Euras J Fam Med 2023;12(4):173-84. doi:10.33880/ejfm.2023120401 **Original Research**

Breastfeeding Problems of Mothers in the Postpartum Period and Impact on Sleep Quality

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ABSTRACT

Aim: The study was conducted to determine the breastfeeding problems encountered in the postpartum period and its effect on sleep quality.

Methods: The sample of the study consisted of 364 mothers who used social media platforms. Data collection tools were applied between 2-8 weeks postpartum with an online questionnaire method. Research data were evaluated using the t-test to compare the means of two groups and the One-Way ANOVA test to compare the means of multiple groups.

Results: In the study, the mean age of the mothers was 29.50±4.69 years, 57.4% had graduated from a university. Of the infants of the mothers, 97% took human milk, and 56.6% used pacifiers and bottles. Of the mothers who took part in the study, 73.6% had nipple cracks. The study found the Postpartum Sleep Quality Scale total score mean to be 28.29±8.08. The Postpartum Sleep Quality Scale total score was higher (poor sleep quality) in those with nipple cracks compared to those without.

Conclusion: In the study, it was determined that the most common breastfeeding problem in the postpartum period is nipple cracks and that breastfeeding problems reduce the sleep quality of mothers in the postpartum period.

Keywords: breastfeeding, postpartum period, sleep quality

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Introduction

Breastmilk is the ideal food for the growth and development of infants. The World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) state that infants should be fed only with breast milk for the first 6 months and that breastfeeding should be maintained with complementary food up to the age of two and beyond (1,2). According to the 2018 Turkey Demographic and Health Survey (TDHS) data, among infants younger than six months, only 41% are breastfed; this ratio is 59% among 0–1-month-old infants and drops to 45% among 2–3-month-old infants (3). The postpartum breastfeeding ratios are not at the expected level; this reveals the need to encourage mothers to breastfeed in the postpartum period and evaluate and eliminate the problems that restrain breastfeeding (4-6). Due to incorrect breastfeeding techniques in the early postpartum period, in which breastfeeding begins in most mothers, many breastfeeding problems such as nipple sores and cracks, flat nipples, breast fullness, and mastitis can be seen. Of breastfeeding women, 80-90% experience nipple pain and nipple cracks (7). It is stated that postpartum breastfeeding problems have a negative impact on breastfeeding and cessation of breastfeeding (8,9). The postpartum period is the period in which mothers and infants need midwifery/nursing care the most (6,10). The care to be given in this period should cover the needs of the mother, infant, and family (11). Breastfeeding problems of mothers can be significantly reduced by ensuring the right breastfeeding position and providing comprehensive breastfeeding training and counseling in the early prenatal and postnatal periods (9).

Sleep is one of the most important and basic needs of human life (12). Sleep prepares an individual for a new day by body resting, energy preservation, strengthening, regulating, and repairing brain functions. Sleep quality is defined as being in shape and ready for a new day after sleep and is affected by many factors such as lifestyle changes, environmental factors, working conditions, social life, economic status, health status, and stress (13). Changes in sleep quality and routine affect daily life activities. Long-term sleep disorders lead to changes in cognitive, psychological, and physiological functions, resulting in negative health outcomes (12,14). In the postpartum period, the necessity of feeding the infant, the physiological and hormonal changes, and the breastfeeding problems experienced cause sleep interruptions in the mother and reduce sleep quality (15). Studies showed that breastfeeding and breastfeeding problems in mothers in the postpartum period affect sleep quality negatively (14,16-18). In this context, the study aimed to determine the breastfeeding problems of mothers and sleep quality in the postpartum period and the effect of these problems on postpartum sleep quality.

Methods

The research has a descriptive design. To determine the number of samples in the study, the rate of breastfeeding problems was accepted as 24.5% (8), then, the number of mothers to be reached by unknown universe sampling method was determined as at least 282 (t=1.96, p=24.5, q=75.5, d=0.05) and 392 mothers were reached. But, since 19 of the mothers were in the first week after birth, nine of the mothers were diagnosed with depression and did not meet the inclusion criteria in the study. The study was concluded with 364 mothers. Women between the ages of 18-49**,** willing to participate in research, and mothers between 2 and 8 weeks postpartum were the inclusion criteria of the study. Having a chronic disease in the mother and any disease in the baby (such as a major anomaly) were the exclusion criteria.

In the research, the link for the questionnaire was shared on breastfeeding platforms on social media (Facebook, Instagram, WhatsApp) and carried out by convenience sampling method. Mothers were asked to fill in the questionnaire, consisting of two parts, voluntarily. Data collection tools were collected with an "Introductory Information Form" and "Postpartum Sleep Quality Scale". Data collection tools were applied to mothers via Google Forms. It takes approximately 10-15 minutes to make data collection tools.

The introductory information form was developed by the researchers in line with the literature and consists of 29 questions, 13 to identify sociodemographic and obstetric characteristics and 16 to describe problems related to breastfeeding and solution methods applied to breastfeeding problems (8,13,16,19).

Postpartum Sleep Quality Scale (PSQS): The 14-item scale was developed by Yang et al. (20) in 2013 to measure the sleep quality of women in the postpartum second week. The scale was translated into English by Yang et al. (20) in 2015 for international use and it was determined that the English version was valid and reliable. The Turkish validity and reliability study of PSQS was performed by Boz and Selvi in 2017. The scale has three subscales. These; "Sleep Problems Related to Infant Care" (items 4, 5, 7, 8, 11, 12), "Sleep Problems Related to Physical Symptoms" (items 3, 6, 9, 10, 13) and "Sleep Quality with Satisfaction" (items 3, 6, 9, 10, 13). The items are scored on a 5-point Likert scale, between 0 and 4 (0=never, 1=rarely, 2=sometimes, 3=often, 4=always). Items with a star are scored reversely. The lowest score obtainable from the scale is 0 and the highest score is 56. The scale has no cut-off point. An increase in the score indicates a decrease in sleep quality. The Cronbach alpha value of the scale was determined to be 0.81 (21). In this study, the Cronbach alpha value was found as 0.76.

For the study, written permission was taken from Balıkesir University Clinical Research Ethics Committee (Dated: 02.10.2020; Numbered: 94025189-050.03-40295). In the study, the participants were informed before the data were collected, and the mothers who voluntarily agreed to participate in the study were included in the study. Mothers were informed that voluntariness was essential in the study and that they could withdraw from the study at any time. It was stated that no fees would be charged and/or paid to the mothers for the research. The research was conducted under the Principles of the Declaration of Helsinki. There is no conflict of interest between the researchers and the participants.

The data obtained in the study were analyzed in the IBM SPSS Statistics 22 package program. The fitness of the data to normal distribution was tested using the Kolmogorov-Smirnov test. Number (n), percentage distributions (%), mean, standard deviation (SD), student's t-test, Anova test, and regression analysis were used in the analysis of the data. The statistical significance of the data was shown as $p<0.05$.

Results

The mean age of the mothers was 29.50±4.69.

Table 1. Sociodemographic, obstetric, and breastfeeding characteristics of mothers (n=364)

Variables	n	%
Education		
Primary school	57	15.7
High school	98	26.9
University	209	57.4
Income		
Income less than expenses	77	21.2
Income equal to expenses	204	56.0
Income more than expenses	83	22.8
Receiving help in the postpartum period		
No help	57	15.7
From spouse-child	108	29.7
From relatives	199	54.7
Breastfeeding education		
No training	134	36.8
Health professionals	106	29.1
Relatives	41	11.3
Internet-social media	83	22.8
Number of children		
1	184	50.5
2	139	38.2
3 and over	41	11.3
Desire for pregnancy		
Yes	331	90.9
No	33	9.1
Last birth method		
Vaginal	109	29.9
Cesarean	255	70.1
Baby aged		
2-3 weeks	23	6.3
3-4 weeks	22	6.0
4-8 weeks	319	87.6
Postpartum care		
Yes	303	83.2
No	61	16.8
Use of pacifiers/bottles		
Yes	206	56.6
No	158	43.4
Frequency of breastfeeding		
Every time the baby cried	262	72.0
Once in 3 hours	32	8.8
Once in 2 hours	58	15.9

Of them, 57.4% (n= 209) had a university degree, 56% (n=204) had an income equal to expenses, 50.5% (n=184) had their first baby, 54.7% (n=199) received help from their relatives in the postpartum period, 36.8% (n=134) did not receive breastfeeding education, 90.9% (n=331) desired pregnancy, 70.1% (n=255) had cesarean, 87.6% (n=319) had a baby aged 4-8 weeks, 83.2% (n=303) went to postpartum care, 56.6% (n=206) used pacifiers and bottles and 72% (n=262) breastfed their babies every time they cried (Table 1).

Breastfeeding problems of mothers: 71.7% (n=261) had breast fullness during breastfeeding, 73.6% (n=268) had cracked nipples, 57.7% (n=210) had high-pressure milk, 40.9% (n=149) had flat nipples, 37.1% (n=135) experienced nipple refusal, 41.2% (n=150) had breast blockage, 30.5% (n=111) had a problem of feeding on one breast (Table 2).

Table 2. Breastfeeding problems of mothers (n=364)

Breastfeeding problems	n	%
Breast fullness		
Yes	261	71.7
No	103	28.3
Nipple cracks		
Yes	268	73.6
No	95	26.4
High-pressure milk		
Yes	210	57.7
No	154	42.3
Flat nipples		
Yes	149	40.9
No	215	59.1
Nipple refusal		
Yes	135	37.1
No	229	62.9
Breast blockage		
Yes	150	41.2
No	214	58.8
Feeding on one breast		
Yes	111	30.5
No	253	69.5

Solutions for breastfeeding problems of mothers: The research group mostly used the warm shower method as a solution method to breast fullness 36% (n=141), ointment as a solution to nipple cracks 40.7% (n=148), and side-lying breastfeeding method as a solution to high-pressure milk 31.9% (n= 116) used a pump to correct flat nipple problem 12.9% (n=47). Babies were fed by milking in case of nipple refusal 22.3% (n=81), the warm application was mostly used for breast blockage 22.5% (n=82), in case of feeding on one breast, the slipping method was used the most 13.5% (n=49) (Table 3).

Table 3. Solutions for breastfeeding problems of mothers (n=364)

Breastfeeding problem	n	%
Breast fullness		
No	103	28.3
Warm shower	141	36.0
Massage	70	19.2
Other (Milking, breastfeeding, cabbage, wet towel, cold application, applying to a health institution)	60	16.5
Nipple cracks		
No	96	26.4
Using olive oil	23	6.3
Using human milk	31	8.5
Using ointment	148	40.7
Using silver cup	44	12.1
Other (Unsolved, centaury, silicone nipple shield, correct breastfeeding, using nothing)	23	6.3
High-pressure milk		
No	154	42.3
Milking	56	15.4
Side-lying breastfeeding	116	31.9
Other (Breastfeeding, scissor hold, doing nothing, softening breasts, compressing, unsolved)	38	10.4
Flat nipples		
No	215	59.1
Massage	9	2.5
Correcting with an injector	21	5.8
Correcting with a pump	47	12.9
Using breast shield	30	7.8
Doing nothing	42	11.5
Nipple refusal		
No	228	62.6
Milking	81	22.3
Formula feeding	16	4.4
Other* (Skin contact, shower, ending bottle and pacifier use, unsolved, support from breastfeeding consultant, breastfeeding in different positions, breastfeeding when baby is sleepy, breastfeeding after calming the baby)	39	10.7
Breast blockage		
No	214	58.8
Massage	48	13.2
Breastfeeding in a specific position	20	5.5
Hot application	82	22.5
Feeding on one breast		
No	253	69.5
Breastfeeding by slipping	49	13.5
Milking the other breast	43	11.8
Other (Breastfeeding when baby is sleepy, breastfeeding in turn, unsolved, different position)	19	5.2

Total and subscale score means of mothers: In the study, the mean total score on the Postpartum Sleep Quality Scale (PSQS) was 28.29±8.08; the mean score on the infant care-related sleep problems subscale was 13.64±4.32; the mean score on the physical symptoms-related sleep problems subscale was 7.05±3.19; the mean score on the sleep quality subscale was 7.59±2.52 (Table 4).

Table 4. PSQS total and subscale score means of mothers

	Mean ± SD (min-max)
Infant care-related sleep problems	13.64±4.32 (3-24)
Physical symptoms-related sleep problems	7.05±3.19 (0-16)
Sleep quality with satisfaction	7.59±2.52 (0-12)
Total scale score	28.29±8.08 (9-50)

Comparison of breastfeeding problems of mothers and PSQS total and subscale score means: Mothers with nipple cracks had higher mean scores on total PSQS, infant care-related sleep problems subscale, and sleep quality subscale compared to those who did not have nipple cracks. Those with flat nipples had higher mean scores on on total PSQS, the infant care-related sleep problems subscale and physical symptoms-related sleep problems subscale compared to those who did not have flat nipples. Mothers with high-pressure milk had a higher mean score on the physical symptoms-related sleep problems subscale compared to those with no high-pressure milk. Mothers who breastfed their babies on one breast had a higher mean score on the infant care-related sleep problems subscale compared to those with no such problem. The difference was statistically significant ($p<0.05$) (Table 5).

Table 5. Comparison of breastfeeding problems of mothers and PSQS total and subscale score means

Problem	Infant care-related sleep problems Mean±SD	Physical symptoms-related sleep problems Mean±SD	Sleep quality with satisfction Mean±SD	Total scale score Mean±SD
Breast fullness				
Yes	13.70±4.29	7.14±3.17	7.61±2.56	28.45±8.18
No	13.50±4.42	6.84±3.24	7.54±2.42	27.89±7.85
p*	0.697	0.424	0.814	0.551
Nipple cracks				
Yes	13.92±4.21	7.13±3.19	7.76±2.41	28.82±8.00
No	12.85±4.54	6.85±3.18	7.11±2.74	26.82±8.17
t-test/p	**0.037**	0.467	**0.030**	**0.037**
Flat nipples				
Yes	14.22±4.55	7.64±3.21	7.78±2.67	29.65±8.48
No	13.24±4.12	6.65±3.11	7.46±2.41	27.35±7.67
p	**0.032**	**0.003**	0.236	**0.007**
High-pressure milk				
Yes	13.54±4.461	7.38±3.25	7.54±2.55	28.47±8.35
No	13.78±4.14	6.61±3.05	7.66±2.48	28.05±7.72
p	0.597	**0.022**	0.656	0.631
Breast blockage				
Yes	14.10±4.29	7.36±3.55	7.80±2.58	29.26±8.50
No	13.32±4.32	6.84±2.89	7.44±2.47	27.62±7.72
p	0.093	0.145	0.191	0.057
Feeding on one breast				
Yes	14.42±4.27	7.23±3.13	7.63±2.52	29.29±8.06
No	13.30±4.31	6.98±3.22	7.57±2.52	27.85±8.07
p	**0.023**	0.485	0.817	0.118
Nipple refusal				
Yes	14.05±4.31	7.23±3.18	7.86±2.35	29.15±7.99
No	13.40±4.32	6.95±3.19	7.43±2.60	27.79±8.11
p	0.169	0.411	0.113	0.120

**Student t-test*

When the effect of breastfeeding problems on sleep quality is examined by linear regression analysis, it is seen that flat nipple affect 2%, nipple cracks affect 1% of postpartum sleep quality (Table 6).

Table 6. Linear regression analysis of the effect of breastfeeding problems on PSQS

Model	The dependent variable: PQOS	B	Beta	t	p	F	Model p	R^2
Model 1	Constant	27.353		50.027	0.000	7.27	**0.007**	0.020
	Flat nipple							
			0.140	2.696	0.007			
Model 2	Constant	26.823		32.651	0.000	4.371	**0.037**	0.012
	Nipple cracks							
			0.109	2.091	0.037			

Comparison of solutions for breastfeeding problems of mothers and PSQS total and subscale score means: The solutions applied for breast fullness, nipple cracked, flat nipple, high pressure milk, breast blockage, nipple refusal did not affect the PSQS total score average and subgroup score averages (p>0.05), it was found that breastfeeding by shifting from the solutions applied for feeding on one breast did not affect the total score of the scale, but the sleep quality subgroup score due to physical symptoms was high (p<0.05) (Table 7). No significant results were found in the regression analysis.

Table 7. Comparison of solutions for breastfeeding problems of mothers and PSQS total and subscale score means

Solution for breastfeeding problems	Infant care-related sleep problems Mean ± SD	Physical symptoms -related sleep problems Mean ± SD	Sleep quality with satisfaction Mean ± SD	Total scale score Mean ± SD
Feeding on one breast**				
Breastfeedin by slipping	13.48± 4.14	7,44± 3.29	7.32± 2.40	28.26± 8.33
Milking the other breast	13.00± 4,17	6.02± 3.21	7.04± 2.52	26.06± 8.07
p*	0.574	**0.039**	0.588	0.204

**Student t test, ** Those who did not use a solution and those who marked the solution as other were not included in the analysis.*

Discussion

This present study examined breastfeeding problems in the postpartum period and their impact on sleep quality. The mean age of the study participants was 29.50±4.69 years, with 57.4% having university degrees, and 56.0% reporting incomes equivalent to their expenses. In this study 36.8% of the participants did not receive breastfeeding education. Similarly, Akgün-Çalışkanyürek et al. (22) study, this rate was 33.3%, Yeşilçiçek Calik et al. (23) study found it to be 33.9%. Furthermore, 83.2% of the participants had received prenatal care. It is worth noting that the rate of receiving prenatal care in this study falls below the national average in Turkey, where 90% of expectant mothers typically receive four or more prenatal care visits (3). This observation suggests that an increase in breastfeeding education might be achieved through efforts to enhance prenatal care utilization. Concerning the mode of delivery, 70.1% of the participants had undergone a cesarean section. In the study of Akyüz et al. (24), 26.7% of the participants, in the study of Yeşilçiçek Calik et al. (23) 44.4% of the participants, and in the study of Akgün Çalışkanyürek et al. (22) 61.3% of the participants had caesarean section. When the years of the studies are analysed, it is seen that the rate of caesarean section has increased even more with the progression of years. The reasons and precautions for this recent increase in caesarean section rates in our country must come to the agenda again in terms of both supporting the breastfeeding process and mother-baby health. Because caesarean section affects the breastfeeding process of mothers negatively (25). Therefore, the fact that the majority of the mothers in our study had caesarean section (70.1%) may have caused mothers to experience problems in the breastfeeding process.

It was determined that 56.6% of the mothers used pacifiers and bottles for their babies. This ratio was found to be 49% in the study conducted by Uğurlu et al. (26) and 43.7% in the study of Kondolot et al. (27). The ratio of pacifier use determined in the study is similar to those in other studies. A study unveiled a significant difference in the sleep patterns of mothers who employed bottle feeding (formula) as opposed to those who practiced breastfeeding (28). Specifically, mothers who resorted to bottle feeding reported experiencing diminished sleep duration and heightened sleep interruptions in comparison to their breastfeeding counterparts. This finding aligns with the established understanding that bottle feeding exerts an adverse influence on the secretion of the hormone prolactin, which is typically associated with breastfeeding and is known to facilitate maternal sleep (1,2). Although there are drawbacks to the use of pacifiers such as adverse effects on breastfeeding, the risk for otitis media, malocclusion in the teeth, infections, it was stated in the literature that pacifier use reduces pain and prevents sudden infant death (29).

It was determined that 72% of the mothers breastfed their babies every time they cried. 50.8% of

the participants in the study conducted by Ünsür et al. (30) and 72.8% of the participants in the study of Calik et al. (31) stated that they breastfed their babies every time they cried. Unlike these results, 45% of the participants in a study conducted in India breastfed their babies every 2 hours and 86% of the participants in a study conducted in Etiopia breastfed their babies every time they cried, more than 12 times (32,33). It can be suggested that the difference in the studies is due to the effect of countries' socio-cultural structures on breastfeeding and infant feeding.

It was determined that 73.6% of the mothers had nipple cracks. In the literature, the prevalence of painful and cracked nipples was reported to be 34-99% (34). Nipple cracks, which were determined as the most common breastfeeding problem in the study, were also the most common breastfeeding problem in the study conducted by Şahin et al. (35). In this respect, the relevant finding is consistent with those in the literature (35). It was stated that an infant's inability to correctly grasp the breast is the cause of nipple cracks (36). In the study, the ratio of receiving breastfeeding training from health professionals was determined to be only 29.1%. It is suggested that nipple cracks can be prevented with breastfeeding training to be provided by healthcare professionals and by ensuring that the baby grasps the breast correctly from the beginning of breastfeeding. The mothers who participated in the study stated that they mostly used ointment as a solution to nipple cracks. It is recommended to position the baby correctly through the breast, take a shower once a day, not wash the breasts after each feeding, and moisten the nipple area with milk after breastfeeding to eliminate nipple cracks.

It was determined that 71.7% of the mothers who participated in the study experienced breast fullness during breastfeeding. Likewise, this ratio was reported as 60% in the study conducted by Karatay et al. (38). Suresh et al. (39) reported a lower ratio, 13%, in their study. Breast fullness, which is a preventable problem, occurs due to the incomplete emptying of the breast and develops due to increased blood circulation when milk starts to come out (36,40). At this point, it is necessary to empty the breasts frequently (19). The mothers participating in the study mostly used the warm shower method to eliminate breast fullness. When it is not eliminated, milk flow is prevented due to blood and lymph swelling, resulting in blockage in the breast. 41.2% of the mothers experienced breast blockage problem. This ratio was 8.2% in the study conducted by Şahin et al. (35). Emptying the breast, frequent breastfeeding, warm-wet dressing, breast massage, shoulder and back massage are recommended when there is a blockage in the breast (34). In the study, the most used method for breast blockage was hot application.

Of the mothers, 57.7% high-pressure milk problem. Sahin et al. (35) determined this ratio as 29.8%. Sometimes the mother's milk may be too much during breastfeeding; therefore, the infant may have difficulty swallowing while sucking and digestive problems. Breastfeeding in a semi-lying position and feeding the infant in a more upright position can better control milk flow (41). Mothers are also recommended to breastfeed their babies after some milking (34). Mothers who participated in the study mostly used the side-lying breastfeeding method for high-pressure milk problems. Likewise, this application is stated as the correct method in the literature.

In the study, 40.9% of the mothers experienced flat nipple problems. 11.6% of the participants in the study of Şahin et al. (35), 19.5% of the participants in the study of Suresh et al. (39), and 19.4% of the participants in the study of Yazıcı et al. (42) had flat-inverted nipples. Flat or inverted nipples should be detected in the prenatal period and the infant should be positioned through the breast by skin-to-skin contact in the early period; mothers also should be told that the baby should suck the breast, not the nipple and that the nipple will protrude in time with infant's sucking. Furthermore, injectors and breastfeeding pumps can be used to protrude the nipple (34). The mothers who participated in the study stated that they tried to solve the flat nipple problem by using a pump. This solution is also consistent with the literature information.

In the study, 37.1% of the mothers experienced breast refusal problems. In the study conducted by

Şencan et al. (43), breast refusal was stated as the reason for weaning at a ratio of 21.4%. Using pacifiers and bottles, problems in breastfeeding technique, changes that upset the baby, various diseases of the baby, giving sedative drugs to the mother, and vacuum forceps applications may cause breast refusal. To eliminate breast refusal, the breastfeeding technique should be corrected, the underlying problem should be eliminated, and breast milk should be given to the baby by milking and using a spoon until the problem is solved (34). Mothers who participated in the study stated that they used the milking method the most in case of breast refusal.

Sometimes breast refusal can be for a single breast. In the study, 41.2% of mothers experience breast rejection. In this case, the causes for breast refusal occur in the rejected breast. 30.5% of the mothers who participated in the study had this problem, feeding on one breast. In the study of Ince et al. (44), 3.2% of the participants stated that they had one breast-feeding problem. It was determined that the mothers mostly used the slipping technique in case of this problem. In such cases, it may be recommended to breastfeed the infant in different positions.

In the study, the mean total score of the mothers on PSQS was found to be 28.29±8.08. It can be said that mothers had moderate sleep quality problems in the postpartum period. In the study conducted by Aksu and Vefikulucay Yılmaz (16), the mean total score on the postpartum sleep quality scale was 33.57±11.26, which was higher than that in our study. In the study conducted by Hung and Chen (45), the mean total score on the postpartum sleep quality scale was 22.82±8.16, which was lower than that in our study. It can be said that the differences in the studies arise since the sleep quality of mothers in the postpartum period is affected by many factors such as the duration of breastfeeding, age, multiparity, breastfeeding experiences, and psychological factors. The fact that the studies were conducted at different times may have caused this difference.

The problems experienced by the mother during breastfeeding are among the factors affecting sleep problems (14,16-18,45-47). Considering that sleep quality includes quantitative aspects of sleep such as the rate of falling asleep, sleep duration, and the number of awakenings in a night, as well as aspects such as the depth and restfulness of sleep, it is stated that the sleep quality of mothers with breastfeeding problems and whose babies wake up frequently is negatively affected (48,49). In the study, it was determined that the sleep quality of the mothers who had breastfeeding problems (nipple cracks, flat nipples, high-pressure milk, and feeding the infant on one breast) decreased. In a review, it was stated that breastfeeding affects sleep quality (46). In a study, it was reported that pain, discomfort, and fear affect the sleep quality of mothers in the postpartum period (45). In the study, it was determined that flat nipples and nipple cracks reduce sleep quality. When breastfeeding does not occur in the presence of a flat nipple, it may cause other breastfeeding problems. We think that flat nipple and nipple crack decrease sleep quality by causing pain and discomfort in the postpartum period. In the study, it was determined that mothers who provided breastfeeding by shifting breastfeeding experienced sleep problems related to physical symptoms more than mothers who expressed the breast they could not breastfeed. It was also found that mothers who breastfeed from a single breast experienced more sleep problems related to infant care. Breastfeeding is a long-term and difficult process. In this process, exclusive breastfeeding has many negative consequences (such as engorgement, mastitis risk and fatigue in the mother) (39-41). On the other hand, in our study, we can say that the sleep quality of mothers who had the problem of exclusive breastfeeding and who provided breastfeeding by shifting were negatively affected.

It was found in a study that there is a relationship between low milk volume and low sleep quality. It was reported that mothers' sleep disorders in the postpartum 2nd week and 1st month caused a lower 24-hour milk volume (14). According to the literature, breastfeeding problems of mothers in the postpartum period affect sleep quality, and thus, mothers' breastfeeding success and ability to cope with breastfeeding problems negatively (13,14,16). It is

important for nurses/midwives to provide breastfeeding training and counseling to mothers in the early postpartum period, evaluate mothers' breastfeeding problems and sleep quality, examine the relationship between breastfeeding problems and sleep, and follow up breastfeeding process.

Strengths and limitations: In this study, we aimed to determine the breastfeeding problems of mothers and sleep quality in the postpartum period and the effect of these problems on postpartum sleep quality. Breastfeeding problems experienced by mothers in the postpartum period reduce their sleep quality. Negative effects on sleep quality in the postpartum period cause changes in neurological, psychological and physiological functions in mothers, resulting in negative health outcomes. Therefore, our study shed light on the determination of breastfeeding problems experienced by mothers in the postpartum period and the negative effects of mothers on sleep quality. Also, the study data were collected from mothers via self-report with Google Forms. Furthermore, there were breastfeeding consultants who guided mothers in some breastfeeding groups where the research was conducted. The fact that the research was conducted in breastfeeding groups with breastfeeding consultants and that mothers who were not included in these groups could not be reached through social media platforms were considered the limitations of the research.

Conclusion

In the study, it was determined that the most common breastfeeding problem in the postpartum period is nipple cracks and that breastfeeding problems reduce the sleep quality of mothers in the postpartum period. There is a need for large-scale, comparative, quantitative, and qualitative studies that will measure breastfeeding problems and sleep quality and cover different sample groups. Breastfeeding counseling is important in the prevention of breastfeeding problems, so it is recommended to investigate the effect of breastfeeding education on sleep quality.

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