

The Protective Effects of Breastfeeding for Infants of Depressed Mothers

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This article is part one of a two-part series on maternal depression. In part one, Nancy Aaron Jones, PhD, presents research on the effects of maternal depression on the infant, the relationship between infant temperament and breastfeeding stability, and the protective effects of breastfeeding for infants. In the next issue of Breastfeeding Abstracts, Kathleen Kendall-Tackett, PhD, IBCLC, will explore current research on postpartum depression and its meaning for breastfeeding mothers.

Research has shown that maternal depression increases the likelihood of negative psychological and interactive outcomes for infants and children. The range of consequences for the infant's psychological and physiological adjustment is only beginning to be understood. The effect of breastfeeding on infants of depressed mothers has been neglected until recently. However, a recent study suggests that breastfeeding may protect infants against some of the negative effects of maternal depression.¹

Affective disturbances during the postpartum period encompass a heterogeneous group of disorders, some originating from the hormonal changes and added stressors of pregnancy and childbirth and others having an onset prior to pregnancy. Mood disorders differ in duration and severity of symptoms, ranging from transient, emotional lability to more enduring life-long disabilities, including those with psychotic features. One of the most common maternal mood disorders affecting infant and child development is depression. Although rates fluctuate, maternal depression occurs in approximately 1 in 4 women during the first three months after delivery,² with 1 in 5 women remaining depressed during their children's first five years of life.³

Effects of maternal depression on infants.

Research has begun to identify some adjustment outcomes, but further studies are necessary to understand the range of consequences that maternal depression has for infants and children. Also important are scientific efforts designed to probe temperamental and environmental protective factors that may provide children with increased resiliency to maternal depression. Psychological and physiological dysregulation have been documented in infants of depressed mothers during the neonatal period. For example, studies have shown that newborns of depressed mothers are less responsive to facial displays of emotion and that they demonstrate more behavioral signs of stress.^{4,5} While some have argued that these behaviors reflect the infants' resourcefulness in adapting to their mothers' interactive styles, most researchers believe these are indicationssigns of heightened risks of suboptimal functioning. The fact that these differences emerge during the neonatal period suggests a complex interaction between genes and biobehavioral regulation within the environment.

Physiological dysregulation also surfaces during the neonatal period. Studies have found that newborns of depressed mothers demonstrate less left frontal brain activity, lower heart rate

variability, and dysregulated biochemical patterns, including higher levels of norepinephrine and cortisol and lower levels of dopamine and serotonin, compared to newborns whose mothers are not depressed.⁵⁻⁷ These are similar to the physiological patterns associated with adult depressive symptoms. These patterns are thought to represent heightened stress responsiveness, lack of approach motivation, reduced interest, and reduced positive reactions in novel environments.⁸ The findings are particularly significant because infancy and early childhood are critical periods for the formation of the neural pathways essential in the development of emotion and emotion regulation.⁹

Maternal depression and breastfeeding.

Breastfeeding has been demonstrated to enhance psychological interactions between mothers and infants. Several studies have shown that breastfeeding benefits infants of psychologically healthy mothers by increasing bonding opportunities.^{10,11} For example, one noteworthy study demonstrated that breastfeeding mothers touch their infants more frequently and that greater maternal-infant touching occurred during feeding as well as during a subsequent play interaction, suggesting that the relational benefits of breastfeeding extend beyond the feeding situation.¹² Other research has shown that mothers who breastfeed exhibit increased physiological and social responsiveness toward their infants,¹³ that breastfed infants are more alert and responsive,¹⁴ and that more reciprocity and affection is observed in breastfeeding dyads.¹⁵⁻¹⁷

Our study¹ focused on the interactive behaviors of infants of depressed mothers who had stable breastfeeding relationships with their babies versus those whose mothers formula-fed by 3-months postpartum (the formula-fed infants were either formula-fed from birth or had initially been breastfed but were fully formula-fed by age 3 months). We substantiated many of the findings from previous studies, in that infants who were in stable breastfeeding relationships were more emotionally positive, and less negative, and the mother-infant dyad was more mutually responsive. Our findings also showed more optimal physiological patterns in infants of depressed mothers who breastfed. When we measured electroencephalographic activity, breastfed infants with depressed mothers had left frontal brain activity patterns similar to those obtained from infants with non-depressed mothers. The formula-fed infants whose mothers were depressed showed deficits in approach motivation, indicated by less left frontal brain activity. As a result, we concluded that breastfeeding stability can attenuate some of the negative psychological and physiological effects experienced by infants of depressed mothers.

Infant temperament influences breastfeeding stability.

Despite the documented benefits of breastfeeding, studies have found that depressed mothers are less likely to breastfeed and that they breastfeed for shorter periods of time, on average, than nondepressed mothers.^{18, 19} Previous research on factors influencing early weaning has typically examined the characteristics of the mother and her likelihood for continued breastfeeding. Relatively few studies have examined infant characteristics and breastfeeding duration. When infant temperament has been measured, breastfed infants have been characterized as more irritable and more active, as well as demonstrating more optimal physiological organization than formula-fed infants.^{20, 21} We hypothesized that depressed mothers might view some of these behavioral qualities as less desirable, and this could partially account for the earlier weaning from breastfeeding by mothers who are affected by depression.

Our research examined infant temperament and its relationship to breastfeeding with depressed and nondepressed mothers.¹ Our findings demonstrated that depressed mothers were less likely to maintain breastfeeding when their infants were more negatively reactive. Conversely, for nondepressed mothers (and for depressed mothers whose infants were low in reactivity), the degree of negative reactivity of their infants did not affect whether they continued to breastfeed. Further, our model was supported in that both physiological and temperamental styles mediated the relationship between maternal depression and breastfeeding duration, suggesting that infant temperament does influence a depressed mother's breastfeeding patterns.

There are many possible reasons that depressed mothers are less likely to establish stable breastfeeding patterns with their infants, a simplistic one being that these mothers are more concerned with their own emotional well-being than with that of their infant. We do not think this is the case; instead we suspect that depressed mothers are uninformed about the substantial benefits of breastfeeding for the interactive relationship between themselves and their infant and are unaware, as well, of the psychological and physiological protection afforded to their infant through breastfeeding. The findings of our recent research indicate that infants with depressed mothers may benefit enormously from a stable breastfeeding relationship. If depressed mothers were cognizant of the potential protective effects of breastfeeding, we suspect that many would continue to breastfeed. Proactive support and clinical interventions may need to be developed to encourage depressed mothers who want to continue breastfeeding, particularly when their infants have more negatively reactive temperaments.

Summary.

A paucity of research has been conducted on breastfeeding patterns in depressed mothers. Yet past research has shown that breastfeeding benefits infants physiologically and psychologically, as well as enhancing the emotional and interactive relationship between mothers and infants. Our study¹, to date, has been the only one to demonstrate that a stable breastfeeding relationship protects infants from some of the negative psychological and physiological effects in an environment of maternal depression. Further investigation is needed to gauge whether breastfeeding stability enhances long-term resilience to the psychopathology, as failed breastfeeding and maternal affective disturbances has been deemed as additional risk factors for those with childhood depression.²² As a whole, we believe that our results demonstrate the importance of enhanced proactive support for breastfeeding, especially for depressed mothers.

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