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Research Article

### THE ASSOCIATION BETWEEN SLEEP, BREASTFEEDING AND POSTPARTUM DEPRESSION

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**Abstract:**

**Objectives:** (1) To evaluate the relationship between breastfeeding and postpartum depression. (2) Assessment of the relationship between sleep and postpartum depression.

**Study design:** A cross-sectional study.

**Place and duration of the study:** In the Gynecology and Obstetrics Unit II and Department of Psychology, Nishtar Hospital Multan for one-year duration from May 2019 to May 2020.

**Methodology:** A sample of 90 nursing mothers and 90 non-breastfeeding mothers was collected by targeted sampling. The sample entry criteria were as follows: All subjects were vaginally delivered six weeks ago. Postpartum depression was measured by the Edinburgh Postnatal Depression Scale (EPDS) and sleep by the Pittsburgh Sleep Quality Index (PSQI).

**Results:** In this study, a significant relationship was observed between breastfeeding, not breastfeeding and the postpartum depression scores  $\chi^2 = 6.95$ ,  $p < 0.05$ , and a similar correlation was observed between sleep scores and postpartum depression rates  $\chi^2 = 11.17$ ,  $p < 0.05$ . The results show that there is a significant association between breastfeeding, sleep and postnatal depression.

**Conclusion:** Lack of breastfeeding and poor sleep are risk factors for postpartum depression.

**Key words:** breastfeeding, not breastfeeding, sleep, postpartum depression.

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**INTRODUCTION:**

The prevalence of postpartum depression in developing countries ranges from 5.2% to 74.0%. The highest incidence of postpartum depression was observed in Turkey and the lowest in Pakistan. In developed countries, the incidence of postpartum depression in the self-reporting questionnaire ranged from 1.9% to 82.1%. The highest prevalence of postpartum depression was observed in the United States and the lowest in Germany. The incidence of postpartum depression according to the Edinburgh Postnatal Depression Scale (EPDS) was higher in developing countries than in developed countries. In developing countries, the incidence of postpartum depression ranged from 12.9% to 50.7% in less than 4 weeks, from 4.9% to 50.8% in 4 to 8 weeks, and from 8.2% to 38.2% in 6 months and from 21.0% to 33.2% in the first year after delivery, while in developed countries from 5.5% to 34% in less than 4 weeks, 2.6% to 35.0% in 4 to 8 weeks, 2.9% to 25.5% in 6 months and 6.0% to 29.0% in the first year. The etiology of postpartum depression is still ambiguous, but many risk factors have been identified, which can be divided into obstetric and pediatric factors (no Caesarean section is not started during breastfeeding, delivery with complications during pregnancy, unplanned pregnancy, unintentional pregnancies remain at a low level). hemoglobin in childbirth, acute pain worsening in childbirth, poor knowledge of childcare, early loss of a child and premature birth), physical and biological factors (PMS symptoms, poor physical health, medical history, negative body image, body mass index less than 20 kg / m<sup>2</sup>), psychological factors (antenatal anxiety and depression, low quality of life, stressful life events, physical, mental and sexual abuse, past psychiatric illness, premenstrual dysphoric disorders, bad marriage relations, poor mental health, negative view of pregnancy and stress related to caring for a child), cultural actors (after childbirth, the traditional habit of confining women at home for one month, they eat only certain foods, arrange marriages and perform rituals, i.e. avoiding movement, wind and not washing their hair) and sociodemographic (low income, mother's age, no social support) low level of education, dissatisfaction with living conditions, unemployment and domestic violence. The Diagnostic and Statistical Manual of Mental Disorders, 5th Ed (DSM-5) describes postpartum depression as a moderate to severe depressive episode that begins one month after delivery. While the International Statistical Classification of Diseases and Related Health Problems 10th Rev (ICD-10 Rev) describes postpartum depression as a mild mental and behavioral disorder that begins one and a half months after birth. Pearlstein in her research paper states that postnatal depression is characterized as a major depression that can occur

within a month after giving birth. Clinical symptoms of postpartum depression include poor sleep or too much sleep, sadness or extreme horrors, mood swings, guilt and helplessness, changes in appetite, poor concentration and remembering, intense anxiety and anxiety for the baby, loss of interest in routine activities, fear of harm, doubts and persistent thoughts of death with suicidal thoughts. Postpartum depression has become the subject of clinical trials because it not only interferes with the social and professional activity of the patient, but also adversely affects the interactions between the partner and the baby and mother. Postnatal depression is strongly associated with poor quality of life and poor cognitive, intellectual and emotional development. Postnatal depression has a direct impact on the future mental health of mothers and has significant negative consequences for the cognitive, physical and social development of their babies. Postnatal depression carries a heavy economic burden in terms of health practices and decreased productivity as a result of early maternal retirement, absenteeism and unemployment. Stuebe *et al.* Argued that breastfeeding raises the levels of oxytocin in the mother's brain, which improves the mood of the mother-child relationship. Oxytocin improves milk transmission and maternal nursing. During pregnancy, insufficient levels of oxytocin are associated with postpartum depression, and decreased prolactin levels are associated with maternal anxiety. In the postpartum period, breastfeeding improves prolactin levels. Lowering estrogen levels can cause postpartum depression. Moreover, during and after pregnancy, sex and lactogenic hormones and stress have an interdependent effect on the achievement of lactation and depression. Bair *et al.* Argued that due to the reduction in serotonin levels, neurotransmitters that are associated with pain and depression may cause postnatal depression and play a role in problematic breastfeeding. Sleep can be assessed with polysomnography (PSG). Polysomnography is a combination of an electroencephalogram (EEG) with an electroculogram (EEA) to assess eye movements and an electromyogram (EMG) to assess muscle tone. Sleep can be divided into five stages depending on the frequency and amplitude of the electroencephalogram (EEG). Sleep is commonly referred to as sleep (REM) and non-REM sleep (NREM). Rapid eye movement (REM) sleep is also called the fifth stage of sleep, which is believed to occur during the sleep stage. Rapid eye movements do not occur in stages one through four. Normal sleep consists of 4-6 cycles with 5 sleep stages, while stages 3 and 4 are slow wave sleep (SWS). NREM sleep accounts for nearly 80% of the total sleep period. Inadequate sleep quality is associated with persistent sleep irregularities and chronic

sleep impairment, which have been shown to have adverse endocrine, metabolic and immune effects. As sleep deprivation worsens, individuals become more irritable and unstable. Depression is believed to be one of the risk factors for insomnia, and just like insomnia, it is also a risk factor for depression. There is a link between insomnia and depression. Insomnia is a predictor of major depression, and major depression can predict potential insomnia. Breastfeeding has important health benefits for mothers. It can help women lose weight after childbirth, reduce the risk of ovarian cancer, the risk of osteoporosis, premenopausal breast cancer, speed up recovery after childbirth, reduce postpartum blood loss, and reduce the risk of cardiovascular disease. Breastfeeding lowers the risk of gestational diabetes, helps the uterus recover more quickly, improves sleep and reduces stress response. In the postpartum period, mothers who do not start or support breastfeeding are more likely to become depressed and may not be able to start or sustain breastfeeding if they are depressed during this period. Breast milk makeup begins as colostrum and then turns into mature milk, which provides infants with proper nutrition for growth and development progression from newborn to adult infant. The ingredients of breast milk provide the baby with the desired nutrition, strengthen its immunity and improve cognitive and motor functions. The ingredients in breast milk are easy to digest and full of active growth ingredients, enzymes and hormones that help your baby to digest and absorb comfortably. The most important benefits of breast milk are the live ingredients, ie anti-infection antibodies, antibodies viral characteristics, white blood cells and red blood cells. Breastfeeding reduces the incidence of diarrhea, reduces the risk of allergies such as asthma, lowers blood pressure and cholesterol levels in the future, strengthens the immune defense against various diseases such as colds, respiratory infections, ear diseases, and reduces morbidity and mortality in infants. Moreover, breastfeeding can protect babies from maternal abuse, especially neglect. Horwood concluded that those babies who were breastfed in childhood were superior in intelligence and academic achievement compared to formula-fed babies in childhood.

#### **METHODOLOGY:**

This Cross-Sectional study was held in the Gynecology and Obstetrics Unit II and Department of Psychology, Nishtar Hospital Multan for one-year duration from May 2019 to May 2020. The first goal of the study was to assess the relationship between breastfeeding and postpartum depression, and the second goal was to assess the relationship

between sleep and postpartum depression. A sample of 90 breastfeeding and 90 non-breastfeeding mothers was collected by deliberate sampling. The sample entry criteria were as follows: All subjects were vaginally delivered six weeks ago. Postnatal depression was measured using the Edinburgh Postnatal Depression Scale (EPDS). The Edinburgh Postnatal Depression Scale has 10 items. The respondent is said to indicate one answer out of four possible responses she has felt in the last seven days. The scale responses are scored in the range of 0-3 points. Some items on the scale are scored simply, and some items are inversely scored as 3-0. The limit scores on the scale ranged from 9 to 13 points. Sleep was assessed using the Pittsburgh Sleep Quality Index (PSQI). The Pittsburgh Sleep Quality Index (PSQI) is an available tool for determining sleep quality and patterns across seven domains, i.e. (I) subjective sleep quality, (ii) sleep delay, (iii) sleep duration, (iv) habitual sleep efficiency, (v) sleep disorders, (vi) use of hypnotics, (vii) disturbances during the day. A person needs to self-evaluate in these seven areas. A person's self-esteem is rated from 0 to 3 points, as 0 points indicates good, good sleep and 3 points to sleep in a verse on the rating scale. A total of 5 scores, or 5> scores, is a sign of poor sleep. Pitts Burgh's Sleep Quality Index has been proven to provide higher internal consistency of 0.83 alpha Cronbach and 0.85 to 0.87 reliability of test replicates.

#### **RESULTS:**

Breastfeeding and non-breastfeeding mothers with postnatal depression scores greater than 10 on the Edinburgh Postnatal Depression Scale were included in the depressed group, and mothers with postpartum depression less than 10 on the Edinburgh Postnatal Depression Scale were included in the not depressed group. Chi-square was calculated between depressed and non-depressed breastfeeding, non-breastfeeding, and non-depressed breastfeeding mothers as shown in Table I. As shown in Table I, it was observed that breastfeeding mothers who obtained an EPDS <10 were 91.11% in compared to non-breastfeeding mothers. after an EPDS score of <10 they were 76.67%. Breastfeeding mothers with EPDS> 10 scored 8.89% compared to non-breastfeeding mothers and EPDS> 10 shaving score was 23.33% When the chi square was calculated to establish the relationship between the frequency of nursing mothers and non-breastfeeding mothers and their assessment of postpartum depression, a significant relationship was observed between breastfeeding, not breastfeeding and their degree of postpartum depression  $\chi^2 = 6.95, p < 0.05$ .

**Table I: Postpartum Depression among Breastfeeding and Non-breastfeeding Mothers (N = 180)**

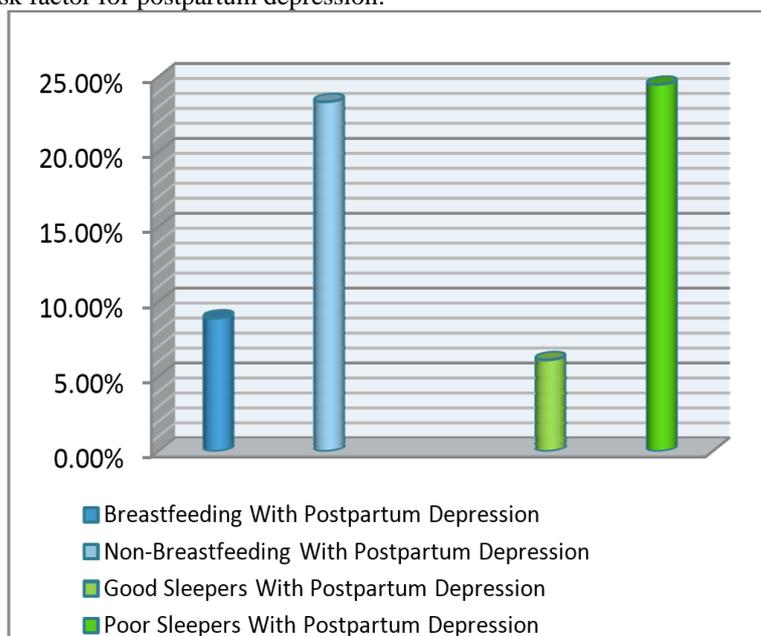
Mothers	Breastfeeding (n = 90)		Non-Breastfeeding (n = 90)	
	F	%	F	%
Without Postpartum Depression	82	91.11	69	76.67
With Postpartum Depression	8	8.89	21	23.33

Mothers with sleep scores greater than 5 on the Pittsburgh Sleep Quality Index were placed in the poor sleeper's group and mothers with sleep scores less than 5 were placed in the good sleeper's group. Mothers with postpartum depression scores greater than 10 on the Edinburgh Postnatal Depression Scale were placed in the depressed group, and mothers with postnatal depression scores lower than 10 on the Edinburgh Postnatal Depression Scale were placed in the non-depressed group. Chi-square was calculated for poorly sleepers, good sleepers, with and without depression, as shown in Table II.

**Table II: Sleep Quality and Postpartum Depression among Breastfeeding and Non-breastfeeding Mothers (N = 180)**

Mothers	Good Sleepers (n = 82)		Poor Sleepers (n = 98)	
	F	%	F	%
Without Postpartum Depression	77	93.90	74	75.51
With Postpartum Depression	5	6.10	24	24.49

As shown in Table II, it was observed that mothers who achieved a PSQI <5 and an EPDS <10 achieved 93.90% compared with mothers who achieved a PSQI > 5 and an EPDS <10 were 75.51%. Mothers who achieved a PSQI <5 and EPDS > 10 postpartum depression was 6.10% compared to mothers with PSQI > 5, and postpartum depression EPDS > 10 was 24.49%. When chi-square was calculated to establish the relationship between sleep scores and postpartum depression scores, a significant relationship was observed between sleep scores and postpartum depression scores  $\chi^2 = 11.17$ ,  $p < 0.05$ . A significant association was found between breastfeeding and postpartum depression. In this study, the incidence of postpartum depression was higher among non-breastfeeding mothers as compared to nursing mothers, as shown in Figure I. These results indicate that lack of breastfeeding is a risk factor for postpartum depression.

**Figure I. Prevalence of Postpartum Depression among Mothers**

**DISCUSSION:**

Thome et al. Concluded in their study that postpartum depression is associated with low levels of exclusive breastfeeding. Abou-Salehet al also observed that breastfeeding women have significantly lower levels of postpartum depression. Hatton et al. Observed that the likelihood of depression among non-breastfeeding mothers was higher than in nursing mothers. Watkins et al. Conducted a study on breastfeeding mothers and found that mothers who refused to breastfeed in the first week were more prone to postpartum depression. They also found that mothers with postpartum depression were less likely to breastfeed in the initial two months postpartum compared to mothers without postpartum depression. Adverse breastfeeding practices were significantly associated with higher chances of postpartum depression. Figueiredo found that 20% of pregnant women were depressed in the third trimester. At this stage, rates of depression were significant predictors of absolute breastfeeding duration. Significant reductions in postpartum depression were experienced by mothers who continued full breastfeeding for more than months. There was a significant association between sleep and postpartum depression. In this study, the incidence of postpartum depression was higher in poor sleepers compared to well-sleepers, as shown in Figure I. These results indicate that poor sleep is a risk factor for postpartum depression. Park et al. Conducted a study and concluded that inadequate sleep is associated with acute symptoms of depression in the early postpartum period. Posmontier in his study found that mothers without postpartum depression enjoy healthier sleep quality than mothers with postpartum depression. As postpartum depression worsened, sleep quality deteriorated.

**CONCLUSION:**

This study proved that breastfeeding reduces the risk of postpartum depression and improves sleep quality. Breastfeeding is a defensive aspect of postnatal depression. Adequate sleep also reduces the risk of postnatal depression. In contrast, lack of breastfeeding and poor sleep is clearly associated with postpartum depression.

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