

# The relationship of postpartum sleep quality and breastfeeding self-efficacy of Turkish mothers\*

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## The relationship of postpartum sleep quality and breastfeeding self-efficacy of Turkish mothers\*

**Introduction:** Breastfeeding self-efficacy reflects the mother's confidence regarding breastfeeding, and it positively affects breastfeeding. Traditionally, people attach importance to breastfeeding in Turkey and the vast majority of mothers breastfeed their babies. It is a known fact that mothers feel sleepless and tired in the postpartum period reduces the amount of secreted milk. However, it is not known whether there is a relationship between the perception of breastfeeding self-efficacy which positively affects breastfeeding and sleep quality of the mothers in this period.

**Aim:** This study was conducted in order to determine the relationship between sleep quality and breastfeeding self-efficacy of the mothers in the postpartum period.

**Materials and methods:** This descriptive study included 128 primiparous women who had vaginal deliveries from 2 January to 27 May 2018 in a public obstetrics and children's hospital in Mersin. The data of the research were gathered with a questionnaire intended for collecting the sociodemographic characteristics of mothers who completed their second week in the postpartum period, Postpartum Sleep Quality Scale intended for determining their sleep quality and Breastfeeding Self-efficacy Scale

intended for determining their breastfeeding self-efficacy. The data obtained were assessed with the Pearson correlation coefficient to determine the relationship between the descriptive statistics and two continuous variables.

**Results:** The mean score gotten by the mothers from Postpartum Sleep Quality Scale and Breastfeeding Self-efficacy Scale was determined to be '33.57 ± 11.26' and '46.82 ± 14.89', respectively. A strong relationship in the negative direction was detected between the scores gotten from Postpartum Sleep Quality Scale and Breastfeeding Self-efficacy Scale ( $p < 0.01$ ).

**Conclusions:** As a result of the research, it was determined that as the sleep quality of mothers in the postpartum period increases their breastfeeding self-efficacy increases as well. In the light of the results obtained, it is suggested that nurses, being aware that there is a strong relationship between sleep quality and breastfeeding self-efficacy in the postpartum period, should pay more attention to the role of education and counselling in these subjects. In addition, it is recommended that nurses make attempts intended for improving the sleep quality of primiparous individuals in order to increase their self-efficacy of breastfeeding.

**Keywords:** postpartum period, mother, sleep quality, breastfeeding, self-efficacy, nursing.

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## Introduction

Postpartum (postdelivery, puerperium, postnatal) is the period that encompasses the 6 weeks after the childbirth (1). In this period, anatomical, physiological and mental

changes that occur during pregnancy return significantly within 6 weeks. The return may not be always at the desired level in this process. This situation causes problems in the postpartum period (2).

In the postpartum period, with the participation of a new member to the family, an adaptation process for the family begins. This period is an important transition period due to factors such as the assumption of new roles and responsibilities, as well as the newborn care (3). While the mother takes responsibility for the newborn and accepts her in the family system, she also undergoes major psychological and social changes and changes in the roles (2, 3). In fact, these changes are perceived as a problem for some mothers and affect their quality of life profoundly. In the research concerning the problems

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encountered in the postpartum period, the most common ones are stated to be fatigue, sleep disorders, breast problems, and the problems related to the urinary or gastrointestinal system and emotional areas (4, 5). As a result of these studies, it stands out that the common problem is in the sleep–rest area.

Sleep is a physiological need for people which relieves the physical and mental fatigue of people and rests them. It is an important need in the postpartum period for the mother to adapt to her new roles (1). Many studies have shown that insufficient sleep during this period causes fatigue and negative effects on the health status of mothers. In these studies, it is stated that sleeplessness may have negative effects on newborn care as well as the health status of the mother (6, 7). Particularly, breastfeeding is affected negatively by the sleep problems of mothers in the postpartum period. In this period, the inability of the mothers to sufficiently sleep may disrupt the formation of milk and the energy requirement for breastfeeding (8).

Breast milk is the most suitable food for a healthy growth and development of babies. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) consider the most appropriate way for infant nutrition to receive only breast milk for the first 6 months from birth without any additional food, including water (9). According to the 2017 report prepared by UNICEF and WHO, there is no country that fully applies to breastfeed in the world. Global Breastfeeding Scorecard, which assesses 194 countries, has detected that only 40% of the babies under 6 months are fed by breast milk (10). Traditionally, people attach importance on breastfeeding in Turkey and the vast majority of mothers breastfeed their babies. According to Turkey Demographic and Health Survey's [(Türkiye Nüfus ve Sağlık Araştırması) (TNSA)] 2008 data, 69% of infants found to be fed with breast milk alone in the first 2 months of their lives. But this rate has been observed to drop to 58% in 2013. While only 41.6% of the children have been found to be fed with breast milk alone during the first 6 months according to the results obtained from TNSA-2008, this rate has been found at a rather low value as %30.1 in TNSA-2013 (11). Breastfeeding, which has many positive effects on the health of both the mother and the baby, can be affected by many factors and breastfeeding rates may vary. It has been supported by studies that breastfeeding self-efficacy is one of the strongest factors that affect the breastfeeding status of mothers. Besides, a positive relationship between breastfeeding self-efficacy and breastfeeding success has been detected in those studies (12, 13).

In the postpartum period, breastfeeding mothers should get enough sleep and rest. It is reported that breastfeeding prevents mothers from getting enough sleep and thus often causes sleep deprivation in this period (14). However, so far as is able to be reached, it

stands out that there is no study in the literature showing that sleep quality affects breastfeeding or breastfeeding self-efficacy. For this reason, in this study, through examining the relationship between sleep quality and breastfeeding self-efficacy of the mothers in the postpartum period, it was aimed to draw attention to the relationship and importance of these two elements. Thus, this information which would be brought in to the literature would guide the nurses as healthcare professionals in the postnatal education and counselling services. Besides, the level of breastfeeding self-efficacy would be able to be increased through raising awareness of the mother and her relatives and improving the sleep quality of the mother by means of counselling.

The aim of the study was to determine the relationship between sleep quality and breastfeeding self-efficacy of the mothers in the postpartum period.

## Material and method

This study utilised a descriptive design. This design was selected because it was the most appropriate one to determine the relationship between sleep quality and breastfeeding self-efficacy which mothers perceive in the postpartum period.

All participants of the study consisted of the women who had vaginal deliveries from 2 January to 27 May 2018 in a public obstetrics and children's hospital in Mersin. The inclusion criteria included primiparous women who completed the second week of postpartum, who did not have any breastfeeding experience, who had vaginal delivery in mentioned hospital and agreed to participate in the study.

In this hospital, on average, 400–500 women per month give vaginal birth. The mothers included in the study were visited at home between the second and sixth weeks when they were discharged from the hospital after delivery. The mothers agreed to participate in the study. All mothers were provided with verbal information about the study. The written and oral consent was obtained prior to the filling each questionnaire.

The number of mothers to be taken into the sample of the research was calculated through the power analysis which was made according to the correlation analysis that would be utilised in order to determine the relationship between the research variables (15). As a result of the statistical calculation, with a test power of 80.224%, at least 123 mothers were required to be included in the study. The sample of the study consisted of 128 volunteer mothers who had a vaginal birth in a public obstetrics and paediatrics hospital in Mersin between 2 January and 27 May 2018 and were in the second to sixth week of the postpartum period and had no previous breastfeeding experience. In this case, the power of the test was calculated as 81.783%.

The study used standardised research tools. In order to collect sociodemographic data, a personal questionnaire was created, containing questions related to the mothers in postpartum period. The study was carried out using the following research tools.

- Sociodemographic data form

For data collection, sociodemographic data form was developed in the light of the literature (12, 13, 16–18). It included nine questions regarding sociodemographic characteristics. In this section, the study addressed questions to mother about her age, education level, work status, family type, level of income, social security status and education level of her spouse, etc.

- Postpartum Sleep Quality Scale (PSQS)

Postpartum Sleep Quality Scale (PSQS) was utilised to measure the sleep quality of the women in the second week of the postpartum period. The validity and reliability study of the scale was conducted by Boz and Selvi in 2017. Items of the scale are scored between 0 and 4 (0 = never to 4 = always) as fivefold Likert scale. Starred items in the scale are scored in reverse. The lowest score one can get from the scale is 0, and the highest is 56. The increase in score indicates that sleep quality is reduced. Scale consists of three subdimensions as 'Infant Night Care-Related Daytime Dysfunction' (items 4, 5, 7, 8, 11, 12), 'Physical Symptoms-Related Sleep Inefficiency' (items 3, 6, 9, 10, 13) and 'Sleep Quality or Sleep' (items 1, 2, 14). Cronbach's  $\alpha$  for this sample was 0.86 (18, 19).

- Breastfeeding Self-Efficacy Scale – Short Form (BSES-SF)

To measure maternal confidence in her ability to breastfeed in the postpartum period, Self-Efficacy Scale – Short Form had been validated with African American women was selected. The validity and reliability of the scale for Turkish were made by Tokat and colleagues in 2008. The scale contains 14 questions with responses ranging from 1 (not at all confident) to 5 (very confident). Questions include items on the woman's perceived ability for navigating through the challenges of breastfeeding, her knowledge of breastfeeding and satisfaction with it. The summary score was produced through summing up the 14 items within the scale with scores ranging from 14 to 70. Higher scores indicated higher breastfeeding self-efficacy. Cronbach's  $\alpha$  for this sample was 0.93 (16, 20).

#### Data collection

Data collection tools were applied to 128 primiparous mothers who gave birth in an obstetrics and paediatrics hospital in Mersin between 2 January and 27 May 2018. Mothers who had delivery at the specified hospital were seen in the delivery room or the postpartum service, and the purpose of the research was explained. After the

second week of postpartum completed, an appointment was requested from the mothers to meet within the period till the sixth week. Telephone numbers of the mothers who accepted the interview were requested. Mothers who met the research criteria and agreed to participate in the research were called and visited at home at an appointed time. Firstly, a personal information form was filled in a room where the researcher was alone with the mother who was visited at home. The mothers were then asked to answer the questions containing the scales on their own. And the researcher checked whether they answered all the questions. It took about 20 minutes for the mothers participated in the research to fill in the data collection forms.

#### Statistical analysis

The data obtained from the research were transferred into the computer program named SPSS for Windows 20.0 (Statistical Package for Social Sciences) after being coded by the researcher, and necessary analysis was made with this program. As the value for the significance of the statistical tests  $p < 0.05$  was accepted, variables were assessed after checking (Shapiro–Wilk and Levene test) the prerequisites of normality and homogeneity of variances. As the descriptive statistics, the mean and standard deviation, minimum and maximum values were used when the statistics of the data were in a continuous structure in the scales, and frequency and percentage values were used to define categorical variables. The relationship between two continuous variables was assessed by Pearson correlation coefficient.

#### Results

In the research, it was detected that the mean age of the mothers was  $25.4 \pm 5.1$  years, 46.1% of them gave birth 15–21 days before, 48.4% were between 19 and 24 years, and 10.9% did not work in any job. It was determined that 9.4% of the mothers were illiterate, 34.4% were primary school graduates and 12.5% had a bachelor's degree. The percentage of the mothers participated in the research who had an extended family were detected to be 44.5%. The rate of the mothers who stated that their perceived income was less than their expenses was 47.7% and 19.5% of them indicated that they did not have social security. When the education levels of the spouses of mothers were viewed, it was found that 7.8% were illiterate, 32% of them were primary school graduates, 14.8% of them had bachelor's degree and the majority (91.4%) were employed (Table 1).

The overall mean score of PSQS was found to be  $33.57 \pm 11.26$  (range: 11–52). When the scores obtained from the subdimensions of PSQS viewed the mean score of 'Infant Night Care-Related Daytime Dysfunction',

**Table 1** Sociodemographic characteristics of the participants (n = 128)

Sociodemographic characteristics	$\bar{X} \pm SD$	Min–Max score
Age	25.4 ± 5.1	19–39
	<b>n</b>	<b>%</b>
19–24 years	62	48.4
25–30 years	47	36.8
31 years and older	19	14.8
Days spent in the postpartum period		
14 days	22	17.2
15–21 days	59	46.1
22–28 days	10	7.8
29 days or above	37	28.9
Educational status		
Illiterate	12	9.4
Literate	6	4.7
Primary school	44	34.4
Secondary school	31	24.2
High school	19	14.8
University	16	12.5
Employment status		
Working	14	10.9
Not working	114	89.1
Family type		
Nuclear family	71	55.5
Extended family	57	44.5
Perceived income level		
Lower than the expenses	61	47.7
Equal to the expenses	58	45.3
More than the expenses	9	7
Social security status		
Insured	103	80.5
Not insured	25	19.5
Educational status of the spouse		
Illiterate	3	2.3
Literate	10	7.8
Primary school	41	32
Secondary school	30	23.4
High school	25	19.5
University	19	14.8
Employment status of the spouse		
Working	117	91.4
Not working	11	8.6

subdimension was found to be  $16.64 \pm 5.34$  (range: 3–24). And the mean score of the mothers' 'Physical Symptoms-Related Sleep Inefficiency' subdimension was detected to be  $8.71 \pm 4.86$  (range: 0–18). Finally, it was found that the mean score of 'Sleep Quality or Sleep' subdimension was  $8.21 \pm 2.88$  (range: 2–12) (Table 2). The overall mean BSES score of the mothers was detected to be  $46.82 \pm 14.89$ . It was determined that the minimum score obtained from BSES by the mothers was 22 and the maximum score was 70 (Table 3).

The relationship between the total mean scores obtained from PSQS and BSES is in Table 4. It was found

**Table 2** The distribution of the mean scores obtained from Postpartum Sleep Quality Scale and its subdimensions by the mothers

PSQS and its subdimensions	n	$\bar{X} \pm SD$	Minimum score	Maximum score
Infant Night Care-Related Daytime Dysfunction	128	$16.64 \pm 5.34$	3.00	24.00
Physical Symptoms-Related Sleep Inefficiency	128	$8.71 \pm 4.86$	0	18.00
Sleep Quality	128	$8.21 \pm 2.88$	2.00	12.00
Mean score of PSQS	128	$33.57 \pm 11.26$	11	52

**Table 3** The distribution of the mean scores obtained from the Breastfeeding Self-efficacy Scale by the mothers (n = 128)

BSES	n	$\bar{X} \pm SD$	Minimum score	Maximum score
Mean score of BSES	128	$46.82 \pm 14.89$	22	70

that as the mean scores obtained by the mothers from PSQS increased, the scores obtained from the BSES were strongly affected in the negative direction ( $r = -0.766$ ,  $p < 0.01$ ). As the mean scores obtained by the mothers from the 'Infant Night Care-Related Daytime Dysfunction' subdimension of PSQS increased, the mean scores obtained from BSES were found to be strongly affected in the negative direction ( $r = 0.682$ ,  $p < 0.01$ ). As the mean scores obtained by the mothers from the 'Physical Symptoms-Related Sleep Inefficiency' subdimension of PSQS increased, the mean scores obtained from BSES were determined to be strongly affected in the negative direction ( $r = -0.796$ ,  $p < 0.01$ ). Finally, as the mean scores obtained by the mothers from the 'Sleep Quality or Sleep' subdimension of PSQS increased, total mean scores of the BSES were determined to be weakly affected in the negative direction ( $r = -0.385$ ,  $p < 0.01$ ) (Table 4).

## Discussion

Postpartum period, which is one of the most important periods affecting the reproductive health and life of women, is a process in which mothers frequently encounter with health problems. In this period, mothers try to adapt both to several physical and mental changes specific to the period and the new roles related to infant care. Sleep problems, which are one of the most often encountered problems in the postpartum period, are a condition that makes difficult for mothers to adapt to these new roles. In addition, the mother's sleep quality

**Table 4** The relationship between the total mean scores which mothers obtained from Postpartum Sleep Quality Scale (with its subdimensions) and Breastfeeding Self-efficacy Scale

BSES	Statistical values	PSQS and its subdimensions			
		Infant night care-related daytime dysfunction	Physical Symptoms-Related Sleep Inefficiency	Sleep quality	Mean score of PSQS
Mean score of BSES	r <sup>a</sup>	-0.682*	-0.796*	-0.385*	-0.766*
	p	<0.001	<0.001	<0.001	<0.001
	n	128	128	128	128

<sup>a</sup>Pearson Korelasyon.

\*p < 0.01.

in this period affects breastfeeding behaviour, which is the most important element of infant care. In the literature, there are studies investigating the mothers' sleep quality and breastfeeding self-efficacy, respectively (13, 21–23). However, it stands out that there are no studies, in parallel to the purpose of our research, investigating the relationship between sleep quality and breastfeeding self-efficacy in the postpartum period. Sleep deprivation is a stressor associated with the activation of hypothalamus–pituitary–adrenal axis and is known to halt the release of oxytocin and prolactin (24). Within this context, based on the fact that the amount of milk of the mother suffering from sleep deprivation could decrease and therefore her breastfeeding self-efficacy could be negatively affected, dealing with sleep quality and breastfeeding self-efficacy together in the study was considered to be so important.

In our study, PSQS was used to determine the postpartum sleep quality of the mothers and it was found that the mean score obtained by the mothers from PSQS was  $33.57 \pm 11.26$  (Table 2). And in the study conducted by Hung and Chen (23) with mothers between the fourth and sixth weeks of the postpartum period, the mean PSQS score was found to be  $22.82 \pm 8.16$  and this score was qualified as 'Mild Sleep Disorder'. Also in the studies of Park et al. and Wen et al., mothers were found to have low sleep quality in the postpartum period (21, 23). Findings of these studies are in line with ours.

In the postpartum period, sleep problems with which mothers frequently encounter affect the physical and mental health, relationships and parenting skills of them (5). In this period, the sleep quality of mothers appears as an important element in fulfilling the functions of motherhood such as infant nutrition and care. Breastfeeding self-efficacy is the most important factor for mothers to initiate and maintain breastfeeding, which is considered to be the most appropriate way of feeding the baby. A strong perception of self-efficacy encourages mothers to strive when they fail and thus positively affects breastfeeding (20). In our study, we used the BSES to determine the breastfeeding self-efficacy of the

mothers and it was found that the mean score obtained by the mothers from this scale was  $46.82 \pm 14.89$  (Table 3). The breastfeeding self-efficacy score of the mothers was determined to be  $58.98 \pm 8.14$  in the study of Comert Arslan (17),  $55.88 \pm 10.85$  in the study of Dennis (20) and  $62.6 \pm 13.7$  in the study of Alus Tokat and Okumus (25). Compared to other studies on breastfeeding self-efficacy, the mothers participating in our study were found to be of less self-efficacy of breastfeeding.

It stands out that the sleep quality and breastfeeding self-efficacy of mothers in our research are lower than other studies in the literature. The reason for this can be expressed with the fact that mothers did not fully adapt to the physical and mental changes which they encountered with after the delivery and the role of motherhood. In addition to that, relatively low breastfeeding self-efficacy of the mothers in our study may be due to the fact that primiparous mothers are inexperienced and uninformed about breastfeeding and that their breastfeeding behaviours and perception of self-efficacy regarding the issue could be affected negatively by their poor sleep quality.

In our study, it was found that there was a strong and negative relationship between total means scores obtained by mothers from PSQS and BSES (Table 4,  $p < 0.01$ ). Accordingly, it was concluded that breastfeeding self-efficacy increased as the sleep quality of mothers increased in the postpartum period. As far as the literature is reviewed, it was not encountered with studies investigating the relationship between postpartum sleep quality and breastfeeding self-efficacy of mothers.

It is indicated that sleep problems and accompanying fatigue of mothers are one of the most common causes of leaving breastfeeding (26). The sleep quality of mother is essential for supplying the required energy for a sufficient and effective breastfeeding. Sufficient and high-quality sleep positively affects the release of oxytocin and prolactin in the postpartum period and thus the breastfeeding of mothers (8, 26). Within this context, it can be interpreted that mothers should have high sleep quality in the postpartum period in order for the development of

their perception of breastfeeding self-efficacy which is the most important factor in initiating and maintaining breastfeeding. It is thought that the milk of the mothers whose sleep is high-quality is secreted sufficiently, as well as since they have the necessary energy and desire for breastfeeding, they feel sufficient in this issue and thus their perception of self-efficacy increases.

### Limitations

This study is limited with primiparous women who had vaginal deliveries from 2 January to 27 May 2018 in a public obstetrics and children's hospital in Mersin only. Therefore, the results can be generalised only to this population.

### Conclusions

In accordance with the results obtained from the research, to strengthen the perception of breastfeeding self-efficacy, it is important to teach the mothers the strategies for improving the sleep quality and to initiate the informative and counselling service regarding the issue in the prenatal period. In addition to that, it is necessary to raise the awareness of the mothers (especially primiparous ones) regarding the fact that sleep problems which they may experience in the postpartum period can have negative effects on their breastfeeding self-efficacy. It is also necessary to form support groups for the

solution of those problems and educate these groups. Besides, there is a need for in-depth investigation of the factors affecting the postpartum sleep quality and breastfeeding self-efficacy of mothers and the relationship between them through qualitative examinations.

### Author contribution

All the authors contributed to the study as follows: the first and second authors worked on the study conception and design, data collection, analysis and interpretation of dating of the manuscript. The second author worked on the critical revision of the manuscript.

### Ethical approval

All procedures were approved by Mersin University Social Sciences Institutional Ethics Review Board (Decision No: 2017/58) and the Republic of Turkey Ministry of Health, Mersin Provincial Directorate of Health, and informed consent forms were signed by all the participants.

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