

Maternal Depression, Mothering and Child Development

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1. Introduction

Depression is a highly prevalent disorder of affect characterized by persistent sadness or anhedonia (an inability to experience pleasure), typically accompanied by additional symptoms such as negative cognitions (self-perceptions of failure, feelings of guilt, and/or suicidal thoughts), somatic dysfunction (fatigue, loss of appetite, fatigue, disturbances in sleep), and impairment in daily functioning (e.g., indecisiveness) (Gelfand & Teti, 1990). When such a symptom pattern persists for at least two consecutive weeks and is not accompanied by period manic swings, the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV-TR; American Psychiatric Association, 2000) identifies it as a major depressive episode (MDD). A formal DSM-IV-TR diagnosis of MDD can be given for a single major depressive episode, or for multiple, recurring episodes over time, which is common. Other depressive disorders identified in DSM-IV-TR include dysthymic disorder, and adjustment disorder with depressed mood.

Depression is more likely to occur under adverse circumstances, such as poverty, single parenthood (Gallagher, Hobfoll, Ritter, Lavin, 1997; Grant, Jack, Fitzpatrick, & Ernst, 2011), and chronic illness (Davidson, Echeverry, Katon, Lin, & Von Korff, 2011), and it may also be co-morbid with other psychiatric disorders. It is common to find, for example, that depression co-occurs with anxiety (Balta, & Paparrigopoulos, 2010) and that chronic depression is a salient feature of some personality disorders (Brieger, Ehrt, Bloeink, & Marneros, 2002). Because of the ubiquity of depressed mood as a feature of psychiatric, medical, and psychosocial conditions, researchers frequently focus on the severity and chronicity of depressive symptoms as a predictor of behavior in different contexts, using well-established, validated questionnaires that tap directly into participants' level of sadness, anhedonia, negative dysfunctional cognitions, somatic complaints, and impairments in daily living. Such measures include the Beck Depression Inventory (Beck, Steer, & Garbin, 1988), the Center for Epidemiological Studies – Depression scale (Radloff, 1977), and the Hamilton Rating Scale for Depression (Hamilton, 1960). These assessments tap the frequency and severity of depressive symptoms and provide overall scores and cut points that, when exceeded, identify individuals with clinical levels of symptom severity.

This chapter focuses on the impact of maternal depression on the mother-child relationship, writ large, and then specifically on maternal and infant behavior in infant sleep contexts. We begin with a discussion of family and child risks associated with maternal depression, and then turn to linkages between maternal depression and dysfunctional parental cognitions and the putative impact of maternal depression on the mother-child relationship and child development at different developmental stages. We then turn to empirical data linking elevations in maternal depressive symptoms and infant night waking, and present new data on relations between maternal depressive symptoms, dysfunctional cognitions about infant sleep behavior, and parenting of infants at bedtime and during the night that can help explain these links.

2. Maternal depression, family functioning, and child outcomes

As several reviews attest (Radke-Yarrow, 1998; Gelfand & Teti, 1990; Wachs, Black, & Engle, 2009), the effects of maternal depression are broad-based, with consequences not only for individual functioning but also for the quality of the mother's relationships with other family members. Marital discord in families with depressed mothers is common, as are troubled relationships between the depressed mother and her children. Indeed, children of depressed mothers are at significant risk for maladjustment and cognitive delays. Infants of depressed mothers are more likely than are infants of nondepressed mothers to be fussy, irritable, or withdrawn; to deploy attention ineffectively and manifest developmental delays in significant cognitive milestones such as object permanence; and are at risk to become insecurely attached to their mothers. Among older children of depressed mothers, rates of psychiatric disorder are as much as 4-to-5 times those among their same-aged counterparts of non-depressed mothers. Although maternal depression appears to predispose children to become depressed, these children are also at elevated risk for the full spectrum of externalizing disorders, including oppositional-defiant disorder and conduct disorder. Not surprisingly, these children are also at risk for poor academic performance, and for difficulties in interpersonal relationships, anxiety disorders, substance abuse, and delinquency over the long term (Goodman & Gotlib, 2002).

Mechanisms for the transmission of psychopathology from depressed parent-to-child are poorly understood. Depression appears to be at least partially heritable (Franić, Middeldorp, Dolan, Ligthart, & Boomsma, 2010), which may account in part for the elevated psychiatric risk status among children of depressed women. Other biologically based influences may also be at work. Recurrent bouts of significant depression among women are common. It is not unusual that women suffering from postpartum depression have experienced depressive episodes during pregnancy and pre-pregnancy (Field, Diego, Hernandez-Reif, Figueiredo, & Schanberg, 2008). Interestingly, infants born to mothers suffering prepartum depression manifest a biochemical profile (i.e., levels of cortisol, catecholamines, and serotonin) similar to that of their mothers, but different from infants born to nondepressed mothers (Field, Diego, & Hernandez-Reif, 2006). The potential impact of genetically and biologically based factors on the psychiatric risk status of children of depressed women has been given relatively short shrift among researchers who study parental depression and its effects.

The lion's share of research examining mechanisms of transmission of psychopathology from depressed parent-to-child has focused on the kinds of environments depressed parents

create for their children, and the impact such environments have on the developing child's interpersonal, cognitive, and emotional life (Goodman & Gotlib, 2002; Wachs et al., 2010). Depressed mothers appear to create pathogenic child-rearing environments to which even very young (3-4 months old) infants are reactive (Cohn & Tronick, 1983). Importantly, the degree to which maternal depression singly influences child outcomes, however, depends on the chronicity and severity of the mothers' illness (Campbell & Cohn, 1995; Teti, Gelfand, Messinger, & Isabella, 1995). A single, isolated, non-recurrent bout of major depression, albeit debilitating to the mother while it occurs, is much less likely to affect children's adjustment over the long term than is chronic, severe depression, involving multiple, recurrent bouts of depression during the early postpartum period and beyond. Unfortunately, a woman who experiences postpartum depression is likely to experience at least one additional depressive episode sometime during her child's first five years of life (Campbell, Matestic, von Stauffenberg, Mohan, & Kirchner, 2007).

3. Depression, dysfunctional cognition, and mothering

Depression is common among women of childbearing age. Approximately 13% of women can be expected to experience at least one bout of significant depression during the early postpartum period (Leahy-Warren, McCarthy, & Corcoran, 2011). In most cases, elevations in depressive symptoms during the postpartum period resolve during the early months following delivery. In other cases, symptom levels are higher and persist, which can pose problems for the developing mother-child relationship from infancy onward (Campbell, Cohn, & Meyers, 1995).

Cognitive distortion is a central feature of depression (Abramson, Metalsky, & Alloy, 1989; Beck, 1987; Nolen-Hoeksema, 1990), and thus it is not surprising that mothers who are depressed harbor distorted perceptions about themselves as parents and about their children. Compared to nondepressed mothers, mothers with elevated depressive symptoms are more likely to perceive themselves as less adequate and less competent in the parenting role, to be less satisfied as parents, and to view their children and their children's behavior in more negative terms (Cornish et al., 2006; Fleming, Ruble, Flett, & Shaul, 1988; Teti & Gelfand, 1991, 1997; Whiffen & Gotlib, 1989). The degree to which depressed mothers are at risk for negative attributions about themselves and their children is likely to be directly proportional to the severity of their depressive symptoms.

A depressed mother's tendency to dwell on the negative (e.g., to interpret a perfectly normal, developmentally appropriate behavior or accomplishment as problematic), may have its own impact on a developing child's emotional well-being and in turn help explain why children of depressed mothers are at developmental risk. A child whose mother repeatedly labels her/him in negative terms is likely, at the least, to be at risk for low self esteem, and possibly for a host of internalizing and externalizing problems (Teti & Gelfand, 1997). The negative affect and negative cognitions that define depression, however, are intimately tied to action tendencies (Teti & Cole, 2011), and thus it is expected that depression would exact a toll on the quality of mother-child interactions, making it difficult for a mother to interact with her children in a developmentally supportive manner. Indeed, many studies describe depressed mothering as non-contingent and unresponsive, irritable and intrusive, insensitive, asynchronous, and incompetent (Goodman & Gotlib, 2002). Difficulties observed in depressed mothering may stem from deficiencies in the depressed

mother's awareness and interpretation of her child's behavior (i.e., a "signal detection" deficiency). For example, a depressed mother's rumination and self-absorption can influence her attention to and awareness of her children's needs and social signals, and can also interfere with her ability to process social information efficiently and accurately. Her negative affective bias may create tendencies to misinterpret child behavior, and depressed mothers may be inclined to attribute negative intentions and motives to their children's behavior. Further, a depressed mother's own need for support and comfort may lead her to expect more support and comfort from her child than the child is able to provide. Parenting difficulties among depressed mothers may also stem from the general slowing effect depressed affect has upon one's capability and motivation to act. Lack of energy and indecisiveness are hallmark features of depression, which in turn would be expected to influence a mother's motivation to respond promptly and contingently to child signals that she does not apprehend. Thus, the problems observed in depressed parenting may arise from the debilitating effect depression has on mothers' capacities for processing social information (awareness and interpretation of child cues), and from the dampening effect of depression on a mother's capacity and motivation to respond contingently (Gelfand & Teti, 1990).

Importantly, depression is highly co-morbid with anxiety, and it is very common for depressed individuals to harbor excessive worries about their own behavior and that of others (Beck et al., 2001). Thus, we might also expect that depressed mothers may worry excessively about their children's behavior, perhaps leading to misinterpretations about child behavior that could lead to maladaptive maternal responses. We will re-visit this point later in this chapter.

Depressed mother-infant interactions. The emotional climate of parent-infant interactions is particularly important for the development of self-regulation, secure attachments, and the promotion of other social and emotional competencies (Cole, Michel, & Teti, 1994; Radke-Yarrow, 1998). As several reviews attest, the disturbances associated with depression have a clear impact on the emotional quality of early mother-child interactions (Goodman & Gotlib, 2002; Radke-Yarrow, 1998; Teti & Towe-Goodman, 2008). Depressed mothers interact less with their infants, are less aware of their infants' signals, and are less contingently responsive to their infants' bids for attention. The joint attention, shared positive affect, and appropriate scaffolding that characterizes warm, nurturant parent-child relationships are often missing in depressed mother-infant dyads. Further, depressed mothers show less emotional availability and affection toward their infants, display less pleasure and positive emotion during interactions, and express more negative affect overall. Some depressed mothers may alternate between being disengaged and then overly stimulating, that latter of which can be so intrusive that they appear disorganizing to the infant. In turn, their infants' behavior is conspicuously devoid of positive affect, and is also characteristically high in distress or protest, unresponsiveness to maternal bids, avoidance, and withdrawal, and this behavior sometimes generalizes to other, non-depressed adults. The infant's distress and unresponsiveness in turn may increase the mother's feelings of inadequacy or rejection, thus creating a vicious cycle of negative, dysregulated affect in the mother-infant relationship.

Depressed mothering and infant-mother attachments. Attachment theory (Ainsworth, Blehar, Waters, & Wall, 1978) would predict that depressed mothers' interactional difficulties with their infants, if prolonged, will predispose infants to become insecurely attached. Indeed, maternal sensitivity during infancy, which can be defined as an empathic

awareness of and appropriate responsiveness to infant needs and social cues, is taken by attachment theory as the single most important predictor of attachment security in infancy (Teti & Huang, 2005). Research that has examined linkages between maternal depression and infant-mother attachment security typically employs the Ainsworth Strange Situation procedure (Ainsworth et al., 1978), a brief, 21-24 minute 7-episode procedure used for infants between 12 and 18 months of age. The procedure, which almost always takes place in a small room that is novel to the infant, puts the infant through a series of 3-minute episodes of separations and reunions with the mother, a (typically) female stranger, and one episode in which the infant is alone.

Specific attention is given to the infant's behavior during the two Strange Situation reunion episodes with the mother. Secure infants typically greet the mother during infant-mother reunions, approach the mother and seek her out for comfort (if the infant experiences separation distress), and are ultimately able to return to toy play and exploring their environment in the mothers' presence. Sensitive mothering during the infant's first year would be expected to promote secure infant-mother attachments, which, as many studies now attest, predicts healthy adjustment in the preschool years and beyond in terms of empathic awareness, child compliance, and peer relations. Insecure-avoidant infants, by contrast, typically do not greet the mother during reunions. They do not approach the mother except in the context of toy play, and it is not uncommon for insecure-avoidant infants to prefer to play with toys rather than interact with their mothers. Theoretical accounts of specific linkages between parental insensitivity and insecure attachment (Cassidy & Berlin, 1991; Cassidy & Kobak, 1988) suggests that maternal insensitivity characterized by intrusiveness and rejection would be expected to predict insecure-avoidant infant-mother attachments, which some attachment theorists propose is develops as a defense against maternal rejection. Insecure-ambivalent/resistant infants direct overt expressions of anger toward their mothers during reunions and typically do not soothe in response to maternal attempts to do so. Mothering characterized by unresponsiveness and/or inconsistency in responsiveness would be expected to predict insecure-ambivalent (resistant) infant-mother attachments. Both insecure-avoidant and insecure-ambivalent/resistant attachments, albeit not adaptive to the infant over the long term, are viewed as "strategies" the child has developed to maintain access to the attachment figure (the mother) in times of stress. Insecure-avoidant infants learn not to seek out their mothers because doing so in the past has led to rejection. Thus they employ a "close, but not too close" strategy to maintain some degree of proximity to the mother. Insecure-ambivalent/resistant infants have learned that overt expressions of anger and prolonged distress is "what works" to keep their mothers focused on them. This "strategy", although maladaptive to their development over the long run, is functional in the short-term to maintain access to their mothers. Both insecure-avoidance and insecure-resistant/ambivalent infants are at risk for difficulties in later mother-child relationships and peer relationships, compared to secure infants (Sroufe, 2005).

Elevations in insecure infant-mother attachments (i.e., insecure-avoidant and insecure-ambivalent attachments) have been reported in several studies of depressed mother-infant dyads (Teti et al., 1995; Campbell & Cohn, 1995; Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001; Lyons-Ruth, Connell, Grunebaum, & Botein, 1990). Further, when mothers' depression is chronic and severe over the infant's first year, infants are at risk for developing insecure-disorganized attachment to their mothers, which some

attachment theorists cite as the most “insecure” of all of the insecure attachment classifications (Teti et al., 1995). Unlike the insecure-avoidant and insecure ambivalent attachment patterns, which appear to be governed by clear-cut “strategies” (albeit not ideal) for accessing the attachment figure, insecure-disorganized attachment is identified by conspicuous absence of a clear-cut strategy (Main & Solomon, 1990). Disorganized attachment is instead hallmarked by fear and confusion about how to access the attachment figure (the mother) at times when it is in the infant’s best interests to do so (Hesse, 2008). In the Strange Situation, insecure-disorganized infants are identified by any of a variety of behavior patterns signifying fear and/or confusion during the infant-mother reunion episodes (Main & Solomon, 1990). For example, disorganization is identified when the infant manifests clear-cut expressions of fear (e.g., infant brings hand to mouth and has a fearful expression) of the mother when she enters the room to begin the reunion episode. It is also identified when the infant freezes or stills in the mother’s presence for a substantial period of time, or when the infant, upon approaching the mother, repeatedly veers away from her. These are but a few of a variety of indicators of disorganized attachment, all of which reflect a state of fear or confusion about how to access the attachment figure in times of stress. Rates of disorganized infant-mother attachment are found to be elevated among infants of alcoholic parents, substance abusing parents, and parents with significant psychopathology (Hesse, 2008). Of the three insecure infant-parent attachment classifications, children identified as insecure-disorganized are at highest risk for the development of behavior problems in the preschool years (Guttmann-Steinmetz, & Crowell, 2006).

Attachment theory proposes that, over time, children develop “working models” of relationships that spawn from their early attachments with their caregivers, models that are carried forward and applied in subsequent relationships (Bowlby, 1969; Bretherton, 2005). Such models can be thought of as a set of affectively laden cognitions or expectations about relationships that develop as a result of repeated interactions with attachment figures and that guide behavior and the processing of social information. Attachment theory (Bretherton, 2005) predicts that children with secure working models develop expectations that their caregivers will be appropriately responsive to them when needed, and such children in turn come to believe that they are worthy of love and support. Such expectations are consistent with a history of sensitive, responsive caregiving. Children who develop insecure working models, by contrast, do not expect their caregivers to be appropriately responsive, and insecure working models may serve as a foundation for low self-worth. Attachment theory also proposes that children internalize not just the child’s role in their early attachment relationships, but the role of the parent as well, and that they are likely to carry forward and enact the parent’s side in subsequent relationships with others (Sroufe, 2005). Indeed, it is the development of these working models that provides the theoretical link between the insecure attachment patterns infants develop to their depressed mothers and the adjustment problems these children present later in development (Teti et al., 1995).

It is important to emphasize, however, that the link between maternal depression and insecure infant-mother attachment is most clear when mothers’ depression during the infants’ first year is prolonged. A single maternal depressive episode during the post-partum period that resolves and does not recur is unlikely to have long-term negative effects on security of infant-mother attachment, nor on other aspects of infant and preschool child functioning (Campbell & Cohn, 1995).

Depressed mother-toddler relationships. A number of studies demonstrate that toddlers of depressed mothers experience significant emotional and behavioral regulatory problems (Dietz, Jennings, Kelley, & Marshal, 2009; Gartstein et al., 2010; Leckman-Westin, Cohen, & Stueve, 2009), including reduced positive affect, prolonged bouts of sadness and emotional volatility, and high levels of aggression. Emergent social, emotional, and cognitive capabilities in the toddler years create new opportunities for change and growth, but may also place new demands on the depressed mother. The affective connection between the toddler and mother and the need for parents to emotionally support their children in response to stress is still quite important during the toddler years (Cole et al., 1994). Because of the debilitating effects of depression on attentional and processing capacities, depressed mothers may be less able than nondepressed mothers to follow the child's interests or facilitate joint attention, making mutual engagement in activities challenging. Further, depressed mothers' lack of verbal communication and reduced responsiveness in interactions with their toddlers may impact the acquisition of linguistic and cognitive skills, important developmental tasks during this time. The inability of mothers to provide adequate emotional support to their toddlers in stressful contexts can in turn lead to the significant increases in internalizing or externalizing behavior observed among toddlers of depressed mothers.

Additionally, toddlers' growing desire to assert their independence (i.e., the onset of the "terrible twos") can increase parent-child conflict during this period, and depressed mothers may be less able to provide the gentle guidance and limit setting necessary to successfully negotiate these conflicts (Gelfand & Teti, 1990). Some mothers experiencing depression may be more likely to avoid confrontation with their toddlers, expressing fears over their child's willful behavior and their inability to assert appropriate authority. Other mothers with depression may resort to harsh discipline (Gelfand & Teti, 1990; McLoyd, 1998), showing greater hostility towards their children and utilizing more physical punishment than their non-depressed counterparts. Maternal feelings of helplessness and lack of control over their children's behavior may increase the likelihood that they will employ coercive or punitive tactics in disciplinary encounters (Bugental & Happaney, 2004). In fact, maternal depression may be considered a risk factor for physical abuse and maltreatment of young children (Arnow, Blasey, Hunkeler, Lee, & Hayward, 2011). In either case, these ineffective socialization techniques employed by depressed mothers are often met with dysfunctional behavior on the part of the toddler. In some cases, children of depressed mothers show more frequent defiance, hostility, aggression and externalizing behavior. Alternatively, the toddlers of depressed mothers may show more depressed affect and withdrawal themselves, as well as helplessness in the face of challenges. Notably, the behavior of these toddlers often matches that of their mother, such that the affect and symptoms of the mother are mirrored in her child's actions (Gelfand & Teti, 1990).

Interestingly, disorganized attachment in infancy is predictive of two rather sophisticated yet very maladaptive preschool behavior patterns directed toward the mother, and both of these patterns have been linked to chronic maternal depression (Main & Cassidy, 1988; Teti, 1999). One of these is characterized by the child's repeated attempts to take care of and nurture the mother (i.e., a role-reversing "caregiving" pattern). Such a pattern, on the surface, does not present with any outward signs of trouble or hostility between the child and mother. However, a role-reversed caregiving pattern that develops in a child at such an early developmental stage has been identified by some as representing attempts on the part

of the child to repair a damaged relationship, with consequences for the child's emotional well-being (Crittenden, 1992). Insecure-disorganized infant-mother attachment is also associated with a second maladaptive preschool behavior pattern, characterized by repeated, overt attempts by the child to embarrass and punish the mother. These "coercive" child behavior patterns are thought to develop in response to a caregiving history characterized by unresponsiveness and inconsistency, perhaps particularly in the area of appropriate limit-setting (Teti, 1999). The coercive and caregiving preschool patterns may be different manifestations of an overarching "controlling" strategy of accessing mothers in times of stress. Not surprisingly, these caregiving and coercive patterns have straightforward links to child behavior problems (Moss, Cyr, Dubois-Comtois, 2004).

4. Maternal depression and children in middle childhood and adolescence

There tend to be fewer studies of the effects of maternal depression on developmental outcomes of school-aged children and adolescents, but available evidence indicates that such children are at high risk for externalizing and internalizing disorders (particularly depression), deficits in social competence, lower self-esteem, attentional deficits, and academic failure (Gross, Shaw, Burwell, & Nagin, 2009). Similar to younger children with depressed mothers, interactional difficulties are common between children of depressed mothers and their parents (Foster, Garber, & Durlak, 2008), with sadness, withdrawal, poor limit setting, and criticism being central features of depressed mothering for children in this age range. School aged children and adolescents develop stable representations of themselves in relation to others, and they are more likely than are children of nondepressed mothers to develop negative attributional styles and low self-worth (Smith, Calam, & Bolton, 2009). Peer relations may also suffer, with children of depressed mothers being more likely to suffer peer isolation, loneliness, and rejection (Zimmer-Gembeck, Waters, & Kindermann, 2010).

5. Individual differences in depressed mother-child relationships, and child outcomes

The role of maternal self-efficacy. Despite the well-documented associations between maternal depression and difficulties within the mother-child relationship, it is important to emphasize that problematic interactions are not seen in all cases in which the mother is experiencing depression. One important source of individual differences in depressed mothering may be variations encountered in maternal self-efficacy, or a mother's beliefs in her own competencies as a parent. Bandura (1986) defines self-efficacy as a set of beliefs or judgments about one's competency at a particular task or setting. Self-efficacy beliefs are viewed as the final common pathway in predicting the degree of effort one expends to succeed at a particular task. Self-efficacious individuals are strongly motivated to marshal whatever resources (personal, social, economic, etc.) that are available to them to succeed at a given task. Self-inefficacious individuals, by contrast, are likely to give up prematurely, despite the fact that success may be within reach. Whereas the strongest predictor of self-efficacy is the degree of prior success at that task, self-efficacy beliefs are also sensitive to social persuasion, vicarious experiences, (e.g., modeling), and affective state (Bandura, 1986).

Given the link between self-efficacy and affect, it would not be surprising to find that depressed mothers feel less efficacious in the parenting role than non-depressed mothers. At the same time, social-cognitive theory would predict that maternal self-efficacy should also be sensitive to support for their mothering provided by intimate support figures (social persuasion), by previous learning experiences about mothering by watching other competent mothers (modeling), and by mothers' perceptions of how "easy" or "difficult" their infants are to care for (perceptions of infant temperament, which should be linked with mothers' histories of prior successes and failures with the infant). Thus, variation in maternal self-efficacy is not a simple, direct function of variations in maternal depression, but also of variations in other social influences in the environment. Self-efficacy theory would also predict, however, that any influences of mothers' affective state, social persuasion, or prior experiences with their infants on parenting should be mediated by maternal self-efficacy, which is the final common pathway in the prediction of behavioral competence.

Teti and Gelfand (1991) tested this hypothesis in a study of 86 mothers (48 with clinical depression, and 38 non-depressed) of first-year infants. Maternal self-efficacy was assessed with a scale developed by the authors that tapped mothers' self-efficacy beliefs in nine parental domains relevant to mothering an infant in the first year of life (e.g., soothing; maintaining infant attention; diapering, feeding, changing), with a tenth item asking mothers to report on their overall feelings of competence in the mothering role. Ratings of mothers' behavioral competence (e.g., sensitivity, warmth, disengagement) with their infants were conducted from observations of feeding and free play by "blind", highly reliable observers. Standard, well-established measures were used to assess severity of maternal depressive symptoms, social and marital supports, and infant temperament.

As expected, mothers' parenting efficacy beliefs were negatively associated with maternal depressive symptoms and perceptions of infant temperament, such that mothers felt less efficacious in the maternal role when they were more depressed and when they perceived their infants as more difficult. Mothers' self-efficacy beliefs, by contrast, were positively associated with perceived quality of social-marital supports and with observer judgments of maternal behavioral competence with their infants. In addition, as expected, mothers' behavioral competence was significantly related to perceptions of infant temperamental difficulty (negatively) and with social-marital supports (positively). Importantly, self-efficacy beliefs continued to predict maternal behavioral competence even after depressive symptoms, social-marital supports, and infant temperamental difficulty were statistically controlled. Further, when maternal self-efficacy was statistically controlled, the linkages between maternal behavioral competence and depression, infant temperament, and social-marital supports were substantially reduced in magnitude. Taken together, these findings identified maternal self-efficacy beliefs as a central mediator of relations between mothers' behavioral competence with their infants and the severity of maternal depressive symptoms, perceptions of infant temperamental difficulty, and social-marital supports.

These findings indicate that depression is more likely to debilitate parenting quality when maternal self-efficacy is also compromised. This is likely to be the case in many depressed mothers because of the strong linkage between affective state and self-efficacy beliefs. However, maternal self-efficacy is also sensitive to infant temperament and social-marital supports, and thus it is possible for depressed mothers to have more positive self-efficacy

beliefs about parenting, and in turn to parent more effectively, when their infants are temperamentally easy and when they receive consistent encouragement from intimate support figures. Conversely, the combination of significant depression and difficult infant temperament and/or inadequate social-marital supports may be particularly devastating in their joint effects on maternal self-efficacy beliefs. In their 1991 study, Teti and Gelfand (1991) found this to be the case when examining the single vs. joint impact of maternal depression and infant temperamental difficulty on mothers' parenting efficacy beliefs. Maternal self-efficacy was much more compromised among mothers who had high levels of depressive symptoms and who also perceived their infants to be difficult. Further, the joint "impact" of severe maternal depression and infant temperamental difficulty on maternal self-efficacy was significantly greater than what would have been expected from an additive model of effects.

6. Maternal depression and infant night waking

The conclusions drawn about the putative impact of maternal depression on mother-child interactions and relationship outcomes has relied almost exclusively on observations of depressed mother-child behavior during the day. We have found, however, that the negative influence of depressed mothering may extend into the nighttime hours (Teti & Crosby, *in press*), from data drawn from a larger, NIH-sponsored study of parenting, infant sleep, and infant development currently underway (Project SIESTA, or the Study of Infants' Emergent Sleep Trajectories; R01HD052809).

The Teti and Crosby examination of depressed mothering at night drew from a host of earlier studies reporting significant linkages between elevated depressive symptoms in mothers and infant night waking (Armitage et al., 2009; Armstrong, O'Donnell, McCallum, & Dadds, 1998; Bayer, Hiscock, Hampton, & Wake, 2007; Gress-Smith, Luecken, Lemery-Chafant, & Howe, 2011; Hiscock & Wake, 2001, 2002; Dennis & Ross, 2005; Diego, Field, & Hernandez-Reif, 2005; Field et al., 2007; Mindell, Telofski, Wiegand, Kurtz, 2009; O'Connor et al., 2007; Warren, Howe, Simmens, & Dahl, 2006; Zuckerman, Stevenson, & Bailey, 1987). The nature of these associations was not clear. At least some of the variance appears to be biologically-based. Armitage et al. (2009), for example, found that, as early as 2 weeks of age and later at 6 months, infants of mothers ever diagnosed (past or present) with major depressive disorder took longer to fall asleep and spent more time awake during the night than infants of mothers with no depression. Field et al. (2007) reported that newborns of mothers who were depressed during pregnancy spent less time in deep sleep, more time in indeterminate sleep, and more time fussing and crying than newborns of non-depressed mothers. Finally, in a large community study relying exclusively on maternal report data, O'Connor et al. (2007) found prenatal maternal depression and anxiety to predict sleep disturbances in children at 18 and 30 months of age (but not at 6 months), even after controlling for postpartum maternal symptoms. O'Connor et al. proposed that infants of prenatally distressed mothers may be exposed to higher levels of maternal glucocorticoids, which in turn affects infants' postnatal diurnal cortisol patterns and, in turn, infants' propensity to establish a normal diurnal sleep cycle. Additional studies report predictive relationships, from assessments of maternal depressive symptoms at earlier points in time to assessments of infant night waking made later (Gress-Smith, Luecken, Lemery-Chafant, & Howe, 2011; Zuckerman et al., 1987), suggesting that maternal depression is causally linked

to infant night waking. Other studies, suggest that maternal dysphoria is the result of, rather than the cause of elevations in infant night waking (Hiscock & Wake, 2001, 2002; Mindell et al., 2009). Finally, Warren et al. (2006) found maternal depressive symptoms to be predicted by infant night waking from 15-to-24 months, but predictive of infant night waking throughout the first three years of life, suggesting bidirectional, mutual influences (see also Sadeh, Tikotzky, & Scher, 2010).

There is general agreement that infant sleep patterns are dynamic and co-regulated, and that both infants and parents contribute to this dynamic (Mindell, Kuhn, Lewin, Metzger, & Sadeh, 2006). In addition, as suggested above, "mother-driven" and "infant-driven" models of influence may be at play, although any support for a mother-driven model would require on-site observations of maternal behavior at infant bedtimes and throughout the night. Stated differently, the viability of a mother-driven model of influence would depend on (a) the discovery that depressed mothers' behavior with their infants at night differed in some substantial way from nondepressed mothers' nighttime behavior with their infants, (b) finding that these differences were predictive of differences in infant night waking, with infants of depressed mothers showing more night waking than infants of nondepressed mothers. Some direction, in terms of what maternal behaviors at bedtime and during the night might be relevant to this question, was provided by studies that addressed relations between specific parental behaviors during infant sleep contexts and infant sleep disturbance. These studies revealed that specific practices used by parents with infants at night were predictive of infant night waking. These practices included parental presence at bedtime (Adair, Bauchner, Phillip, Levenson, & Zuckerman, 1991; Mindell, Meltzer, Carskadon, & Chervin, 2009), inconsistency in where the infant slept at night (Atkinson, Vetere, & Grayson, 1995), putting the infant down in her/his bed after, rather than before, s/he fell asleep (Burnham, Goodlin-Jones, Gaylor, & Anders, 2002; DeLeon & Karraker, 2007), short latency of response to nighttime crying (Burnham et al., 2002), infant sleeping with the parent (Burnham et al., 2002; DeLeon & Karraker, 2007; Johnson, 1991; Mao, Burnham, Goodlin-Jones, Gaylor, & Anders, 2004; Mindell, Sadeh, Kohyama, & How, 2010), breastfeeding (DeLeon & Karraker, 2007; Johnson, 1991; Mindell, Sadeh, Kohyama, & How, 2010; Tikotzky, Sadeh, & Glickman-Gavrieli, 2010), and active physical comforting and close contact (Morrell, & Cortina-Borja, 2002; Morrell & Steele, 2003).

Two working hypotheses emerge from this literature with regard to maternal depressive symptoms and parenting practices with infants at night. The first, which articulates a mother-driven model of influence, is that depressed mothers may be more likely than nondepressed mothers either to engage in close physical contact or spend increased time with their infants, either during bedtime or during the night, which disturbs infant sleep and leads to increases in night waking. The second, which outlines an infant-driven model, is that chronic infant night waking leads to high levels of maternal intervention at night (and, as a result, maternal sleep loss), which in turn predisposes mothers to become dysphoric. Teti and Crosby (in press) examined both mother- and infant-driven paths of influence between maternal depressive symptoms and infant night waking. Both models are theoretically defensible and have received support from prior work. Beyond assessing mothers' depressive symptoms, however, Teti and Crosby also took into consideration the likely link between maternal depressive symptoms and mothers' dysfunctional cognitions about infant sleep behavior, and the possibility that maladaptive maternal cognitions about infant sleep could relate uniquely to infant night waking. Such linkages are predicted by

cognitively-based theories of depression (Abramson et al., 1989; Beck, 1987; Nolen-Hoeksema, 1990) and from earlier work indicating that mothers of infants with sleep problems worry more about their parenting competence, their ability to set limits at night, and about their infants' physical and emotional well-being (Morrell, 1999; Sadeh, Flint-Ofir, Tirosh, & Tikotsky, 2007). These cognitions in turn are associated with mothers' attempts to soothe infants to sleep and to co-sleep with them (Morrell & Steele, 2003; Tikotsky & Sadeh, 2009; Tikotzky, Sharabany, Hirsch, & Sadeh, 2010).

7. SIESTA I (Study of Infants' Emergent Sleep Trajectories)

Data for Teti and Crosby's (in press) investigation came from a larger study, Project SIESTA I, a cross-sectional investigation of parenting and infant sleep during the first two years of life (Teti, Principal Investigator). In their study, Teti and Crosby examined several theoretically defensible paths of influence involving maternal depressive symptoms, maternal dysfunctional cognitions about infant sleep behavior, and infant night waking. The first (see Figure 1) was a mother-driven model in which both maternal depressive symptoms and dysfunctional cognitions about infant sleep jointly and uniquely predicted maternal behavior (at bedtime or during the night), which in turn predicted infant night waking. The second (Figure 2) was an infant-driven model in which infant night waking predicted maternal behavior with infants at night, which in turn predicted maternal depressive symptoms. The third (Figure 3) was another infant-driven model in which infant night waking predicted maternal behavior with infants at night, which in turn predicted mothers' dysfunctional cognitions about infant sleep. In all models, the mediating role of maternal behavior (either maternal presence, or mother-infant close physical contact) was directly assessed from video-recorded observations of bedtime and nighttime parenting.

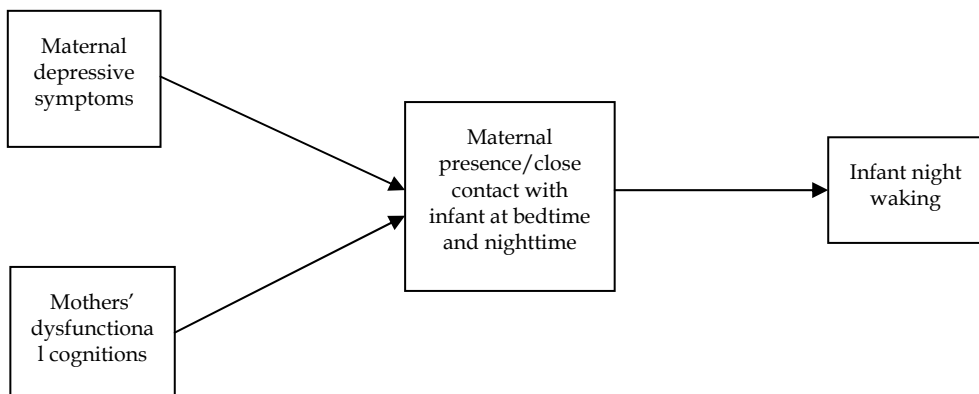


Fig. 1. Mother-driven model in which mothers' depressive symptoms and dysfunctional cognitions about infant sleep affect infant night waking indirectly, via their direct influence on bedtime and nighttime parenting.

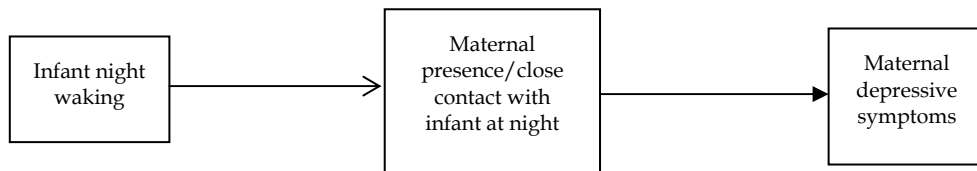


Fig. 2. Infant-driven model in which infant night waking predicts maternal depressive symptom levels indirectly, via its direct influence on nighttime parenting.

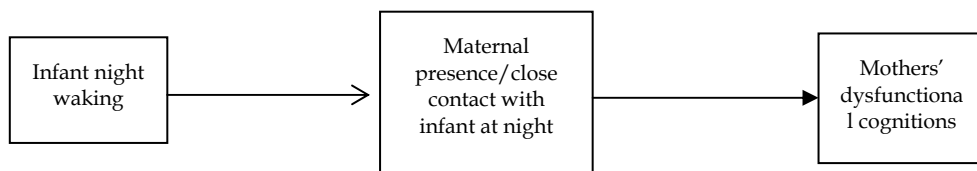


Fig. 3. Infant-driven model in which infant night waking predicts mothers' dysfunctional cognitions about infant sleep indirectly, via its direct influence on nighttime parenting.

Sample characteristics. Teti and Crosby's participants were 45 socioeconomically diverse mothers and their healthy infants who ranged in age from 1 to 24 months of age. Five age cohorts of infants were recruited: 1 month ($n = 9$, 5 girls), 3 months ($n = 8$, 3 girls), 6 months ($n = 8$, 4 girls), 12 months ($n = 12$, 7 girls), and 24 months ($n = 4$ girls). Recruitment of the remaining families was done using a data base of local birth announcements or newspaper advertisements. Infant gender was evenly split within each cohort. The sample was largely White (91%), with the remaining 9% composed of Asian and African American families. Mothers were 22 to 42 years old ($M = 30.5$, $SD = 4.9$), 93% were married, and 73% had completed some post-secondary education. Family income was wide-ranging (\$20,000/year to \$200,000/year) and did not vary by cohort. Twenty infants were firstborn, and birth order was found to be unrelated to infant cohort and infant gender. Almost half (45%) of the infants were being breastfed at least part of the time and most of these (80%) were 6 months of age or younger. Breastfeeding, however, was not associated with infant night waking after infant age was statistically controlled, and mothers' age, educational level, and yearly income were not associated with infant night waking. Although most infants slept in a separate room from their parents, 13 shared the same room with parents at night, and 5 of these infants shared the same bed with parents. Not surprisingly, there was significantly more close contact between mothers and room-sharing infants than between mothers and infants who slept in separate rooms.

Study protocol and measures. Data were collected during home visits to each family, across seven consecutive days. Measurements included an assessment of mothers' depressive symptoms (on Day 1 of data collection), mothers' dysfunctional cognitions about infant sleep behavior (also on Day 1), a digital video recording of parent-infant interactions beginning at bedtime and continuing throughout the night until morning wake-up (on Day 6), and a daily diary of infant sleep behavior (to assess frequency of infant night waking), which was collected on the morning of each day across the 7-day data collection window. The depressive symptom measure used was the Depression subscale of the SCL-90-R

(Derogatis, 1994), which is composed of 13 items asking mothers to report on such symptoms as "loss of sexual interest or pleasure", "feeling hopeless about the future", and "feelings of worthlessness". Each item used a 5-point Likert-type scale, ranging from 0 (not at all) to 4 (extremely). The final overall depressive symptom severity score for each mother was obtained by summing the 13 item scores. Mothers' dysfunctional cognitions about infant sleep was assessed with the Maternal Cognitions about Infant Sleep Questionnaire (MCISQ; Morrell, 1999), which was composed of 20 items asking mothers to report on their thoughts about their infants' behavior during the night. Sample items included "When my child doesn't sleep at night, I doubt my competence as a parent," and "My child will feel abandoned if I don't respond immediately to his/her cries at night". Mothers respond to each item on a 6-point scale (0 = strongly disagree, 5 = strongly agree). Using principal components analysis, Teti and Crosby identified two factors, each of which measured a conceptually coherent dimension of mothers' thoughts about infant sleep. The first factor ($\alpha = .89$), labeled "worries about infant physical/emotional needs", included 9 items, each of which related to maternal anxieties about infant night waking and how to deal with them (e.g., "My child might go hungry if I don't give him/her a feed at night", "I should be getting up during the night to check that my child is still all right", "If I give up feeding at night, then he/she will never sleep"). The second factor ($\alpha = .77$), labeled "helplessness/loss of control", was composed of three items pertaining to mothers' doubts about their parenting competencies in dealing with infant night wakings, worries about losing control and harming the infant, and regrets about having a child in the first place. Mothers received a score on each factor by summing the individual item scores.

Finally, digital video was used to record mothers' bedtime parenting with their infants, using a video setup based on parental input about where the infant was put to bed, where the infant slept at night, and whether or not the parents took their infants to a separate room for night feedings. In most cases, camera setup involved suspending one camera directly above the infant using an overhanging boom stand, a second camera in the corner of the room where the infant slept that was trained on the doorway of the room to identify who (mother, father) entered and exited the room, and a third camera trained on any location parents said they typically took if/when they responded to infant night waking. This location was sometimes in the same room where the infant slept, or in a separate room. Each camera generated its own screen on the TV monitor and thus one could get clear recordings of where the infant was, who was with the infant, who entered and exited the room, and any parent-infant interactions that took place. Video setup was done in such a way that the parent could flip just one switch on a surge protector to activate the entire system. Parents were asked to turn on the system at the point they began putting their infants to bed.

Infant and parent behavior during bedtimes and infant night wakings were coded using an interval sampling (30 second) procedure, in which the presence or absence of specific behaviors was documented in each interval. Separate summary variables were derived for bedtimes and night times. The end of bedtime (and the beginning of night time) was defined by 10 consecutive intervals of the infant being asleep (i.e., 5 minutes of continuous infant sleep). Video data were coded by two coders, trained by the first author, both of whom were blind to other data on the families. Two maternal behaviors were coded from bedtime and nighttime videos: (1) maternal presence, or the total number of intervals mothers spent in proximity to the infant (i.e., by the infant's bedside, in the infant's same room), and (2) close

mother-infant physical contact. Total scores for these two variables were obtained by summing the number of intervals in which each occurred and then dividing by the total number of intervals for either bedtime or night-time. Inter-rater reliability (between two coders) on summary behavior codes, based on 10 videos that were equally distributed across the 1, 3, 6, 12, and 24-month age groups, was quite adequate (bedtime: mean intraclass correlation = .89; night-time: mean intraclass correlation = .91).

8. Results

This study yielded a number of linkages between maternal depressive symptoms, dysfunctional cognitions about infant sleep, maternal behavior, and infant night waking. To begin, after first controlling for infant age, mothers' depressive symptoms were correlated with mothers' worries about infant nighttime needs, $r(40) = .41, p < .01$, and with mothers' feelings of helplessness/loss of control, $r(42) = .47, p < .01$. Interestingly, mothers' worries about infant nighttime needs and feelings of helplessness/loss of control were not associated. Consistent with earlier reports (Armitage et al., 2009; Meltzer & Mindell, 2007; Morrell & Steele, 2003; Tikotsky & Sadeh, 2009), maternal depressive symptoms and maternal worries about infant nighttime needs were each associated with infant night waking, $r(42) = .40, p < .01$ and $r(40) = .36, p < .05$, respectively, and each was also associated with mothers' presence and close physical contact with infants during the night (r s ranged from .33 to .45, all $p < .05$), but not during bedtime. By contrast, maternal reports of helplessness/loss of control were not associated with infant night waking and correlated with only one measure of maternal behavior, close physical contact with infant at night, $r(37) = .32, p < .05$. Thus, the bulk of associations involving mothers' depressive symptoms and dysfunctional cognitions about infant sleep behavior were with nighttime (not bedtime) infant and maternal behavior, and of the two dimensions of dysfunctional cognitions, mothers' worries about infant nighttime needs was the stronger predictor. Finally, although measures of maternal behavior at bedtime did not correlate with infant night waking, both maternal presence with infants at night, and close mother-infant physical contact during the night, were associated with infant night waking [$r(37) = .61, p < .001$ and $r(37) = .37, p < .05$, respectively].

Criteria outlined by Baron and Kenny (1986) and MacKinnon (2008) were used to test the mediational models depicted in Figures 1, 2, and 3. Preliminary criteria to be satisfied for mediation include (a) the predictor variable(s) must correlate with the putative mediator variable, (b) the predictor variable(s) must correlate with the "criterion" variable, and (c) the mediator variable must correlate with the criterion variable. These criteria were satisfied for one variable tetrad: maternal depressive symptoms, mothers' worries about infant nighttime needs, maternal presence with infants at night, and infant night waking. Full mediation is supported if (a) specific tests of the mediated pathway are statistically significant, and (b) the link between the predictor and criterion variable is no longer significant after statistically controlling for the mediator variable. If the predictor-criterion variable link remains significant after statistically controlling for the mediator, partial mediation can still be supported if the mediated pathway is still found to be significant. The significance of the mediated pathways was assessed using a regression-based bootstrapping procedure outlined by MacKinnon (2008).

Support was obtained for the mother-driven, mediation model depicted in Figure 1. The specific mediational path from maternal depressive symptoms to maternal presence with infants at night to infant night waking was significant, as was the specific mediated path from maternal worries about infant nighttime needs to maternal presence to infant night waking. In addition, when maternal presence with infants at night was statistically controlled, the links between maternal depressive symptoms and infant night waking, and between maternal worries about infant nighttime needs and infant night waking, were no longer statistically significant. However, support for each of the infant-driven models of influence, depicted in Figures 2 and 3, was not obtained, although we note that the mediated paths in both approached significance ($p = .08$ and $p = .06$, respectively).

Thus, when comparing mother-driven vs. infant-driven models of influence in accounting for associations between maternal depressive symptoms and infant night waking, Teti and Crosby (in press) found more robust support for mother-driven paths of influence. Stronger support was obtained for the mediated pathway in which maternal depressive symptoms predicted maternal presence with infants at night, which in turn predicted infant night waking, and for the mediated pathway in which mothers' worries about infant nighttime needs predicted maternal presence with infants at night, which in turn predicted infant night waking. Importantly, additional qualitative observations of maternal behavior with their infants at night lent support to the premise that mothers with elevated depressive symptoms may be predisposed to spend more time with their infants at night and possibly engage in behaviors with them that disrupts infant sleep. Teti and Crosby used a cutoff SCL-90 Depression subscale score of 11 to differentiate mothers with high ($M = 16.75$) vs. low ($M = 4.77$) depressive symptom levels and examined their behavior with their infants throughout the night. Although most mothers (88%) engaged in calming bedtime routines with their infants (typically feeding younger infants and activities such as reading with those who were older), mothers reporting higher depressive symptoms represented a majority (75%) of those who did not have a calming bedtime routine for their infant. During infant bedtimes, these mothers had the television on, allowed older children to play rough/make loud noises near the infant, appeared insensitive to the infant's needs (e.g., hunger), and kept their infants awake after the infant appeared ready for sleep.

Teti and Crosby (in press) reported on several specific behaviors observed among mothers with higher depressive symptoms that seemed to impact infants' ability to maintain sleep and/or soothe themselves back to sleep during the night. Mothers who reported higher depressive symptoms were observed responding very quickly to infant vocalizations. For example, one mother of a 12-month-old infant appeared to be hyper-attentive to her infant during the night. She responded to non-distressed vocalizations very quickly throughout the night (sometimes <40 seconds) and nursed her infant three times in a period of less than 10 hours. Two other mothers were observed waking their sleeping infants unexpectedly during the night. One mother of a 1-month-old infant, for example, woke her non-distressed, sleeping infant during the night (i.e., not for the purposes of feeding) and brought the baby to the parents' bed for the rest of the night. This behavior was only observed among mothers reporting higher symptoms of depression. A final behavior observed included mothers' inability to set appropriate limits with their children after bedtime and during the night, especially among older children. Although most mothers were able to establish effective limits, a majority (60%) of those who were not able to were those who reported higher symptoms of depression. The most striking example of this was a

mother who appeared unable to structure bedtime for her 24-month-old infant. As the rest of the family went to sleep, this infant remained awake until 2:00 a.m. watching a TV that remained on in the bedroom, occasionally wandering out of the bedroom to other areas of the home. This mother eventually brought her infant close to her and held her until she fell asleep.

In sum, although most mothers implemented a calming bedtime routine, ignored non-distressed vocalizations, and had children who sleep through the night (aside from expected night feedings for younger infants), Teti and Crosby (in press) found that mothers reporting more depressive symptoms displayed much more variability in nighttime interactions with their infants, intervened with their infants when there did not appear to be a clear need for intervention (e.g., going to the infant when the infant was awake but not distressed, or when the infant was sound asleep), and had difficulty setting limits with their infants during bedtime and at night. Caution must be exercised in drawing conclusions about causality in this cross-sectional data set. Although statistical support was obtained for depressed mother-driven influences on infant night waking, the mediated paths in the two infant-driven models tests approached significance, and we propose that both mother- and infant-driven influences are at work in accounting for links between maternal depression and infant night waking. In some cases, mothers with high depressive symptom levels or excessive worries about their infants' well-being at night (which were strongly correlated with depressive symptoms) may be more likely than low-distress mothers to seek out their infants and engage in behaviors that increase infant wake time at night. In other cases, infants with chronic night waking problems (e.g., night waking accompanied by signaled distress) could lead to increased maternal intervention and, over time, increased maternal distress.

This data, however, suggest that mother-driven models of influence are worthy of further study, because very little is currently known about the effects of maternal depression on parenting at night, and on the consequences of depressed maternal nighttime parenting on infant development. Mothers with elevated depressive symptoms may be more likely than nondepressed mothers to seek out and spend more time with their infants at night, perhaps to satisfy unmet maternal emotional needs. Further, mothers who worry excessively about their infants' well-being at night (and such mothers tend to have elevated depressive symptom levels) may similarly seek out and intervene with their infants, regardless of whether or not intervention is needed, in order to reduce mothers' anxieties about their infants' physical and emotional needs. What is clear from these data is that parent-infant sleep patterns are complexly co-regulated and that more observational studies need to be conducted to determine what parenting looks like in child sleep contexts, how depressed parenting at night differs from nondepressed parenting, and what these differences portend for child development long-term.

9. Conclusions

Maternal depression can have serious consequences for children in social, emotional, and cognitive developmental domains, and children of depressed parents are 4-to-5-times as likely as children of nondepressed mothers to be at risk for behavior problems. Children's risk for behavioral disturbances appears to be directly proportional to the chronicity and severity of mothers' depression. Even very short bouts of maternal depression appear to

have an emotionally dysregulating effect on infants as young as three months of age, and postpartum depression that is recurrent places infants at risk for insecure attachment. Children who grow up in households with depressed mothers are at risk for elevated psychiatric symptoms, both internalizing and externalizing, and to develop psychiatric disorders along a broad spectrum, including depressive and anxiety disorders, oppositional defiant disorder, and conduct disorder. Mechanisms of parent-to-child transmission have focused primarily on the impact of depressogenic mothering, although there is also evidence that depression is partially heritable. Importantly, depression's effects on mothering, and on children's development, are heterogeneous and may be buffered or exacerbated by a variety of additional parent, child, and environmental influences. Understanding the effects of maternal depression in the context of other risk and protective factors is a worthy goal for the field.

Happily, depression ranks as one of the more treatable psychiatric disorders. Women who suffer from postpartum depression can avail themselves of a variety of treatment approaches, including pharmacological, psychotherapeutic (e.g., cognitive-behavioral, psychodynamic, and support-based "talking" therapies), or some combination. In addition, approaches that target mother-child interactions have also been successful, in particular when maternal depression co-occurs with skill deficits in mothering. All of these treatment approaches have been effective, to varying degrees, in reducing symptom severity and improving quality of mothering. Pediatricians are likely to be the first health professionals to identify postpartum depression. It is thus important to equip pediatricians with the training and assessment tools to screen for postpartum depression, and to refer mothers to the appropriate mental health facilities for further evaluation and treatment.

Mothers who suffer from depression clearly need help, not just for themselves but for their children. Continued research is needed to understand more clearly the heterogeneous nature of maternal depression and its effects, what role maternal, child, spousal, and family characteristics play in this regard, and to develop effective interventions. Efforts to increase public awareness of postpartum depression and its effects on children are also critically important, if only because such awareness could lead to more mothers seeking treatment.

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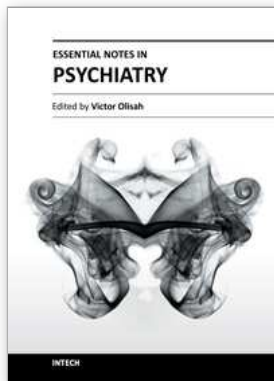
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