Original Article

The Relationship Between Breastfeeding, Sleep and Postpartum Depression

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Abstract

Objectives:(1)To assess the relationship between breastfeeding and postpartum depression. (2)To assess the relationship between sleep and postpartum depression.
Study Design: Cross sectional study.
Place and duration of Study: The sample was drawn from Faisalabad, from October 4, 2015 to December 22, 2015.
Methodology: A sample of 90 breastfeeding and 90 non-breastfeeding mothers were taken by purposive sampling technique. The sample inclusion criteria were, all participants were undergone vaginal delivery, six weeks ago. Postpartum depression was measured by Edinburgh Postnatal Depression Scale (EPDS) and sleep was assessed by Pittsburgh Sleep Quality Index (PSQI).
Results: In this study a significant association between breastfeeding, non- breastfeeding and postpartum depression scores $\chi^2 = 6.95$, $p < 0.05$ was observed and similarly a significant association between sleep scores and postpartum depression scores $\chi^2 = 11.17$, $p < 0.05$ was observed. Results reveal that there is a significant relationship between breastfeeding, sleep and postpartum depression.
Conclusion: Non- breastfeeding and poor sleep both are risk factors for postpartum depression.
Key words: Breastfeeding, Non-breastfeeding, Sleep, Postpartum Depression.

Cite this article as:Rehman AU, Kazmi SF.The Relationship Between Breastfeeding, Sleep and Postpartum Depression.J. Soc. Obstet. Gynaecol. Pak. 2016; Vol 6(3):119-124.

Introduction

The prevalence of postpartum depression in developing countries have been reported in the range of 5.2% to 74.0%. The highest prevalence of postpartum depression was observed in Turkey and the lowest in Pakistan. In developed countries, the prevalence of postpartum depression on self-reported questionnaire was reported in the range of 1.9% to 82.1%. The highest prevalence of postpartum depression was observed in the United States and the lowest in Germany. The prevalence of postpartum depression on Edinburgh Postnatal Depression Scale (EPDS) was observed higher in developing countries as compared to developed countries. In developing countries, the prevalence of postpartum depression was reported in the range of 12.9% to 50.7% in less than 4 weeks, 4.9 % to 50.8 % in 4 weeks to 8 weeks, 8.2% to 38.2 % in 6 months and 21.0 % to 33.2% in the 1st year of postpartum while in developed countries 5.5% to 34% in less than 4 weeks, 2.6 % to 35.0 % in 4 weeks to 8 weeks, 2.9 % to 25.5 % in 6 months and 6.0% to 29.0 % in the 1st year.[1]

The etiology of postpartum depression is still

Authorship Contribution:[1]Randomization of study and writing the article & Data Analysis, [2]Reviewed the study,

Funding Source: none
Conflict of Interest: none

Received: April 3,2016 **Revised :** Oct 5, 2016
Accepted: Oct 11, 2016

ambiguous[2] but however, numerous risk factors have been recognized which are categorized into obstetric and pediatric factors (non-initiation of breastfeeding cesarean, section delivery suffering from complications during pregnancy, unplanned pregnancy, unintentional pregnancy, hold low level of hemoglobin during delivery, severity of acute pain during childbirth, poor childcare knowledge, prior history of loss of a child and premature birth), physical and biological factors (premenstrual symptoms, poor physical health, history of medical conditions, negative body image, body mass index of less than 20kg/m2), psychological factors (antenatal anxiety and depression, poor quality of life, stressful life events, physical & psychological and sexual abuse, previous psychiatric illness, history of pre-menstrual dysphoric disorders, poor marital relationship, poor mental health, negative viewpoint about pregnancy and child care stress), cultural factors (after delivery the traditional custom of confinement for women to home for one month, eat only certain foods, arranged marriage and perform rituals, i.e., avoiding exercise, wind and not washing their hair) and socio-demographic factors (low income, maternal age, lack of social support, low education level, dissatisfaction with living conditions, unemployment and domestic violence.[1]

The Diagnostic and Statistical Manual of Mental Disorders, 5th Ed (DSM-5)[3] describes postpartum depression as the depressive event from moderate to high acuteness which commence one month after delivery. While the International Statistical Classification of Disease and Related Health Problems10th Rev (ICD-10 Rev)[4] describes postpartum depression as a mild mental and behavioral disorder which commence one and half months after delivery. Pearlstein states in his research paper postpartum depression that it is characterized as a major depressive disorder that can appear within one month after child delivery .[5]

Clinical symptoms of postpartum depression are poor sleep or sleeping so much, sadness or extreme dreadful, mood swings, guilt and helplessness, change in appetite, poor concentration and remembering, intense apprehension and concern about the baby, loss of interest in routine activities, fear of harming, feeling of doubt and persistent thoughts of death with suicidal ideation.[2]

The postpartum depression has become the focus of clinical studies because it not only disturbs the patient's social and work-related activities, but also adversely affect the partner and child mother interaction. Postpartum depression is strongly associated with a poor quality of life, poor cognitive, intellectual and emotional development.[6]

Postpartum depression has a direct effect on mothers' upcoming mental health[7] and have substantial adverse consequences on the cognitive, physical and social advancement of their children.[8] Postpartum depression requires ample economic charges, in the form of health care practices and damages in efficiency by way of maternal early retirement, absence from employment and joblessness.[9]

Stuebe et al.[10] submitted that breastfeeding uprising the amount of oxytocin in mother's brain, which improves the spirits of relationship between mother and child. Oxytocin improves milk pass on and child-caring by mothers. During pregnancy, insufficient level of oxytocin is related to postpartum depression while reduction in the level of prolactin is related to maternal anxiety. During the postpartum period, breastfeeding improve the level of prolactin. Reduction in the level of estrogen may be a cause of postpartum depression.

Moreover, during and after pregnancy gonadal and lactogenic hormones and stress have interrelating outcomes on lactation accomplishment and depression. Bair et al.[11] claimed that due to reduction in serotonin levels neurotransmitters which are related to pain and depression may cause postpartum depression and play a part in problematic breastfeeding.

Sleep can be evaluated by means of Polysomnography (PSG). Polysomnography is the combination of electroencephalogram (EEG) with electroocculogram (EOG) to assess eye movements and electromyogram (EMG) to assess muscle tension.[12] Sleep can be separated into five stages according to electroencephalogram (EEG) frequency and amplitude. Sleep is normally labeled as (REM) sleep and Non-REM (NREM) sleep. The rapid eye movements (REM) sleep is also called the stage five of sleep, which has been believed to befall at a stage in dreaming. Rapid eye movements are not taking place in stages one to four.[13]A normal night's sleep comprises of 4 - 6 cycles of the 5 stages- of sleep, whereas stage 3 and 4 are said to slow-wave sleep (SWS).[14] NREM sleep comprises of almost 80% of the entire sleep period.

Inadequate sleep quality is involved with persistent irregular sleep and chronic sleep debit which has been revealed to develop adversative endocrine, metabolic and immunological effects. With intensifying sleep deficit, Persons have been exposed to become more irritable and more volatile.[15] It is believed that one of the risks for insomnia is depression and as well as

insomnia is also a risk for depression. There is a relationship between insomnia and depression. Insomnia is a predictor of a major depression and a major depression may predict potential insomnia.[16]

Breastfeeding has substantial health advantages for mothers. It may help females to reduce weight after childbirth, decrease the hazard of ovarian cancer, the risk of osteoporosis, pre-menopausal breast cancer[17], helps fast recovery after delivery, reduced postpartum blood loss and reduced the chance of cardiovascular disease.[18] Breastfeeding lowers the chance of gestational diabetes, support the uterus go back to its pre-pregnant state swifter[19], improve sleep[20] and reduce the stress reaction.[21] During the postpartum period, mothers who do not commence or sustain breastfeeding are higher at chance for depression[22] and if they are depressed during this period, they may not be capable to commence or sustain breastfeeding.[23]

Breast milk makeup begins as colostrum and subsequently amends to mature milk that provide infant the proper nutrition for growth and development progression from neonate to adult infant.[24] The ingredients of breast milk furnish the desirable nutrition for child and improve the child immune system and improved cognitive and motor functioning.[25]Breast milk ingredients are at ease to digest and be full of active growth components, enzymes and hormones that facilitate a child to comfortably digest and absorb.[18]The utmost vital advantages of breast milk are that it comprises of living ingredients i.e. infection combating antibodies, anti-viral features, white blood cells and red blood cells.[26] Breastfeeding reduces prevalence of diarrhea, decrease risk of arising allergies, i.e. asthma, reduce blood pressure and cholesterol level future in life, improve immune defense against various diseases like colds, respiratory infections, ear diseases and reduce morbidity and mortality among infants.[27] Moreover, breastfeeding can escape children from maternal maltreatment specially neglecting.[28]

Horwood[29] concluded that those children who were breastfed in their childhood, were better in their intelligence and academic achievements as compared to children who were fed with formula in their childhood.

Methodology

The first objective of the study was to assess the relationship between breastfeeding and postpartum depression and the second objective was to assess the relationship between sleep and postpartum depression. The data for this cross sectional study was drawn from Faisalabad, from October 4, 2015 to December 22, 2015. A sample of 90 breastfeeding and 90 non-breastfeeding mothers were taken by purposive sampling technique. The sample inclusion criteria were, all participants were undergone vaginal delivery, six weeks ago. Postpartum depression was measured by Edinburgh Postnatal Depression Scale (EPDS).

The Edinburgh Postnatal Depression Scale contains 10 items. The respondent is said to indicate the one response out of four possible responses that she feels during the past seven days. Responses of the scale are scored from range 0- 3 scores. Some Items of the scale are scored straightly and some items are scored reversely 3- 0. Cutoff scores of the scale varied from 9 to 13 scores.[30]

Sleep was assessed by Pittsburgh Sleep Quality Index (PSQI). The Pittsburgh Sleep Quality Index (PSQI) is available tool for determining the quality & patterns of sleep with seven domains, i.e. (i)Subjective Sleep Quality, (ii) Sleep Latency, (iii) Sleep Duration,(iv) Habitual Sleep Efficiency, (v) Sleep Disturbances,(vi) Use of Sleeping Medication, (vii) Daytime Dysfunction. A person has to self-assess on these seven domains. The self-assessment of the person is scored from the range 0-3 scores as 0 scores indicate the fine good sleep and 3 indicates the verse sleep on the rating scale. A global sum of 5 scores or 5 >scores be a sign of poor sleeper.[31]The Pitts Burgh Sleep Quality Index has been proven to ensure higher internal consistency 0.83 Cronbach's alpha and 0.85 to 0.87 test-retest reliability.[32]

Results

Breastfeeding and non-breastfeeding mothers whose postpartum depression scores were greater than 10 on the Edinburgh Postnatal Depression Scale were placed in a group of depressed and those mothers whose postpartum depression scores were lower than 10 on the Edinburgh Postnatal Depression Scale were placed in a group of non-depressed. Chi square was computed between breastfeeding, non-breastfeeding, depressed and non-depressed as shown in table I.

As depicted in table I, it was observed that breastfeeding mothers having scored on EPDS < 10 were 91.11% as compared to non-breastfeeding mothers having scored on EPDS < 10 were 76.67 %. Breastfeeding mothers having scored on EPDS > 10 were 8.89 % as compared to non-breastfeeding mother shaving scored on EPDS > 10 were 23.33%.When the chi square was computed to find out the association between the frequency of breastfeeding mothers and non- breastfeeding mothers and their postpartum

depression scores, a significant association between breastfeeding, non- breastfeeding and their postpartum depression scores $\chi^2 = 6.95$, $p < 0.05$ was observed.

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

$x^2 = 6.95$, $p < 0.05$

The mothers whose sleep scores were greater than 5 on the Pittsburgh Sleep Quality Index were placed in a group of poor sleeper and those mothers whose sleep scores were lower than 5 were placed in a group of good sleeper. The mothers whose postpartum depression scores were greater than 10 on the Edinburgh Postnatal Depression Scale were placed in a group of depressed and those mothers whose postpartum depression scores were lower than 10 on the Edinburgh Postnatal Depression Scale were placed in a group of non-depressed. Chi square was computed between poor sleeper, good sleeper, depressed and non-depressed 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

$x^2 = 11.17$, $p < 0.05$

As depicted in table II, it was observed that the mothers having scored on PSQI < 5andEPDS < 10 were93.90 % as compared to mothers having scored on PSQI > 5 and EPDS < 10 were 75.51 %.Mothers having scored on PSQI < 5 and EPDS > 10 post partum depression were 6.10 % as compared to mothers having scored on PSQI > 5 and EPDS > 10 postpartum depression were 24.49 %. When the chi square was computed to find out the association between the sleep scores and postpartum depression scores, a significant association between sleep scores and postpartum depression scores $x^2 = 11.17$, $p < 0.05$ was observed.

A significant association between breastfeeding and postpartum depression was observed. In this study the prevalence of postpartum depression was higher among non-breastfeeding mothers as compared to breastfeeding mothers as depicted in figure I. These findings indicate the non-breastfeeding is the risk factor for postpartum depression.

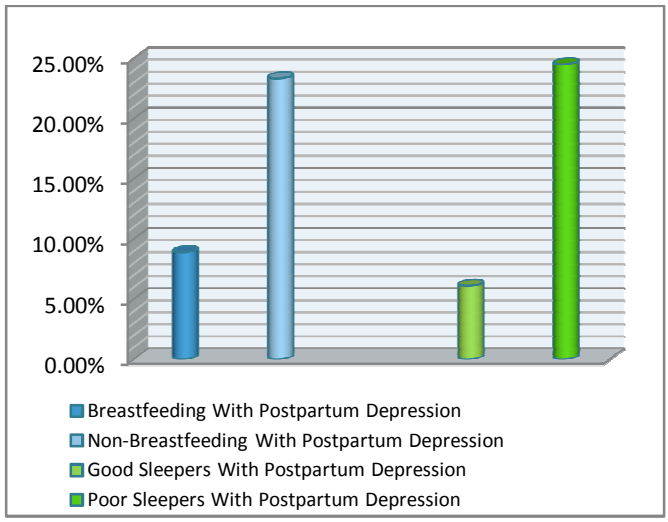

Figure I. Prevalence of Postpartum Depression among Mothers

Discussion

Thome et al.[33] inferred in their study that of postpartum depression is associated with poor levels of exclusive breastfeeding. Abou-Salehet al.[34] also observed that breastfeeding women have substantially lower levels of postpartum depression. Hatton et al.[35] observed that the chance of depression among non-breastfeeding mothers were higher as compared to breastfeeding mothers. Watkins et al.[36] performed a study on the breastfeeding mothers and exposed that those mothers who disapproved breastfeeding for the period of 1st week, were more prone to postpartum depression. They also observed, mothers with postpartum depression have the lower rate of breast feeding in the initial period of two months of postpartum as comparatively to mothers without postpartum depression. Adverse practices about breastfeeding were significantly related to more chances of postpartum depression.

Figueiredo[22] examined that 20 % pregnant females were depressed at the 3rd trimester of pregnancy. At this stage, depression scores were significant predictors of duration of absolute breastfeeding. A significant reduction in level of postpartum depression

appeared among mothers who continued complete breastfeeding more than months.

A significant association between sleep on postpartum depression was observed. In this study the prevalence of postpartum depression was higher among poor sleepers as compared to good sleepers as depicted in figure I. These findings indicate the poor sleep is the risk factor for postpartum depression. Park et al[37] conducted a study and concluded that inadequate sleep is associated with acute symptoms of depression during the initial postpartum period.

Posmontier[38] declared in his study that mothers without postpartum depression enjoy a healthier quality of sleep than mothers with postpartum depression. With escalating of postpartum depression resultantly sleep quality got worse.

Conclusion

It has been proved from this study that breastfeeding decrease the chance of postpartum depression and improves the extent of sleep. Breastfeeding is a defensive aspect of postpartum depression. Appropriate sleep also decreases the risk of postpartum depression. While non-breast feeding and poor sleep are clearly associated with the incidence of postpartum depression.

Recommendations

- Early diagnosis of depression during pregnancy may help out to identify women at higher risk of interruption or termination of breastfeeding after delivery and this risk can be minimized by the treatment of depression before and after delivery.
- Health care professionals should educate the women about the benefits of breastfeeding and importance of sleep and recommend a time for breastfeeding two years or more particularly the first 6 months.

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