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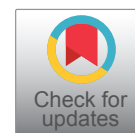
The Relationship between Mothers' Breastfeeding Anxiety and Fear of COVID-19

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Abstract

Aim: This study aimed to determine the relationship between breastfeeding anxiety of mothers and fear of COVID-19.

Methods: The research was designed as a descriptive study. This research was conducted in a maternity hospital in Istanbul between 03 May and 31 August 2021. The study sample consisted of 348 primiparous and multiparous volunteer mothers who had vaginal and cesarean section delivery methods. The research data were collected using the "Descriptive Information Form" and "The Fear of Coronavirus (COVID-19) Scale".

Results: 20.4% of the participant mothers are aged 35-45, 18.1% are primary school graduates, 25.6% are employed, and 22.7% live in an extended family. 39.4% of the mothers had cesarean section delivery, 20.7% breastfed their baby immediately, and 36.2% were diagnosed with COVID-19. 90.2% of the mothers were anxious that their baby contracting COVID-19. The mothers' anxiety that the COVID-19 epidemic would affect their breastfeeding showed the highest scale median score (27.0), while the fear of their baby contracting COVID-19 showed the lowest scale median score (24.0), besides, a statistically significant relationship was found.

Conclusion: During the COVID-19 pandemic, mothers were most anxious about the baby contracting COVID-19, while they were least anxious about the impact of the COVID-19 outbreak on breastfeeding. During the COVID-19 pandemic, it is recommended to identify mothers' breastfeeding anxieties and provide psychological support and breastfeeding counseling for their concerns.

Keywords

Postpartum period, Breastfeeding, Anxiety, COVID-19, Fear

Background

Breastfeeding is one of the most important ways to give breast milk to a newborn. It is recommended to start breastfeeding immediately after delivery and feed the baby exclusively with breast milk for at least 6 months [1,2]. Factors such as maternal and neonatal diseases and problems may prevent breastfeeding or require temporary cessation of breastfeeding. One of these factors is the risks posed by the COVID-19 pandemic and complications due to infections. The high rate of transmission and prevalence of COVID-19 infection worries mothers about breastfeeding [3].

Many breastfeeding mothers are worried about spreading coronavirus to their babies, as close contact increases the rate of COVID-19 infection. Available data suggest that data on the breast-milk-to-newborn transmission of COVID-19 are insufficient and limited [4]. One study indicates that the risk of contracting COVID-19 to a fetus during pregnancy is greater than the risk of contracting it from the mother to the newborn [1]. Chen, et al. (2020) reported that breastfeeding is not one of the ways of transmission of COVID-19 infection to the infant [5]. On the other hand, breast milk has been shown to play an important role in enhancing neonatal immunity and mild recovery from COVID-19 [5]. The World Health Organization argues that mothers with suspected or diagnosed COVID-19 are safe to breastfeed as long as they take the recommended precautions [3].

Today, it is still debated whether breastfeeding mothers with suspected or diagnosed COVID-19 poses a risk to infant health [6]. Wang, et al. (2020) advocate that vertical transmission cannot be ignored, and newborns should not be breastfed in mothers diagnosed or suspected of COVID-19 [7]. Another study states that newborns of mothers diagnosed with COVID-19 should be isolated for at least 14 days, and breastfeeding should be avoided during this period [3,6]. A study conducted in China proposes that infants be fed with formula or expressed milk in the fight against COVID-19 infection. On the other hand, it is stated that in asymptomatic COVID-19 suspicion, separation of the baby from its mother negatively affects breastfeeding [8]. However, it is indicated that breast milk alone does not cause a COVID-19 infection; on the contrary, it contains specific antibodies that protect the newborn baby from a possible COVID-19 infection [8].

Although today's data does not show that the virus that causes COVID-19 infection (SARS-CoV) is transmitted through breast milk, many mothers are worried and afraid that they will infect their babies with COVID-19 disease during the COVID-19 pandemic. It is claimed that fear related to the possibility of transmission of the virus to the baby reduces breastfeeding frequency [1,2,9]. It is crucial to identify mothers' concerns about breastfeeding in terms of initiating and continuing breastfeeding [2,10]. In the national and international literature, one study was found that determines mothers' breastfeeding concerns and fears during the COVID-19 pandemic. To this end, this study aimed to find out the relationship between mothers' breastfeeding concerns and fear of COVID-19.

Materials and Methods

Procedures

Study design: This study was designed and conducted as a descriptive study.

Place and time of research: This research was carried out between 03 May and 31 August 2021 in a maternity hospital providing health services in Istanbul, and the necessary verbal/written permissions were obtained from the institution for the research. Since the research subject is related to the COVID-19 pandemic, necessary permission was also obtained from the Republic of Turkey Ministry of Health. The study sample consisted of mothers ($n = 348$ volunteer mothers) who met the research criteria, volunteered to participate in the study, and signed the consent form.

Research population and sample: The study universe consisted of mothers who gave birth in a maternity hospital in Istanbul. The study sample was calculated as 310 people using the G*Power 3.0.1 statistical software based on the total number of births in a year (1582) of the hospital where the research is conducted, on the basis of the 95% confidence interval and the assumption

of $\pm 5\%$ error rate. Considering the possibility of data loss, more mothers were included in the study, and the study was completed with the participation of 348 volunteer mothers.

Inclusion criteria: Volunteer mothers aged 18-45, at least primary school graduates, able to speak and write Turkish, and healthy (no health problems in the mother and baby) were included in the study.

Exclusion criteria: Those who did not meet the sampling criteria, those who participated in the study and then decided to were not included in the study.

Data collection method and tools: The research data were collected using the "Descriptive Information Form" and "The Fear of Coronavirus (COVID-19) Scale".

Descriptive information form: The introductory information form used in the study was developed by the researchers in line with the literature and includes questions (27 items) about mothers' socio-demographic and obstetric characteristics, breastfeeding, and breastfeeding anxieties [1,2].

Fear of Coronavirus (COVID-19) Scale: The Turkish validity and reliability of the scale, which was designed by Ahorsu, et al. in 2020, was performed by Bakioğlu, et al. in 2020. The scale consists of one dimension and 7 items. There is no reverse item on the scale. The total score obtained from all items of the scale reflects the level of fear of Coronavirus (COVID-19) experienced by an individual. The scores that can be obtained from the scale range from 7 to 35. A high score on the scale means experiencing a high level of fear of coronavirus [11]. In this study, the mean score of the fear of coronavirus (COVID-19) scale was 23.33 ± 6.46 (min-max = 7-35 points), and the Cronbach's Alpha of the scale was $\alpha = 0.892$.

Analytic approach

The data collected in this research were evaluated using the statistical package software in the computer environment. Whether the continuous variables were normally distributed or not was analyzed with the Shapiro Wilks test of normality. Data that did not comply with the normal distribution were analyzed with Kruskal Wallis and Mann Whitney U nonparametric tests. As descriptive statistics, numerical variables (mean \pm SD (standard deviation) and (minimum-maximum) and numbers and percentages were calculated for categorical variables. The statistical significance level was accepted as $p < 0.05$.

Results

This study examined mothers' anxieties about breastfeeding during the COVID-19 pandemic, and the findings were discussed in line with the literature. 20.4% of participant mothers are aged 35-45, 18.1% are primary school graduates, 25.6% are employed, 10.6%

Table 1: Mothers' socio-demographical characteristics (n = 348).

Mothers' Characteristics	Number	%
Age		
18-24 years	104	29.9
25-34 years	173	49.7
35-45 years	71	20.4
Educational status		
Primary school	63	18.1
Secondary school	115	33.0
High school	83	23.9
Undergraduate/Graduate	87	25.0
Employment		
Employed	89	25.6
Unemployed	259	74.4
Income level (TL*)		
2500 and less	37	10.6
2500-4000	175	50.3
4001 and more	136	39.1
Family type		
Extended family	79	22.7
Nuclear family	269	77.3
Coronavirus (COVID-19) status		
Had	126	36.2
Did not have	222	63.8

*TL: Turkish Lira

Table 2: Mothers' obstetric characteristics (n = 348).

Obstetric Characteristics	Number	%
Number of pregnancies		
First pregnancy	167	48.0
≥ 2 pregnancies	181	52.0
Miscarriage		
No miscarriage	260	74.7
≥ 1 miscarriages	88	25.3
Birth period		
Term birth	324	93.1
Preterm birth	24	6.9
Birth weight		
< 2500 g	18	5.2
2500-4000 g	302	86.8
> 4000 g	28	8.0
Type of birth		
Spontaneous vaginal	211	60.6
Cesarean section	137	39.4
Time to first breastfeed		
In the first 60 minutes	256	73.6
≥ 60 mins	92	26.4
Opinions on being separated from the baby in the diagnosis of COVID-19		
Yes	180	51.7
No	89	25.6
Undecided	79	22.7

Table 3: Mothers' anxieties of breastfeeding (n = 348).

Mothers' Opinions	Number	%
Anxiety of not being able to breastfeed if contracted by COVID-19		
Yes	200	57.5
No	74	21.3
Undecided	74	21.3
Anxiety that baby does not suck if she gets COVID-19		
Yes	184	52.9
No	88	25.3
Undecided	76	21.8
Anxiety that breast milk will decrease if contracted COVID-19		
Yes	193	55.5
No	93	26.7
Undecided	62	17.8
Anxious about breast refusal if unable to breastfeed due to COVID-19		
Yes	166	47.7
No	115	33.0
Undecided	67	19.3
Anxiety that coronavirus will spread from breast milk to baby		
Yes	161	46.3
No	109	31.3
Undecided	78	22.4
Anxious about the baby contracting COVID-19		
Yes	314	90.2
No	20	5.7
Undecided	14	4.0

have an income level of 2500 Turkish Lira (TL) and less, 22.7% live in an extended family, and 36.2% had COVID-19 infection (Table 1).

Of the participant mothers, 48% had their first pregnancy, 25.3% had a miscarriage, 6.9% gave birth prematurely, 5.2% gave birth to a baby under 2500 g, and 39.4% delivered by cesarean section. Besides, 73.6% breastfed their baby within the first 60 minutes, and 51.7% believed it was right to be separated from their baby in the diagnosis of COVID-19 (Table 2).

In the study, it was determined that 57.5% of the mothers were anxious about not being able to breastfeed if contracted by COVID-19, 52.9% were anxious about not being able to breastfeed the baby if they get COVID-19, 55.5% were anxious that their breast milk would decrease if contracted COVID-19, 47.7% were anxious about breast refusal if unable to breastfeed due to COVID-19, 46.3% had the anxiety that coronavirus will spread from breast milk to baby, and 90.2% were anxious about the baby contracting COVID-19 (Table 3).

When the breastfeeding anxieties of the participant mothers were compared with the total score of the fear

Table 4: Comparison of mothers' breastfeeding anxieties with FCS score (n = 348).

Mothers' Opinions	Fear of Coronavirus (COVID-19) Scale				X ² and p value
	n (348)	Median	Mean Rank	Min-Max	
Anxiety of not being able to breastfeed if contracted by COVID-19					
Yes	200	26.0	100.50	8.0-35.0	46.598
No	74	21.0	37.50	7.0-35.0	
Undecided	74	22.0	37.50	7.0-35.0	
Anxiety that baby does not suck if she gets COVID-19					
Yes	188	26.0	94.50	7.0-35.0	61.897
No	94	21.0	47.50	7.0-35.0	
Undecided	66	22.0	33.50	7.0-33.0	
Anxiety that coronavirus will spread from breast milk to baby					
Yes	161	26.0	81.00	11.0-35.0	49.892
No	109	21.0	55.00	7.0-35.0	
Undecided	78	23.0	39.50	7.0-35.0	
Anxious about the baby contracting COVID-19					
Yes	314	24.0	157.50	7.0-35.0	20.561
No	20	18.5	10.50	7.0-32.0	
Undecided	14	21.0	7.50	7.0-28.0	
Anxiety that breast milk will decrease if contracted COVID-19					
Yes	193	26.0	97.00	8.0-35.0	59.593
No	93	21.0	47.00	7.0-35.0	
Undecided	62	22.0	31.50	7.0-35.0	
Anxious about breast refusal if unable to breastfeed due to COVID-19					
Yes	184	26.0	92.50	11.0-35.0	38.674
No	88	21.0	44.50	7.0-35.0	
Undecided	76	22.0	38.50	7.0-35.0	
Anxiety that the COVID-19 pandemic will affect her breastfeeding					
Yes	131	27.0	66.00	11.0-35.0	48.771
No	171	22.0	86.00	7.0-35.0	
Undecided	46	23.0	23.50	7.0-35.0	

FCS: Fear of Coronavirus (COVID-19) Scale

X²: Kruskal Wallis Test was applied, p < 0.05

of COVID-19 scale, a significant relationship between the anxiety of not being able to breastfeed if contracted by COVID-19 (26.0; p = 0.000), anxiety that baby does not suck if she gets COVID-19 (26.0; p = 0.000), anxiety that coronavirus will spread from breast milk to baby (26.00; p = 0.000), anxious about the baby contracting COVID-19 (24.0; p = 0.000), anxiety that breast milk will decrease if contracted COVID-19 (26.0; p = 0.000), anxious about breast refusal if unable to breastfeed due to COVID-19 (26.0; p = 0.000), and anxiety that the COVID-19 pandemic will affect her breastfeeding (27.0; p = 0.000) median values and fear of coronavirus (COVID-19) scale scores (p < 0.05; Table 4).

While a moderate negative relationship was found between the fear of COVID-19 scale total score and anxiety of not being able to breastfeed if contracted by COVID-19 (r = -0.338), anxiety that coronavirus will spread from breast milk to baby (r = -0.309), and anxiety that the COVID-19 pandemic will affect her

breastfeeding (r = -0.348), a weak negative relationship was found between the scale score and anxiety about the baby contracting COVID-19 (r = -0.233) (p < 0.05). In this study, the mean score of the fear of coronavirus (COVID-19) scale was 23.33 ± 6.46 (min-max = 7-35 points).

Discussion

Breastfeeding is the most sensitive period for mothers and their babies. This study's results, which were conducted to determine mothers' anxiety about breastfeeding during the COVID-19 pandemic, were discussed with reference to the relevant literature.

It was stated that the probability of contracting COVID-19 infection in pregnant and nursing mothers is not higher than in the general population [3]. 36.2% of the participant mothers had a COVID-19 infection (Table 1). While Ataman Bor, et al. (2021) found the rate of mothers to have COVID-19 as 16.9% in their study,

Nalbantoğlu, et al. (2020) stated that mothers with secondary school+high school education were more likely to be in contact and ill. While the inclusion criteria were effective in the fact that the rates of mothers being diagnosed with COVID-19 were lower than the rates of Nalbantoğlu, et al. (2020), the fact that the rate of COVID-19 epidemic and the incidence differ according to regions and provinces were effective in the fact that it was twice as high as the results of Ataman Bor, et al. (2021) [12,13].

It is recommended that mothers breastfeed their babies in the first half-hour or one hour after birth [1,2]. In this study, 73.6% of the mothers breastfed their baby within the first 60 minutes, and 51.7% thought it would be appropriate to stay away from the baby in case of a diagnosis of COVID-19 (Table 2).

Ataman Bor, et al. (2020) found breastfeeding frequency in the first 60 minutes to be 58.1% [12]. Lau, et al. (2018) suggested that skin-to-skin contact is vital in initiating and maintaining breastfeeding [14]. It was stated that if the COVID-19 infection in the mother is confirmed, the mother should be isolated for 14 days, and the baby should not be breastfed during this period [5]. At the onset of the pandemic, many countries such as China, Malaysia, the Philippines, and Indonesia recommended routine separation of mothers from their infants and substitutes for breast milk [15]. Likewise, the American Academy of Pediatrics recommended separating mother and baby in cases of suspected infection [16]. In a study conducted with lactating mothers who were in contact or were ill, the rate of feeding their babies with breast milk was (54.5%), while this rate was found in sick mothers and treated at home (17.6%). Besides, in this study, it was determined that mothers tend to stay in different rooms from their babies [13]. However, the CDC advised mothers who were diagnosed and treated at home to continue breastfeeding, following the rules recommended in the pandemic [17]. Both the findings of this study and the results of other studies were effective in the lack of clear information about the transmission of the COVID-19 virus from breast milk to the baby. Our breastfeeding initiation findings were in line with the results of Ataman Bor, et al. [12].

At the beginning of the epidemic, information on the transmission of the COVID-19 virus through bodily fluids, including breast milk, was limited and insufficient. The highest rate of anxiety in the first three places of the mothers participating in the study, in order, is: 90.2% are anxious that their baby will contract COVID-19, 57.5% are anxious about not being able to breastfeed if they get COVID-19, 55.5% are anxious that if they get COVID-19, the milk will decrease. The majority of mothers were anxious about the baby contracting COVID-19 (Table 3).

During the COVID-19 pandemic, an increase was

observed in the anxiety rate in breastfeeding mothers, and their concerns about the baby were in the first place. It was expressed in the current literature that there is no data on the transmission of the virus from breast milk to the baby and that SARS-CoV-2 has not been found in breast milk [4,6,18]. On the other hand, mother-to-baby transmission after birth was reported to lead to low infection rates and rare disease risk in infants [19]. However, in a recent study involving a sample of six women infected with COVID-19, no evidence of the virus was observed in breast milk samples [5], while in two other studies [20,21]. SARS-CoV-2 was found in breast milk. Although SARS-CoV-2 RNA was detected in one of the breast milk samples taken from 18 women infected with SARS-CoV-2, the negative follow-up culture of the same sample increased the possibility that the virus was not transmitted to the baby through breast milk [22]. In none of the published case studies in Spain [23], Vietnam [24], China [25], and the USA [26]. (SARS-CoV-2 was found not to transmit through breast milk, and Lu and Shi concluded that breast milk should not be considered as the transmission route of the virus [27]. A case study conducted in Australia observed that when asymptomatic mothers take appropriate precautions (for example, wearing a mask and handwashing), the baby is not likely to contract viral infections such as COVID-19 [28]. Ataman Bor, et al. (2021) observed that mothers (83.1%) who had COVID-19 did not breastfeed their babies during this period, and the rate of mothers who were anxious that the virus might spread through breast milk was high (87.3%). The rate of mothers' anxieties that their babies will contract COVID-19 was in line with the rate of mothers who were anxious that the virus could spread into breast milk in the study of Ataman Bor, et al. However, according to current scientific research and the Centers for Disease Control and Prevention (CDC) statements, it was accepted that breastfeeding is not one of the ways of transmission of COVID-19 infection to the baby [17]. By reducing the concerns of mothers about the issue, increasing lactation and continuation of breastfeeding can contribute positively.

When the Fear of COVID-19 Scale was compared with some variables, the fear of COVID-19 scale got the highest median score (27.0) for mothers' anxiety that the COVID-19 pandemic will affect her breastfeeding, while the fear of their baby contracting COVID-19 got the lowest median score (24.0), and a significant relationship was found between them (Table 4). Although the importance of breastfeeding is emphasized during the pandemic process, the concerns and fears of mothers still continue. While fears of transmission of the coronavirus to the baby through breastfeeding are the primary concern of mothers, the evidence is still conflicting [29]. High anxiety levels were detected in pregnant and lactating women during the COVID-19 outbreak [30]. It was suggested that anxiety reduces

milk production and excretion by affecting maternal self-esteem and oxytocin release [31]. While Brown and Shenker (2020) [32] underlined that 41.8% of mothers did not change in breastfeeding, Nalbantoğlu, et al. (2020) [13] stated that 8 patients (47.1%) who stopped breastfeeding during COVID-19 treatment were asked about the reason 12.5% asserted that they stopped breastfeeding due to the recommendation of the primary care physician (25%), and others (62.5%) because they were concerned about the side effects of drugs. It was also reported that the fears of families and healthcare professionals about possible transmission of the virus to the baby reduce breastfeeding frequency [9]. The high level of mothers' sensitivity about their babies in the study increased their fear of breastfeeding. Providing psychological support to mothers to reduce the anxieties and fears of mothers with COVID-19 patients, contacts, or healthy mothers is very important in terms of initiating and maintaining breastfeeding.

In international studies, it was shown that the pandemic causes an unprecedented increase in the rates of postpartum anxiety and depression [33,34]. In this study, a weak negative relationship was found between the total score of the fear of COVID-19 scale and the anxiety of the baby contracting COVID-19 ($r = -0.233$).

Although studies on breastfeeding and breast milk in the COVID-19 pandemic have proven that the virus is not transmitted to the infant through breast milk [4,6], mothers' anxieties about breastfeeding their infants remain. Maternal anxiety can prevent optimal breastfeeding. While Sakalidis, et al. (2021) [35], reported a high prevalence of anxiety in breastfeeding mothers (24.5%), Erdoğan, et al. (2020) [36] found that 25% of mothers perceived moderate-to-severe anxiety symptoms. Brown and Shenker (2020) [32] concluded that while 13.2% of mothers were anxious about the safety of breastfeeding in the first place during the COVID-19 pandemic, 80.3% of these mothers were not anxious afterward. Nanjundaswamy, et al. (2020) [37] suggested that 52.14% of mothers were worried about their baby's safety, and 39.83% were anxious about the baby's infection. High postpartum anxiety levels were associated with lower breastfeeding initiation rates and shorter breastfeeding durations [31]. Current evidence does not show the virus in infants born to mothers who contracted COVID-19 or tested positive, but on the contrary, it was stated that the properties in breast milk protect the infant [17].

It is known that the COVID-19 epidemic causes psychological and social problems. The high risk of transmission and mortality in the COVID-19 epidemic caused anxiety and fear in people [36,38]. In this study, the mean score of the mothers' fear of COVID-19 scale was found to be high (23.33 ± 6.46). A high score on the scale means a high level of fear of coronavirus [11].

Ataman Bor, et al. (2021) asserted that mothers had a high rate (93.5%) of fear of contracting COVID-19 [12]. It was discussed that in the COVID-19 pandemic, mothers' lack of adequate and accurate information about breastfeeding, being told that they should not be able to breast feed their baby if there are signs of disease or keeping babies apart after birth causes anxiety and fear in mothers [15]. WHO stated that mother and baby should not be separated due to COVID-19 unless necessary [39]. In the study, it was thought that the high anxiety of mothers for their babies was related to the fear of COVID-19. The study's findings are significant in showing that the need for accessible professional breastfeeding assistance has increased during the pandemic. Reducing mothers' anxiety and fears is of paramount importance in initiating and maintaining breastfeeding [38].

As a result of this study, in which we determined the relationship between mothers' breastfeeding anxieties and fear of COVID-19, it was determined that one-third of the participant mothers had a COVID-19 infection, and the highest concern of breastfeeding mothers was the anxiety that the baby contracting COVID-19.

As a result: When the anxiety that the COVID-19 pandemic will affect breastfeeding was compared with the scale, this result got the highest scale median score (27.0), while the fear of baby contracting COVID-19 got the lowest scale median score (24.0), and a significant relationship was found between them. In the study, a weak negative correlation was found between the total score of the COVID-19 fear scale and the anxiety of the baby contracting COVID-19. Especially in the early postpartum period, it is important to reduce mothers' concerns and fears about breastfeeding due to covid-19 in terms of initiating and maintaining breastfeeding.

Ethical Approach

The research data were collected after verbal/written permission from the hospital where the research was conducted, ethical approval (Dated 29.04.2021), and consent from the mothers. For the scale used in the research, permission to use the scale was obtained from the authors who developed the scale. The article complied with the principles of research and publication ethics.

Limitations

The fact that the study was conducted in only one hospital created a limitation for this research.

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Conflict of Interests

The authors declare that there are no conflict of interests.

Disclosure Statement

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Author Contributions

Substantial Contributions to The Conception or Design of The Work: Zümrüt Bilgin, Duygu Tatar, Selma Berda Şahin, İrem Zülal Topçuoğlu, Beyza Aktürk, Tuğba Topcu. Collected The Data: Duygu Tatar, Tuğba Topcu, Beyza Aktürk. Analyzed The Data: Zümrüt Bilgin. Interpretation of Data: Zümrüt Bilgin. Drafting The Manuscript: Zümrüt Bilgin, Duygu Tatar, Tuğba Topcu. Critical Revision of Manuscript and Final Approval of The Version Published and Agreement to be Accountable for all aspects of the Work: Zümrüt Bilgin.

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