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DOES THE MOTHER-CHILD RELATIONSHIP MODERATE THE EFFECTS OF DOMESTIC VIOLENCE ON PRESCHOOL BEHAVIOR PROBLEMS AND SOCIAL COMPETENCE?

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DOES THE MOTHER-CHILD RELATIONSHIP MODERATE THE EFFECTS OF DOMESTIC VIOLENCE ON PRESCHOOL BEHAVIOR PROBLEMS AND SOCIAL COMPETENCE?

By

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ABSTRACT

DOES THE MOTHER-CHILD RELATIONSHIP MODERATE THE EFFECTS OF DOMESTIC VIOLENCE ON PRESCHOOL BEHAVIOR PROBLEMS AND SOCIAL COMPETENCE?

By

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Children exposed to domestic violence (DV) are at risk for a variety of negative outcomes in their social and emotional development, including depression, PTSD, behavior problems, and poor social skills. However, not all children exposed to DV show these problems, making it important to identify risk and resiliency factors that might explain the variation in outcomes. The present longitudinal study examined whether duration of exposure over the first four years of life and two aspects of the mother-child relationship, maternal representations of the child and mother-child attachment, moderated the effects of DV on behavior problems and social competence in a community sample of 174 mother-child pairs. Child behavior was rated by both mothers and preschool teachers. Results indicated that exposure to DV predicted more behavioral problems and less social competence, but more exposure did not necessarily predict more severe problems. Contrary to expectations, neither attachment nor maternal representations were related to child behavior problems in this high-risk sample. Maternal representations were related to child social strengths, having a main effect on social competence at the level of a trend, but the expected interaction effect with DV was not found.

DEDICATION

To my parents, Warren and Francie Weatherill, and my brother, Philip H. Weatherill.

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INTRODUCTION

Studies have found that children exposed to domestic violence (DV) are at risk for a number of negative outcomes in their social and emotional development, including internalizing and externalizing problems, post-traumatic stress disorder, poor social competence, and aggression (Edleson, 1999; Margolin, 2005). An estimated 3.3-10 million children are exposed to DV during childhood (B. E. Carlson, 1985; Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997), and research has identified the negative impact of DV on child development as a significant public health problem (Margolin & Gordis, 2000). However, not all children exposed to domestic violence show these negative effects, making it important to identify the risk and resilience factors that might explain why DV predicts poor outcomes for some children but not others. Potential moderating variables include aspects of the violence itself, such as severity, contextual variables such as parenting, and child characteristics such as gender or temperament (Levendosky, Huth-Bocks, Shapiro, & Semel, 2003; Lieberman, Van Horn, & Ozer, 2005).

For example, the effects of DV on children may vary depending on its chronicity over time, yet the few longitudinal studies to date that include childhood exposure to DV tend to dichotomously group children into DV exposed vs. control (e.g., Ehrensaft et al., 2003), making it difficult to identify the effects of exposure over time. Contextual factors that affect child emotion regulation and social skills in the normal course of development may interact with the traumatic experience of DV, moderating its effects. For example, parental warmth and sensitivity, style of discipline, and modeling of emotion expression are all associated with child emotion regulation and social competence (Denham, Zoller,

& Couchoud, 1994). These factors may help buffer the effect of DV, or be overridden in the face of trauma. Similarly, child attachment, which is related to preschool peer problems and social competence (Denham et al., 2002b), might have a protective effect on development in the context of DV. Thus, the current study sought to test whether the duration of exposure to DV over the first four years of life would differentially affect preschool emotional and behavioral outcomes. In addition, two aspects of the mother-child relationship, maternal representations of the child and mother-child attachment, were tested as potential moderators of the effects of DV on preschool outcomes.

The goal was to understand how DV and the mother-child relationship might interact to influence the development of the child's early preschool relationships with teachers and peers. Therefore, the preschool outcomes examined in this study were factors associated with success and difficulties in developing peer relationships: internalizing and externalizing behaviors, and social competence (Casey, 1996). Problems with internalizing and externalizing behaviors may be an early sign of difficulty with emotional and behavioral regulation (NICHD-ECCRN, 2004). On the other hand, social competence reflects the age-appropriate ability to regulate emotion and express it appropriately in order to successfully interact with others (Halberstadt, Denham, & Dunsmore, 2001). One limitation noted in many studies of DV and children is that both the DV data and child outcomes are rated by mothers, resulting in possible rater bias (Edleson, 1999). For this study, behavior ratings were completed by preschool teachers as well as mothers, thus providing cross-situational data as recommended in a recent review of studies of domestic violence and children (Margolin & Gordis, 2000).

In order to design effective interventions for children exposed to domestic violence, it is important to understand what factors influence the diverse outcomes seen in prior studies. In the case of preschool children, it is likely that the mother-child relationship may be a source of either increased vulnerability to or protection from the effects of DV. The present study examined whether the chronicity of violence over the first four years of a child's life moderated the effects of DV, and whether the internal working models that the mother and child had of their relationship, also developed during that time, acted as moderators. Results are interpreted in light of attachment theory, which proposes that internal working models developed in the early caregiving relationship are carried forward as the child develops. These working models serve as a template for interpreting and guiding behavior in close relationships. Attachment theory is thus used as a framework for understanding how the mother-child relationship might moderate the effects of DV on young children's first relationships outside the home, with teachers and peers.

Attachment researchers have long argued that security of attachment in infancy is important for optimal development, in particular, for the development of social strengths and deficits. However, not all studies find significant consequences for insecure attachment, and it has been argued recently that insecure attachment may be better viewed as a risk factor in the context of other developmental liabilities (such as poverty) than as a sign of psychopathology per se (Belsky & Fearon, 2002). Thus, this study addresses two factors, exposure to DV and mother-child attachment, that have been identified as having a significant impact on child social development, but that have proved ambiguous predictors of serious social problems. Strengths of this study include

the longitudinal measurement of DV during early childhood, observational measures of the mother-child relationship, and cross-situational ratings of child behavior.

Attachment and Emotional Development

One of the ways young children learn to regulate their behavior in relationships is through their early emotional experiences with their caregivers (Magai, 1999). During their first months of life, infants rely almost entirely on external sources, their parents, to interpret and modulate their emotion for them (Cassidy, 1994). Infant's first experiences of emotional arousal and recovery revolve around the caregiver's presence or absence. Bowlby (1988) argued that infants have an innate need for caregiver proximity, and that this made evolutionary sense in that caregiver proximity was most likely to ensure the survival of the infant. In order to maintain this proximity, infants engage in attachment behaviors when distressed, such as approaching, reaching for the mother, crying, and seeking to maintain contact. Once reunited, if the caregiver soothes the child, the caregiver provides the infant with an experience of expressing and regulating negative emotion that will influence the child's future self-regulation. This makes separation and reunion interactions between caregivers and children a rich source of information about how well the dyad is able to regulate emotion (Field, 1994; Rosenblum, McDonough, Muzik, Miller, & Sameroff, 2002).

Ainsworth (1978) found that children show individual differences in their patterns of behavior around these separations and reunions. She identified three distinct patterns which she hypothesized were the manifestation of the internal working model the child has of themselves in relation to their caregiver. *Secure* children show distress at their mother's departure, are comforted by her return, and explore in her presence,

theoretically reflecting their confidence in a benign and trusted caregiver. *Avoidant* children appear indifferent to their mother's departure and return. *Ambivalent* children are upset when their mother leaves, and although they seek comfort when she returns, they are not soothed by her presence the way secure children are. A fourth category, D*isorganized/Disoriented*, was added later after it was noted that some children do not fit into one of the three standard classifications. These children appear not to have a consistent strategy, but show contradictory behaviors, such as approaching the caregiver with their back turned, or freezing in the middle of a gesture toward caregiver proximity (Main & Solomon, 1990). These latter three categories are considered "insecure", and are thought to develop in reaction to inconsistent, intrusive, or otherwise insensitive caregiving. The corresponding attachment behaviors reflect the child's best effort to ensure the proximity of such a caregiver.

Parenting Behavior and Infant Attachment

Ainsworth (1978) found that these infant attachment classifications are associated with specific patterns of parenting behavior. In mother-child interactions, mothers of secure children are noted to be responsive to their infants' needs and appear to sensitively read their infants' cues signaling hunger, sleepiness, etc. Mothers of avoidant children are less responsive and more rejecting of their children, while mothers of ambivalent children are inconsistent, responding to their infants' needs at some times, but not others (Ainsworth, 1978; Van IJzendoorn, 1995). Thus, infants' attachment behavior under stress is believed to be adapted to accommodate what they learned to expect from their mother (Ainsworth, 1978). Secure children are confident that their mother will be there to meet their needs, so they can seek comfort from her when upset, and explore once they

are assured of her presence. Insecure children are more likely to experience unpredictable parenting in which their needs must be adjusted to accommodate the mother's emotional state. Avoidant children learn that demanding comfort from their mothers often brings rejection, so they adapt by minimizing their demands on their mother. Ambivalent children appear to expect that the only thing that will ensure their mother's proximity is an angry demand for attention. Finally, the disorganized classification is found to be associated with parental maltreatment of the child (Lyons-Ruth & Jacobvitz, 1999). Main and Hesse (1990) proposed that the disorganized, disoriented behavior seen in this subgroup is due to what is described as "frightened and frightening behavior" on the part of the mother. In addition to the higher incidence of abusive behaviors, mothers in this group are also observed to engage in frightening behaviors such as baring their teeth or sneaking up and startling the child. At the same time, some mothers appear frightened of their child, for example, backing away from their child or making a startled gasp during a play session. Main and Hesse argued that, for these children, the mother is both a source of fear and a source of comfort, placing the child in the confusing bind of seeking protection from the very person who frightens her.

Working Models

Insecure infant attachment behavior describes a variety of strategies for adapting to insensitive parenting, but what underlies them all is the idea that the insecure child is unsure that the mother will be there as a source of safety. According to the theory, this sense of insecurity is then internalized as a belief that others in close relationships will not reliably respond in a positive or predictable way to one's need for closeness. In seeing the infant's attachment behavior as an adaptive response, Ainsworth (1978) interpreted it

as the beginnings of what Bowlby had called an "internal working model" of the world, their expectancy of relationships. According to Bowlby, these internal working models are internalized representations of the self and others in relationships, one's beliefs, for example, as to whether others can be trusted to respond to one's needs, and whether one is worthy of others' care and attention. The infant carries this internal working model forward as it grows and develops other relationships. The beliefs and expectations described by this template are related to the child's sense of self-worth, their belief that they deserve to have their needs met, and colors expectations about future relationships. For example, if they believe people are unreliable they may compensate by making few demands on others so as not be disappointed, and instead strive for self-reliance. Alternatively, they may interpret the caregiver's inconsistency as an indication of their lack of worth, and thus fail to internalize a belief that others will love them. In this case, they may compensate by anxiously striving for evidence that others care about them, leading to anxiety and hypervigilence in relationships. These internalized representations, relatively stable within the individual, are what endure within the individual over time, linking infant attachment behavior to preschool behavior and later attitudes about attachment that can be assessed in the child, adolescent, and adult.

Main, Kaplan, and Cassidy (1985) define working models as both conscious and unconscious rules for organizing and interpreting information about attachment relationships, rules that also influence the emotions one is able to perceive and express in relationships. Although internalized, these rules are not fixed, but rather working models in process, and can be reconstructed given new experiences and information. However, the unconscious aspects of working models are difficult to change, because they operate

outside of consciousness, and act as filters on the very information that might change them. Nonetheless, studies have found that infant classification is more likely to change in response to major life changes in the family (Weinfeld, Sroufe, & Egeland, 2000), and theorists argue that working models are subject to change in the context of new environments throughout the lifespan (Bretherton & Munholland, 1999).

Working Models and Parenting Behavior: Transmission of Working Model from Parent to Child

Much of the evidence that internal working models exert influence over relationships, particularly parent-child relationships, comes from studies of adult attachment representations of early caregiving relationships (Van IJzendoorn, 1995). One measure of these representations is the Adult Attachment Interview (AAI), a narrative interview thought to tap early attachment experiences and how they have been internalized over time, which is reflected both in the content and the coherency of the narrative (Main & Goldwyn, 1984). Thus, security on the AAI is coded not just from memories of a responsive caregiver but in the ability to integrate positive and negative aspects of the experience. A number of studies have found significant concordance between adult attachment representations of early caregivers (as measured by the AAI) and infant attachment classification (as measured by the Strange Situation), suggesting that parents transmit their working models of relationships to their children (Benoit & Parker, 1994; Van IJzendoorn, 1992; Ward & Carlson, 1995). It has been hypothesized that adult attachment representations influence sensitivity of parenting, and that this is the link of transmission between representations and infant attachment status; a meta-analysis

found partial support for this, although parenting sensitivity did not account for all of the concordance (Van IJzendoorn, 1995).

A similar thread of research has examined maternal caregiving representations of the child and their predictive relationship with infant attachment. Conceptualizing the development of working models across the lifespan, George and Solomon (1999) hypothesized that, in the course of becoming parents, adults transform their working models of *self in relationship to a caregiver* to a representation of *self as caregiver*. These representations are specific to the mother's view of herself and her child, and reflect her ability to perceive her child as both an autonomous and dependent individual.

Researchers have developed interviews to assess these caregiving representations; one such interview is the Working Model of the Child (Zeanah & Benoit, 1995). Using a narrative interview coded for process as well as context, narratives are classified as balanced (analogous to secure or autonomous), distorted (preoccupied or anxious) and disengaged (dismissing or avoidant). Like other types of working models, these representations are hypothesized to reflect a template of beliefs about relationships that provide a way of interpreting others' behavior (in this case, the child's) and organizing an appropriate response/action based on the interpretation. A balanced working model is characterized by access to a wide range of affect, dominated by warmth and positive emotion, but also the flexible integration of negative feelings such as worry, frustration, and anger. In contrast, a disengaged profile is characterized by a defensive exclusion of negative affect and denial of negative feelings or thoughts about the child. The disengaged narrative reflects a pervasive impoverishment of detail about the child's personality or emotions, suggesting that the mother copes by repressing her awareness of

the child's needs. This repression of awareness reflects an overall deactivation of the caregiving system. On the other hand, a distorted WMCI narrative is characterized by heightened emotion and anxiety that obscures a coherent picture of the child and the parent's relationship with the child. The narrative may be tangential and difficult to follow, as the parent is flooded by strong emotion and unable to regulate the discourse.

These different caregiving representations have been found to be predictive of concurrent and future infant attachment, with balanced representations predicting secure infant attachment (Benoit, Parker, & Zeanah, 1997; Zeanah, Benoit, Hirshberg, Barton, & Regan, 1994). In addition, a recent study found that maternal caregiving representations were predictive of infants' self-regulation of emotion in response to the Still Face procedure (Rosenblum et al., 2002). Mothers with balanced representations had infants who more quickly returned to a positive affective state following the distress exhibited during the Still Face procedure. The authors concluded that maternal caregiving representations reflect in part the mother's ability to regulate her own affect, which, in turn, is related to her ability to modulate her infant's emotional arousal. The implication is that the interaction between balanced mothers and their infants facilitates more effective emotion regulation in the infant.

Taken together, these findings support the argument that internal working models provide cognitive and affective maps of the relational world, shaping adaptive or maladaptive strategies for managing strong emotions. Different attachment and representation classifications reflect different patterns of coping strategies, which have implications for the emotional development of the individual and how they manage positive and negative affect. For parents, their own internal working

models/representations and affect regulation influence how they help their children learn to manage these emotions.

Attachment and Emotion Regulation

One of the primary functions of mother-infant interaction is to provide affect regulation for the infant, who initially relies almost completely on external regulation. A mother modulates infant affect, arousing her infant by smiling and engaging with him, and damping down stimulation by quieting or looking away when the child is overstimulated. Sensitive parenting, of the kind associated with infant attachment, requires that the mother adjust her behavior in response to the infant's needs, maximizing positive emotion by smiling and laughing in response to the infant's expressions of pleasure, and minimizing negative emotion by soothing a distressed child (Ainsworth, 1978; Cassidy, 1994). Ainsworth's observers noticed that mothers of avoidant children held their infants the same amount as mothers of secure children, but that they did it when child wanted to explore, not when the child wanted to be held, suggesting that it was the contingency of the behavior, not the act itself, that made the difference between secure and insecure attachment (Ainsworth, 1978).

Secure children can rely on their mother to provide this kind of sensitive responsiveness: however, insecure children have learned that their mothers may not respond to their cues. Mothers of avoidant children are more likely to reject a distressed child, failing to help minimize their distress, while mothers of ambivalent children are more intrusive and, by ignoring the child's cues, are likely to amplify the child's distress rather than relieve it. Attachment theorists argue that differences in child attachment behavior represent different strategies for the regulation of negative affect associated with

separation from the caregiver (Cassidy, 1994; Weinfeld, Sroufe, Egeland, & Carlson, 1999). They hypothesize that avoidant behavior represents a deactivation of attachment drives: the child avoids the mother, even averting their gaze, so as not to be rebuffed (Schore, 1994). In contrast to this numbing strategy, ambivalent infants have adopted a strategy of hyper-arousal to constantly monitor for potential abandonment on order to protect against it. Although these strategies may be adaptive in the short term in the context of their relationship with their mother, they may have long-term costs. For example, ambivalent children may be so absorbed in monitoring their mothers' faces that they may restrict their exploration of the world (Weinfeld et al., 1999).

Maternal affective style may influence child emotion regulation as the mother models the expression of emotion for the child. Maternal affect has been found to be predictive of mother-child interaction and the child attachment (Izard, Haynes, Chisholm, & Baak, 1991). In this study, Izard and colleagues found that mothers of secure infants reported more positive emotion and less negative emotion than mothers of insecure children, but were more open in expressing negative emotion in front of their infants. Mothers of insecure children experienced more negative emotion but were less likely to show it around their children. In addition, mothers of insecure children reported *expressing* more positive emotion around their infants (than did mothers of secure children), but they reported *experiencing* more negative emotion overall, suggesting they were inhibiting the expression of negative emotion. These findings suggest that parental expression of emotion influences the infant's development of affect regulation, which, in turn, is a factor in the child attachment.

Implications of Attachment for Later Developmental Outcomes

Attachment is of interest to developmental researchers because studies have found that infant attachment classification is often predictive of important developmental outcomes such as behavior problems, school functioning, and social competence. Attachment classification has been found to be relatively stable over time within individuals, with classification in infancy concordant with classification at age six (Main & Cassidy, 1988). Infant attachment classification is also predictive of later behavior problems. One study found that children who were classified as insecure as infants are more likely to be socially withdrawn and aggressive with peers at age six (Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989). Children referred to a clinic for disruptive behavior problems were four times more likely to classified as having an insecure attachment than were children in a non-referred comparison group (Greenberg, Speltz, Deklyen, & Endriga, 1992). A study of preschool social competence found that insecure children were more likely than secure children to show unregulated anger and were rated as lower in social competence by their teachers (Denham, Blair, Schmidt, & DeMulder, 2002a). Disorganized attachment is associated with higher rates of aggression in preschool (Lyons-Ruth, 1996; Lyons-Ruth, Alpern, & Repacholi, 1993), child behavior problems in elementary school and high school, and psychopathology and dissociation in adolescence (E. A. Carlson, 1998).

However, not all insecure children show these developmental disadvantages (Greenberg, 1999), nor do all insecure infants become insecure children: in general, the insecure category tends to be less stable than the secure category (Weinfeld et al., 2000). Belsky and Fearon (2002) note that the predictive relationship between early attachment

and later outcomes varies depending on the level of contextual risk in child's environment. Infant attachment tends to be more stable, in other words, more predictive of later attachment classification, in middle-class, low-risk populations. It is less stable in high-risk samples in which families are poor, headed by single parents, and report more major life changes (Egeland & Sroufe, 1981). In contrast, infant attachment is more predictive of later developmental outcomes besides attachment, such as behavior problems, social competence, and school performance, in at-risk samples. Studies using middle-class, low risk samples find fewer differences between secure and insecure children (Belsky & Fearon, 2002). Therefore, insecure attachment is not considered to be equivalent to psychopathology, but rather acts as a vulnerability factor for the development of later psychopathology in interaction with other contextual risk factors (Weinfeld et al., 1999).

Domestic Violence as a Risk Factor

Studies show that children exposed to domestic violence (DV) tend to have more externalizing behavior problems, such as aggression, as well as internalizing problems, such as anxiety, withdrawal and depression (Grych, Jouriles, Swank, McDonald, & Norwood, 2000; Kitzmann, Gaylord, Holt, & Kenny, 2003). Internalizing problems represent the child's tendency to appear sad, withdrawn, or anxious, while externalizing problems reflect oppositional or aggressive behavior toward others. A number of studies have found that children exposed to DV show both types of problems at a higher rate than their peers, although results may vary depending on gender, age, and contextual factors (Edleson, 1999; Grych et al., 2000). Children exposed to DV may develop post-traumatic stress disorder (PTSD) (Kilpatrick & Williams, 1998; Rossman, 1998). These and other

problems associated with DV have been noted as early as preschool and in children as young as one year old, suggesting the impact of DV begins early (Levendosky et al., 2003). In studies, including one using the current sample, trauma symptoms have been noted as early as age one (Bogat, DeJonghe, Levendosky, Davidson, & von Eye, 2006; Levendosky, Huth-Bocks, Semel, & Shapiro, 2002). In the present sample as well as others, maternal experience of DV has been found to be associated with insecure and disorganized infant attachment (Huth-Bocks, Levendosky, Bogat, & von Eye, 2004; Zeanah et al., 1999).

Childhood exposure to DV has been estimated to affect 3.3 to 10 million children (B. E. Carlson, 1985; Fantuzzo et al., 1997). Very young children may be disproportionally at risk for exposure to DV as compared to older children: a national survey found that households where domestic violence occurred were more likely to be households with children, particularly children under the age of five (Fantuzzo et al., 1997). A recent random-sample telephone survey of 453 couples with children between the ages of four and seven found that 30% of households reported violence occurring between family members (Smith, Thompson, DeVellis, Earp, & Coker, 2002). Levendosky, Huth-Bocks, Shapiro, and Semel (2003) found that exposure to domestic violence had a negative effect on preschool child functioning as observed in a videotaped interaction with the mother, although there was no direct effect on mother-reported behavior problems. The authors suggested that because they found that DV negatively affected parenting and, subsequently, attachment, that perhaps the child difficulties associated with DV were only apparent *within* the mother-child interaction, but not observable by the mother across different situations. A study of preschool children by

Lieberman, Van Horn, and Ozer (2005) found no direct effects of child exposure to DV, but did find that maternal PTSD mediated the relationship between overall exposure to violence and child functioning. Similarly, using the current sample at age one, Bogat et al. (2006) found that for mothers and infants who had been exposed to DV, maternal trauma symptoms were predictive of infant trauma symptoms if the DV was severe (threats of or actual physical violence). In a high-risk sample of 4-6 year olds whose families had been referred for neglect or abuse, it was found that DV had a strong but indirect impact on child functioning, mediated by the effects of DV on caregiver functioning and caregiver interactions with the child (English, Marshall, & Stewart, 2003). Thus, the research on infant and preschool outcomes suggests that the mother-child relationship mediates or moderates the impact of DV.

Studies of the effects of DV on children have primarily focused on behavior problems, self-esteem, and depression (e.g., Grych et al., 2000; Sternberg, Lamb, Guterman, & Abbott, 2006), and have not specifically examined the effects of DV on children's social skills in peer relationships outside the home. Longitudinal studies offer some evidence that childhood exposure to DV may contribute to being in a violent dating relationship in young adulthood (Ehrensaft et al., 2003), but less is known about DV and early peer relationships. One study found that children exposed to DV had more peer difficulties (McCloskey & Stuewig, 2001). Interestingly, in this study, children of battered women had about the same number of friends as the comparison group, but their mothers reported more conflict with peers and the children themselves reported more loneliness and more conflict with a close friend. The authors hypothesized that the relational nature of DV had a negative effect on the children's capacity for close

relationships, although the children were still able to maintain superficial relationships with their peers. This suggests it is important to examine children's ability to engage with others in a positive way, in addition to any clinical or behavioral problems they may have. Therefore, in addition to examining behavior problems, this study will also assess social competence as rated by the classroom teacher. Social competence has been found to be related to emotion regulation, problem solving, and abilities to interact positively with peers (Denham, 2002).

Domestic violence may affect children's capacity for relationships because they are likely to be exposed when very young, when the working models of self and others in relationships are first established (Bowlby, 1988). Furthermore, it is likely that the experience of witnessing DV is a chronic and highly interpersonal trauma, the kind of trauma that Herman (1992) argues has persistent and devastating effects on a person's capacity for relatedness. Thus, domestic violence represents a combination of a number of risk factors known to be associated with peer difficulties and aggression in children, although the mechanisms for the association between exposure and child outcome are unclear. It is also possible that the link between exposure to DV and child aggression may be due a genetic risk for conduct problems in children of parents who show antisocial behavior (Jaffee et al., 2005). Externalizing problems in preschool have been associated with a higher risk for continued aggression during school years and conduct disorder in adolescence (NICHD-ECCRN, 2004). There is evidence that the difficulties with interpersonal aggression may place children at risk for the development of later anti-social behavior and for being in a violent or abusive romantic relationship themselves,

either as the recipient or perpetrator of abuse, when they become young adults (Ehrensaft et al., 2003; Magdol, Moffitt, Caspi, & Silva, 1998).

However, not all children show these problems (Edleson, 1999; Hughes & Luke, 1998; Sternberg et al., 1993); therefore researchers have sought to find mediating or moderating influences, such as parenting (Grych & Fincham, 1990; Levendosky & Graham-Bermann, 1998), and maternal mental health (Kilpatrick & Williams, 1998; McCloskey, Figueredo, & Koss, 1995). Researchers have explored both direct and indirect effects of domestic violence. In theory, DV may constitute a direct trauma, a traumatic event in which the child fears for their life or that of their caretaker (Scheeringa & Zeanah, 2001). It may also affect them indirectly, through the developing mother-child attachment relationship or its effects on maternal mental health (Huth-Bocks et al., 2004). Levendosky and Graham-Bermann (1998) found that parenting stress moderated the effects of DV on child functioning, but Kilpatrick did not find a mediating role for maternal mental health. Thus, although there is some evidence that mother-child relationship factors mediate or moderate child outcomes to a certain extent, the pathways between DV, family variables, and the severity of child outcomes remain unclear.

Outcomes for children exposed to DV may also vary with the timing and duration of the exposure. Herman (1992) argues that chronic trauma, especially trauma that is experienced in the context of an intimate or care-giving relationship, has particularly devastating effects on personality and the capacity for relationships. Thus, chronic exposure to DV may have different effects than intermittent exposure. Studies that assess degrees of DV typically compare severity but not duration of exposure. A recent study of the current sample found that women with a history of domestic violence across several

romantic relationships had worse psychosocial outcomes than those who never experienced partner violence or experienced it in only one relationship (Bogat, Levendosky, Theran, von Eye, & Davidson, 2003). However, no studies to date have examined the effects of varying degrees of chronicity on child development. Terr (1991) described a different presentation of PTSD symptoms in children depending on whether the trauma was an acute one-time event versus chronic exposure. Thus, chronicity may be one factor that determines the outcome of exposure to DV.

It has been hypothesized that some child characteristics may moderate the effects of DV, for example, some studies have found an interaction between DV exposure and gender, but some studies find effects primarily in girls (Sternberg et al., 2006), but this is not always the case. Some have argued that girls show primarily internalizing problems while boys show externalizing problems (Edleson, 1999; Yates, Dodds, Sroufe, & Egeland, 2003), but in the Sternberg et al. study, girls showed more difficulty with both types of behaviors.

The developmental status of the child at time of exposure may also play a role, and continuous exposure over childhood may result in different symptoms emerging at different times. For example, Yates et al. (2003) found that concurrent DV predicted behavior problems in middle-school boys but adolescent dating violence was predicted by preschool exposure. Studies that include children in a wide range of ages have found some age interactions, but results vary: in a study of children ages 4-12, Hughes (1988) found that preschoolers were reported to have the most problems, but a later study found middle-school age children to show the most symptoms (Hughes, Parkinson, & Vargo, 1989).

Another study using the larger sample from which this study was drawn also found the effects of DV overrode individual child characteristics. DeJonghe, Bogat, Levendosky, von Eye, and Davidson (2005) found that while temperament moderated infants' reaction to simulated adult verbal conflict, infants who had been exposed to DV were more distressed by conflict regardless of temperament. The authors concluded that the effects of DV overwhelmed temperament.

Use of Multiple Informants of Child Behavior

The current study proposes to use both maternal and teacher ratings of child behavior problems. Studies of interrater agreement on child behavior have found that it may be affected by rater characteristics such as depression and culture, but also may reflect true situational differences (Youngstrom, Loeber, & Stouthamer-Loeber, 2000). For example, teachers may be more sensitive to acting-out behavior and parents more sensitive to internalizing behaviors. However, one study found that teachers were more likely to agree with other teachers on depressive symptoms, suggesting some situational continuity in these behaviors (Epkins, 1996). Cross-informant ratings have been recommended both in the DV literature and other studies where parents are both a variable of interest as well as the reporters of child outcomes. For example, in a study of the effects of corporal punishment on child behavior, Deater-Deckard et al., (1996) found significant differences between mother and teacher ratings of child behavior problems. Suggested reasons for the differences were that mothers may have a biased view of their children, either under- or over-reporting, and mothers may have a smaller comparison group to refer to when rating their child than do teachers, who work with many children. DV studies that have used multiple reporters typically find low levels of agreement on

child behavior (Levendosky et al., 2003; Sternberg et al., 2006), with contradictory results. Margolin (2005) argues that using multiple informants may be particularly important when assessing aggression in children of battered women, as they may under-report in an effort to deny the effects of domestic violence, or over-report if they associate child aggression with the abuse they have received from the their partner. Studies of domestic violence and child outcomes often use only one reporter, the mother, of both the violence and the child's behavior, especially when using infant or preschool samples where the children are too young to use self-report measures (e.g., Bogat et al., 2006; Lieberman et al., 2005). Distortion of the relationship between parent report and child outcomes may also occur as a statistical artifact entirely outside the mother's intention or control, simply because of single reporter bias.

An additional advantage of obtaining teacher report is that the child's behavior is assessed across different situations. Cross-situational assessment, with more than one reporter, may detect behavioral responses to DV that are adaptive at home, but maladaptive at school (Margolin, 2005). For example, withdrawn or avoidant behavior may be adaptive in home where conflict escalates quickly and unpredictably, but it interferes with making friends and the ability to explore and learn at school. Finally, school data may provide information as to how school programs may support healthy social and emotional development in children at risk for aggressive behavior.

Two Potential Moderators of Domestic Violence

Domestic violence can interfere with the acquisition of developmentally appropriate emotion regulation and social competence, leading to behavior problems. The mother-child relationship may moderate these effects. Studies have found that various

components of the mother-child relationship, including both attachment behavior and internal representations, reflect the child's developing capacity for emotion regulation and relationships. In addition to parenting, the mother-child attachment relationship has been proposed as one of the underpinnings of differences in parental socialization of emotions (Magai, 1999). In support of this, Denham (2002) found that child attachment classification predicts social competence in preschoolers. Thus, in the normal course of development, children learn to regulate their emotions and behavior in the context of their relationships with their parents. Children in families where domestic violence occurs may face additional challenges. In addition to mastering developmental tasks faced by children in low-stress environments, they must cope with the potentially traumatic experience of witnessing violence between their parents. Their difficulties may be exacerbated because the person that would normally be the source of comfort and the model for coping – the mother – is herself traumatized. Thus, both the mother's characteristics as a parent, in this case, her caregiving representation, and the attachment relationship itself, may play an important role in the child's ability to cope, and thus moderate the child's response to domestic violence.

The current study will examine two potential moderating factors of the mother-child relationship: child attachment and maternal caregiving representations. It is hypothesized that children with secure attachment and children of mothers with balanced maternal representations of their child will experience fewer negative consequences to their social development in the context of domestic violence.

Attachment as a Moderator

Early researchers of attachment in young children hypothesized that insecure infants would become insecure preschoolers and demonstrate continuing problems with emotion regulation, disruptive behavior, and related peer problems, and this was partially confirmed by empirical studies (Greenberg, Speltz, DeKlyen, & Endriga, 1991). However, the findings were not consistent: often insecure children did not demonstrate significantly more problems than their secure peers. In addition, there was discontinuity in attachment classification within the individual over time: insecure infants became secure toddlers and vice versa. Gradually, with the accumulation of longitudinal studies, a pattern of interaction with environmental context and maternal experience emerged (Belsky & Fearon, 2002). In middle class samples, attachment classification was more likely to be consistent over time, while in high-risk samples where the mothers' circumstances might change (in terms of employment, housing, and marital status), infant attachment classification was more likely to change (Sroufe, 2005). However, the reverse was true for high risk samples: while early attachment classification did not necessarily predict later attachment classification, it did predict later behavior and peer problems. Belsky and Fearon (2002) proposed that attachment might be better understood as a moderator of risk, acting as a protective or vulnerability factor in the context of other risks to development. Thus, recent attachment research has shifted its focus to examining attachment in context of risk factors such as parental depression (Adam, Gunnar, & Tanaka, 2004).

A few studies have examined the potential moderating effects of parenting for child outcomes in the context of domestic violence on children, with mixed results. Levendosky and Graham-Bermann (1998) found that parenting stress partially mediated

child problems in school-age children, while McCloskey, Figuerdo, and Koss (1995) found that parenting support in families where domestic violence occurred did not buffer the effects on school-age children. Only two studies have looked at the effects of domestic violence on the attachment relationship in preschool children (Huth-Bocks et al., 2004; Zeanah et al., 1999), and no studies have yet examined whether attachment may moderate the effects of domestic violence on later childhood outcomes. Given the importance of mother-child interactions and attachment for social and emotional development, these may be important potential protective factors to examine in the relationship between domestic violence and child outcomes.

Attachment appears to be a better predictor of behavior problems in high-risk samples, suggesting that it may act as moderator of other risk factors (Belsky & Fearon, 2002). In this study, it was hypothesized that secure attachment will buffer the effects of DV, while insecure attachment will increase vulnerability to poor preschool outcomes.

Maternal Caregiving Representations as a Moderator

The representations of self and other tapped by the Working Model of the Child Interview (WMCI) are thought to reflect how one regulates affect, particularly negative affect (Cassidy, 1994; Rosenblum et al., 2002). Most studies of maternal representations of the child to date have focused on the predictive relationship between maternal representations and child attachment, finding that balanced maternal representations are associated with secure child attachment (e.g., Benoit et al., 1997; Huth-Bocks et al., 2004). In mothers, these working models may affect they way they socialize their children. However, little is known about the relationship between maternal representations and child behavior outcomes other than attachment. In one of the few

studies on other outcomes, Rosenblum et al., (2002) found that maternal representations predicted the infant's ability to regain positive affect following the Still Face Procedure, a laboratory-induced stressful situation for infants. Only infants of mothers classified as having balanced representations returned to high levels of positive affect once the stressful portion of the procedure had ended.

This suggests that maternal representations of the child, reflecting the mother's beliefs and attitudes, may enhance or diminish a child's social development in the context of domestic violence. For example, a child who is traumatized may turn to the mother for comfort and support, and if she is able to maintain a balanced representation of the child which is sensitive and accepting, the child may be able to recover. In support of this, Lieberman (1999, 2004) found that therapy that changes a mother's beliefs and attributions about her child also helps the child's recovery from trauma. Conversely, the child of a mother who is classified as having non-balanced (i.e., distorted or disengaged) representations may be particularly vulnerable to developing behavior problems and deficits in social competence in the context of domestic violence.

Inasmuch as DV is associated with negative working models, it may disrupt the mother's own regulation of affect and, in turn, her ability to help her child learn to self-regulate. If the mother's working model of her caregiving relationship with the child is damaged by DV, it may interfere with the kind of sensitive parenting necessary to provide the scaffolding for children to learn about the expression of emotions. Because children's ability to self-regulate is associated with social competence (Cassidy, 1994; Denham et al., 2003), this may explain why children exposed to DV have been found to have deficits in this area.

Previous analyses on the current sample found that a self-report measure of prenatal parenting behaviors showed no differences between battered and non-battered groups, while an interview tapping maternal prenatal representations of the child found significant differences between the two groups, with battered women being more likely to have negative representations of their child (Weatherill et al., unpublished manuscript). This study found that battered women also had more insecure adult romantic attachment style. These findings suggest that battered women have more negative working models of themselves and others, including their working model of their child. Maternal caregiving represention have been found to predict both subsequent and concurrent infant attachment (Benoit et al., 1997). Another study using the current sample found that security of maternal *prenatal* representations was negatively associated with DV: specifically, women who experienced DV during pregnancy were more likely to be classified as having distorted or disengaged (analogous to the insecure categories for children) rather than balanced (secure) representations (Huth-Bocks et al., 2004). This finding has important implications for child social development because mothers with narratives classified as distorted or disengaged are more likely to have children with insecure attachments (Benoit et al., 1997; Fonagy, Steele, & Steele, 1991). Therefore, the effects of DV on children's social and emotional difficulties may be moderated by the mother's working model of the caregiving relationship and by the child's attachment relationship with the mother.

Hypotheses and Rationale

Although numerous studies have documented the negative effects of exposure to DV on young children, the mechanisms of effect and reasons for the wide range of

outcomes are not yet understood (Edleson, 1999; Margolin, 2005). The present study sought to examine characteristics of the experience of DV (e.g., chronicity) as well as potential protective factors in the mother-child relationship. Attachment theory was used as a framework to understand the interaction of trauma and the caregiving relationship and potential effects on social and emotional behavior in preschool children.

Patterns of Exposure to DV

It was hypothesized that domestic violence would negatively affect preschool children's outcomes, but that this effect would vary depending on the pattern of violence exposure over time. A longitudinal design was used to assess violence over time, specifically the first four years of the child's life, a time when the working models of self and others are developed in the context of the mother-child relationship and then applied to new relationships with peers and teachers. The range of exposure that young children may experience, from short-term to chronic violence, may have very different effects on their developing working models of relationships.

Exposure to violence was assessed at 4 time points: ages 1, 2, 3 and 4 (preschool). Children were categorized into three groups: no exposure, exposure at one or two time points (intermittent exposure), and exposure at 3 or 4 time points (chronic exposure). It was predicted that children exposed to chronic violence would have the worst preschool outcomes, non-exposed children would have the best outcomes, and children exposed intermittently would fall in between in their degree of preschool behavior difficulties. This was tested using two-way ANOVAs and planned comparisons. In addition, to determine whether any effect seen in the chronic group was due to the fact that many in the chronic group also experienced recent or concurrent DV during the past year, a two-

way ANOVA was used to compare children who had experienced DV at age four and those who had been exposed prior to age four but not in the past year. This study used cross-situational assessment to determine if exposure to domestic violence was associated with difficulties in the home setting, at school, or both. Mother and teacher ratings were assessed as separate outcomes.

Attachment

In light of recent research that suggests that attachment may affect child outcomes in interaction with the context of development – high or low risk environments – a moderating hypothesis was expected, such that the relationship between attachment and child outcomes was predicted to be the most robust in the context of the risk factor of DV. Child attachment behavior is theoretically an indicator of internalized representations of self and relationships that the child carries forward into new relationships. Therefore, in the current study, it was expected that attachment would moderate the effects of domestic violence on child behavior problems and social competence at school, as reported by the teacher. Specifically, a secure attachment relationship was predicted to enhance a child's ability to cope with the trauma and maintain a normal developmental trajectory, while insecure attachment was expected to exacerbate the negative effects of domestic violence on child behavior problems. Previous studies have found that preschoolers with externalizing problems are more likely to be insecurely attached (Greenberg et al., 1991), and that insecure attachment may function as a risk factor for behavior problems in the context of other vulnerabilities (Belsky & Fearon, 2002). Therefore it was predicted that there would be a significant interaction effect between attachment and DV group on child outcomes.

Maternal Caregiving Representations

In the present study it was hypothesized that balanced maternal representations would buffer the negative effects of domestic violence on behavior problems in the home context for children, for both chronic and intermittent exposure, and that non-balanced representations would function as a vulnerability factor in these groups. As with attachment security, it was expected that there would be an interaction between WMCI classification and DV group. Thus, it was predicted that children of mothers classified as balanced and exposed to domestic violence would have fewer behavior problems than children of non-balanced mothers who were exposed to domestic violence.

METHOD

Participants

The sample of 174 mother-child pairs used for this study was drawn from a larger longitudinal study of 206 pairs (Levendosky, Bogat, Davidson, & Von Eye, 2000). Subjects were included in this study if both mother and child completed the age four interview and mothers had custody of their child. Demographically, the subset used for this study did not differ significantly from the total sample. For the larger study, women were initially recruited during pregnancy to participate in a longitudinal study of the effects of DV on women and their children. Women were enrolled in the study and first interviewed during their third trimester of pregnancy, and then each year following at the time of their child's birthday. The present study used data from the age one through age four interviews (Time 1, 2, 3, and 4).

Procedures

Recruitment

Participants were recruited by posting fliers in public areas and obtaining referrals from hospitals and other programs that provide financial, legal, and health services to pregnant women or victims of DV throughout the tri-county Lansing area, including rural, urban, and suburban areas. Recruitment efforts were made to include women who were ethnically and socio-economically diverse by using recruitment sites that served women with a variety of backgrounds and experiences. See Table 1 for participant demographics.

Women contacted the study office if they were interested in participating, at which time a research assistant conducted a brief screening to determine eligibility.

Women who had not been involved in a romantic relationship for at least six weeks during their pregnancy or who were under the age of 18 or over the age of 40 were excluded. Women were excluded from the study if it was believed they would have difficulty understanding questionnaires due to limited knowledge of the English language.

The women were told the study was about women's relationships with the important people in their life, including partners, family members, and children, and that if they participated in the study they would be asked about their thoughts and feelings about relationships and recent life events, including DV. They were also told that they did not necessarily need to have experienced DV in order to be eligible for the study, nor did they have to be in an ongoing relationship at the time of the interview: "current partner" at each interview was defined as their current or most recent romantic relationship that had lasted at least six weeks.

The focus of the larger study was the effect of DV during pregnancy on infant development, therefore, in addition to specifically recruiting women who had experienced DV, the telephone screen was used to ensure that approximately half the participants had experienced DV during pregnancy, and the other half had not. Women were told that they would be asked some questions about themselves and their relationships over the telephone in a five-minute interview. After approximately half the sample had been recruited and interviewed (n=96), the Conflict Tactics Scale (Straus, 1979) began to be administered over the telephone during the initial screening procedures in order to keep track of the number of battered and non-battered women. For the purpose of recruitment, women were categorized as "battered" if they had experienced physical

violence (items 6-14) during pregnancy according to this measure. This screen was used to exclude women who had not experienced DV during pregnancy once it was determined that there were enough non-battered women to make up half of the target sample of 210.

After 137 participants had been recruited and interviewed, it was discovered that many of the "non-battered" women had experienced DV in a prior relationship. Thus, the telephone screen was then also used to enroll women who had *never* experienced DV, in addition to those who experienced violence in the current pregnancy.

Time 1/ age one interview. Research assistants contacted mothers by phone to schedule an interview on or about the child's first birthday. Subjects were then informed that portions of the 3-hour interview would be videotaped, and that they would receive $75 and a gift for their infant as payment for participating. Mothers and infants were interviewed concurrently in most cases during a 3-hour interview at the project's offices on campus.

Time 2 and 3/ ages 2 and 3 interviews. Administration procedures were similar to those described for Time 1. Women were contacted and invited to participate in an interview to be held either at their homes or the project's offices, and paid for their participation.

Time 4 / age 4 interview. Administration procedures were similar to those described for T1. Women were contacted and invited to participate with their child in an interview to be held at the project's offices on campus. Women were given $150.00 and a gift for their child upon completion of the interview. In addition, a release of information for the child's school or daycare was requested: with permission, the child's

teacher/daycare provider was contacted and asked to complete a behavioral checklist about the child. Teachers were told only that the child's family was participating in a study of child development, but nothing else about the participant or the study. Teachers were paid $10.00 cash when they returned the completed the form.

Training for the interviews

Graduate and undergraduate research assistants received extensive training in conducting the interviews. Interviewers attended a weekly training meeting throughout their time on the project, and did two to five interviews under supervision until they reached 95% reliability for standard administration of measures. At T1, research assistants were trained to administer either the mother interviewing protocol or the infant tasks protocol. Mother interviewers were trained to administer the questionnaire packet, the Mother-Infant Interaction, the Working Model of the Child Interview (WMCI; Zeanah, Hirshberg, Danis, & Brennan, 1994), and to perform the role of experimenters and videotapers in the Strange Situation; infant interviewers performed the role of the stranger for the Strange Situation. To ensure standardization of administration tape-recorded role-plays of the WMCI and videotapes of the Strange Situation were rated according to a protocol checklist and all interviewers met or exceeded 85% reliability; during data collection, 25% of each interviewer's WMCI and SS tapes were reviewed to prevent drift.

Measures

Domestic violence. This was collected at every wave, T1 through T4. The Severity of Violence Against Women Scales (SVAWS: Marshall, 1992) is a 46-item questionnaire that assesses violent behaviors and threats the woman may have

experienced from her romantic partner, including physical and sexual violence. Respondents rated their experiences of abuse on a 4-point scale ranging from "Never" (0) to "Many Times" (3). Examples of items include "threatened to hurt you," "choked you," and "used a knife or a gun on you." Each item has a physical harm impact weight according to the level of seriousness, abusiveness, and aggressiveness of the act. Severity of violence was calculated by multiplying each item's frequency score by its physical harm impact weight and summing the products (Marshall, 1992). Marshall reported high internal consistency for a community sample; alphas in this study ranged from .92-.95 for the four time periods.

Exposure to violence was assessed at 4 time points: ages 1, 2, 3 and 4 (preschool) by mother self-report. Women were asked to complete the scale for each partner they had been involved with for more than 6 weeks in the previous year. This yielded a weighted sum score for each wave, which was then converted into a dichotomous violence or no-violence score for each wave. For this study, items describing physical violence or threats of physical violence were used to determine DV. Based on the number of waves at which mothers reported experiencing DV, children were categorized into three groups: No DV, Intermittent DV (at 1 or 2 time points), and Chronic DV (at 3 or 4 time points).

Maternal caregiving representations. The Working Model of the Child Interview (WMCI: Zeanah et al., 1994) is a semi-structured, hour-long interview that elicits mothers' perceptions of and thoughts and feelings about their infant and their relationship with their infant. This was administered at T1 when the infant was one year old. Interviews were audio-taped, transcribed, and coded by trained coders for both process and content of the participants' narratives (c.f. the AAI, George, Kaplan, & Main, 1985)

using 5-point Likert scales that assess the quality of the narrative (e.g. richness), content (e.g. infant difficulty), and the affective tone of the narrative. Based on the pattern of scores on these subscales, an overall classification of the narrative as balanced, disengaged, or distorted was determined. These subscales may also be summed to create a continuous score. This has been used in one previous study (Huth-Bocks et al., 2004). For the purpose of this study, disengaged and distorted groups were collapsed to form a non-balanced group.

The author and another graduate-level research assistant were trained by a third graduate assistant to code the scales and determine classifications using the system developed by Zeanah, Benoit, Barton, and Hirshberg (1996). Coders were blind to the violence status of the participants. Occasionally discussion of DV occurred in the interview, but this was unusual. Coders received extensive training over a period of 6 months, during which they read relevant literature and attended a 90-minute weekly meeting to review and discuss transcripts. They coded 18 interviews with the trainer during this period, and were required to achieve 80% agreement with the trainer for the three-way classification. Disagreements were settled by consensus after the initial training period. Inter-rater reliability was calculated using percent agreement and Cohen's kappa for overall classifications, based on 25% of the 201 transcripts. Final inter-rater agreement averaged 80%, with a kappa of .62 ($p < .001$).

Child attachment. The Strange Situation procedure (Ainsworth, Blehar, Waters, & Wall, 1978) is a 22-minute observational procedure in which the infant and mother participate in eight episodes of play, separation and reunion. This was administered at T1 when the infant was one year old. This series of episodes is considered to be mildly to

moderately stressful for the baby and thus induces particular attachment behaviors, such as crying, clinging, approach and withdrawal. The behavior of the infant as videotaped is coded into one of four general types of attachment classifications: secure, insecure avoidant, insecure ambivalent, (Ainsworth et al., 1978) and disorganized (Main & Solomon, 1990). Coding was done by trained, reliable coders supervised by Susan Paris of the NICHD project at the University of Washington, who had extensive experience coding the Strange Situation. Coders achieved a 90% agreement rate on overall classifications, with a kappa of .84 ($p < .001$).

Preschool behavior problems. The Child Behavior Checklist – Parent Report, ages 4-18 (CBCL: Achenbach, 1991) is a 112-item instrument measures the child's social and emotional functioning. The mother completed this measure at T4 when her child was four years old. The instrument yields eight subscales, two broadband subscales concerning internalizing and externalizing behavior, and a total problem behavior score. These analyses used the total score. The CBCL is a well-standardized measure with extensive reliability and validity data and alphas in the .90s for internal consistency (Achenbach, 1991). The internalizing cluster is made up of the Withdrawn/Depressed, Somatic Complaints, Anxious/Depressed, Thought Problems subscales, and the externalizing cluster consists of the Attention Problems, Social Problems, Delinquent Behavior/Rule breaking, and Aggression subscales. Participants were given a list of symptoms and asked to indicate how true the statement is for their child within the last six months. Participants rated the symptoms on a 3-point scale from "Not True" to "Very True or Often True." Alphas for this study were .69 for externalizing, .86 for internalizing, and .87 for the total score.

The Caregiver-Teacher Report Form, ages 1 ½ - 5. (C-TRF: Achenbach, 1997) is a 100-item measure is similar to the CBCL, yielding two broadband subscales concerning internalizing and externalizing behavior, and a total problem behavior score. The child's preschool teacher completed this measure at Time 4 when the child was four years old. Like the CBCL, the C-TRF is well-standardized, with alphas reported in the .90s (Achenbach & Rescorla, 2001). There are six cross-informant subscales shared with the CBCL: Emotionally Reactive, Anxious-Depressed, Somatic Complaints, Withdrawn (these make up the internalizing cluster), Attention Problems, and Aggressive Behavior (these make up the externalizing cluster). There is also a Sleep Problems syndrome. Alphas in this study were alphas in this study were .96 for externalizing, .84 for internalizing, and .96 for the total score. These analyses used the total score, a sum of the 6 major subscales (excluding Sleep Problems).

Preschool social competence. The Social Competence and Behavioral Evaluation – Short Form (SCBE-30: LaFreniere & Dumas, 1996) is a 30-item measure assesses the child's strengths and weaknesses in social interactions with peers and adults in a school or daycare setting. It was completed by the child's teacher or daycare provider at T4 when the child was four years old. The SCBE-30 is a shortened form of the SCBE-80 and yields 3 subscales: an anxious-withdrawal scale, an angry-aggression scale, and a sensitive-cooperative scale. It is designed specifically to assess preschool behaviors and taps both positive and negative behaviors (in contrast to the CBCL, which indexes problems only). It has been shown to have good inter-rater reliability (.78-.91) as well as construct validity when compared to other conduct disorder and anxiety measures for young children; internal consistency is also good, with alphas in previous studies ranging

from .80 - .92 for all three scales (Denham et al., 2003; LaFreniere & Dumas, 1996). Because the anxious-withdrawal and angry-aggressive scales tap similar dimensions to those measured by the C-TRF, the SCBE was included primarily as a measure of strengths in social competence, therefore these analyses used only the sensitive-cooperative scale. The alpha for this scale was .88.

Use of Attachment and Representation Categories vs. Dimensional Ratings

Ainsworth's (Ainsworth, 1978) original studies of infant attachment behavior and corollary parent behavior used a categorical system rather than dimensional scores, and subsequent research on adult representations of early attachment memories, such as the AAI, developed categories that parallel the infant classification system (Main & Goldwyn, 1984), in part because of an interest in studying the intergenerational transmission of working models (e.g., Benoit & Parker, 1994). The authors of the WMCI and other measures of caregiving representations followed suit. This led to a convention among developmental researchers to use categorical classifications of attachment behavior or representations in studies of parents and children.(Van IJzendoorn, 1992).

However, in coding behavior or narratives to arrive at these categories, these systems include numerical ratings on a number of scales thought to be important to the overall classification, although this classification is typically reached by making a gestalt-type decision rather than by summing the scores. For example, behavior during the Strange Situations is rated for degree of avoidance, contact maintenance, proximity seeking, resistance, and disorganization. Although Ainsworth's group found these scores were strongly related to the category, she chose to preserve the categories because she thought they conveyed a better picture of the overall patterns, that a dimensional system

could not capture all the behaviors considered in making the final decision, and the pattern categories could be easily related to their origins in parenting differences (Ainsworth, 1978).

Researchers of adult attachment style also initially used categories, but then shifted to considering dimensions of attachment (Fraley & Shaver, 2000). Social psychology researchers now primarily consider dimensions of attachment along two axes, for example, positive and negative models of self and others (Feeney, Noller, & Hanrahan, 1994), or, more recently, 1) anxiety about rejection and 2) how to cope with this anxiety, using comfort seeking or avoidance (Fraley & Shaver, 2000). Recently, developmental researchers have begun to explore a dimensional approach to infant attachment behavior, using new statistically techniques to find that infant attachment may be more dimensional, along axes that tap anxiety and comfort with proximity seeking (Fraley & Spieker, 2003). One of the arguments for using dimensional data is that it allows for more statistical power in analyses and increases the likelihood of finding results (Fraley & Spieker, 2003).

For the current study, it was decided to focus on the categorical data on attachment behavior and maternal representations for several reasons. The first was to be able to compare the results to previous studies that used categorical classifications. One of the questions to be explored was whether insecurity of attachment or non-balanced representations matter only in the context of risk, rather than being a general marker of psychopathology, and this could only be answered by comparing categories as other studies have done. Secondly, I hypothesized that the two non-balanced categories of maternal representations reflect alternative ways of coping with negative emotion, either

by deactivating or over-arousal, and thus needed to keep these categories distinct. Finally, less is known about the reliability and validity of the sum scores of the WMCI, and to a lesser extent, the rating subscales used for the Strange Situation, so the more conservative categorical approach was chosen. Although the primary analyses were done with categorical data, some exploratory analyses were done using by summing of the WMCI subscales and using this continuous score of representations in analyses.

RESULTS

Missing Data

Missing scale items were imputed using series mean in SPSS. When case imputation was necessary, continuous variables were imputed using the regression method (ML) in SYSTAT, and categorical variables were imputed using the Hotdeck method in LISREL. Nine teacher SCBE's were missing because this measure was not included in the initial interviews for the age 4 data collection. For these cases, SCBE sum scores were imputed from CBCL and C-TRF scores using the regression method (ML) in SYSTAT .

For the Working Model of the Child Interview (WMCI) data, one case was missing due to tape problems and 2 women missed the age one interview. WMCI variables were imputed using the Hotdeck method in PRELIS based on variables found to be significantly related to the WMCI in previous analyses of this sample (Huth-Bocks et al., 2004; Theran, Levendosky, Bogat, & Huth-Bocks, 2005). For the age one WMCI, the variables used for imputation were: prenatal WMCI category, mother's education, household income, and depression scores.

For the Strange Situation (SS) data, ten cases were missing either because the interview was done by phone because the participant lived out of state (n=6), the mother refused to be videotaped (n=1), there was a tape malfunction (1), or the mother missed the age one interview (2). It was decided not to impute this data due to the large number of missing cases.

113 of the 174 children were enrolled in preschool at Time 4. Twenty-one of these 113 children were missing all teacher data (C-TRF's and SCBE's), either because

the mothers refused to allow us to contact the school (n=6), or the teachers did not return the forms (n=15). Therefore, for the analyses of teacher-rated data, the total sample was 92.

Data Reduction

Domestic Violence

Exposure to violence was assessed at all four waves: ages 1, 2, 3 and 4 (preschool) by mother self-report, yielding a weighted sum score for each wave, which was then converted into a dichotomous violence or no-violence score for each wave. Criteria of inclusion in the DV groups was endorsement of physical violence or threat of physical violence on the SVAWS. Based on the number of waves at which mothers reported experiencing violence, children were categorized into three groups reflecting the duration of domestic violence during the first four years of life: No exposure, Intermittent exposure (at 1 or 2 time points), and Chronic exposure (at 3 or 4 time points) (see Table 2).

To control for severity of violence, a peak score was calculated by taking the highest severity score of the four time periods (see Table 3). In addition, in order to conduct a secondary analysis comparing recent vs. distal exposure, another three categories were created to reflect recent (past year) exposure, prior but not recent exposure, and no exposure.

Attachment and Maternal Representation Categories

The infant attachment coding system used for the Strange Situation procedure yields four categories: secure, avoidant, ambivalent, and disorganized. For the purpose of this study, the latter three were combined to form an insecure group. Analyses for this

study compared the secure vs. the insecure attachment groups. The WMCI coding yields 3 categories: balanced, distorted, and disengaged; the latter two were combined to form a non-balanced group for these analyses, in order to compare children of balanced vs. non-balanced mothers (see Table 4).

Child Behavior Outcomes

Mothers and teachers completed parallel behavior rating scales for the children, with teachers using the C-TRF, and mothers using the CBCL. Both scales yield internalizing and externalizing behavior subscales. Teachers also completed a measure of social competence. There were initially five child outcomes to consider: mother-rated internalizing behavior and externalizing behavior, teacher-rated internalizing behavior and externalizing behavior, and teacher-rated social competency. See Table 3 for the bivariate correlations and descriptive statistics on these variables. Within raters, the internalizing and externalizing subscales were so highly correlated it was decided to use the total score for each rater instead of the two subscales (see Table 3). However, correlations between raters were smaller, and in the case of teacher-rated internalizing, non-significant, so it was decided to analyze mother and teacher ratings separately. Although social competence was significantly correlated with the other 4 outcomes, it was decided to preserve this variable because it is a measure of strengths rather than problems, and was therefore provided unique information. Thus, three child outcomes were used for these analyses: mother-rated total problems (CBCL), teacher-rated total problems (C-TRF), and teacher-rated social competence (SCBE).

Analyses

Direct Effects of Domestic Violence

It was hypothesized that children who were exposed to DV would have more behavior problems and lower social competence than children in the no-violence group. It was further hypothesized that problems would increase as the duration of exposure increased. First, a one-way ANOVA was used to see if DV had a significant effect on child outcomes, entering DV group as the independent variable and child outcomes as the dependent variable. Next, planned comparisons were used to compare the DV groups, anticipating that the Chronic group would have more severe problems than the Intermittent group.

The initial one-way ANOVA supported the hypothesis that children exposed to domestic violence would have significantly more behavior problems and lower social competence than their non-exposed peers (F (2, 171) = 5.212, $p < .01$). However, results of the planned comparisons only partially supported the hypothesis that problems would increase as exposure to DV increased. For social competence, the Chronic group looked significantly worse than the no-violence group, but the Intermittent group was not significantly different than either of the other groups (see Table 5). Both the Chronic and Intermittent groups had significantly more teacher-rated behavior problems than the no-violence group, but did not differ significantly from each other. For mother-rated behavior problems, the Chronic group was significantly worse than both the Intermittent and no-violence groups, but the Intermittent group did not differ from the no-violence group (see Table 5). Thus, for mother-rated problems, longer duration was associated with more severe problems, but for the other outcomes the Intermittent group either did

not differ from the two other groups or looked similar to the no-DV group. Finally, a one-way ANOVA was used to compare children who had been exposed to DV in the past year with those who had been exposed prior to but not during the past year: there were no differences between these two groups for any of the three outcomes. Results for teacher-rated problems were $F(1, 58) = .002, p = .968$, and results for the other child outcomes were similar.

In summary, children exposed to DV did show more behavior problems at home and school at age four, but greater exposure did not necessarily mean more severe problems. There was no effect related to having experienced DV in the past year vs. only at an earlier age. The most significant factor seemed to be whether or not the child was exposed at all.

Moderating Effects of Attachment and Maternal Representations

Although differences in preschool outcomes between secure and insecure children were not expected for the group as whole, in the DV-exposed groups, secure children were expected to have better outcomes than insecure children. Thus, an interaction was predicted between attachment and DV status, with attachment having more effect on preschool behavior in the violence-exposed groups. A two-way ANOVA was used to test for main and interaction effects. For social competence, there was no main effect for attachment category [$F(1, 82) = .044, p = .84$] or for the covariate DV score [$F(1, 82) = 1.98, p = .16$], nor was there a significant interaction effect for DV X attachment [$F(2, 82) = .458, p = .63$]. For teacher-rated behavior problems, there was no main effect for attachment [$F(1, 82) = .719, p = .40$] or peak DV score [$F(1, 82) = 1.29, p = .26$], nor was there a significant effect of the interaction variable [$F(2, 82) = .831, p = .439$].

Similarly, for mother-rated behavior problems, there was no main effect for attachment [F (1, 168) = 1.04, p =.31] or for the interaction variable [F (2, 88) = 1.33, p =.29].

Although no significant effects were found for attachment, the group means were generally in the expected direction, with secure groups having lower problem scores and higher competence scores (see Table 6). For these analyses, the Eta value from the ANOVA was used as an estimate of the effect size. The Eta value here was negligible, ranging from 0.00 to 0.06.

A similar moderating hypothesis was proposed for maternal representations in the high-risk, DV-exposed groups, but this hypothesis also was contradicted by the data. For the WMCI, it was predicted that there would be an interaction between WMCI category and DV group. This was tested using a two-way ANOVA with DV group and WMCI classification as the independent variables, peak DV score as a covariate, and child outcome as the dependent variable. Univariate ANOVA's were run separately for each child outcome. There were no main or interaction effects on teacher or mother-rated behavior problems, but there was a main effect of WMCI classification on child social competence at the level of a trend (see Table 7). There was no significant interaction effect of DV and WMCI for social competence. Although there were significant differences for behavior problems, means were generally in the expected direction, with children in the balanced group having fewer problems in most cases (see Table 8).

Finally, in order to test whether these findings might be limited by the use of categorical data, an exploratory analysis was done using a continuous score of maternal representations created by summing the six qualitative subscales. Linear regressions were performed using this score as the independent variable and each of the preschool

outcomes as the dependent variable, running separate regressions for each DV group. The WMCI sum score was not related to child outcomes in any of the groups. For example, although WMCI category was related to social competence in the two-way ANOVA analyses, it was not significant in the regression analysis with social competence (B= .406, F (2, 168) = 1.083, p = .306). Results for the other child outcomes were similar.

In summary, the expected interaction of attachment and high-risk (DV exposure) was not found in this sample, nor did maternal representations appear to moderate the effects of DV of behavior problems. There was, however, a main effect of maternal representations on preschool social competence.

DISCUSSION

The goal of the present study was to understand how DV and the mother-child relationship might interact to influence the development of the child's early preschool relationships with teachers and peers. It was hypothesized that DV during the first four years of life would predict preschool behavior problems, and that severity of problems would increase in proportion to the extent of the exposure. It was also hypothesized that there would be an interaction effect for DV and attachment and DV and maternal representations.

The first hypothesis was partially supported, in that DV predicted preschool behavior problems, but severity of behavior problems did not increase in proportion to exposure. These results are consistent with findings from previous studies indicating that exposure to domestic violence is associated with increased behavior problems (Levendosky et al., 2003; McCloskey & Stuewig, 2001; Sternberg et al., 1993). The fact that higher levels of behavior were seen in the DV-exposed groups suggests that DV affects children's emotion regulation (as seen in increased anxiety, sadness, and anxiety) and impairs their ability to interact appropriately with others (as seen in increased aggression). It could be that children exposed to DV are imitating behavior seen at home (unregulated anger) and/or that they are distressed by frightening behavior seen at home and express this behaviorally.

Results did not support the hypothesis that attachment and maternal representations would moderate the effects of DV. Given that secure attachment in infancy is theoretically associated with the development of effective emotion regulation (Magai, 1999), it is surprising that attachment security did not predict lower levels of

problem behaviors and better social competence. Previous studies examining whether maternal characteristics or the mother-child relationship mediate or moderate the effects of DV on children show mixed results. Some studies, including one of the present sample, found that the mother's life stress and symptoms of PTSD mediated the relationship between DV and child symptoms (Bogat et al., 2006; Lieberman et al., 2005). Another study failed to find a mediating effect for maternal mental health on child PTSD symptoms (Kilpatrick & Williams, 1998). For the current sample, the direct effect of domestic violence appears to override the potential protective effect that might be provided by secure attachment or balanced maternal caregiving representations.

The association between DV and child behavior problems and lower social competence found here is consistent with results from previous studies with school-age children (McCloskey et al., 1995; Sternberg et al., 2006) and preschool children (Levendosky et al., 2003; Lieberman et al., 2005). However, contrary to expectation, the intermittent and chronic groups differed from each other only in one of the three outcomes, mother-rated problems, and here only at the level of a trend. These findings suggest that the effects of DV take place upon first exposure, rather than following a dose-response pattern.

It had been hypothesized that duration of DV might account for some of the variation in child outcomes that has been found by other studies, but that was not the case in this sample. Rather, these results suggest that any DV experienced during the first four years will contribute to preschool behavior problems. This is in contrast to another study based on a subgroup of this sample, which found that witnessing severe domestic violence predicted trauma symptoms at age one while witnessing less severe DV did not

(Bogat et al., 2006). However, that study was cross-sectional, using DV from one wave (first year of life), and focused on a concurrent outcome specific to witnessing a violent episode (PTSD symptoms). It may be that when examining proximal violence and child response, symptoms increase in proportion to the severity of DV, while when looking at the effects of DV on general child problems over four years, the extent of DV matters less than the initial exposure. Finally, the lack of differences between the Intermittent and Chronic groups may be a function of the small sample size in each group. Future studies using larger samples should examine whether duration is one factor that contributes to the variability of outcomes.

In this sample of mixed low- and high risk children (based on exposure to DV), attachment and maternal representations did not have a direct effect on preschool behaviors for the group as a whole. In general, the effect size for attachment within each violence group was negligible, with eta's ranging from .00 to .09 in all three groups. The effect size of maternal representations was similarly small, ranging from .00 to .13 (for social competence). This suggests that other factors outside the scope of this study outweighed the influence of attachment on preschool outcomes in this high-risk sample.

The lack of moderation findings was somewhat surprising because previous studies have found that the relationship of early attachment to later behavior problems is most robust in high-risk samples (Belsky & Fearon, 2002; Fish, 2004; Lyons-Ruth, 1996). It may be that the sample as a whole is sufficiently high-risk in Belsky and Fearon's terms (2002) to show such attachment-related differences, but when DV is added to the demographics risks, the effect of attachment is neutralized.

Examining the overall pattern of behavior problems, DV, and attachment in Table 6 reveals that mean problem behavior scores rose in both secure and insecure groups while social competence fell as the duration of violence increased. Thus, the direction of the means suggests that the exposure to violence had the same effect on both secure and insecure children, overpowering any buffering effect security might have had for preschool behavior and social problems. Such a threshold effect, in which one factor ceases to have influence in the presence of another factor, was found in an earlier study of the larger sample from which this study was drawn. In a study of children's reaction to a demonstration of adult anger in a laboratory situation, temperament predicted postural distress response in children who had not been exposed to DV, but not in those who had been exposed to DV (DeJonghe et al., 2005). This threshold effect may explain why attachment was not related to preschool outcomes in the groups exposed to DV.

The failure to find an interaction between attachment and risk, in this case DV, is in contrast to other studies of attachment in high-risk samples. However, these other studies, described in the introduction, used demographic factors such as SES, single parenthood, and ethnicity to determine the level of risk (Fish, 2004; Huth-Bocks et al., 2004). It may be that an interpersonally traumatic experience such as inter-parental violence has a qualitatively different effect on child development of emotion regulation and social skills with peers, at least in the first few years of life. It is important to note that a number of children exposed to violence nonetheless were categorized as having secure attachments to their mothers. Although attachment security is not buffering their behavioral difficulties at age four, there may be a later effect on peer relationships as the child grows older, or a recuperative effect if the violence between the parents ends.

There are no empirical studies to date of child recovery from witnessing domestic violence, but other studies of attachment and child behavior problems suggest that children who are in the same attachment or problem group at a young age may follow different trajectories. For example, a large longitudinal study of child behavior problems found that children with early behavior problems followed different trajectories: some children improved, some worsened, some stayed the same, and these paths reflected other differences in parenting variables, demographics, and child characteristics (NICHD ECCRN, 2004). Fish (2004) found that infant attachment was a better predictor of preschool social and cognitive functioning than concurrent age four attachment. Although the current study examines DV over time, the outcomes are from one time period, age four. Re-examining the developmental paths of this sample when they reach school-age may provide more information about which preschool children with behavior problems continue to have such problems when they are age seven or eight. Margolin (2005) argues that the adaptations that children make to survive in a household with DV, such as becoming passive or withdrawn to avoid drawing parental anger may be maladaptive outside the home, interfering with later developmental tasks including making friends at school or asserting themselves in academics or sports. It may be that the protective effects of attachment security or balanced maternal representations emerge at a later stage in development, perhaps only several years after the exposure to violence ends, and that the lack of difference seen in this study reflected the influence of ongoing DV.

In contrast to previous studies, no relationship between attachment and social competence was found (Denham et al., 2003; Denham et al., 2002a; Rose-Krasnor, 1997). Effective social competence requires recognizing emotions in oneself and others,

effective regulation of one's own emotion and an ability to respond appropriately to emotions in others (Denham et al., 2002b; Rose-Krasnor, 1997; Zhou et al., 2002). Theoretically, attachment provides a foundation for learning these things, particularly emotion regulation (Cassidy, 1994; Magai, 1999). However, in this sample attachment was not related to social competence. This may have been a function of small sample size, or it may be that the positive effects of age one attachment on preschool behavior are less discernible given the three-year period between assessments.

Maternal representations were related only to teacher-rated social competence at the level of a trend. Although this is not a robust finding, it contributes to the limited evidence that maternal representations reflect a pattern of emotion regulation that may be transmitted to the child (Rosenblum et al., 2002). However, it remains to be seen whether this is because maternal representations are influenced by an underlying temperamental/genetic factor that is shared by mother and child, or by modeling of emotion regulation. The association between balanced representations and higher social competence is theoretically consistent with research on parenting and the development of social competence, although there are no prior empirical studies to compare. It is particularly notable that a relationship between maternal representations and social competence was found given that they were assessed three years apart. It would be interesting to test this effect in a low-risk sample as a way of getting a baseline measure of the strength of the effect of caregiving representations, or to measure concurrent age three caregiving representations and child behavior. Theoretically, parents who can integrate both positive and negative affect in a coherent way while being open and accepting of the child's emotional experience provide a model for emotion regulation as

well as for interpreting and responding appropriately to others (Denham et al., 1994; Magai, 1999). This is a cornerstone of social competence (Halberstadt et al., 2001). Children who can regulate their emotions and accurately read others' emotions are more likely to succeed in interpersonal interactions, to behave cooperatively in a peer setting (Denham et al., 2002b).

Previous studies have found that social competence is facilitated by parents who can express and respond to both positive and negative emotions, who respond sensitively to their children's expression of emotions and who help their children learn to regulate their emotions and their behavior (Denham et al., 2000). Sensitivity, acceptance, and the ability to balance both positive and negative emotions are all components of balanced maternal representations (Zeanah et al., 1996), but this is the first study to show that these qualities coded from a narrative may be related to social competence three years later. It may be that a balanced maternal representation reflects important and enduring maternal characteristics that contribute to the development of emotional strengths as the child develops. However, it does not seem to protect against the development of behavior problems, because it was unrelated to those rated by either the teacher or the mother.

Limitations

Perhaps the strongest limitation of the present study is the small sample size for each of the DV, attachment, and WMCI groups used for the analyses (see Table 4). In addition, as noted, the moderator variables were measured three years prior to the outcome variables. While this is typical of longitudinal attachment studies, attachment is not necessarily stable over time, particularly in high-risk samples (Belsky & Fearon, 2002). Thus, children who were categorized as secure at age one may be insecure at age

four. The focus of this study was the longitudinal effect of infant attachment on later preschool behavior. However, comparing the relative effects of past and concurrent attachment on preschool behavior might provide more information about potential moderating effects. Such a study could also consider stability of attachment over time as an additional factor. In a study of children at risk due to poverty and rural environment, Fish (2004) found preschool outcome differences between stable secure and children who changed attachment classification between age one and age four. She also found that secure infant attachment had a protective effect, but that there was no such benefit from preschool attachment status. For that sample, risk status was generally stable over time, while DV has been found to be a highly changeable risk factor in longitudinal studies (e.g., Sternberg et al., 2006). As such, measuring attachment in a DV sample across time may reveal interactions at different developmental stages.

Another potential limitation stems from the decision to group children with similar duration of violence exposure. While this has the advantage of testing for the effects of DV over a crucial developmental period, it comes at the expense of considering severity of violence. Thus, children within one theoretically homogenous group may have experienced widely different levels of severity. Finally, this is a community sample reporting mostly mild to moderate levels of DV. Thus, results may not be generalizable to shelter samples who experience more extreme forms of DV.

Implications for Future Research and Intervention

This study makes a unique contribution to the literature showing negative effects of domestic violence on child development, because it is one of the few studies that has used a very young sample and is longitudinal over the time period, thus showing that the

effects of DV may take hold early in development. Further research is needed to examine when attachment is most predictive of later behavior and to what degree attachment can facilitate resiliency. Although Belsky and Fearon (2002) suggested attachment security may act as a protective factor in the context of demographic risks, in this study, DV appeared to overwhelm the effects of attachment. However, this study examined only the first four year of the child's life: secure attachment may provide a protective effect in later years or in different relationship contexts (i.e. dating relationships during adolescence).

Longitudinal studies that encompass significant developmental milestones are needed to understand the long-term relationship between childhood exposure to DV and attachment. Longitudinal studies have found that both exposure to DV and the parent-child relationship are important contributors to risk for being in a violent dating relationship (Ehrensaft et al., 2003; Magdol et al., 1998), but these studies did not have early attachment data, only later self-report. The working models of infancy identified in the Strange Situation may have a different effect on relationship behavior than adolescent self-reported attachment style. It will be important to include both in longitudinal studies. In particular, the Disorganized subtype of infant attachment, which at this time is only assessed using the Strange Situation, may have a unique relationship to later dating violence, (Lyons-Ruth & Jacobvitz, 1999).

Previous studies have examined the influence of maternal representations on attachment and child behavior only as far as infancy (Benoit et al., 1997; Huth-Bocks et al., 2004; Rosenblum et al., 2002). In this first study of maternal representations and child behavior during preschool, the finding of a relationship between balanced mothers

and social competence in the child is consistent with theory about transmission of working models from mother to child and the development of social competence. The WMCI theoretically taps the extent to which a mother can integrate positive and negative emotions about her relationship with her child and emotionally regulate herself in order to remain coherent and aware of complex and rich detail of her feelings and experiences (Zeanah & Benoit, 1995; Zeanah et al., 1996). Studies using the WMCI have found it to be concordant with concurrent and future infant attachment, suggesting that the internal working model reflected in the mother's caregiving representations somehow influences the child's working model, as manifest in infant attachment behavior. It may be that the qualities of emotion regulation, sensitivity, and acceptance influence the child's working model. The mechanism of transmission is unclear, but Rosenblum (2002) found evidence that maternal caregiving representations affects infant emotion regulation under stress. More studies will be needed to see if this can be replicated, and if the effect is mediated by observed parenting or by maternal emotion regulation. Researchers have found that attachment and parental emotional style are important building blocks for the development of social competence (Denham et al., 1994). Thus, if maternal representations can influence attachment and emotion regulation, theoretically they should also affect the development of social competence.

In summary, the findings of this study suggest that the effects of DV begin early in life and are not necessarily buffered by a secure mother-child relationship. Furthermore, results from this study suggest that the damage done by short-term exposure is similar to that done by longer-term exposure. Thus, while a secure parent-child relationship is important to foster for many reasons, parents should be educated that the

quality of their relationship with their children may not negate the damaging effects that a violent intimate partner relationship of any duration might have on their children.

APPENDICES

Appendix A

2/6/00

Working Model of the Child Interview

We are interested in how parents think and feel about their young children. This interview is a way for us to ask you about _____ (child's name) and your relationship to him/her. The interview will take us about an hour to complete.

1a. **The last time we interviewed you, we began by asking all about your pregnancy. Today I'd like to begin by asking about your labor and delivery. What was it like?** *(Give some time to respond before proceeding.)*

1. How did you feel and react at that time?

2. What was your first reaction when you saw the baby?

3. What was your reaction to having a boy/girl?

4. How did your family react?
(Be sure to include husband/partner, other children in the family, etc.)

1b. **Did the baby have any problems in the first few days after birth? .** *(Give some time to respond before proceeding.)*

1. How soon did the baby leave the hospital?

2. Did you decide to breast-feed or bottle-feed?

3. Why?

4. How did you come to that decision?

1c. **How would you describe the first few weeks at home with the baby ?** *(give the subject some time to respond, then ask about feeding, sleeping, crying, etc. if she hasn't mentioned them)*

1d. **How old was your baby when he/she started sitting up?**

1. Was this ahead, behind, or at about the same time as when you think other children might do this for the first time?

(For each of the following, be sure to get a sense of the ways in which the baby was thought to be different, ahead, or behind in motor, social and language development.)

2. How old was your baby the first time he/she

Crawled?_____ ahead, behind, or about the same....
Walked?_____ ahead, behind, or about the same....
Smiled?_____ ahead, behind, or about the same....
Talked?_____ ahead, behind, or about the same....

3. Did you have any sense of your baby's intelligence early on? What did you think?

1e. **Did your baby seem to have a regular routine?**

1. What happened if you or your baby couldn't stay in the routine?

1f. **How has the baby reacted to separations from you?** *(Try to get a sense of the baby's reactions at various ages.)*

1. Were there any separations of <u>more than a day</u> in the first year?
If she says "NO," go to 2a.

2. How did your baby react?

3. How did you feel?

4. What did you do?

2a. **Describe your impression of your child's personality now.** *(Give the subject enough time to respond to this before proceeding to specific descriptors below.)*

2b. **Pick five words (adjectives) to describe your child's personality. After you have told me what they are, I will ask you about each one.** *(You may tell the subject that it is fine to use any of the descriptors they used in response to the general probe above, but do not remind them what they said before you have given them time to recall themselves. Some subjects will have a hard time coming up with five descriptors. If you feel that they cannot come up with five, then move on. The numbers are less important than the descriptions.)*

1. *Interviewer: write the 5 words down, then go back and ask for each:*
For each one, what is it about him/her that makes you say that? Tell me a specific incident or memory to show what you mean.

3a. **At this point, whom does your child remind you of?**

1. In what ways?

2. When did you first notice the similarity?

******If only one parent is mentioned, ask, "In what ways does the child remind you of (the other parent)?"***
(The following questions should be asked whether or not the parents have been mentioned.)

3. Which of his/her parents is your child most like now?

4. In what ways is your child's personality like or unlike yours or his/her father's personality?

3b. **Are there any family characteristics on your side that you see in your child's personality?**

1. What about the baby's father's side of the family?

3c. **How did you decide on your child's name?**

1. Does this name have special meaning in your family or the baby's father's family?

2. How well does the name seem to fit?

4. In what ways is your child unique or different compared to what you know of other children?

5. What about your child's behavior now is the most difficult for you to handle? Give a typical example. *(if she has trouble thinking of one, tell her it doesn't have to be a <u>really</u> difficult behavior: just whatever is the <u>most</u> difficult for her to handle now.)*

5a. How often does this occur?

1. What do you feel like doing when your child reacts this way?

2. How do you feel when your child reacts this way?

3. What do you actually do?

5b. Do you think he/she knows that you don't like this behavior?

1. Why do you think he/she does it?

5c. What do you imagine will happen to this behavior as your child grows older?

1. Why do you think so?

6a. How would you describe your relationship to your child now? *(Give time to respond.)*

6b. Pick five words (adjectives) to describe your relationship with your child now.
1.
2.
3.
4.
5.

Interviewer: As before, write the 5 words down, then go back and ask for each one:
1. For each word, describe an incident or memory that illustrates what you mean.

7a. What pleases you most about your relationship with your baby?

1. What do you wish you could change about it?

7b. How do you feel your relationship with your child has affected your child's personality? *(Give ample time to respond to this.)*

7c. Has your relationship to your child changed at all over time?
1. In what ways?

2. What's your own feeling about the change?

8. Which parent is your child closest to now?

1. How can you tell?

2. Has it always been that way?

3. Do you expect that to change (as the child gets older, for instance)?

4. How do you expect it to change?

9. **Does your baby get upset often?** *(Give some time to respond before proceeding to specific queries.)*

1. What do you do at these times?

2. What do you feel like doing when this happens?

3. What are your feelings when this happens?

9a. **What about when he/she becomes emotionally upset? Can you recall a specific example?** (*Indicate that you want an example by providing a reasonably long time to think of one.)*

1. What did you do when that happened?

2. What did you feel like doing?

3. What were your feelings when that happened? *(If the subject becomes extremely anxious and cannot recall an example then proceed to the next question.)*

9b. **What about when he/she has been physically hurt a little bit? Can you give an example and describe what happened?**

1. What did you do when that happened?

2. What did you feel like doing?

3. What were your feelings when that happened? *(If the subject becomes extremely anxious and cannot recall an example then proceed to the next question.)*

9c. **Has your child been sick at all? Can you give an example?**

1. What did you do when that happened?

2. What did you feel like doing?

3. What were your feelings when that happened? *(If the subject becomes extremely anxious and cannot recall an example then proceed to the next question.)*

10. **Tell me a favorite story about your child, perhaps one you've told to family or friends. I'll give you a minute to think about this one. (If the subject is struggling, you may tell them that this doesn't have to be the favorite story, only a favorite).**

1. What do you like about this story?

11. **Are there any experiences which your child has had which you feel may have been a setback for him/her?** *(Setback: something that might make things harder for your baby than for other children.)*

1. Why do you think this might have been a setback? *(Be sure to give time to respond before moving on to the more direct questions which follow.)*

12. **Knowing what you know now, if you started all over again with your child, what would you do differently?** (*Give some time to respond.)*

13. **Do you ever worry about your child?**

    1. What do you worry about?

14. **If your child were to be one particular age, what age would you choose?**

    1. Why?

15. **As you look ahead, what will be the most difficult time in your child's development?**

    1. Why do you think so?

16. **What do you expect your child to be like as a teenager?**
    (between the ages of 12-18)

    1. What makes you feel this way?

    2. What do you expect to be good and not so good about this period in your child's life?

17. **Think for a moment of your child as an adult. What hopes and fears do you have about that time?**

Appendix B

Strange Situation Procedure

Episode #	Persons Present	Duration	Action
1	Mother, baby, experimenter	30 seconds	Walk the mother and child into the room
2	Mother & baby	3 minutes	*Tape*
3	Stranger, mother, & baby	3 minutes	➢ After 1 minute, knock once on the mirror (stranger talks to mom) ➢ After 2 minutes, knock once on the mirror (stranger initiates play) ➢ After 3 minutes, knock twice on the mirror (mother leaves)
4	Stranger & baby	3 min. or less[1]	*Tape*; after 3 minutes, cue the mother into the room
5	Mother & baby	3 min. or more[2]	*Tape*; after 3 minutes, knock twice on the mirror to cue the mother to leave
6	Baby alone	3 min. or less[1]	*Tape*
7	Stranger & baby	3 min. or less[1]	*Tape*; after 3 minutes, cue the mother into the room
8	Mother & baby	3 minutes	*Tape*

[1] Episode might be curtailed if the baby is extremely distressed. See below
[2] Episode might be extended if the baby does not seem settled enough.

Judging distress: as a rule, if child is calling out at door/intermittent crying - keep going
Full cry: send stranger in after 30 seconds. Do not allow full cry to go past 1 minute.

Difficult separations

Episode 4: if child is extremely upset at first separation and clings to mother in hall, have stranger lead child away from door and have mother at least close door behind her – then she can return right away (stranger can explain this to mom).
If the child is hysterical after attempting episode 4 and does not settle, do not try for second separation – have mother reassure child she will not leave again.

Episode 5: if child has not settled, extend episode up to one minute, then see below

Episode 6: if child is extremely distressed, again, attempt to have mother at least close door behind her and then send stranger right in, then mother in too if necessary.

If the stranger has to escort the child back into the room for episode 6, you can skip episode 6 (child alone) and go right on to episode 7.

TABLES

Table 1. Demographic Characteristics of the Sample at Time of Recruitment, during Third Trimester of Pregnancy

Characteristics	Percentage of Sample (N = 174)
Mother's racial/ethnic group	
Caucasian	64%
African-American	24%
Biracial	5%
Latina	5%
Asian or Native American	2%
Child's racial/ethnic group[a]	
Caucasian	49%
African-American	24%
Multi-racial	24%
Asian or Latina	3%
Child Gender[a]	51% girls
Marital status	
Single, never married	50%
Married	42%
Separated, divorced or widowed	8%
Educational Status	
Did not complete high school	15%

[a] As reported by mother after birth

Table 1. Continued

Characteristics	Percentage of Sample (N = 174)
High school diploma	28%
Trade school, some college, or associate's degree	42%
Bachelor's or graduate degree	15%
Receiving public assistance	62%
Monthly household income (1999-2000)	Median = $1,500 (range: 0-$6,200; SD = $1,400)
Mother's age	M = 25 years (range: 18-40 years; SD = 5 years)

Table 2. Sample Size of DV Groups

	Preschool n = 92	Total sample n = 174
No violence	29	59
Intermittent	40	67
Chronic	58	48

Table 3. Bivariate Correlations and Descriptives of Continuous Variables

	1	2	2	4	5	6
1. Social competence						
2. C-trf internalizing	-.44**					
3. C-trf externalizing	-.66**	.56**				
4. Cbcl internalizing	-.28**	.17	.23*			
5. Cbcl externalizing	-.36**	.16	.23*	.62**		
6. Peak DV score	.04	.02	.01	-.04	.06	
Mean (*SD*)	40.0 (9.0)	6.0 (5.5)	10 (11.9)	2.1 (2.5)	8.2 (6.0)	10.0 (17.7)
Range in sample	21-60	0-25	0-50	0-16	0-34	0-86

** $p < .01$, * $p < .05$

Table 4. Size of Attachment and Maternal Representations Groups within each DV Group

	No violence	Intermittent	Chronic
Attachment Category (n=89)			
Secure (52)	17	20	15
Insecure (37)	12	19	6
WMCI (n=169)			
Balanced (102)	42	34	26
Non-balanced (67)	15	31	21

Table 5. Results of Planned Comparisons for Child Outcomes and DV Groups

	Means for each group (*SD*)			F^a	Planned comparison
	No violence (D)	Intermittent (E)	Chronic (F)		
C-TRF total	9.3 (11.35)	19.67 (17.58)	18.95 (14.99)	4.615**	E > D**, F > D*
Social competence	42.61 (8.89)	40.14 (8.84)	36.59 (8.66)	3.00*	F > D*
CBCL total	8.17 (8.50)	10.36 (6.06)	12.92 (8.22)	5.212**	F > D**, F > E$^+$

**$p < .01$. *$p < .05$. $^+p < .10$.

[a] For univariate F-tests, degrees of freedom for C-TRF and social competence were (2, 89) and for CBCL (2, 171)

Table 6. Child Outcomes for Secure vs. Insecure Attachment Groups, by DV Group

	Teacher-rated		Mother-rated
	C-TRF Total	Social Competence	CBCL Total
	M (SD)		
No violence			
Secure	8.08 (11.17)	43.59 (9.43)	8.76 (9.63)
Insecure	11.33 (12.73)	41.75 (8.63)	7.79 (6.48)
Intermittent			
Secure	21.61 (16.59)	41.14 (7.99)	10.05 (6.73)
Insecure	17.95 (18.56)	38.56 (9.59)	10.90 (5.22)
Chronic			
Secure	21.95 (15.29)	35.20 (8.88)	11.77 (7.55)
Insecure	14.12 (13.5)	37.83) (7.08)	15.65 (8.72)

Table 7. Results of 2-way ANOVA for WMCI Classification and DV Group

	Teacher-Rated				Mother-Rated	
	C-TRF Total		Social Competence		CBCL Total	
	F (1, 82)	*p*	*F (1, 82)*	*p*	*F (1, 162)*	*p*
WMCI	.276	.601	3.13[+]	.148	.632	.428
DV Group	2.297	.107	1.96	.081	3.826	.024
DV peak score	.694	.407	2.19	.143	1.02	.314
DV Group X WMCI	.550	.579	1.40	.253	.590	.556

[+] $p = .81$

Table 8. Child Outcomes for Balanced vs. Non-balanced WMCI Groups, by DV Group

	Teacher-Rated		Mother-Rated
	C-TRF Total	Social Competence	CBCL Total
	M (SD)		
No violence			
Balanced	8.13 (9.8)	44.65 (7.4)	7.64 (8.57)
Non-Balanced	14.40 (17.59)	35.83 (11.65)	10.27 (8.66)
Intermittent			
Balanced	20.80 (17.19)	40.96 (7.77)	9.62 (5.82)
Non-Balanced	18.05 (18.04)	39.44 (9.86)	10.71 (6.25)
Chronic			
Balanced	17.57 (12.89)	37.06 (7.06)	13.27 (7.16)
Non-Balanced	20.57 (19.60)	35.71 (10.78)	12.62 (9.68)

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