

## The Relationship between Frequency of Breastfeeding and Sexual Distress in Postpartum Women

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### ARTICLE INFO

*Article type:*  
Original article

*Article History:*  
Received: 04-Sep-2017  
Accepted: 01-Jan-2018

*Key words:*  
Breastfeeding  
Postpartum  
Sexual Function

### ABSTRACT

**Background & aim:** Due to frequent waking at night for breastfeeding, nursing mothers are likely to suffer from sleep deprivation, which may lead to sexual dysfunction. To the best of our knowledge, few studies have been conducted on sexual distress in nursing mothers. Thus, we sought to examine the relationship between the frequency of breastfeeding and female sexual distress during postpartum period.

**Methods:** This descriptive correlational study was conducted on 80 women aged 18-35 years, visiting healthcare centers in Mashhad, Iran, during 2016. To select the participants, multi-stage sampling method was used. The data collection tools included demographic and fertility-related questionnaire, the Depression, Anxiety, and Stress Scale-21 (DASS-21), and the Female Sexual Distress Scale-Revised (FSDS-R). To analyze the data, Kruskal-Wallis H test, Spearman's rank-order correlation, and linear regression model were run in SPSS, version 16.

**Results:** The mean score of postpartum sexual distress in mothers was  $20.43 \pm 8.00$ . According to the results of the Spearman's rank-order correlation, the frequency of nighttime breastfeeding was directly correlated with maternal sexual distress ( $P=0.010$ ,  $r=0.26$ ). However, there was no correlation between the frequency of daytime breastfeeding sessions and sexual distress ( $P=0.976$ ,  $r=0.003$ ).

**Conclusion:** Considering the correlation between the frequency of breastfeeding at night and postpartum sexual distress in mothers, it seems necessary to adopt effective counselling approaches to overcome female sexual distress during this period.

#### ► Please cite this paper as:

Zamani M, Latifnejad Roudsari R, Moradi M, Esmaeeli H. The Relationship between Frequency of Breastfeeding and Sexual Distress in Postpartum Women. Journal of Midwifery and Reproductive Health. 2018; 6(4): 1447-1453.  
DOI: 10.22038/jmrh.2018.26061.1285

## Introduction

Sexual distress has been defined as depression, anxiety, and stress about sexual activity (1). According to the fifth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), identification of sexual distress is required to diagnose sexual dysfunctions (2). Moreover, in many women,

sexual function can decrease during pregnancy and the postpartum period (3-6). Sexual problems experienced in the postnatal period can impose great distress on mothers and their partners, which can consequently affect their quality of physical and mental life, as well as their well-being and marital relationship (7).

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In this respect, Shifren et al. (2008) noted that assessing the prevalence of sexual distress to estimate the occurrence of sexual problems requiring clinical interventions was of great importance (8). In addition, postpartum hormonal changes, as well as health recovery and potentially painful and prolonged improvement of the complications of vaginal delivery or cesarean section can influence physical and emotional health status of woman. Due to these factors, couples might struggle to have a healthy, active, and enjoyable sexual life during the postpartum period (9). In this regard, breastfeeding is considered as one of the factors affecting sexual function (10).

The prevalence of sexual dysfunctions and disorders during the postpartum period in women is higher than that in the general population. Moreover, such problems are more common in month 3 and from month 9 to 12 in the postpartum period (10). In this respect, Hicks et al. (2004) estimated the overall prevalence of postnatal sexual dysfunctions in women to be 22-86% (11).

Some investigations have also reported that elevated level of oxytocin due to breastfeeding could have positive effects on sexual function (12, 13). In some cases, high oxytocin levels due to breastfeeding can be associated with low libido (14). Additionally, decreased level of estrogen and high level of prolactin during the postpartum period following breastfeeding can reduce vaginal lubrication and lead to dyspareunia (14). In a report by Schlagintweit et al. (2016), it was found that breastfeeding was not correlated with the frequency and severity of postpartum sexual distress (15). LaMarre et al. (2003) also concluded that breastfeeding mothers compared with bottle-feeders tend to experience more sexual dysfunction, especially loss of libido (7). Moreover, Rowland et al. (2005) showed a strong relationship between breastfeeding and resumption of postpartum sexual intercourse, such that breastfeeding mothers had a later onset of postpartum sexual activity (16). Mothers practicing exclusive breastfeeding can also have more problems with vaginal lubrication and sexual stimulation than others (7). In some studies, sexual function was found

to decrease by 55% in breastfeeding mothers, while it had scaled up by 39% in some other investigations (17). Accordingly, women reporting sexual distress are more likely to suffer from high levels of sexual and marital dissatisfaction (18).

As revealed by the review of the related literature, there is contradictory evidence regarding breastfeeding and sexual function (12, 13, 16, 19, 20, 21). Due to the existing inconsistencies in the studies and given that sexual distress in the postnatal period has not been previously investigated, we aimed to investigate the correlation between the frequency of breastfeeding and maternal sexual distress in the postpartum period.

## Materials and Methods

This descriptive correlational study was conducted in 2016 on 80 women aged 18-35 years visiting healthcare centers for neonatal vaccination and care services in Mashhad, Iran. The participants were selected using the multi-stage sampling method during early July to the end of August, 2016. To this end, first, two healthcare centers were randomly selected from five centers located in Mashhad. Then, two affiliate community health centers were randomly selected from each one. Afterwards, convenience sampling method was used to choose the participants from the four community health centers of Imam Hassan (AS), Ghandkooh, 14 Maasoum, and Imam Reza (AS). The sample size was calculated with 95% confidence interval and 80% power.

The inclusion criteria were women having Iranian nationality, residing in the city of Mashhad, being aged 18-35 years, having high school diploma or higher education, being married, being their spouse's only partner, living with the spouse, being in the 3 to 12 month postpartum, having a healthy and full-term singleton pregnancy, having routine sexual relationships, reporting at least one untreated sexual disorder within the last two months, and obtaining the Depression, Anxiety, and Stress Scale-21 (DASS-21) scores less than 13, 9, and 17 in the domains of depression, anxiety, and stress (normal range), respectively.

The exclusion criteria included suffering from drug or alcohol addiction, taking medications affecting sexual function, experiencing a stressful incident over the past six months, suffering from specific medical conditions, having a history of pelvic surgery or radiation to their genitalia, suffering from certain mental and psychological problems, and experiencing postpartum complications in their recent delivery.

After receiving permission from the Ethics Committee of Mashhad University of Medical Sciences and to conduct sampling and data collection, the researcher offered a letter of introduction from the School of Nursing and Midwifery to the respective authorities in the healthcare centers and then made the necessary arrangements. After introduction and explaining the study objectives for the participants, they were included in the study if they met the inclusion criteria. The respondents were also ensured of the confidentiality of their data, and then signed the informed consent form. As soon as the participants received healthcare services from the given centers, they were guided to a quiet room in the centers to observe their privacy. After the necessary information was provided on how to respond to the questionnaires, the demographic and fertility-related questionnaire, the DASS-21, and the FSDS-R were completed.

The demographic and fertility-related questionnaire contained five sections including personal, marital, pregnancy and delivery, postpartum and sexual data. The validity of this instrument was determined through content validity

In this study, the short form of the DASS-21 comprised of 21 items using a 4-point Likert type scale from zero to three was used. The highest score in each of the mentioned sub-groups was 21. Obtaining scores 0-14, 15-18, and 19-21 indicated normal, mild, and moderate and severe stress, respectively. Moreover, earning a score of 0-7 represented normal anxiety, scores of 8-9 showed mild anxiety, and scores of 10-21 indicated moderate or severe anxiety. Furthermore, scores of 0-9 showed normal depression, scores of 10-13 indicated mild depression, and scores of 14-21

represented moderate or severe depression. The validity and reliability of the DASS-21 was confirmed by Sahebi et al. in Iran in 2002 (22). The reliability of this tool was also determined in this study using the Cronbach's alpha method ( $\alpha=0.91$ ).

The Female Sexual Distress Scale-Revised (FSDS-R) comprised of 13 items examining various dimensions of female sexual activity. All the items were scored based on a five-point Likert type scale from 0 (never) to 4 (always). The overall score was obtained by aggregating all the item scores. Moreover, scores greater than and equal to 11 represented sexual distress. The validity and reliability of this tool was measured by Derogatis et al. (2002) (23). In Iran its validity and the reliability was also determined by Ghassami et al. (2014) (24). It should be noted that the reliability of this tool was confirmed in this study via Cronbach's alpha method ( $\alpha=0.86$ ).

To determine the relationship between the frequency of breastfeeding sessions and maternal sexual distress, Spearman's rank-order correlation and linear regression model were employed. The normality test was also run using the Kolmogorov-Smirnov test in SPSS, version 16. *P*-value less than 0.05 was considered statistically significant.

## Results

The mean age of the women and their spouses were  $29.5\pm 4.2$  and  $34.3\pm 5.7$  years, respectively. Overall, 52% ( $n=42$ ) of these mothers had high school diploma, 46.3% ( $n=35$ ) of them had a history of vaginal delivery, and 53.7% ( $n=45$ ) had cesarean section. Menstruation had also returned in 58.8% ( $n=46$ ) of the mothers, and 55% ( $n=43$ ) of them were practicing exclusive breastfeeding (Table 1). The average days of menstruation in the postpartum period were  $58.8\pm 48.7$ . The mean number of gravidity was  $1.7\pm 0.7$ , the mean number of deliveries was  $1.6\pm 0.6$ , and the mean number of children was  $1.6\pm 0.5$ . Moreover, the mean score of sexual distress was  $20.43\pm 8.00$ . The mean scores of the depression, anxiety, and stress were  $11.06\pm 3.28$ ,  $14.87\pm 2.83$ , and  $14.53\pm 3.68$ , respectively.

According to the results of the Kruskal-Wallis H test, sexual distress was correlated with the

type of infant's nutrition ( $P=0.001$ ). According to this test, it was found that sexual distress had

**Table 1.** Demographic and fertility characteristics of women in the postpartum period and their relationship with sexual distress

Variable	Frequency	Percentage
Education		
High school diploma	42	52.5
Associate degree	9	11.3
Bachelor degree	29	36.3
* $P=0.253$		
Frequency of daytime breastfeeding		
1-2 times	6	7.5
3-4 times	8	10.0
4-5 times	16	20.0
More than 6 times	50	62.5
* $P=0.053$		
Frequency of nighttime breastfeeding		
1-2 times	25	31.3
3-4 times	41	51.3
4-5 times	9	11.3
More than 6 times	5	6.3
* $P=0.051$		
Income		
Not given	4	5.0
Enough	59	75.0
Less than enough	17	20.0
* $P=0.937$		
Route of delivery		
Vaginal	35	46.3
Cesarean-section	45	53.7
* $p=0.773$		
Menstruation return		
Yes	46	58.8
No	34	42.2
Contraceptive method		
Linstrol	7	8.8
Intrauterine devices (IUD)	4	6.3
Condom	28	35.0
Interrupted sex	12	13.8
Vasectomy	8	10.0
No sex	21	26.3
* $p=0.246$		
Infant's nutrition		
Exclusive breastfeeding	43	55.0
Bottle-feeding	5	6.3
Exclusive breastfeeding + bottle-feeding	6	1.3
Supplementary foods + breastfeeding	31	37.5
* $P=0.001$		

\*Kruskal-Wallis H test

a borderline relationship with the frequency of nighttime breastfeeding ( $P=0.051$ ) and those during the day ( $P=0.053$ ; Table 1). According to

the findings of the Kolmogorov-Smirnov test, sexual distress scores had an abnormal distribution; thus, Spearman's rank-order

correlation was used. The results of the Spearman's rank-order correlation similarly showed no direct correlation between the frequency of daytime nursing and sexual distress. Spearman's rank-order correlation of sexual distress and frequency of daytime and nighttime breastfeeding and depression, anxiety, stress

Sexual distress	Frequency of daytime breastfeeding	Frequency of nighttime breastfeeding	Depression	Anxiety	Stress
Correlation coefficient	0.003	0.286	0.294	0.172	0.085
P-value	0.976	0.010	0.008	0.127	0.454

**Table 3.** Linear regression model for the variables of frequency of daytime and nighttime breastfeeding

Predictive variables	Regression coefficient	Standard deviation	Standardized regression coefficient	Test statistic	Pa-value
Frequency of nighttime breastfeeding	3.818	1.134	0.393	3.365	0.001
Frequency of daytime breastfeeding	-1.387	0.987	-0.163	-1.397	0.167

distress (P=0.976, r=0.003). However, according to the findings of the Spearman's rank-order correlation, there was a direct correlation between the frequency of breastfeeding at night and female sexual distress, such that the frequency of nursing at night increased sexual distress in mothers (P=0.010, r=0.286). Also, Spearman's rank-order correlation revealed a direct correlation between sexual distress and depression, that is, the higher sexual distress, the more severe the level of depression (P=0.008, r=0.294). Considering the results of the Spearman's rank-order correlation, no statistically significant relationship was observed between the frequency of nursing frequency during the day as well as breastfeeding times at night and the levels of depression (P=0.676), anxiety (P=0.851), and stress (P=0.583; Table 2). Given the results of the linear regression model, there was a linear relationship between the frequency of breastfeeding at night and maternal sexual distress (P=0.001), such that increased frequency of nursing at night led to a rise by 0.393 in the mean score of sexual distress. However, according to the linear regression model, there was no significant association between the frequency of daytime breastfeeding and female sexual distress (P=0.167; Table 3).

### Discussion

The present study was conducted to determine the link between the frequency of breastfeeding and maternal sexual distress

during the postpartum period. The findings of this study showed a direct correlation between the frequency of nighttime nursing frequency and postpartum sexual distress in mothers. In this regard, increased frequency of breastfeeding at night was often accompanied by higher levels of sexual distress. However, there was no direct relationship between the frequency of breastfeeding during the day and maternal sexual distress.

It should be noted that studies on sexual distress, particularly, on women's sexual distress during the postpartum period, are few. In this respect, Lagaert et al. (2017) reported that breastfeeding mothers could suffer from sleep deprivation due to the frequency of nursing at night, which could be accompanied by sexual dysfunction (25); their findings are congruent with our results. It seems that maternal fatigue can be considered one of the most important factors affecting mothers' sexual performance. The results of a study by Shirvani et al. (2011) also demonstrated a direct correlation between maternal fatigue and sexual dysfunction (26). In addition, Rowland et al. (2005) reported that the level of prolactin in mothers could go up after breastfeeding, which could decrease gonadotropin level, and consequently, lead to reduced level of estrogen. Vaginal dryness could also occur during the postpartum period because of estrogen reduction followed by dyspareunia, that is, difficult and painful sexual intercourse (16).

Likewise, the results of the investigation by



Khosravi Anbaran et al. (2014) suggested that postpartum sexual function in women is correlated with breastfeeding, so those who exclusively breastfeed their babies could suffer from more sexual problems (27).

In a review titled as "Breastfeeding and postpartum maternal sexual functioning: A review", LaMarre et al. (2003) found that breastfeeding mothers reported a decrease in their sexual function, especially libido, compared with those who bottle-feed their babies (7). According to Abdool et al. (2009) most studies found that breastfeeding had a significant relationship with libido (28). According to the results of this study, there was no statistically significant relationship between the frequency of breastfeeding at night and those during the day and depression, anxiety as well as stress. Rowland et al. (2005) did not find any evidence of mood changes caused by the negative effects of breastfeeding on sexual function (16). Zamani et al. citing Huang et al. (2006) discussed that variability of the relationship between sexual function and postpartum depression is a culture-dependent issue, which may vary from country to country (29). They also suggested that breastfeeding mothers could benefit from talking to their healthcare providers about sexual and breastfeeding issues. Thus, healthcare providers should reassure mothers that changes in their sexual activity and levels of sexual satisfaction during the postpartum period are expected (16).

Among the limitations of this study was the effect of personal motivations of the participants to respond to the questionnaires due to the self-reporting nature of the given tools, as well as the limited sample size. We suggest investigating the impact of breastfeeding on postpartum sexual distress in future studies using larger sample size.

## Conclusion

Considering the relationship between the frequency of nighttime breastfeeding and postpartum sexual distress in mothers, it seems necessary to employ effective counselling approaches to moderate female sexual distress in this period.

## Acknowledgements

This research study was part of a larger

clinical trial approved by the Ethics Committee of Mashhad University of Medical Sciences and registered at the Iranian Registry of Clinical Trials with the code number of IRCTID: IRCT2016062228575N. We wish to thank the Deputy of Research of Mashhad University of Medical Sciences for their financial support (project code: 941778). We also sincerely appreciate all the mothers for their in this study.

## Conflicts of interest

The authors declare no conflicts of interest.

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