Original Article

Sleep quality, sleep efficiency and level of anxiety in lactating women

Bushra Ahmad, Maria Sohail, Hafiza Sana Ashraf, Aqsa Anjum, Ayesha Asjad, Marya Asghar

Department of Physical Therapy, University of Lahore, Pakistan

Objective: To determine the sleep quality, sleep efficiency and level of anxiety in lactating women.

Methodology: This multi-centered, cross-sectional study was conducted on 121 postpartum mothers. The data were collected from University of Lahore Teaching Hospital, Children Hospital Lahore and Social Security Hospital, Lahore. Non probability convenient sampling technique was used. Lactating mothers aged between 14 to 45 years within one year of postpartum, coming to OPDs of psychology departments in various hospitals were included in the study**.** Standard Pittsburgh Sleep Quality Index (PSQI), Beck Anxiety Inventory questionnaires, and a checklist containing demographic-fertility were used for data collection.

Results: The mean age of mothers was 28.47 ± 3.815years (range 22 – 39). We found that 62.5% mothers were using both breast and bottle feed to feed their babies. About 20% breastfeed their babies while 62.5% used both breast and bottle feeding. No female was smoker but many had experienced passive smoking. There were 82.6% of mothers with moderate sleep difficulties whereas 52.1% of the mothers were with moderate level of anxiety.

Conclusion: Lactating women experience moderate level of anxiety. Havefairly good quality of subjective sleep, relatively better sleep efficiency and overall above average sleep quality within one year of postpartum.

Keywords: Anxiety, lactation, postpartum, sleeps efficiency, sleep quality.

INTRODUCTION

Sleep helps to perform many important supporting functions of life.[1] During early postpartum period mothers experience alterations in their sleep pattern because of awakenings at night to feed and to provide care to their new born.[2] After childbirth, fatigue and sleep disturbance are the two common issues that a mother faces. Postpartum women hardly sleep for seven hours a night. Poor-quality of sleep in postpartum mothers brings out many psychological issues like anxiety and depression.[3]

Mothers with poor quality of sleep experiences fatigue, poor functional status and early weaning from breastfeeding. Poor quality of sleep not only affects the mothers but can also impairthe development of their infants.[4] Changes in psychological well-being and social status affects the quality of sleep of new mothers.[5,6] Nearly 84% of the postpartum women reported that they are experiencing sleep disturbances for at least few nights per week for up to 6 months postpartum.[7]

Many postpartum women are unaware of the benefits of postpartum exercises and they remain physically inactive. Hung and Chenreported significant reduction in stress and hence sleep quality with exercise and suggested that women should perform gymnastic exercises with moderate intensity in post-partum period.[8] Another study found that the women who performed physical activities during their pregnancy period are less prone to the risk of having depression symptoms in their postpartum period.[9] The aim of the study was to explore the sleep quality, sleep efficiency and the level of anxiety within one year postpartum mothers.

METHODOLOGY

This cross sectional study was conducted on 121 postpartum mothers. By opting non probability convenient sampling technique, data were collected from University of Lahore Teaching Hospital, Children Hospital Lahore, and Punjab Social Security Hospital Lahore. Sample size was calculated on epitool software and it was 121 according to below formula:

$$n = \frac{p \times (1-p) \times \left(z_{1-\frac{\alpha}{2}}\right)^2}{(d)^2}$$

α: Probability of first type error, α = 0.05 and Z1- α/2 = 1.96 P: Estimation of the proportion of the desired trait P = 0.13 d: Acceptable error in estimating the desired ratio d = 0.04. The project was briefed out to the patients and after their willing consent, data were taken. The study was approved by Institutional Review Board, University of Lahore (IRB/UOL – FAHS/829-VII/2021) and an informed consent was taken from all women.

Lactating mothers aged between 14 to 45 yearswithin one year of postpartum, both multiparouswere included in the study.Mothers having any metabolic disease, or any kind of infection, any diagnosed psychological disorder e.g.; depression, schizophrenia, insomnia etc. and single mothers were excluded.

Pittsburgh Sleep Quality Index **(**Cronbach's alpha: 0.83, test-retest reliability: 0.85) was used for evaluation of sleep quality.[10] It is a standardized questionnaire broadly used to assess quality of sleep in multiple components including subjective sleep quality, sleep latency, sleep efficiency, medication use for sleep, sleep disturbances in daytime etc. Beck Anxiety Inventory questionnaire (Cronbach's a = 0.89, test retest reliability = 0.75)[11] was used for anxiety level assessment. A checklist containing demographic-fertility was also added in the questionnaire.

Statistical Analysis: The data were analyzed by SPSS version 22. Measure of central tendency and central dispersion were calculated for quantitative variables whereas, frequencies and percentages were measured for qualitative or categorical variables.

RESULTS

Mean age of mothers was 28.47 ± 3.815 years (range 22 – 39). Mothers with one child minimum and 4 children maximum had participated in the study (Table 1). Various demographic variables are shown in Table 2. Pittsburgh sleep quality index was analyzed deeply and extracted subjective sleep quality, sleep duration participants had, sleep efficiency, overall sleep quality and level of difficulty faced while sleeping (Table 3).

Table 1: Descriptive statistics for age, parity and sleep efficiency (n = 121).

Variable	Mean	Standard Deviation
Age	28.47	± 3.815
Parity	1.74	± 0.824
Sleep Efficiency	83.78%	± 16.156

Table 2: Descriptive statistics for demographic variables.

Variable	Construct	Frequency	%
Type of delivery	Cesarean section	65	54.2%
	Normal vaginal delivery	55	45.8%
Type of feed	Bottle feeding	21	17.5%
	Breast feeding	24	20.0%
	Both	75	62.5%
Physical Activity	Less than 1 hour per week	43	35.8%
	Between 2-3 hours per week	51	42.5%
	More than 3 hours per week	26	21.7%
Occupation	House wife	86	71.7%
	Employed	34	28.3%
Smoking	Yes	0	0.0%
	No	121	100.0%
Passive Smoking	Yes	40	33.3%
	No	80	66.7%
Time in minutes take to fall asleep	Between 5 – 20 minutes	109	90.1%
	Between 21 – 35 minutes	11	9.1%
	Between 36 – 50 minutes	1	0.8%

Beck Anxiety Inventory was used for measuring the level of anxiety within one year of postpartum (Table 4).

Table 3: Descriptive statistics for Pittsburgh Sleep Quality Index (n = 121).

Variable	Construct	Frequency	%
Sleep Duration	More than 7 hours	70	57.9%
	Between 6 to 7 hours	35	28.9%
	Between 5 to 6 hours	14	11.6%
	5 hours or less	2	1.7%
During the past month, how would you rate your sleep quality overall?	Very good	5	3.9%
	Fairly good	61	47.7%
	Fairly bad	44	34.4%
	Very bad	11	8.6%
Difficulty level while sleeping	Mild difficulty in sleeping	2	1.7%
	Moderate difficulty in sleeping	100	82.6%
	Severe difficulty in sleeping	19	15.7%
Subjective Sleep Quality	Very good	5	4.1%
	Fairly good	61	50.4%
	Fairly bad	44	36.4%
	Very bad	11	9.1%
Sleep Quality	Poor sleep quality	39	32.2%
	Good sleep quality	82	67.8%

Table 4: Descriptive statistics for Beck Anxiety Inventory (BAI) (n = 121).

Variable	Construct	Frequency	%
Level of Anxiety	Low Anxiety	53	43.8%
	Moderate Anxiety	63	52.1%
	Potentially concerning levels of anxiety	5	4.1%

DISCUSSION

The current study showed that mild level of anxiety was mostly present in the lactating women. We used Petersburg Sleep Quality Questionnaire, Beck Anxiety Inventory for assessment of sleep quality and level of anxiety.Same was found in an earlier study.[2] Low intensity exercises can improve the subjective sleep of postpartum lactating mothers.[12,13] The current study found fairly good level of sleep quality in postpartum women. But in contrast to the current study, another study found poor quality of sleep during pregnancy and postpartum in Korean population.[14]

According to a study, women with symptoms of depression experienced bad quality of sleep while women without the symptoms of depression experiences good quality of sleep during postpartum period.[15] Anxiety during pregnancy and postpartum period is highly prevalent. In current study moderate level of anxiety was more present in mothers. One study found that in every 5 postpartum women onewas highly anxious.[16]

Postpartum period of a mother requires care and attention from other house mates.During post-partum period, a women sacrifices her sleep to take care of the new born baby. Night awakenings disturb the sleep pattern of a mother. Because of disturbed sleep a mother becomes less active, less attentive and lack concentration. Many studies suggested that a little exercise during that important period will improve the sleep quality of a mother. Moderate level of anxiety found in the current study. It is important that the husband and the family share the burden of the mother so that mother will be able to have a good quality of sleep.

Time duration was short to accomplish the task, in addition, due to COVID-19; it was difficult to collect data. Otherwise role of reproductive variables and impact of anxiety and other risk factors on sleep quality and sleep efficiency could be explored also. Further studies should be conducted on larger population and with extensive study designs. It should also explore several other factors affecting postpartum women other than sleep and mental health.

Women with anxiety levels moderate or high must be counseled for meditation and mental relaxation. Moreover, educational seminars should be conducted for general population to guide them effective strategies to experience better sleep quality and efficiency.

CONCLUSION

Lactating women experienced moderate level of anxiety and sleeping difficulty. The had fairly good quality of subjective sleep, relatively better sleep efficiency and overall above average sleep quality within one year of postpartum.

Author Contributions:
Conception and design: Bushra Ahmad.
Collection and assembly of data: Ayesha Asjad, Marya Asghar.
Analysis and interpretation of data: Maria Sohail, Hafiza Sana Ashraf.
Drafting of the article: Aqsa Anjum.
Critical revision of article for important intellectual content: Maria Sohail.
Statistical expertise: Hafiza Sana Ashraf.
Final approval and guarantor of the article: Bushra Ahmad.
Corresponding author email: Maria Sohail: maria.sohail027@gmail.com
Conflict of Interest: None declared.
Rec. Date: May24, 2021 Revision Rec. Date: Oct10, 2021 Accept Date: Oct. 26, 2021.

REFERENCES

1. Johansson AE, Petrisko MA, Chasens ER. Adolescent Sleep and the Impact of Technology Use before Sleep on Daytime Function. J Pediatr Nurs. 2016; 31: 498-504.
2. Youseflu S, Bayat Z, Amiri F, Mohebbi P. The role of reproductive variables, anxiety, physical activity, on the sleep quality of lactating women referring to health care centers of Zanjan-Iran. Prev Care Nurs Midwifery J. 2020; 10: 39-45.
3. Okun ML, Mancuso RA, Hobel CJ, Schetter CD, Coussons-Read M. Poor sleep quality increases symptoms of depression and anxiety in postpartum women. J Behav Med. 2018; 41: 703-10.
4. Doering JJ, Dogan S. A postpartum sleep and fatigue intervention feasibility pilot study. Behav Sleep Med. 2018; 16: 185-201.
5. Lewis BA, Gjerdingen D, Schuver K, Avery M, Marcus BH. The effect of sleep pattern changes on postpartum depressive symptoms. BMC Women's Health, 2018; 18: 1-7.
6. Yang Y, Li W, Ma T-J, Zhang L, Hall BJ, Ungvari GS, et al. Prevalence of poor sleep quality in perinatal and postnatal women: a comprehensive meta-analysis of observational studies. Frontiers Psychiatry 2020; 11: 161-4.
7. Khadka R, Hong SA, Chang Y-S. Prevalence and determinants of poor sleep quality and depression among postpartum women: a community-based study in Ramechhap district, Nepal. Int Health, 2020; 12: 125-31.
8. Hung H-M, Chen C-H. Sleep quality in postpartum women: exploring correlation with childbirth experience and household work. J Nurs Res. 2014; 22: 20-7.
9. Yang C-L, Chen C-H. Effectiveness of aerobic gymnastic exercise on stress, fatigue, and sleep quality during postpartum: a pilot randomized controlled trial. Int J Nurs Stud. 2018; 77: 1-7.
10. Hashmi AM, Khawaja IS, Butt Z, Umair M, Naqvi SH, Ul-Haq J. The Pittsburgh sleep quality index: validation of the Urdu translation. J Coll Physicians Surg Pak. 2014; 24: 123-6.
11. Lee E-H, Lee S-J, Hwang S-T, Hong S-H, Kim J-H. Reliability and validity of the Beck Depression Inventory-II among Korean adolescents. Psychiatry Investig. 2017; 14: 30-4.
12. Ashrafinia F, Mir Mohamm Adali M, Rajabi H, Kazemnejad A, Sadeghniiat Haghighi K, Amelvalizadeh M, et al. The effects of Pilates exercise on sleep quality in postpartum women. J Bodyw Mov Ther. 2014; 18: 190-9.
13. Jurado-Fasoli L, De-la-O A, Molina-Hidalgo C, Migueles JH, Castillo MJ, Amaro-Gahete FJ. Exercise training improves sleep quality: A randomized controlled trial. Eur J Clin Invest. 2020; 50: e13202.
14. Ko H, Shin J, Kim MY, Kim YH, Lee J, Kil KC, et al. Sleep disturbances in Korean pregnant and postpartum women. J Psychosom. 2012; 33: 85-90.
15. Bhati S, Richards K. A systematic review of the relationship between postpartum sleep disturbance and postpartum depression. J Obstet Gynecol Neonatal Nurs. 2015; 44: 350-7.
16. Anniverno R, Bramante A, Mencacci C, Durbano F. Anxiety disorders in pregnancy and the postpartum period. New Insights into anxiety disorders. Rijeka in Tech. 2013: 259-85.