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RESEARCH ARTICLE

The impact of the COVID-19 Pandemic on Breastfeeding Practices among Mothers*

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ABSTRACT

Objective: This study aimed to evaluate the impact of the COVID-19 pandemic on breastfeeding practices among mothers with infants aged 0– 24 months.
Methods: The research was carried out at the Ankara City Hospital's breastfeeding support/relactation clinic and mother-infant bonding service from December 2021 to May 2022. A sample of 511 mothers who visited these clinics during the study period, agreed to participate, and met the research criteria was included. Data collection was done using a descriptive data form.
Results: The average age of the mothers was 28 ± 4.7 (18–44), and 51.66% had undergone cesarean delivery. Approximately 54.41% of the mothers were university graduates. During the pandemic, 13.0% of the mothers reported breastfeeding-related issues, and all those who faced problems refrained from seeking hospital assistance. Additionally, 12.14% of the mothers had COVID-19 during pregnancy, 76.13% contracted it after childbirth, and 69.70% of those who had COVID-19 discontinued breastfeeding. Furthermore, 28.79% of the mothers who continued breastfeeding reported feeling anxious while nursing. Approximately 57.6% of the mothers stated they did not receive any breastfeeding-related information during the pandemic, and 17.50% experienced breastfeeding issues after quarantine. While hospitalized due to COVID-19, 48.7% of the mothers breastfed their infants, 41.0% fed expressed breast milk and formula, and 10.3% exclusively used formula.
Conclusions: The findings underscored the necessity for breastfeeding counseling services for mothers during the COVID-19 pandemic.

Keywords: Pandemic, breastfeeding, breast milk

INTRODUCTION

The COVID-19 outbreak, originating in Wuhan, China in December 2019, swiftly spread globally, promting infections across numerous countries. By the end of January, as COVID-19 reached 19 countries, the World Health Organization (WHO) declared it a "Public Health Emergency of International Concern." With millions of deaths worldwide, it was declared a pandemic by March 2020 (1).

As the virus proliferated worldwide, nations implemented measures to curb its spread, including social distancing and home isolation. Both public and private sectors adopted flexible work arrangements like staggered shifts and remote work. Schools transitioned to distance learning, and gatherings were canceled. These measures altered daily routines for individuals and societies, impacting everyone (1,2,3).

The COVID-19 pandemic is believed to have influence the breastfeeding process for mothers, much like its impact on various aspects of life. Studies indicate no transmission of the virus through breastfeeding. Nonetheless, the widespread infection and its alarming nature have instilled fear and anxiety among mothers. Many have been unable to attend prenatal classes, access breastfeeding education, and seek healthcare for postnatal breastfeeding challenges (4,5,6,7,8).

Policies concerning breastfeeding following COVID-19 infection have varied among pregnant women across different countries. The WHO has recommended breastfeeding during the outbreak, emphasizing the importance of mothers wearing masks, maintaining breast hygiene, and practicing hand washing before and after contact with the baby (9).

The primary mode of transmission for the COVID-19 virus is through droplets. Studies have found no evidence of the COVID-19 virus in amniotic fluid, cord blood, placenta, or breast milk (7,10,11). Transmission of the virus occurs primarily through close contact and droplets, with potential routes including the enteral route, conjunctival mucosa, or

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contaminated surfaces (12). Therefore, the possibility of transmission through droplets between mother and baby warrants careful consideration. However, due to the novelty of the infection, research on this topic is limited (13).

Although literature indicates that the COVID-19 virus does not pass through breast milk, it is acknowledged that the risk of transmission via contact and droplet infection, alongside the social life restrictions and anxieties imposed, have impacted the breastfeeding period. Hence, this study was conducted descriptively to evaluate the effects of the COVID-19 pandemic on the breastfeeding status of mothers with infants aged 0–24 months.

METHODS AND PROCEDURES

Study Design
The study was conducted in a descriptive manner.

Location and Timeframe
The study took place at Ankara City Hospital within the Maternal Support Breastfeeding/Relactation Polyclinic (Breastfeeding/Relactation Support Clinic) and the Mother-Baby Bonding Unit from December 2021 to May 2022.

Population and Sample
The study encompassed a total population of 4,498 mothers who visited the Maternal Support Breastfeeding/Relactation Polyclinic (2,102) and the Mother-Baby Bonding Unit (2,396) at Ankara City Hospital. Utilizing a commonly employed formula for known populations, a minimum sample size of 380 was determined. Ultimately, a sample of 511 mothers with children aged 0–24 months, who attended the specified clinics during the study period, consented to participate, and met the research criteria, was included in the study.

Inclusion Criteria
- Mothers with infant aged 0–24 months
- Proficient in the Turkish language
- No communication difficulties
- Mothers who provided consent to participate in the research

Data Collection Tools
Descriptive Data Form
The researchers devised a questionnaire comprising 48 inquiries, structured in accordance with the existing literature. The questionnaire encompasses 4 questions pertaining to the sociodemographic attributes of the mothers, 8 questions concerning the birth-related characteristics of both the mother and the infant, 17 questions addressing the breastfeeding status of the mothers during pregnancy and postpartum, 7 questions focusing on the mothers' knowledge regarding infant feeding, and 12 questions dedicated to assessing the mothers' behaviors regarding breastfeeding and infant feeding amidst the COVID-19 pandemic.

Research Implementation
Data collection for the research was carried out by the researcher either through face-to-face interviews or utilizing the Google Forms survey tool, based on the preferences of the participating mothers. The estimated time required to complete the survey form ranged from 10 to 15 minutes.

Ethical Considerations
The research obtained written approval from the Zonguldak Bülent Ecevit University Human Research Ethics Committee (25.11.2021/105435) and the Ankara Provincial Health Directorate. Prior to commencing the study, participants received detailed information regarding the research objectives and procedures, and their consent was sought. Participant identities remained confidential, with no names disclosed. A voluntary consent form was incorporated at the outset of the Google Forms survey, ensuring participants' consent before proceeding to answer the survey questions.

Data Analysis
Data analysis was conducted using SPSS 16.0 software. Frequencies and percentages were utilized for analyzing categorical variables, while descriptive statistics including minimum and maximum scores, mean, standard deviation, and median values were employed to assess continuous variables.

Limitations and Challenges in the Research
The findings of this study are constrained by the timeframe during which the research was conducted and the responses elicited from participants through the data collection tools employed.

RESULTS

The average age of the participating mothers was determined to be 28.34 ± 4.72 years, ranging from 18 to 44 years. The mean gestational age of the infants was found to be 38.96 ± 3.42 weeks, with a range from 32 to 42 weeks. Mothers breastfed their infants for an average duration of 12.22 ± 3.81 months, ranging from 0 to 24 months. Regarding the educational attainment of the mothers, 30.33% (n = 155) had completed high school education, while 54.41% (n = 278) had completed university education (Table 1).

Table 1: Distribution of maternal and infant socio-demographic characteristics

Feature		Ort.±SS	Median (Min-Maks)	
Mother's age		28.34±4.72	27.00 (18.00-44.00)	
Week the baby was born		38.96±3.42	38.00 (32.00-42.00)	
Baby's age (in months)		12.22±3.81 (00.00-24.00)		
Breastfeeding duration (in months)		16.44±4.62 (00.00-24.00)		
			n	**%**
Mother's educational status	Literate		2	0.39
	Primary school		12	2.35
	Middle school		64	12.52
	High school		155	30.33
	University		278	54.41
	Total		**511**	**100.0**

Approximately 48.34% (n = 247) of the mothers delivered their babies normally, and 72.02% (n = 368) gave birth at a state hospital. Among those who underwent cesarean delivery, 20.71% (n = 54) reported a previous cesarean delivery, 12.85% (n = 34) opted for cesarean delivery due to pelvic constriction, and 15.47% (n = 41) chose it because of health issues (Table 2).

Table 2: Distribution of birth-related characteristics of mother and baby

Feature		n	%
Type of Birth	Normal Birth	247	48.34
	Cesarean section	264	51.66
Place of birth	At home	1	0.20
	Public Hospital	368	72.02
	Private Hospital	127	24.85
	University Hospital	15	2.93
Reason for cesarean delivery (n=264)	First birth by cesarean	54	20.71
	Mother's health problems	41	15.47
	Pelvic stenosis	34	12.85
	Inverted position	32	12.07
	Slowing baby's heart beat	23	8.57
	Decreased amniotic fluid	16	5.86
	Big Baby	23	8.59
	Pre-articular-articular	13	4.97
	Multiple pregnancy	9	3.5
	Cord entanglement	8	3.12
	Early birth	8	3.12
	Baby developmental delay	3	1.17
	Total	**511**	**100.0**

During the pandemic, 13.0% (n = 66) of the mothers encountered breastfeeding-related issues, and all of them refrained from seeking hospital assistance. Among the 66 mothers who hesitated, 82.9% (n = 54) cited fear of contracting COVID-19 as the reason for their hesitation (Table 3).

Table 3: Distribution of mothers' characteristics regarding breastfeeding during the COVID-19 pandemic period

Feature		n	%
Having problems with breastfeeding	Yes	66	13.0
	No	445	87.0
Do not hesitate to go to the hospital* (n=66)	Yes	66	15.0
	No	0	0.0
if yes why	Due to fears of Covid transmission	54	82.9
	Because of the crowd	6	8.55
	Due to the curfew	6	8.55

A total of 87.86% (n = 423) of the mothers reported no history of COVID-19 infection, while 12.14% (n = 88) confirmed contracting the virus. Among them, 76.13% (n = 66) stated contracting COVID-19 postchildbirth. Throughout the COVID-19 period, 79.54% (n = 70) of the mothers were not hospitalized, while 20.46% (n = 18) required hospitalization (Table 4).

Table 4: Distribution of mothers' COVID-19 infection and treatment status

Özellik		n	%
Passing COVID-19	I didn't pass	423	87.86
	I spent	88	12.14
Time to COVID-19 (n=88)	Post-natal	66	76.13
	During pregnancy	22	23.87
COVID-19 hospital treatment (n=88)	Yes	18	20.46
	No	70	79.54

Among mothers who contracted COVID-19 post child birth, 30.30% (n = 20) continued breastfeeding. Among these, 71.21% (n = 47) reported no feelings of anxiety while breastfeeding, while 28.79% (n = 19) expressed experiencing anxiety. Regarding the duration of inability to breastfeed due to COVID-19 infection, 22.72% (n = 15) reported 14 days, 10.61% (n = 7) reported 15 days, 3.03% (n = 2) reported 20 days, and 1.52% (n = 1) reported 21 days. It was found that 42.4% (n = 28) of the mothers sought information on breastfeeding during COVID-19, with 86.5% (n = 32) receiving it from healthcare professionals, 5.41% (n = 2) from the Internet, and 5.41% (n = 2) from social media (Table 5).

After the quarantine period, 82.50% (n = 33) of the mothers reported no breastfeeding-related issues, while 17.50% (n = 7) reported experiencing problems. The problems mentioned included the baby being hospitalized due to a COVID-19 infection, a decrease in the mother's milk supply resulting in the baby not latching, and the baby becoming accustomed to bottle feeding in the hospital and subsequently refusing to breastfeed (Table 5).

Among mothers, 48.7% (n = 19) breastfed their babies, while 41.0% (n = 16) fed them with expressed breast milk and formula. During feeding, 52.8% (n = 19) used a syringe, 22.2% (n = 8) used a bottle, and 16.7% (n = 6) used a spoon (Table 6).

DISCUSSION

Breastfeeding is widely acknowledged for its numerous health benefits for both mothers and babies, as well as its economic advantages. As a result, breast milk is considered the optimal nourishment for infants, ranking first. The most effective means of acquiring and sustaining breast milk is through breastfeeding, a feeding method that fosters the healthy physical and psychological development of infants. The WHO under scores the significance of exclusive breastfeeding for the first 6 months of a baby's life to ensure their optimal growth and development (14,15).

Table 5: Distribution of mothers' characteristics of breastfeeding their babies during the COVID-19 pandemic period

Feature		n	%
Breastfeeding during the COVID-19 infection	Yes	20	30.30
	No	46	69.70
Anxiety during breastfeeding during COVID-19 infection	Yes	20	28.79
	No	46	71.21
Duration of not breastfeeding during COVID-19 infection	1 day	10	15.15
	6 days	12	18.18
	14 days	14	22.72
	15 days	7	10.61
	20 days	2	3.03
	21 days	1	1.52
Breastfeeding information during COVID-19 infection	Yes	28	42,4
	No	38	57.6
Where is the information from?	Health workers	32	86.5
	TV	1	2.7
	Internet	2	5.41
	Social media	2	5.41
Having trouble breastfeeding after quarantine	No	33	82.5
	Yes	7	17.5
If yes, the problem	My baby was hospitalized due to COVID-19	2	28.57
	My baby was also in intensive care, my milk decreased, he started not to breastfeed.	2	28.57
	He got used to the bottle at the hospital, he didn't want to breastfeed.	1	25.0
	Refused the breast	2	28.57

Table 6: Distribution of characteristics of mothers regarding feeding their infants during COVID 19 infection

Feature		n	%
Baby's diet*	Breast-feeding	19	48.7
	Formula	4	10.3
	Expressed breast milk + formula	16	41.0
Feeding tool*	Spoon	7	16.7
	Injector	20	52.8
	Bottle	9	22.2
	I breastfed	3	8.3

*Mothers gave more than one answer.

Despite the well-established benefits of breast milk, uncertainties arising during the pandemic may lead mothers to encounter various concerns. Throughout the pandemic, uncertainties surrounding the transmission routes of the COVID-19 virus, apprehensions about breastfeeding, disruptions in breastfeeding support, health education, and healthcare services are believed to have contributed to challenges in this process for mothers (16).

COVID-19 infection poses heightened risks during critical periods of women's lives, such as pregnancy, childbirth, and the postpartum period. It was observed that 87.86% of mothers did not contract COVID-19, while 12.14% did. Among the 88 mothers who were infected, 76.13% contracted the virus after childbirth, and 23.87% during pregnancy. In a study investigating anxiety and depression induced by COVID-19 in pregnant women, 137 participants were examined, with 44.5% testing positive for COVID-19 (17). The relatively low incidence of COVID-19 infection among mothers in the study is presumed to be influenced by their heightened concerns for safeguarding their own and their infants' health during the pandemic, likely leading them to adhere to lockdown measures, hygiene practices, and social distancing guidelines.

The research revealed that 20.45% of mothers diagnosed with COVID-19 required hospitalization. In a study conducted by Pereira et al. (2020) involving 22 mothers, 11 of them (50%) displayed symptoms, with 4 patients receiving COVID-19 treatment before delivery and an additional 4 receiving treatment postpartum (18). Another study conducted in Turkey reported that 8.2% of pregnant women diagnosed with COVID-19 received hospital treatment, while 91.8% underwent home treatment (17). Pregnancy, being a physiological state, heightens susceptibility to respiratory complications from viral infections. Physiological alterations in the immune and cardiopulmonary systems during pregnancy increase the risk of developing severe diseases upon contracting respiratory viruses. A study examining 1918 cases during the influenza pandemic documented a mortality rate of 2%–6% in the general population, contrasting with a 37% mortality rate among pregnant women (19). Increased diaphragm height, elevated oxygen consumption, and respiratory mucosa edema render pregnant women vulnerable to hypoxia (19,20). Despite ongoing research, there is currently no specific treatment established as effective and reliable for COVID-19 infection (21,22).

The research discovered that 69.70% of mothers who contracted COVID-19 post-pregnancy ceased breastfeeding. The approach to managing breastfeeding varied at the onset of the COVID-19 pandemic. While some publications advocated for breastfeeding during this period (23,24), others advised against it (25,26). As the pandemic evolved, updated perspectives emerged based on investigations into disease management and transmission routes. Initially, prevailing opinions endorsed separation of mother and baby during breastfeeding, but later, support for breastfeeding was recommended (27,28). While studies have investigated transmission routes of COVID-19 in infected newborns, none have demonstrated transmission through breastfeeding (29, 30,31). Differences in breastfeeding practices during the

pandemic are believed to stem from the uncertainty of this period and the novelty of the COVID-19 virus. Among mothers who continued breastfeeding during the quarantine period, 28.79% expressed anxiety while breastfeeding. The pandemic has induced parental anxiety concerning breastfeeding and breast milk (32,33). Pregnancy and the postpartum period are emotionally charged periods characterized by heightened emotions. Pregnant and postpartum women experience increased anxiety during the pandemic as they are concerned not only about their own health but also about the well-being of their infants, whom they are responsible for nurturing, breastfeeding, and safeguarding (34). Studies have indicated an increased likelihood of depressive symptoms and anxiety among women during pregnancy and the postpartum period amidst COVID-19 (35,36). The rapid advancement of the COVID-19 pandemic has introduced uncertainties in pregnancy and breastfeeding, potentially contributing to the anxiety experienced by breastfeeding mothers.

During the COVID-19 pandemic, a study revealed that 13.0% of mothers encountered breastfeeding-related issues, and all mothers facing problems hesitated to seek hospital assistance. Among those expressing hesitation, 82.90% cited concerns about contracting COVID-19 as the primary reason, reflecting a trend observed in other studies where individuals deferred healthcare facility visits and postponed appointments due to the pandemic (37,38,39,40,41,42). Nazik et al. (2020) investigated the pandemic's impact on prenatal care services among pregnant women, finding a decrease in prenatal care visits compared to the pre-pandemic period, with over half receiving fewer than four visits (38). Yıldız et al. (2021) conducted a retrospective cross-sectional study, noting fewer prenatal visits during 2020 compared to previous years (39). Wu et al. (2020) reported women's apprehensions about hospital visits during the pandemic, with over half canceling or postponing appointments (40). The implementation of lockdown measures and concerns about contracting the virus have disrupted routine healthcare check-ups.

Following the quarantine period, 82.50% of mothers reported no breastfeeding-related issues, while 17.50% reported encountering problems. These issues included the baby's hospitalization due to COVID-19 infection and a reduction in the mother's milk supply, leading to difficulties in latching or refusal to breastfeed. While there is no evidence of COVID-19 transmission through breastfeeding (7), limited evidence exists regarding its safety in infants of suspected or confirmed COVID-19 mothers due to potential horizontal transmission. Furthermore, breastfeeding is not recommended for mothers undergoing ongoing treatment, as it remains unclear whether antiviral drugs pass into breast milk (20). It has been recommended that if subsequent COVID-19 tests of suspected or confirmed COVID-19 mothers yield negative results, breastfeeding can be resumed (26). Issues such as a decreased milk supply and breastfeeding difficulties in infants of suspected or confirmed COVID-19 mothers may stem from disruptions in breastfeeding due to the pandemic.

CONCLUSION

In conclusion, this study sheds light on the multifaceted challenges faced by mothers with infants aged 0–24 months regarding breastfeeding during the COVID-19 pandemic. The findings underscore the prevalence of breastfeeding-related issues among mothers, including concerns about contracting COVID-19 and a lack of access to adequate information and support. Moreover, the study highlights the impact of the pandemic on maternal healthcare-seeking behavior, with a significant proportion of mothers hesitating to seek hospital assistance when encountering breastfeeding problems. Notably, the postquarantine period presents continued challenges for mothers, with issues such as decreased maternal milk supply and difficulties in breastfeeding initiation observed. These findings emphasize the urgent need for comprehensive support mechanisms and education programs tailored to address the unique needs of breastfeeding mothers during public health crises like the COVID-19 pandemic, ensuring the optimal health and well-being of both mothers and infants.

Ethics Committee Approval: This study was approved by the ethics committee of Zonguldak Bülent Ecevit University (BEU) Human Research Ethics Committee (25.11.2021/105435).

Informed Consent: Written consent was obtained from the participants.

Peer Review: Externally peer-reviewed.

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