



The effect of preterm birth on infant negative affect and maternal postpartum depressive symptoms: A preliminary examination in an underrepresented minority sample



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ABSTRACT

Objective: To examine the effect of preterm birth on maternal postpartum depressive symptoms and infant negative affect in an underrepresented minority sample.

Method: Participants were 102 mothers and their 3- to 10-month-old infants. Mothers completed the Edinburgh Postnatal Depression Scale and the Infant Behavior Questionnaire-Revised.

Results: Relative to normative samples, the current underrepresented minority sample of mostly Hispanics and Blacks displayed high rates of preterm birth (30%) and maternal postpartum depressive symptoms (17%). Preterm birth had a significant direct effect on postpartum depressive symptoms and infant negative affect. Additionally, there was an indirect effect of postpartum depressive symptoms on the relation between preterm birth and infant negative affect. Specifically, lower birth weight and gestational age predicted higher levels of depressive symptoms in the mother, and higher levels of depressive symptoms in the mother, in turn, predicted higher levels of infant negative affect.

Conclusion: Findings emphasize the importance of screening for postpartum depressive symptoms and infant negative affect among mothers and their preterm infants, especially among families from underrepresented minority backgrounds.

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In the United States, rates of preterm birth (i.e., <37 weeks gestational age) range from 9 to 13% (Hamilton, Martin, Ostermna, & Curtin, 2014) and have increased about 30% in the last 20 years (Raju, Higgins, Stark, & Leveno, 2006). In addition to the negative medical and health complications in infants (Moster, Lie, & Markestad, 2008), preterm birth has been associated with negative consequences in parents, such as maternal depressive symptoms (Miles, Holditch-Davis, Schwartz, & Scher, 2007), and increased risks in the child, such as a difficult infant temperament (Case-Smith, Butcher, & Reed, 1998; Hughes, Shults, McGrath, & Medoff-Cooper, 2002), as well as cognitive deficits and increased behavioral problems (Caravale, Tozzi, Albino, & Vicari, 2005). Despite evidence that prevalence rates of preterm birth are significantly higher among families from economically disadvantaged and underrepresented minority backgrounds (Smith, Draper, Manktelow, Dorling, & Field, 2007) ranging from 10% in Hispanics to 17% in Blacks (Hamilton et al., 2014), research on the relation between preterm birth and negative parent and child outcomes has largely relied on predominately white, middle class samples (McGrath, Records, & Rice, 2008). Therefore, a primary goal of this study was to explore the relation between preterm birth, postpartum depressive symptoms, and difficult infant temperament in families from underrepresented minority backgrounds.

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Research has demonstrated significantly higher levels of maternal depressive symptoms within the first year after child-birth among mothers of children born preterm compared to mothers of children born full-term (Voegtline & Stifter, 2010). Previous research has demonstrated higher rates of postpartum depressive symptoms among underrepresented minority mothers, ranging from 11 to 12% in Hispanics and Blacks compared to 7% in Whites (Liu & Tronick, 2013). Considering the elevated rates of postpartum depressive symptoms among mothers from underrepresented minority ethnic and racial backgrounds, research is needed to examine the relation between preterm birth and postpartum depression beyond the predominantly white, middle class samples. However, in a recent review examining the association between preterm birth and maternal depressive symptoms, only one of 26 studies included an ethnically and racially diverse sample (Vigod, Villegas, Dennis, & Ross, 2010). Acknowledging the limited research examining the relation between preterm birth and postpartum depressive symptoms in mothers from underrepresented minority backgrounds, and the considerably higher rates in this population (Howell, Mora, Horowitz, & Leventhal, 2005), it is important to examine the relation between these variables among families from underrepresented minority backgrounds.

In exploring predictors of postpartum depressive symptoms among mothers with premature infants, most research has focused on other maternal variables. For example, high levels of stressful life events, as well as low levels of social support and maternal education, have been found to be associated with postpartum depressive symptoms in mothers with preterm infants (Poehlmann & Fiese, 2001). These studies, however, did not take into account child variables that are also related to levels of postpartum depressive symptoms. For example, poor infant engagement and orientation has been shown to negatively affect the way in which a mother feels about her infant (Beebe et al., 2012), and therefore may be an important variable to consider. Infants born premature are more likely than full-term infants to have a difficult temperament, including higher levels of negative arousal (Klein, Gaspardo, Martinez, Grunau, & Linhares, 2009) and negative affect (Hughes et al., 2002), and display less adaptability and more distractibility (Hughes et al., 2002). Research has largely relied on maternal report of infant temperament, and has found that in comparison to mothers of full-term infants, mothers of preterm infants reported their infant to have a more difficult temperament (Denis, Ponsin, & Callahan, 2012). However, similar to the literature on the relation between preterm birth and postpartum depressive symptoms, most studies examining the relation between preterm birth and infant negative affect (e.g., infant temperament) have been limited to predominantly white, middle class samples.

In addition to the relation between preterm birth and negative affect, numerous studies have demonstrated an association between infant negative affect and maternal depressive symptoms. For example, maternal-reported and observed difficult infant temperament predicted maternal postpartum depressive symptoms (Britton, 2011). Additionally, mothers who reported a difficult temperament, specifically fussiness and irritability, in their infant were more likely to report higher levels of depressive symptoms within the first year after birth (McGrath et al., 2008). Given the significant impact of depression during the postpartum year on later child outcomes (Bagner, Pettit, Lewinsohn, & Seeley, 2010), research is needed to explore potential mechanisms by which preterm birth is associated with postpartum depressive symptoms and infant negative affect, especially with high-risk samples.

To our knowledge, only one study examined a model including premature birth, postpartum depressive symptoms, and infant negative affect. Specifically, Voegtline and Stifter (2010) found preterm birth predicted higher levels of maternal depressive and anxiety symptoms, which in turn predicted higher levels of infant negative affect. However, similar to the other studies on the relation between preterm birth and maternal depressive symptoms and difficult infant temperament, Voegtline and Stifter (2010) included a predominantly white sample. Therefore, it is important to understand whether or not these variables relate to one another in the same way among families from underrepresented minority backgrounds.

Given the reliance on predominantly white, middle class samples, the first goal of the present study was to examine the association between preterm birth and postpartum depressive symptoms and infant negative affect in an underrepresented minority and economically disadvantaged sample. Based on the previous literature, we hypothesized that preterm birth would be associated with higher levels of maternal depressive symptoms and infant negative affect. The second goal of the study was to replicate findings of the indirect effect of maternal depressive symptoms on the relation between preterm birth and infant negative affect (Voegtline & Stifter, 2010) in an underrepresented minority sample. We expected preterm birth to be associated with higher levels of maternal depressive symptoms, which in turn would predict higher levels of infant negative affect.

1. Methods

1.1. Participants and procedures

The current study is a secondary data analysis of a larger study on postpartum depression that took place at a large hospital-based pediatric primary care clinic, from 2011 to 2013, serving mostly families without private insurance. The inclusion criteria for the larger study were the following: mothers had to be at least 18 years old, not be receiving treatment for depression at the time of the screening, and have an infant 10 months old or younger. Research assistants approached 458 mothers during their infant's well or sick visit to describe the study, and 284 mothers (62%) expressed interest and provided written consent to participate. The most common reasons that mothers declined participation were that they were not interested or did not have enough time at the pediatric visit. Only one mother reported being less than 18 years old, and no mothers reported that they were receiving treatment for depression at the time of the screening. All 284 participating

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