Investigation of the relationship between fear of COVID-19 and mother to infant bonding in postpartum women

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Abstract

Objective: The aim of the study is to evaluate the relationship between the fear of COVID-19 and mother to infant bonding in postpartum women.

Material and methods: This descriptive cross-sectional study was conducted online from social media platforms. The women who were in the postpartum period (between 1-40 days), using smart phones, and healthy for themselves and their babies were included in the study. The sample was determined by power analysis and the study was completed with 205 puerperal women. Personal Information Form, Coronavirus (COVID-19) Fear Scale and Mother to Infant Bonding Scale (MIBS) were used to collect data.

Results: It was determined that the mean score of the Women's Fear of Coronavirus (COVID-19) Scale was 16.85±6.42 and the mean score of the Mother to Infant Bonding Scale was 3.18±3.58. It was found that there was no significant relationship between fear of coronavirus and mother to infant bonding levels of the women participating in the study (r=0.046, p=0.478). It has been observed that the income status of women, regular doctor check-ups, having a coronavirus disease, being vaccinated against COVID-19 affect the fear of COVID-19, while mother to infant bonding is affected by regular doctor check-ups, being vaccinated against COVID-19, and losing their family due to COVID-19.

Conclusion: It was concluded that women in the postpartum period should be supported by health professionals from the pregnancy period in order to cope with the fear of COVID-19 and to achieve safe and healthy mother to infant bonding.

Key words: fear of coronavirus, mother to infant bonding, postpartum period

Introduction

While it has been reported that those with chronic diseases are at risk for coronavirus transmission and complications during the pandemic process [1], it has also been stated that healthy pregnant women will be more affected by coronavirus disease (COVID-19) due to their immune responses. In addition to pregnancy, new mothers and their babies have also been seriously affected during the pandemic process. Approaches in the delivery process of pregnant women with maternal COVID-19 have changed [2,3,4]. Decreased social support to maintain social distance in the postpartum period [5], and disagreements on the appropriateness of mother and baby staying in the same room [6,7], have brought along many important problems. One of these problems is the interruption of mother to infant bonding.

The concept of bonding is defined as the bond formed between the baby and the person who cares for

the baby in the first degree, which develops and strengthens the baby's sense of trust [8]. The concept of mother to infant bonding is a type of bond that starts with the movements and development of the baby during pregnancy and is expected to continue by getting stronger [9]. Factors affecting mother-infant bonding attachment are extremely effective in the development and strengthening of the role of motherhood in women [10].

The pandemic period, which left humanity with many problems in every sense, also caused the bonding of mother and baby in the postpartum period to be negatively affected. There are opinions that staying in the same room with mothers who are sick or in contact with COVID-19 may increase the risk of transmission [6,7,11]. However, although the evidence is insufficient, the isolation measures applied negatively affect the breastfeeding process, maternal and neonatal health by preventing mother-infant bonding [12,13].

Mother to infant bonding has been affected by many factors during the pandemic process. One of these reasons is the problems experienced with breastfeeding [13]. Because breastfeeding is the period that has the most important role in the initiation and strengthening of the bond between the mother and the baby. According to the report of the Centers for Disease Control and Prevention (CDCP), it is reported that breastfeeding is not a transmission route for the infant for COVID-19 and all other respiratory tract infections [14]. However, a clear conclusion could not be reached due to insufficient research results. In the study conducted by Cojocaru et al., 1989 pregnant women were screened for COVID-19. According to the screening results, 86 pregnant women were found to have COVID-19 patients. It was stated that 14 of 31 pregnant women were separated from their babies, and skin-to-skin contact and breastfeeding were provided in 17 of them. It has been stated that the COVID-19 test result for all newborns was negative [15]. This shows that COVID-19 disease is not an obstacle for mother to infant bonding. In addition, in different studies in the literature [16,17], there were no clinical findings suggestive of COVID-19 in newborns born to mothers with COVID-19, and SARS-CoV-2 it has been shown to be negative. In a multicenter cohort study conducted in Turkey, babies of mothers with COVID-19 were evaluated and reverse transcription polymerase chain reaction (RT-PCR) results were found to be positive in 4 out of 120 newborns. In addition, breastfeeding status of newborns was interrupted in this study. It has been emphasized that this may be due to the inadequacy of family support, fear and lack of knowledge [12].

There is limited information on the evaluation of the relationship between fear of COVID-19 and mother to infant bonding in mothers who have given birth during the COVID-19 pandemic. Evaluation of mother to infant bonding during the pandemic period is also important in terms of gaining healthy motherhood experience and raising healthy generations. The aim of the research conducted in this direction; To evaluate the relationship between fear of COVID-19 and mother to infant bonding in postpartum women.

Material and methods
Research design, population and sample

The research was designed in descriptive cross-sectional type. Between May-July 2022, women in the 18-49 age group were reached from social media platforms (WhatsApp, Twitter, Instagram, Facebook, Pinterest and Snapchat, etc.) and all postpartum (between 1-40 days) women were reached between the specified dates has created. In the study of Engin and Kuzlu Ayyıldız (2021) (n=368) in which the factors affecting mother to infant bonding were evaluated to determine the sample size at the beginning of the study, the baby's desire status was considered as a common parameter [18]. As a result of the analysis based on the Type I error 0.01, Type II error 0.01 (power 0.99), the sample size was calculated as 205 with an effect size of 0.3. According to the results obtained from the research (n=235) G-Power 3.1.9.4. When the posthoc power analysis was performed in the program, the effect size was found to be 0.22. In the power analysis based on the confidence interval of 95%, the significance level of 0.05 and the effect size of 0.22, the power of the research was calculated as 93% and was considered sufficient.

As sampling inclusion criteria, women aged 18 and over, those with primigravida and multigravida, those who had vaginal or cesarean delivery, those who were in the postpartum period (between 1-40 days), those who had at least primary school education, and those who had the capacity to read and understand Turkish, smart phone users and those who voluntarily participated in the research. Those who did not have their baby with them (in the neonatal intensive care unit), those who were diagnosed with postpartum depression, and those who had a psychiatric diagnosis and used medication were excluded from the sample.

Data collection tools

Personal information form, Coronavirus (COVID-19) Fear Scale and Mother to Infant Bonding Scale were used to collect data.

Personal information form: It consists of questions about socio-demographic and obstetric characteristics. It includes questions such as the age of the woman, education level, employment status, family type, income level, desired pregnancy status, baby's gender, type of birth, and problems at birth. In addition, it is included in the questions about the situation of having COVID-19 and being vaccinated.

Coronavirus (COVID-19) Fear Scale: Developed by Ahorsu et al. (2020) [19]. The scale has a 5-point Likert-type rating system (7 items) (1: Strongly disagree and 5: Strongly agree). The scores that can be obtained from the scale range from 7 to 35. A high score from the scale means experiencing a high level of fear of coronavirus. The scale was adapted to Turkish by Bakioğlu et al. in 2020 [20]. It has been determined that the scale is a psychometric tool to be used to evaluate fears of COVID-19 among individuals of both genders and all age groups. In the present study conducted with women in the postpartum, the Cronbach Alpha coefficient was calculated as 0.85.

Mother to Infant Bonding Scale (MIBS): The scale can be applied from the first day after birth and the feelings of the mother towards her baby can be expressed with a single word. This scale, which can be filled in by the mother or father, shows the relationship between the bond established between the mother/father and the infant and the first period mood. The original name is "Mother-to-Infant Bonding Scale" and was developed by Taylor et al. (2005) [21]. It was adapted into Turkish by Aydemir and Alparslan (2009) [22]. MIBS is a 4-point Likert scale consisting of 8 items. The answers consisting of four options are scored between 0-3, the lowest score that can be obtained from the scale is 0 and the highest score is 24. Positive and negative emotions are scored in reverse. In the evaluation, the 1st, 4th, and 6th items are positive emotion expressions and are scored as 0,1,2,3; 2.,3.,5.,7. Items 8 and 8 are negative emotional expressions and are scored as 3,2,1,0 and reversely. An increase in the total score indicates worse bonding. The Cronbach Alpha value of the scale was reported to be 0.66 [22]. According to the evaluation made in our research, the Cronbach Alpha value was calculated as 0.70.

Ethical Approval

Written and verbal consent was obtained from all women participating in the study. Approval was obtained from the Ethics Committee of the Faculty of Health Sciences of Karamanoğlu Mehmetbey University (Date: 30.03.2022, No: 02-2022/11).

Data analysis

Statistical analyzes were performed with the Statistical Package for Social Sciences (SPSS) 22.0 statistical package program. Number, percentage, mean and standard deviation were calculated for descriptive statistics. Kolmogrow-Smirnov test, skewness and kurtosis coefficients were examined to determine whether the scale scores were normally distributed, and it was determined that the distribution was not normal. Therefore, non-parametric tests were used. The Spearman correlation test was used to evaluate the relationship between the fear of COVID-19 and the Mother to Infant Bonding Scale (MIBS) score averages of the women participating in the study. When comparing the mean scores of the Mother to Infant Bonding Scale (MIBS) with the socio-demographic, obstetric and COVID-19 related information, independent groups were compared with the Mann Whitney U test, while comparing the mean scores of more than two groups, Kruskal Wallis test and age, number of births and number of postpartum days were used. Spearman correlation test was used to evaluate the relationships. The significance level of the findings obtained from the study was evaluated at the 95% confidence interval and at the $p<0.05$ significance level.

Results

The mean age of women is 28.29±5.10 years. The majority of the participants (35.7%) have secondary school education. It is seen that 79.1% of the women do not work in a job that generates income and the income of the majority (66.0%) is equal to their expenses (Table 1). When the obstetric characteristics of the participants were evaluated, it was determined that 88.9% of the women wanted pregnancy. It was determined that 95.3% of them had regular doctor checks during pregnancy. 41.3% of the women had a normal (vaginal) delivery. It was determined that the majority of women who experienced complications during the delivery process had a decrease in amniotic fluid (n=4, 1.7%). Other women were found to experience fetal distress (n=4, 1.7%), cord entanglement (n=3, 1.3%), and non-progressive delivery (n=2, 0.9%). It was determined that most of them (51.9%) needed support for breastfeeding after delivery. 59.6% of the women received the COVID-19 vaccine. It was determined that 53.7% (n=72) of these women had the COVID-19 vaccine (Table 1).

Table 1	Socio-Demographic, Obstetric and COVID-19-Related Characteristics of Women (n=235)	
Characteristics	**Average**	**SD**
Age	28.29	5.10
	n	**%**
Educational status		
Primary school	27	11.5
Middle School	84	35.7
High school	64	27.2
Bachelor and above	60	25.5
Working status		
Yes	49	20.9
No	186	79.1
Economic condition		
Low	58	24.7
Middle	155	66.0
High	22	9.4
Family Type		
Nuclear family	189	80.4
Extended family	46	19.6
Desired state of pregnancy		
Yes	209	88.9
No	26	11.1
	Avarage	**SD**
Number of births	1.97	0.96
Number of abortion/curettage	0.38	0.65
	n	**%**
Baby's gender		
Girl	124	52.8
Boy	111	47.2
Regular attendance at prenatal checkups		
Yes	224	95.3
No	11	4.7
Type of birth		
Normal (vaginal) birth	97	41.3
Cesarean delivery	138	58.7
Complications at birth		
Yes	16	6.8
No	219	93.2
Postpartum care needed		
Breast-feeding	122	51.9
Mobilization	75	31.9
Personal hygiene	24	10.2
Baby care	14	6.0
	Avarage	**SD**
COVID-19 status		
Yes	134	57.0
No	101	43.0
Getting a COVID-19 vaccine		
Yes	140	59.6
No	95	40.4
Status of having COVID-19 in the family		
Yes	209	88.9
No	26	11.1
Death in the family due to COVID-19		
Yes	13	94.5
No	222	5.5

Table 3	The relationship between the mean scores of the Fear of Coronavirus (COVID-19) Scale and the Mother to Infant Bonding Scale (n=235)	
	Fear of Coronavirus (COVID-19) Scale	
	r*	p
Mother to Infant Bonding Scale	0.046	0.478

*Spearman corelation test

Table 2	Mean scores and median distribution of Women's Postpartum Fear of Coronavirus (COVID-19) Scale and Mother to Infant Bonding Scale (n=235)		
Mean±SD*	Median	(Minimum-Maximum)	Cronbach alpha
Fear of Coronavirus (COVID-19) Scale	16.85±6.42	16.00 (7.00-35.00)	0.85
Mother to Infant Bonding Scale (MIBS)	3.18±3.58	2.00 (0.00-15.00)	0.70

*SD: Standard deviation

Table 4	Factors Affecting the Mean Scores of the Fear of Coronavirus (COVID-19) Scale by Women's Socio-Demographic, Obstetrical Characteristics and Knowledge about COVID-19

Fear of Coronavirus (COVID-19) Scale		
Characteristics		
Age		r*=-0.013, p=0.843
		Mean±SD**
Educational status	Primary school	17.518±6.45
	Middle School	17.357±6.14
	High school	16.015±6.99
	Bachelor and above	16.750±6.24
		KW=2.685, p=0.443
Working status	Yes	16.000±5.99
	No	17.080±6.53
		U=4110.000, p=0.290
Economic condition	Low	18.086±7.01
	Middle	16.780±6.28
	High	14.136±4.98
		KW=5.504, p=0.049**
Family Type	Nuclear family	16.963±6.49
	Extended family	16.413±6.21
		U=4112.000, p=0.569
Desired state of pregnancy	Yes	16.861±6.46
	No	16.807±6.20
		U=2660.000, p=0.861
Number of births		r=0.070, p=0.282
Number of abortion/ curettage		r=0.073, p=0.263
Regular attendance at prenatal checkups	Yes	15.588±5.88
	No	18.270±6.73
		U=5248.500, p=0.002**
Type of birth	Normal (vaginal) birth	16.360±6.73
	Cesarean delivery	17.209±6.20
		U=6168.000, p=0.305
Complications at birth	Yes	15.812±6.42
	No	16.931±6.43
		U=1647.000, p=0.689
Postpartum care needed	Breast-feeding	16.516±6.27
	Mobilization	16.813±6.71
	Personal hygiene	17.208±5.95
	Baby care	19.428±6.96
		KW=2.673, p=0.445
COVID-19 status	Yes	16.134±6.32
	No	17.811±6.47
		U=5714.500, p=0.041**
Getting a COVID-19 vaccine	Yes	17.771±6.38
	No	15.505±6.28
		U=5331.500, p=0.010**
Status of having COVID-19 in the family	Yes	17.148±6.42
	No	14.500±6.05
		U=2095.000, p=0.057
Death in the family due to COVID-19	Yes	19.307±5.61
	No	16.711±6.45
		U=1053.000, p=0.101

*Spearman corelation test, **SD: Standard deviation, *** p<0.05

Table 5	Factors Affecting the Mean Mother to Infant Bonding Scale Scores According to Women's Socio-Demographic, Obstetrical Characteristics and Knowledge about COVID-19 (n=235)

Mother to Infant Bonding Scale		
Characteristics		
Age		r*=0.030, p=0.650
		Mean±SD*
Educational status	Primary school	3.925±3.80
	Middle School	2.690±3.28
	High school	3.062±3.56
	Bachelor and above	3.666±3.87
		KW=4.961, p=0.175
Working status	Yes	3.224±3.50
	No	3.172±3.61
		U=4424.500, p=0.750
Economic condition	Low	2.965±3.59
	Middle	3.258±3.58
	High	3.227±3.74
		KW=0.887, p=0.642
Family Type	Nuclear family	2.989±3.40
	Extended family	3.978±4.19
		U=3916.000, p=0.289
Desired state of pregnancy	Yes	3.090±3.60
	No	3.923±3.44
		U=2282.000, p=0.176
Number of births		r=-0.032, p=0.631
Number of abortion/ curettage		r=-0.065, p=0.324
Regular attendance at prenatal checkups	Yes	3.120±3.59
	No	4.454±3.20
		U=865.500, p=0.046***
Type of birth	Normal (vaginal) birth	2.793±3.18
	Cesarean delivery	3.360±3.64
		U=5005.000, p=0.476
Complications at birth	Yes	3.437±2.78
	No	3.164±3.64
		U=1541.500, p=0.414
Postpartum care needed	Breast-feeding	3.082±3.63
	Mobilization	3.666±3.89
	Personal hygiene	2.416±2.26
	Baby care	2.785±3.28
		KW=1.171, p=0.760
COVID-19 status	Yes	3.194±3.80
	No	3.168±3.29
		U=6409.500, p=0.481
Getting a COVID-19 vaccine	Yes	3.500±3.67
	No	5.715±3.41
		U=5689.000, p=0.049***
Status of having COVID-19 in the family	Yes	3.220±3.63
	No	2.884±3.24
		U=2586.000, p=0.683
Death in the family due to COVID-19	Yes	4.846±3.97
	No	3.085±3.54
		U=987.500, p=0.048***

*Spearman corelation test, **SD: Standard Deviation, *** p<0.05

It was determined that the mean score of the Women's Fear of Coronavirus (COVID-19) Scale was 16.85±6.42 and the mean score of the Mother to Infant Bonding Scale (MIBS) was 3.18±3.58 (Table 2).

It was determined that there was no significant relationship between fear of coronavirus and mother to infant bonding levels of the women participating in the study (r=0.046, p=0.478) (Table 3).

When the factors affecting the average score of the Fear of Coronavirus (COVID-19) Scale according to the socio-demographic characteristics of women were evaluated, it was determined that age, education status, employment status and family type did not affect the fear of coronavirus. However, it has been determined that income status has an effect on fear of coronavirus. Further analysis revealed that the significant difference between income status and fear of coronavirus stemmed from the difference between groups with income less than expenses and income more than expenses (U435.500, p=0.029) (Table 4).

It was determined that those who had regular doctor check-ups during pregnancy had a lower level of fear of coronavirus (U=5248.500, p=0.002) than women who did not. It was determined that the women who did not get the coronavirus disease and those who had the COVID-19 vaccine had a higher score on the Coronavirus (COVID-19) Fear Scale (Table 4).

It was determined that the socio-demographic and obstetric characteristics of the women participating in the study had no effect on mother to infant bonding. However, it was determined that mother to infant bonding (U=865.500, p=0.046) was better in women who had regular doctor check-ups during pregnancy. It was determined that women who had the COVID-19 vaccine had better mother to infant bonding (U=5689.000, p=0.049) than women who did not. As a surprising finding, it was determined that the mother to infant bonding of women who lost their family due to COVID-19 was worse (U=987.500, p=0.048) than women who did not (Table 5).

Discussion

In the study, it was determined that women's COVID-19 fear mean score was 16.85 point (SD=6.42) and mother-infant bonding scale mean score was 3.18 (SD=3.58) point. It was determined that the women's fear of COVID-19 was moderate and mother-infant bonding was in good condition. It was found that there was no significant relationship between fear of coronavirus and mother to infant bonding levels. Women in the postpartum period experience greater anxiety, stress and fear, as they consider the health of the newborn, which they are responsible for raising, breastfeeding and protecting, as well as their own health during the pandemic process [23]. Mother to infant bonding is a special relationship that develops over time and is important for mother and baby health. In the successful continuation of this relationship; Many factors such as health status of mother and baby, number of pregnancies, relationship status between parents, family ties, cultural structure, planned pregnancy, postpartum depression, socio-economic status, risky pregnancies are effective [24]. In the study, it was observed that although the women's COVID-19 fear levels were moderate, it was not an effective factor in mother-infant bonding. Celik et al. (2022), it was found that maternal function was higher than the average and even higher than the studies conducted before the pandemic. It has been concluded that during the pandemic, mothers act more sensitively and attentively to fulfill their maternal function under the threat of COVID-19, and thus they

may be better adapted to maternal function [25]. Similarly, the good condition of mother-infant bonding in our study may have been caused by the fact that women were better adapted to maternal function during the pandemic.

It has been observed that the fear of coronavirus is higher among those with low income than those with equal and higher income. In the study of Stojanov et al. (2020), it was determined that postpartum depression and anxiety were higher in women with low income during the COVID-19 pandemic period [26]. The long duration of the pandemic has also led to economic problems such as staying at home and job loss. In addition to these, catching the disease may also cause an additional financial burden, which may have caused the fear of coronavirus to be more in these women.

It has been determined that those who have regular doctor check-ups during pregnancy have less fear of coronavirus than women who do not. Mızrak Şahin and Kabakçı (2021) and Demirel Bozkurt et al. (2022), it was observed that pregnant women who easily contacted their doctors, midwives and nurses during the pandemic and received telephone or online support were less anxious and felt more comfortable [27,28]. Our study result is compatible with the literature. The level of fear of coronavirus may have decreased as women who are informed about their own and their baby's condition both relax and become more conscious and take the necessary precautions against COVID-19. In the study, it was determined that the mother-baby bonding of women who had regular doctor check-ups during pregnancy was better. In the study of Bilgin and Alpar (2018), it was determined that there is a relationship between strong mother to infant bonding during pregnancy and receiving prenatal care [29]. Similarly, in our study, having information about the health status of their babies may have affected the mother to infant bonding positively by providing relief for mothers.

In the study, it was determined that those who did not get coronavirus disease and women who had the COVID-19 vaccine had a higher level of fear of coronavirus. The most effective method of protection against COVID-19 is COVID-19 vaccines. COVID-19 vaccines are safe and effective in pregnant and lactating women [30]. It is natural for women with a high fear of COVID-19 to be vaccinated to protect themselves from COVID-19 because of this fear. In the study of Kalafatoğlu and Yam (2021), it was seen that the COVID-19 fear levels of the participants who were not diagnosed with COVID-19 were higher than those who received it [31]. As uncertainty about the effects of the disease decreases in women who have had COVID-19 disease, it can be thought that their fears about COVID-19 are less.

It was determined that women who had the COVID-19 vaccine had better mother to infant bonding than women who did not. In particular, the fact that pregnant and postpartum women feel safe by getting vaccinated to protect themselves and their babies from COVID-19 may have enabled them to adapt better to their babies.

In the study, it was determined that women who lost their families due to COVID-19 had worse mother to infant bonding than women who did not. Özşahin and Aksoy (2020) found that individuals who were diagnosed with COVID-19 in their relatives experienced significantly higher levels of COVID-19 anxiety [32]. In another study, it was found that losing a loved one due to COVID-19 causes symptoms of post-traumatic stress, depression, perceived stress and insomnia in individuals [33]. Especially the loss of relatives diagnosed with COVID-19 may have affected women psychologically negatively, and may have had an impact on mother-infant bonding as a negative factor.

Conclusion

As a result, it was determined that the fear of COVID-19 in postpartum women was moderate and mother to infant bonding was in good condition, and there was no significant relationship between fear of coronavirus and mother to infant bonding levels. In addition, it has been observed that the income status of women, having regular doctor check-ups, having a coronavirus disease, being vaccinated for COVID-19 affect the fear of COVID-19, while mother-baby bonding is affected by regular doctor check-ups, being vaccinated against COVID-19 and experiencing loss in her family due to COVID-19. The conducted this study determined the factors that should be evaluated in order to minimize the affecting factors mother-infant bonding in pandemic situations that may be encountered now and in the future. It is believed that knowing the factors that may affect mother-infant bonding in pandemic situations that may affect the whole world in the long term will be beneficial to prevention in the early period. It is recommended that women be supported by health professionals starting from the pregnancy period in order to cope with the fear of COVID-19 and to achieve safe and healthy mother to infant bonding, group or individual trainings, early detection of bonding and elimination of problems.

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