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Breastfeeding and Depression

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A B S T R A C T

Pregnancy and postpartum depression frequently occurances, and that depressed women at pregnancy are usually depressed at the postpartum period. A literature review was conducted in the electronic databases PubMed and Google Scholar using the index terms “breast feeding” and “pregnancy depression” and “postpartum depression”, and “hormones”. Two investigators independently evaluated the titles and abstracts in a first stage and the full text in a second stage review. All types of studies were included for this study, such as randomized controlled trials, systematic reviews, literature reviews, and pilot studies published between 2010 and 2021. This search resulted in 12 papers. The literature consistently shows that breastfeeding provides a wide range of benefits for both the child and the mother. The psychological benefits for the mother are still in need of further research. Breastfeeding can promote hormonal processes that protect mothers against postpartum depression by attenuating cortisol response to stress. However, the mother whom giving birth then directly breastfeeding their child, will reduce the mothers stress.

1. Introduction

Breastfeeding has been associated with the well-being of both the child and the mother. There are so many breastfeeding benefits for children’s physical and psychological status including decreased risk of infectious diseases and obesity, decreased blood pressure, lower cholesterol levels, and increased cognitive and motor performance.[1] Positive health outcomes for the mother’s physical health include decreased blood pressure and risk of breast and ovarian cancer, for the mother’s psychological health they include attenuated stress response and enhanced sleep. However, benefits for the mother’s psychological well-being need more supportive empirical evidence.[2]

There are some risk factors that decreased breastfeeding self-efficacy, such as low level of education, first pregnancy, low number of prenatal consultations, no partner, intra and/or interpersonal conflicts, low or moderate pain, and postpartum depression. While breastfeeding in the first hour of life, the decision to breastfeed made during pregnancy, prior breastfeeding experience and social support are protective factors that support the mother from their hesitation. Therefore, identification of women at risk for early cessation of breastfeeding and implementation of effective breastfeeding promotion strategies are considered health priorities.[1,2]

The World Health Organization (WHO), the European Commission for Public Health (ECPH), and the American Academy of Pediatrics (AAP) recommend exclusive breastfeeding for the first six months of life. Despite the established benefits of breastfeeding, rates are still low, and even though rates of breastfeeding

initiation are high, there is a marked decline in breastfeeding during the first few weeks after initiation, and exclusive breastfeeding is rare. In Portugal, despite the high rate of breastfeeding at the time of hospital discharge (91% and 98.5%), an accentuated decrease is observed in the following months, with only 54.7% to 55% of mothers breastfeeding at three months postpartum, and 34.1% to 36% at six months postpartum.[1,2] The national health surveys provided by the Portuguese Health Ministry showed that breastfeeding initiation rates increased from 81.4% in 1995/1996 to 84.9% in 1998/1999. In 2010/2011, this percentage ascended to 98.5%.3 However, despite the increase in breastfeeding rates, these surveys also show a decrease in breastfeeding over the months. In 2010/2011, in baby-friendly hospitals, between 65.2% to 72.5% of mothers exclusively breastfeed their babies by the time of hospital discharge. At three months postpartum, the percentage of exclusive breastfeeding was 40.3%, falling to 14.7% at five months.[3] The European rates of breastfeeding initiation vary from 63% in Belgium to 99% in Norway. After hospital discharge, rates start to fall and at six months the percentage of mothers who continue to breastfeed varies from 10% in Belgium to 80% in Norway.[4] Scandinavian countries present the highest rates of breastfeeding at six months postpartum (80% in Norway, 72% in Sweden, and 65% in Iceland).[4] In Brazil, a national survey conducted in 2008 showed a rate of 41% of exclusive breastfeeding in babies from 0 to 6 months. 24 In the same survey, the percentage of breastfeeding in babies from 9 to 12 months old was approximately 58.7%.[4,5]

To our knowledge, there are no published systematic reviews addressing the association between breastfeeding and pregnancy and postpartum depression. Given that pregnancy depression is the best predictor of postpartum depression it is important to simultaneously consider both pregnancy and postpartum depression in relation to breastfeeding in a review addressing the associations between these variables. This paper aimed to provide a systematic review of the literature on the association between breastfeeding and pregnancy and postpartum depression. Due to the associative nature of the majority of the published studies, it was not possible to perform a meta-analysis.[5]

2. Methods

The researcher searched for all studies published between 1st January 2010 and 1st August 2021, using Google Scholar and PubMed. The following keywords were applied during the literature search "breastfeeding" and "pregnancy depression" and "postpartum depression", and "hormones". Only primary research was considered. Studies that met the following criteria were excluded: a) non-original research (review articles and meta-analysis) and b) studies focused on the effects of antidepressants on breastfeeding. The included studies were assessed for quality based on the following criteria: participants should be clearly defined as pre-or postpartum women, and studies should identify the outcome measurements. One hundred and nine articles were identified. Abstracts were reviewed by the researcher and 78 did not meet inclusion criteria and were eliminated. The researcher then reviewed the full text of the remaining 31 articles, and reference sections of these articles were cross-checked for additional material. After a full-text review, an additional 19 articles did not meet inclusion criteria. A total of 12 articles were identified that met inclusion and exclusion criteria.

3. Results and Discussion

The PubMed and google scholar search results identified 310 potential studies, with 189 remaining studies after removing duplicates. After reviewing the titles and abstracts from 189 studies, 18 studies were identified for possible inclusion in the review. After examining the full text of the 20 studies against the inclusion criteria, eight studies were excluded.

Breastfeeding and depression in pregnancy and postpartum depression

Recent literature reviews even though their infants benefit from breastfeeding, breastfeeding is less common among depressed mothers. Studies from different sociocultural contexts show almost unequivocally that depressed mothers tend to breastfeed less or for less time than non-depressed mothers. However, the association between breastfeeding and postpartum depression remains equivocal.[5,6]

When depressed during pregnancy, women are less likely to maintain or initiate breastfeeding, compared with those with no depressive symptoms. In a recent study on the association between prenatal psychosocial risk factors and breastfeeding intention of Hispanic women. Researchers found that women who presented a lower intention to breastfeed their babies have a higher score in depression at the middle of gestation (about 25.7 weeks) and women who showed persistent depressive symptoms during pregnancy. Other studies have shown that 1/5 of pregnant women are depressed at the third trimester of pregnancy, and that half of these depressed pregnant women will not initiate or breastfeed for three months or more.[6] Depression scores at the third trimester were the best predictors of the length of exclusive breastfeeding, and when considering all the mothers not breastfeeding at three-month postpartum, 37% could be easily detected because of depression during pregnancy. Results also showed a significant decrease in depression scores from childbirth to three months postpartum in women who maintained exclusive breastfeeding for three or more months.[6,7]

Exclusive breastfeeding appears to be significantly lower among depressed mothers. Mothers who do not initiate or maintain breastfeeding are more at-risk for depression during the postpartum period. Moreover, when mothers are depressed in the postpartum period, they tend to not initiate or maintain breastfeeding.[6,7]

An association between negative early breastfeeding experiences and depressive symptoms at two months postpartum was found is one of the examples of some studies that have shown that postpartum depression emerges in the sequence of and may result from breastfeeding interruption, suggesting that early cessation of breastfeeding may be involved in the cause of postpartum depression. Another study that aimed to assess the association between the infant feeding method and depressive symptoms showed that breastfeeding initiation among multiparous mothers was associated with significantly decreased odds of postpartum depression.[8]

A recent study screening for depression levels immediately after delivery demonstrated that mothers with higher levels of depressive symptoms have a higher likelihood to bottle-feed their infants at three months postpartum is one of the example of other studies that suggest that postpartum depression may be involved in the cause of early breastfeeding cessation, and that depressive symptoms have been observed to precede the cessation of breastfeeding.[7-8] Results also showed that the odds of bottle feeding increased with the severity of maternal depression. Another recent study indicated an association between breastfeeding cessation at four months postpartum and higher depressive symptoms at one month after delivery, showing that mothers who continued to breastfeed at four months had lower depression scores at one month than those who stopped breastfeeding.[6,7]

Research has also been focusing on the association between breastfeeding and depression in pregnancy and postpartum depression. A recent study showed that higher levels of depression and anxiety during pregnancy were associated with breastfeeding cessation, and that breastfeeding cessation predicted higher levels of anxiety and depression after birth. Moreover, the results showed an interaction effect between anxiety and depression levels at pregnancy and six months postpartum and breastfeeding cessation, so that baseline levels anxiety and depression are increased at six months postpartum by the effect of breastfeeding cessation. Another recent study on the association between breastfeeding and depression in pregnancy and postpartum depression

concluded that higher depression scores at the third trimester of pregnancy predicted lower exclusive breastfeeding duration. This study also found a lowering depressive symptoms in women who initiated or maintained exclusive breastfeeding for three or more months.[8]

The association between breastfeeding and depression has also been studied, taking into account both parents. A study was undertaken to trigger the association between breastfeeding and mental health of both the parents concluded that the simultaneous presence of mental disorders in both the mother and the father was not associated with early breastfeeding cessation (before four months). However, mothers tended to breastfeed for a longer period of time when they felt that their partners actively supported breastfeeding.[7,8]

Breastfeeding and hormonal protection to postpartum depression

Research has been showing that breastfeeding promotes hormonal and psychological conditions and processes that are inversely associated with postpartum depression. The simultaneous study of these dimensions and their potential explanatory value in the connection between breastfeeding and pre and postpartum depression has not yet been accomplished.[7,9]

"It is possible that the positive effects of breastfeeding may outweigh the positive effects of antidepressants". Even when the potential harmful effects of medication are taken into account, some studies suggest that women with postpartum depression who are taking antidepressant should not discontinue breastfeeding. Lactogenic hormones, oxytocin and prolactin, are associated with antidepressant and anxiolytic effects. Some studies suggest that breastfeeding may have a protective effect on maternal psychological health because it attenuates stress responses.[8] Lactation has been associated with attenuated stress responses, especially that of cortisol. Attenuated cortisol stress responses,[7,8] as well as attenuated total cortisol and free cortisol stress responses, were observed in lactating mothers compared to the non-lactating. These results suggest that lactation attenuates neuro-endocrine responses to stress, a factor that has been related to fewer postpartum depressive symptoms.

In a recent study on maternal adrenocorticotropic hormone (ACTH) and cortisol release patterns during a breastfeeding session, researchers found that breastfeeding was associated with a significant decrease in ACTH and cortisol levels. Skin to skin contact before sucking the breast was shown to play an important role in the reduction of these levels; the longer the duration of skin-to-skin contact, the lower the maternal cortisol levels.[9]

Additionally, the usual diurnal pattern of cortisol, consisting of high morning levels and gradual decline throughout the day (also associated with fewer postpartum depressive symptoms), was found to be more common in multiparous breastfeeding women compared with the non-breastfeeding. Despite the fact that some studies did not report differences in daily cortisol levels in depressed pregnant or postpartum women, cortisol has also been found to be lower, as well as higher in depressed mothers when compared with their non-depressed counterparts.[8,9] A recent study suggested that depressed mothers present a down regulated HPA axis, showing lower salivary cortisol levels compared with non-depressed mothers. Conversely, another recent study found significantly higher levels of serum cortisol in the group of depressed mothers.[9] A different diurnal pattern of cortisol, with higher cortisol levels at waking and no increase from waking to 30 minutes (compared to a significant increase in cortisol levels from waking to 30 minutes found in non-depressed women), was reported in postpartum depressed women.[10]

These data support the possibility that postpartum depression may be associated with a deregulated HPA axis. However, empirical evidence is equivocal, probably due to the presence of a variety of procedures (for example, diurnal pattern or daily cortisol levels in saliva, blood, or urine) to measure different HPA axis functions.[12]

Results suggest that breastfeeding might promote a tighter regulation of diurnal basal cortisol secretion,[10] and the stability of diurnal cortisol secretion lowers the risk of postpartum depression. However, most studies regarding postpartum depression do not control for breastfeeding, and most studies about breastfeeding do not control for depression. In addition to the high correlation between breastfeeding and depression in studies, there is a possible effect of these variables on the functioning of the HPA axis.[11]

Breastfeeding and psychological protection from postpartum depression

Women with postpartum depression experienced poorer sleep than women without postpartum depression, and sleep quality worsened with increasing postpartum depression symptom severity.[11] Maternal sleep patterns are enhanced by breastfeeding, while this deregulation may cause postpartum depression.[9]

Another important associated change during breastfeeding relates to the regulation of sleep and wake patterns for both the mother and the child, helping the mother to feel less tired, which could also prevent symptoms of depression. Parents of infants who were exclusively breastfed slept an average of 40-45 minutes more and self-reported less sleep disturbance than parents of infants given formula.[10]

Research also shows that breastfeeding improves some psychological conditions and processes that can protect mothers from emerging postpartum depression. Maternal self-efficacy, a condition inversely associated with postpartum depression, is improved in mothers who breastfeed.[10] Regardless of maternal depression, mothers who breastfed rather than bottle-fed their infants had higher confidence levels and rated their infants as less alert and less irritable during feedings. However, breastfeeding self-efficacy appears to play an important role in postpartum depression; mothers who show higher levels of breastfeeding self-efficacy present lower levels of postpartum depression symptoms.[9,10]

Maternal emotional involvement with the infant is also improved by breastfeeding and is negatively correlated with postpartum depression. In fact, feeding patterns appear to influence mother-child bonding, with non-breastfeeding mothers presenting more difficulties to establish an emotional involvement with the infant than breastfeeding mothers. Regarding the relationship with the partner, studies relate breastfeeding initiation with stronger parental bonds.[10]

Temperamental difficulties and sleep problems are reduced when the child is breastfed, while the presence of those problems has been associated with postpartum depression. Depressed breastfeeding mothers were less likely to have infants with highly reactive temperaments. Infant competencies are enhanced by breastfeeding and are adversely affected in the presence of postpartum depression.[12]

Breastfeeding also facilitates mother-infant interaction, which is poorer when the mother is depressed. Breastfeeding is associated with better mother-infant interactions, with breastfed infants showing more physical contact, vocalizations, and positive play, and mothers exhibiting more proximity towards the infant.[10,11] Data also specifically suggests that depressed mothers and their infants, not unlike nondepressed mothers and their infants, may benefit from breastfeeding: depressed mothers and infants are more relaxed during breastfeeding versus bottle feeding interactions. Furthermore, studies also showed that breastfeeding may act as a protector against maternal child maltreatment, especially child neglect. This association may depend on the protective effect of breastfeeding on maternal depression, as depression is the best predictor of child maltreatment and neglect. The impact of breastfeeding on the maternal attention sensitivity towards infant distress was also recently shown.[11,12]

The literature consistently shows that breastfeeding provides a wide amount of benefits for both the child and the mother. The psychological benefits for the mother are still in need of further research.

Despite the high rate of breastfeeding initiation, a large decrease in the number of mothers who breastfeed from the first few weeks postpartum is observed. Public health authorities' efforts to promote breastfeeding initiation have been successful; however, the same has not been observed regarding its maintenance for a recommended period of time, which is for two years or more, and exclusively during the first six months.[6,7] Identifying the possible underlying factors to this situation is a goal for research in this field. Maternal mental health may be one of the reasons behind this reality. A recent empirical study conducted in Portugal suggests that screening for depression symptoms during pregnancy can help identify women at risk for early cessation of exclusive breastfeeding.8 There is now empirical evidence that pregnancy depression is one of the factors that may contribute to breastfeeding failure.[8] Studies suggest an association between breastfeeding and postpartum depression, and the direction of this association is still unclear. While some suggest a negative association between breastfeeding and postpartum depression, others point to a negative association between postpartum depression and breastfeeding.[11,12]

Results from several studies provide empirical evidence that breastfeeding may act as a protective factor for depression during postpartum, improving both maternal psychological well-being (namely through the regulation of sleep and awake patterns and increased self-efficacy) and adequate parenting, through the enhancement of the emotional involvement with the infant, mother-infant interaction, attention sensitivity towards infant stress, and protection against child neglect. Breastfeeding can also protect women from depressive symptoms, by aiding the regulation of the HPA axis (throughout the regulation of diurnal basal cortisol secretion),[8,12] which has been consistently shown to be deregulated in the presence of depressive symptoms.

Other relevant variables significantly related to both breastfeeding and postpartum depression that may play a part in this association are also highlighted in the literature: parity, related to breastfeeding and postpartum depression; quality of the relationship with the partner, related to breastfeeding and postpartum depression; and antidepressant use, related with breastfeeding and postpartum depression.[11] It is also important to control for potential confounding variables such as parity, quality of the relationship with the partner, and medication use, and this has not always been accomplished.

Moreover, few studies have defined breastfeeding according to standardized categories, few studies included a clinical diagnosis of postpartum depression, and few studies were prospective and completed adequate statistical analysis to capture a sequential relationship between depressive symptoms and breastfeeding initiation and duration. These may be some of the reasons for equivocal results in the literature.[6,11]

4. Conclusion

Studies demonstrate that breastfeeding can protect mothers from postpartum depression, and are starting to clarify which biological and psychological processes may explain this protection. However, there are still equivocal results in the literature that may be explained by the methodological limitations presented by some studies.

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