infected with COVID-19 before and after birth and having a baby with COVID-19 after birth have a higher average FCV-19S score than participants without fear of COVID-19. There was no statistically significant relationship between the prenatal support and those who think that they will receive social support in the postnatal period of the pregnant women and the mean scores of FCV-19S and FOBS ( $p > .05$ ).

According to the results of the positive correlation analysis performed, it was found that there was a positive, significant relationship between FCV-19S and FOBS scores in pregnant women ( $r = .268$ ;  $p = .000$ ).

## Discussion

The COVID-19 pandemic, which has affected the world, is an unexpected and rapidly spreading compared to previous epidemics. This situation may increase both the fear of COVID-19 and the fear of childbirth, especially in high-risk pregnant women.

It was found that the COVID-19 fears in the pregnant women participating in the study were at a moderate level, and their fear of birth was high. In a similar study, 67.5% of pregnant women stated that they were afraid of being infected with COVID-19 during pregnancy and 84.6% were afraid of having postpartum COVID-19 and infecting their baby (Hossain et al., 2020). A study conducted using the FOBS scale suggests that

**Table 1.**  
Obstetrics and Socio-Demographic Characteristics of the Sample (N = 238)

Socio-Demographic Characteristics		n	%
Age <sup>a</sup>	30.22 ± 6.01 (min = 18; max = 48)		
Employment status	Yes	47	19.7
	No	191	80.3
Family type	nuclear	144	60.5
	extended	90	37.8
	Broken	4	1.7
Smoking habit	Yes	33	13.9
	No	205	86.1
Education level	Primary school	101	42.4
	High school	100	42.0
	University and above	37	15.6
Perceived household income	High income	69	60.5
	insufficient	6	37.8
	sufficient	163	68.5
Obstetrics characteristics		n	%
Week of gestation <sup>a</sup>	30.87 ± 5.56 (min = 20; max = 38)		
BMI <sup>a</sup>	26.85 ± 6.15 (min = 16.61; max = 54.95)		
Reproductive history	Naturally conceived	218	91.6
	Non-naturally conceived	20	8.4
Planned pregnancy	Yes	161	67.6
	No	77	32.4
Time between pregnancies	First pregnancy	79	33.2
	Less than 1 year	13	5.5
	1–2 years	41	17.2
	More than 2 years	105	44.1
Birth type of previous births	Vaginal delivery	74	48.68
	Cesarean	78	51.32
Getting support during pregnancy	Yes	217	91.2
	No	21	8.8
Postnatal support status	Yes	224	94.1
	No	14	5.9

Note: BMI = body mass index.  
<sup>a</sup>Mean (minimum–maximum).

women who score 60 and above on the scale should be evaluated in more detail (Hildingsson & Rubertsson, 2020).

It has been determined that there is a significant relationship between the participants' fear of being infected with COVID-19 before and after birth, the fear that their baby will have COVID-19 after birth, and the fear of COVID-19. It was observed that the fear scores of women who could not receive support during pregnancy and the postpartum period were higher than those who planned to receive support. Pregnancy is one of the most stressful periods in most women's lives. The

last trimester of pregnancy is the riskiest period for developing depression, anxiety, and stress (Nodoushan et al., 2020). In a study evaluating the COVID-19 pandemic in the third trimester, pregnant women reported that the pandemic increased anxiety and fear about pregnancy and baby (Yassa et al., 2020). High-risk pregnancies are a large group of many obstetric pathologies, including maternal systemic diseases. The pathologic condition of high-risk pregnancy may have affected the level of anxiety and depression of the women individually. Due to the COVID-19 pandemic, some women stated that they did not regularly go to antenatal follow-ups

**Table 2.**  
*Reasons for Application to High-Risk Pregnancy Outpatient Clinic (N = 238)*

Variables	n (%)
Perinatology follow-up causes	
Cervical insufficiency	47 (19.7)
Hypertensive diseases of pregnancy	43 (18.1)
Gestational diabetes mellitus	40 (16.8)
Poly/oligohydramnios	16 (6.7)
Placenta previa/placental adhesion disorders	11 (4.6)
Obesity	2 (0.8)
Maternal systemic disease	12 (5.0)
Fetal growth restriction	30 (12.6)
Fetal anomaly suspicion/presence	37 (15.5)

due to the fear of being infected with COVID-19 disease in hospitals where they were followed and expressed their preference for home births (Hermann et al., 2020). It has been reported that the fear of being infected with COVID-19 during pregnancy directly affects the pregnant woman's mental health. Pregnant women are worried about being infected with the disease and transmitting it to their babies and loved ones (Salehi et al., 2020). A study conducted on social media reported that pregnant women wanted to stay at home until labor began and planned to leave the hospital as soon as possible after birth; thus, they thought they would reduce the risk of being infected with COVID-19 (Gildner & Thayer, 2020). Since the effect of COVID-19 on pregnancy, fetus, and newborn are a subject that is still being researched both in our country and in the world literature, it will be helpful to inform pregnant women at least about protection from the disease and ways of transmission and isolation methods that will not increase their anxiety. Giving the woman the opportunity to express her anxieties will provide her psychological relief and feelings such as being pregnant and knowing that she will be a mother will not fall behind such fears. Questioning the social support (spouse, mother, sibling, friend, etc.) sources of pregnant women will also effectively manage such fears.

Fear of birth scores was higher in those with extended family type and undecided about the mothers' breastfeeding status with COVID-19 (+) (Table 3). It is known that pregnant women with extended family types have more contact. This may increase the anxiety of being infected with COVID-19, leading to fear at birth. In these pregnant women and the crisis caused by high-risk pregnancy and the fear of COVID-19, it may be recommended to define and use methods of combating fear and developing new methods of combating it. Methods such as positive communication, spending time together, relaxation exercises, breathing exercises, physical exercise, yoga, massage, acupuncture, social support, music therapy, and spiritual support can be used to overcome the fear of childbirth in high-risk pregnant women (Hildingsson & Rubertsson, 2020; Wahlbeck et al., 2020).

Breastfeeding is the best protective measure available for healthy and at-risk infants and their mothers during the COVID-19 pandemic. In an exposed or infected mother, the

mother should take additional droplet protection by wearing a (see-through) surgical face mask when handling and feeding her infant (Lubbe et al., 2020).

Women who experience high-risk pregnancies during the pandemic likely have birth fears that they will adversely affect birth and postpartum breastfeeding. Healthcare professionals should encourage postnatal mothers to ensure that their babies receive adequate breast milk and continue breastfeeding. Providing breastfeeding and breast milk training to women whenever they need it from pregnancy to postpartum breastfeeding can also be used as an alternative training method.

In this study, it was found that there is a positive relationship between fear of childbirth and fear of COVID-19. Pandemic strains the psychological resilience of individuals and can lead to high levels of stress. It is known that pregnant women are psychologically affected by the COVID-19 pandemic and experience relatively high anxiety. Identifying women with high-risk pregnancies and performing early psychological interventions can reduce stress and prevent birth and pregnancy complications (Mappa et al., 2020). In a study examining women's emotional states due to COVID-19 during pregnancy, it was reported that 12% of women experienced high anxiety, 60% experienced moderate or severe anxiety, and 40% experienced loneliness (Farewell et al., 2020).

#### Study Limitations

One of the study's limitations is that it did not include questions (such as the frequency of going to pregnancy follow-ups) that may increase the fear of COVID-19 and childbirth in high-risk pregnancies during the pandemic period. Therefore, there is a need for more comprehensive studies to investigate the factors that may cause anxiety/fear in pregnant women during the pandemic period.

#### Conclusion and Recommendations

Evidence is insufficient for the effects of the COVID-19 pandemic on pregnant women, fetuses, and newborns. It is not unexpected that women who will experience pregnancy, birth, and breastfeeding in the pandemic have fear about both birth and COVID-19 infection.

**Table 3.**  
Comparison of FCV-19S and FOBS with Some Variables (N = 238)

Variables	n (%)	FCV-19S, Mean ± SD	Test/p	FOBS, Mean ± SD	Test/p	
Fear of antepartum COVID-19 (+)	Yes	189 (79.4)	t = 7.004; .000*	19.59 ± 6.02	t = .627; .487	
	No	49 (20.6)		13.02 ± 5.11		62.71 ± 25.62
Fear of postpartum COVID-19 (+)	Yes	191 (80.3)	t = 5.828; .000*	19.36 ± 6.08	t = .338; .735	
	No	47 (19.7)		13.65 ± 5.73		62.58 ± 25.74
Fear of having COVID-19 (+) in baby after birth	Yes	207 (87)	t = 3.417; .001*	18.77 ± 6.22	t = -.101; .920	
	No	31 (13)		14.64 ± 6.61		62.74 ± 30.49
Perinatology follow-up causes	Cervical insufficiency (1)	47 (19.7)	F = .70; .69	17.40 ± 5.56	F = 1.32; .23	
	Hypertensive diseases of pregnancy (2)	43 (18.1)		19.88 ± 7.07		63.93 ± 23.79
	Gestational diabetes mellitus (3)	40 (16.8)		18.02 ± 7.56		60.11 ± 27.65
	Poly/oligohydramnios (4)	16 (6.7)		18.43 ± 4.92		66.37 ± 25.79
	Placenta previa/placental adhesion disorders (5)	11 (4.6)		16.63 ± 5.04		67.18 ± 21.60
	Obesity (6)	2 (0.8)		22.50 ± 12.02		77.72 ± 24.93
	Maternal systemic disease (7)	12 (5.0)		17.25 ± 6.25		70.00 ± 14.14
	Fetal growth restriction (8)	30 (12.6)		18.46 ± 7.05		62.50 ± 32.71
	Fetal anomaly suspicion/presence (9)	37 (15.5)		17.91 ± 5.63		53.96 ± 27.66
						57.97 ± 22.15
BMI	19.9 ≤ (1)	8 (3.4)	F = 0.221 .927	18.62 ± 8.94	F = 1.017; .399	
	20–24.9 (2)	92 (38.7)		18.21 ± 6.40		61.25 ± 31.02
	25–29.9 (3)	74 (31.1)		18.70 ± 6.00		59.69 ± 25.29
	30–34.9 (4)	38 (16.0)		17.73 ± 6.48		60.97 ± 23.74
	≥35 (5)	26 (10.9)		17.61 ± 7.04		67.23 ± 24.78
Family type	Nuclear (1)	144 (60.5)	F = 1.296 .276	17.88 ± 6.06	F = 3.444; .034* (post hoc) (2>1)	
	Extended (2)	90 (37.8)		18.95 ± 6.84		59.12 ± 25.55
	Broken (3)	4 (1.7)		15.00 ± 8.67		67.77 ± 24.91
Breastfeeding Status of a mother with COVID-19	Yes (1)	84 (35.3)	F = 1.169 .312	18.03 ± 6.39	F = 3.358; .036* (post hoc) (3>1)	
	No (2)	45 (18.9)		17.15 ± 6.99		57.61 ± 24.02
	Undecided (3)	109 (45.8)		18.84 ± 6.17		60.03 ± 28.21
FCV-19S	18.23 ± 6.41 (min = 7; max = 35)					
FOBS	62.30 ± 25.66 (min = 0; max = 100)					

\*p < .05.

Note: t = independent t test; F = one-way analysis of variance; FCV-19S = Fear of COVID-19 Scale; FOBS = Fear of Birth Scale.

It is expected that this will be more in women with a high-risk pregnancy. Healthcare professionals should determine the level of fear in pregnant women and take necessary measures. Face-to-face training in pregnancy training schools, if this is not possible, online and breastfeeding training during pregnancy, will be beneficial in solving problems before they occur. The scale and similar scales used in the study will be a convenient application as they inform health professionals in determining the fear of childbirth. Using such scales in antenatal follow-ups may be suggested, especially in the last trimester.

During the pandemic process, high-risk pregnant women should comply more with mask, distance, and hygiene rules that all individuals need to comply with. A multidisciplinary team (perinatologist, breastfeeding counselor, psychologist, baby nurse, and midwife) should support pregnant women in protecting their mental and physical health.

In high-risk pregnancies, visiting the hospital and delivery room where pregnant women will give birth in advance, communicating with the healthcare professional working during the birth, participating in the birth preparation pieces of training, even

if not face to face, will help to control the fear of birth and COVID-19 fear.

**Data Availability Statement:** Datasets are available on request. The raw data supporting the conclusions of this manuscript will be made available by the authors, without undue reservation, to any qualified researcher.

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