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Association between quality of sleep and depression in postpartum women

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Abstract

Depression and sleep disturbance are comorbid and interconnected conditions, and sleep disturbance is often a predecessor of, as well as a negative prognostic factor for depression. It is important to discover maternal sleep instabilities and depression because of its adverse consequence upon both the mother and the baby. Without support or treatment the consequences may be continued and expensive for the women, for their families and in terms of demands made on health care resources. Sleep disturbance and depression in mother may likewise influence the child's cognitive, emotional, and social development. This cross-sectional study aimed to identify the association between postnatal sleep disturbance and depression. This cross-sectional study was done in 30 women who gave birth to a live child within 1 month, residing in Mangaluru city. Questionnaires (Pittsburgh sleep quality index and Edinburgh postnatal depression scale) were directly given to the women and results were recorded. Karl Pearson Correlation was done to estimate the association between postpartum sleep disturbance and depression, a high correlation was estimated between the variables ($r=0.833$). The correlation was statistically significant ($p=0.000$). The association of both postpartum depression and low sleep quality were relatively high in this study population. There is a significant correlation between sleep disturbance and postpartum depression.

Keywords: sleep disturbance, depression, postpartum women, insomnia

Introduction

Depression and sleep disturbance are comorbid and interrelated conditions, and sleep disturbance is frequently an antecedent of, just as a negative prognostic factor for depression. Women after delivery sleep less during the early weeks following delivery than during pregnancy and other periods of reproductive age. Simultaneously, these women have an expanded danger of depression. Nonetheless, little consideration has been committed to the altered sleep pattern during the post pregnancy time frame and a potential relationship with maternal depression^[1].

The International Classification of Sleep Disorders, 2nd edition, defines insomnia as the presence of a sleep problem despite adequate opportunities for sleep^[2]. Such chances for sleep might be difficult to come by during the initial not many months after delivery, as a few elements can impact sleep among new mothers, including physical changes, demands from the infant and social factors^[3]. However, it has been recommended that lack of sleep after delivery brought about by such factors may form into chronic insomnia⁴. A few authors have likewise recommended that lack of sleep in healthy mothers could produce daytime drowsiness, cognitive deficits, fatigue, and irritability, predictable with temperament indications detailed post pregnancy, and they have hypothesized that the mothers were "sleepy, not weepy^[5]."

Post pregnancy anxiety with signs like nervousness, anxiety, absent mindedness, and irritability in different times of life, yet its frequency is on numerous occasions more in the underlying 5 weeks after delivery. Post birth anxiety has genuine outcomes on the personal satisfaction of mother and her infant. It can moreover really impact the nature of the connection between the mother and her infant^[6].

On the other hand, postpartum depression may irritate a generally debilitated sleep quality, as encountering challenges with sleep is a symptom of depression. It is important to recognize maternal depression on account of its adverse consequences upon both the mother and child.

Without assistance or treatment, the outcomes might be drawn out and costly for the women, for their families, and as far as the requests made on medical care resources. In cases of severe depression, particularly with psychotic symptoms, there is a danger of self-destruction. Depression in the mother may likewise influence the child's cognitive, emotional, and social development. Women suffering from depression are less inclined to breastfeed, and, in developing countries, maternal depression is related with helpless newborn child development [7].

Prevalence estimates of depression in the postpartum period range from nearly 0% to 60%, depending on the study population and methodology. In any case, a general gauge of 13% is commonly cited. A few factors like financial components, maternal age, education and sex of the baby, past history of depression, occupation, and the number of children were accounted for to be powerful in the development of postpartum depression.

Sleep patterns and lack of sleep are other potential factors that can be related with postpartum depression. Delivery has physical, physiological, and mental consequences for women's sleep, additionally dealing with an infant with irregular sleep patterns will bring about sleep disturbances during the post pregnancy time frame and women in the post pregnancy time frame experience undeniable degrees of sleep disturbances. Perhaps the most grounded determinant of post pregnancy depression is a past history of depression. There is likewise a familial and hereditary part. In addition to sleep disturbances, different elements may expand the danger of postpartum depression. Psychological distress, depression, and unpleasant life occasions during the earlier year are totally connected with an expanded danger of the condition, similar to a helpless relationship with a partner [8].

The perinatal period addresses a challenging time for childbearing women to consistently obtain quality sleep. Changes in sleep patterns relative to preconception begin in the first trimester, as women experience a decrease in slow-wave sleep that persists until delivery.

Sleep time diminishes across pregnancy as sleep fragmentation increases. All out sleep time strongly decreases in the first month postpartum, and this corresponds to the period of highest risk for development or recurrence of affective illness. In spite of the fact that sleep misfortune and discontinuity are ordinary during the post pregnancy time frame, persevering trouble in nodding off or getting back to sleep when the newborn child is sleeping may signal insomnia. An arising group of writing shows that helpless sleep quality and side effects of insomnia are connected to depressive symptoms in new mothers [9].

This cross-sectional study aimed to estimate poor maternal sleep and depression simultaneously among postpartum women in a small, selected population, using validated and commonly used tools and to examine whether poor sleep is a risk factor for postpartum depression.

Materials and Methods

A cross-sectional study was done in 30 women who gave birth to a live child within one month, residing in Mangaluru city. A convenience sampling technique was used to include the participants in the study. Participants who are willing to take part in the study were screened for inclusion and exclusion criteria. Participants included were 20 years and above and those who are able to understand the questions of the present study. The subjects participating in the study were given patient information sheet containing the study details,

the informed consent were obtained from the subjects prior to the study.

Procedure

Subjects fulfilling the inclusion criteria were enrolled for the study. A brief introduction about the study was explained to all the subjects. Questionnaires (Pittsburgh sleep quality index and Edinburgh postnatal depression scale) were directly given to the women and results were recorded.

Outcome Measure

To assess the sleep disturbances and depression Pittsburgh sleep quality index and Edinburgh postnatal depression scale were used respectively.

Measure of sleep

The Pittsburgh Sleep Quality Index (PSQI) was utilized to quantify global sleep quality. The PSQI is a generally utilized self-rating questionnaire that assesses clinical and abstract sleep complaints during the earlier month. Nineteen individual things produce 7 segment scores (range 0–3, with higher scores representing worse sleep): subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The sum of the scores for the 7 parts yield one global sleep quality score (greatest score 21). A cut-off value of 5 has shown a sensitivity of 90% and a specificity of 87% for perception between “good” and “poor” sleepers.

Measure of mental health

The Edinburgh Postnatal Depression Scale (EPDS) was used to assess depressive symptoms. The EPDS is a 10-item self-rating questionnaire established to monitor for depression in the postpartum period. It inquires about symptoms existing during the last 7 days. Each question has 4 substitute answers, scored 0–3, giving a maximum score of 30. Women scoring ≥ 10 on the EPDS were categorised as depressed.

Statistical analysis

Data were analyzed using SPSS v.20.0. Descriptive features were expressed in means with standard deviation ($\bar{X} \pm SD$). Karl Pearson correlation test was done to analyze the correlation between the quality of sleep and depression in postpartum women.

Results

The mean age of the subjects is 26.73 ± 3.66 . The mean score of PSQI and EPDS are 13.87 ± 3.06 and 12.10 ± 4.44 respectively.

Table 1: Descriptive statistics of age, PSQI score, and EPDS score.

	N	Mean with standard deviation
Age	30	26.73 \pm 3.66
PSQI*1	30	13.87 \pm 3.06
EPDS*2	30	12.10 \pm 4.44

*1 Pittsburgh Sleep Quality Index,

*2 Edinburgh Postnatal Depression Scale.

Karl Pearson Correlation was done to estimate the association between postpartum sleep disturbance and depression, a high correlation was estimated between the variables ($r=0.899$). The correlation was statistically significant ($p=0.000$) as the p value is <0.001 .

Pearson Correlation between PSQI and EPDS**Table 2:** Pearson correlation between PSQI and EPDS.

	P	R
PSQI and EPDS	0.000	0.899

Discussion

The study aimed to determine the sleep disturbance and depression in postpartum women and to find the association between sleep disturbance and postpartum depression using the Pittsburgh sleep quality index and Edinburgh postnatal depression scale.

The study was done on 30 postpartum women aged 20 years and above, both LSCS and NVD were selected and assessed by Pittsburgh sleep quality index and Edinburgh postnatal depression scale.

From the study, it was evident that there is a significant correlation between sleep disturbance and postpartum depression ($r=0.899$). Depression was associated with poor global sleep quality also when adjusted for identified psychosocial stressors and individual temperament to depression. The first three months after delivery are characterized by a continuous alteration in sleep parameters. Hence, women after delivery may have complications assessing the earlier month's sleep, as necessary by the PSQI. Huang *et al.* also reported sleep disturbances and daytime dysfunction to be the PSQI sub scores most strongly related to depressive symptoms three weeks after delivery^[10]. Similarly, Dennis *et al.* found an association between daytime sleepiness and maternal depression^[11]. In contrast, Wolfson *et al.* found that there is no difference in sleep diaries between depressed and non-depressed mothers during the first postpartum week^[12].

Postnatal depression with symptoms such as anxiety, depressed mood, forgetfulness, and irritability is similar to depression in other periods of life, but its frequency is multiple times more in the first 5 weeks after delivery. Inadequate and interrupted sleep distresses memory, decision-making, psychomotor, and mood. The association between depression and sleep can be bilateral. Depression may cause disturbed sleep while sleep disorder can also be an independent risk factor for depression. The association between sleep status and depression may result from a neurological or psychological role which is comparable in both conditions. The earlier studies presented sleep quality was related with postnatal depression^[13]. Associations between the quantity of sleep and the sensitivity of sleep quality may differ between depressed and non-depressed subjects^[14]. Mothers reporting good sleep quality despite an infant's sleep problem do not have a higher risk of depression, and developments in infant sleep do not essentially increase the EPDS score of the mother^[15]. Preceding sleep difficulties were associated with poor global sleep quality. Women with former sleep problems may have more trouble adjusting to the essential variation of sleep pattern in the postpartum period^[16]. First-time mothers experience a more change in sleep pattern after delivery than multiparous mothers, in line with the results from the current study. Breastfeeding mothers' global sleep quality was better than that of mothers who moderately bottle-fed their babies, but not better than mothers who did not breastfeed at all. Blyton *et al.* documented better polysomnographic sleep among new mothers who breastfed^[17]. Longitudinal studies are required to study whether partial breastfeeding leads to poorer maternal sleep, or whether this imitates a strategy to progress a previously weakened sleep.

Maternal sleep was better if the infant slept in a separate room related to sharing a bed with the baby. Bed-sharing could reflect a strategy by the mother to calm a fussy infant to improve sleep¹⁸. Okun *et al.* suggested that sleep quality is a risk factor for negative maternal effects in the postpartum period. Assessment of maternal sleep hygiene is worth consideration as a element of finding women at risk for postpartum depression and anxiety¹⁹.

Depression after delivery is often not identified by the women and their assistants, whereas tiredness and lack of sleep are common complaints. Women who are drowsy may feature this to poor sleep, but the drowsiness could otherwise be caused by depression.

Limitations of the study

In our study a small group of postpartum women were included. So it is very difficult to generalize the results of this study to whole postpartum women.

Conclusion

The association of both postpartum depression and low sleep quality were relatively high in this study population. There is a significant correlation between sleep disturbance and postpartum depression.

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