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Predicting preschoolers' emotion regulation: the roles of parental depression symptoms and conflict

Jessica Norman
Western Washington University

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**PREDICTING PRESCHOOLERS' EMOTION REGULATION: THE ROLES OF
PARENTAL DEPRESSION SYMPTOMS AND CONFLICT**

By

Jessica Norman

Accepted in Partial Completion
Of the Requirements for the Degree
Master of Science

Kathleen L. Kitto, Dean of the Graduate School

ADVISORY COMMITTEE

Chair, Dr. Tina Du Rocher Schudlich

Dr. Barbara Lehman

Dr. Deborah Forgays

Master's Thesis

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Jessica Norman

February 18, 2014

**PREDICTING PRESCHOOLERS' EMOTION REGULATION: THE ROLES OF
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A Thesis
Presented to
The Faculty of
Western Washington University

In Partial Fulfillment
Of the Requirement for the Degree
Master of Science

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Jessica Norman
February, 2014

Abstract

Using a family systems perspective, this study investigated interparental conflict style, including destructive, depressive, and constructive conflict, as a mediator of the effects of parent depression symptoms on child emotion regulation. Self-reported depression symptoms and both self-reports and observations of interparental conflict style were collected from a community sample of 72 families when children were 6 -14 months old; observations of child emotion regulation behavior during a frustrating boring story task were collected from 33 of the original families when children were 3 - 4.5 years old. A methodological gap was addressed by examining links for both mothers and fathers. Path analysis results indicate that fathers' depression symptoms predict fathers' destructive, depressive, and constructive conflict behavior. Paternal depressive conflict was revealed as a significant mediator of the effects of paternal depression on child emotion regulation. Mothers' depression symptoms predicted maternal depressive conflict; however, maternal conflict behavior was not related to child emotion regulation outcomes. Overall, results support the unique effects of fathers on child emotional adjustment, particularly through indirect effects. Implications for family practitioners are discussed.

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Predicting Preschooler's Emotion Regulation: The Roles of Parental Depression Symptoms and Conflict

Emotion regulation, the ability to flexibly manage emotions to meet contextual demands, represents a key developmental milestone of early childhood, with implications for lifetime psychological functioning (Rubin, Coplan, Fox, & Calkins, 1995; Silk, Steinberg, & Morris, 2003). Parent involvement is critical to the development of effective emotion regulation strategies, as young children initially rely heavily on caregivers for the emotional and physical support necessary to acquire self-regulation skills (Cole, Michel, & O'Donnell Teti, 1994; Sroufe, 1995; Volling, McElwain, Notaro, & Herrera, 2002). Parent depression symptoms present a major obstacle to the development of these skills, as depressed caregivers are typically less warm and emotionally available than unaffected parents and tend to provide their young children with inconsistent or inappropriate emotional feedback (Field, 1994). Indeed, evidence shows that children of a depressed parent use regulation strategies that down-regulate negative emotion less effectively than those of their peers, placing them at a greater risk for psychopathology (Silk, Shaw, Skuban, Oland, & Kovacs, 2006). Although the negative effects of parent depression on children's emotional adjustment are well-established, what is perhaps more intriguing is the fact that many children who are exposed to parent depression develop no adjustment problems (Cummings, Davies, & Campbell, 2000). Accordingly, there is a need for a greater understanding of other family processes that may predict the effects of parent depression on child emotion regulation.

It has been extensively demonstrated that depression symptoms are typically accompanied by more destructive forms of interparental conflict and are particularly related to types of conflict behavior that are known to negatively impact children's emotional well-

being (Davies & Cummings, 1994). There is evidence to suggest that destructive forms of interparental conflict mediate the relation between parent depression and child outcomes (Du Rocher Schudlich & Cummings, 2003; Hipwell, Murray, Ducournau, & Stein, 2005); however, very little is known regarding the interplay of depression and conflict as they relate to child emotion regulation. This is a problem that holds great practical significance, as findings may provide insight for family practitioners seeking to ameliorate the effects of depression on children's developing emotion regulation.

Emotion Regulation

The term *emotion regulation* (ER) can broadly refer to any set of cognitions or behaviors an individual employs in response to emotion in order to achieve personal goals, meet social demands, or minimize distress (Silk, et al., 2006; Saarni, 1997; Thompson & Calkins, 1996). Developed during early childhood (Sroufe, 1997), emotion regulation skills are essential for lifetime social functioning and psychological health. Preschoolers' emotion regulation is linked to concurrent self-esteem, social competence (Zahn-Waxler, Cole, & Caplovitz Barrett, 1991), and empathy-related responses (Fabes, Eisenberg, Karbon, Troyer, & Switzer, 1994) and their regulation, knowledge, and expression of emotion predict later social and academic competence (Denham et al., 2003; Izard et al., 2001; Schultz et al., 2001). Conversely, difficulties in emotion regulation have been linked to behavior problems (Cole, Teti, & Zahn-Waxler, 2003) and poor social competence (Calkins, Gill, Johnson, & Smith, 1999) as well as depression (Silk, Steinberg, & Morris, 2003) and anxiety symptoms (Rubin, Coplan, Fox, & Calkins, 1995).

Young children develop the capacity for emotion regulation in tandem with caregivers and are initially dependent on parents for regulation (Volling, McElwain, Notaro, & Herrera, 2002). Emotion regulation begins as a dyadic co-regulation during infancy with parents responding to infants' emotional distress by soothing and providing physical comfort. In toddlerhood, the child's regulation becomes more independent; a well-regulated toddler will have developed skills to calm him or herself but still require caregiver assistance in handling difficult emotions. For instance, a toddler who wakes in fear during the night may, after receiving assuring words and a comforting touch from a parent, be able to use self-soothing, such as clinging to a favorite blanket or sucking on her thumb, to calm herself back to sleep. Emotion regulation typically becomes internalized during the preschool years (Fox, 1994; Saarni, 1990; Sroufe, 1997). Children of this age begin to exercise emotional control even in the absence of caregivers, so that a preschooler who becomes frustrated when a playmate takes her toy may be able to distract herself with another activity or ask for help without losing her temper (Cole et al., 1994).

Conversely, a lack of dyadic emotional support during infancy and toddlerhood may have long term consequences for children's emotional development. Attachment theorists and child development researchers have emphasized the importance of emotionally responsive caregiving during the first years of life (Ainsworth, Bell, & Stayton, 1974; Bowlby, 1973; Sroufe, 1995). Indeed, poor maternal sensitivity to infants' emotional cues is related to insecure attachment (Sroufe, 1995), negative emotional reactivity (Field, 1984), and perhaps even childhood depression symptoms (Cole & Kaslow, 1988).

Family interaction provides the context for children's emotional development (for a review, see Morris, Silk, Steinberg, & Robinson, 2007) and, as such, parents play a powerful role in the development of children's ER. There are several processes by which parents are proposed to shape children's developing ER. First, children learn how to regulate emotion through direct social observation of parents' handling of their own emotions (Parke, 1994). Through their emotional expressions in interaction with children and one another, parents provide models for emotion regulation; this notion is supported by evidence that children model their mothers' specific emotion regulation strategies (Garber et al., 1991; Silk et al., 2006). Parenting practices in regards to emotion are also significant, especially parents' reactions to children's positive and negative emotional expressions (Eisenberg, Cumberland, & Spinrad, 1998). Children of parents who respond to their emotions with warmth and validation and support them in working through difficult emotions tend to be more successful in down-regulating negative emotion than do children of parents who dismiss or disapprove of their emotional expressions (Gottman, Katz, & Hooven, 1996). Finally, ER development is influenced by the broader emotional climate of the family, including parent-child attachment quality, the emotional quality of the interparental relationship, and the amount of positive and negative emotions expressed within the family (Darling & Steinberg, 1993; Eisenberg et al., 2001, 2003). For example, mothers' self-reported levels of positive emotional expressions within the family have been related to toddlers' and preschoolers' self-soothing behavior during distressing laboratory tasks; mothers' levels of expression of sadness negatively predicted children's regulation behaviors in these same studies (Garner, 1995; Garner & Power, 1996).

Many of the studies examining child emotion regulation to date have conceptualized ER simply as the amount of regulation behaviors children display (Eisenberg et al., 2003, 2005; Garner, 1995; Greenberg et al., 1999; Karreman et al., 2008). This is clearly problematic in that the amount of regulation behaviors a child exhibits does not necessarily relate to the child's effectiveness in managing emotion. For example, a child may employ many regulation behaviors without succeeding in making him or herself feel better; conversely, a child who is very adept at managing emotion may be able to down-regulate emotion with just one very effective regulation behavior. Those studies that do attempt to assess the quality of children's emotion regulation have typically relied on the type of ER strategy the child most commonly employs, as indexed by behavioral observation or parent report. In these studies, children's strategies are categorized as adaptive or maladaptive based on the amount of negative emotion they display during laboratory tasks (Grolnick et al., 1996; Silk et al., 2003) or, more commonly, simply on tenets of the emotion regulation literature (Cassano et al., 2007; Cole et al., 2009; Eisenberg et al., 1996; Silk et al., 2006). Within this literature, it is generally accepted that active ER strategies, such as distracting or seeking help from parents, are more adaptive than passive strategies such as withdrawal or focusing on the source of distress (Cole et al., 2009; Garber et al., 1991, 1995; Grolnick et al., 1996; Silk et al., 2003). This approach is still somewhat lacking, however. Emotion regulation theorists have emphasized the point that ER is goal-oriented and context dependent and that flexibility in ER strategy use is a key component of effective emotion regulation (Cole et al., 1994; Saarni, 1997; Silk et al., 2006). As such, a child who is effective in managing emotion may flexibly try a variety of regulation strategies, including

those that are considered to be less adaptive, in order to find the strategy that will work best in the current situation. Further, a strategy that is considered to be maladaptive, such as physical withdrawal, may be quite effective in meeting the child's current goal of ending a frustrating parent interaction in the laboratory. Therefore, rather than assuming that these previously defined types of ER strategies are adaptive or maladaptive, it is important to examine the effectiveness of children's ER in the context in which it occurs, regardless of strategy type.

Maternal Depression Symptoms and Child Emotion Regulation

Considering the extensive role that parents play in shaping children's emotion regulation, it is not surprising that parental depression is extensively linked to poorer child emotional development. In laboratory still-face paradigms, infants display more distress in response to mothers' emotional unavailability or withdrawal, which are often associated with depression, than to mothers' actual physical absence (Field, 1984). Maternal depression is correlated with children's emotional difficulties as early as age 3 months, as evidenced by increased negative affect, decreased activity level and heart rate during mother-child interactions (Field, 1984), and insecure attachment style (Sroufe, 1995).

Regarding emotion regulation, school-aged children of mothers with concurrent depression symptoms tend to be less competent in regulating sad affect and report less confidence in their ability to manage negative emotion than their peers (Garber, Braafladt, & Zeman, 1991). More specifically, evidence suggests that children of depressed parents tend to use ER strategies that are less adaptive than strategies employed by other children. In an

observational study, Silk et al. (2006) compared the emotion regulation strategies used by school-aged children of mothers diagnosed with childhood-onset depression to the ER strategies used by children of never-depressed mothers. Results indicated that children, especially girls, who were exposed to maternal depression engaged in less effective regulation strategies when waiting for a reward. When delayed access to a desired object, school-aged girls with depressed mothers were significantly less likely to engage in strategies of active emotion regulation such as distraction. Rather, these children tended to focus on the object to which they had been denied access and wait passively. Previous research indicates that passive regulation tends to be ineffective in down-regulating distress (Silk et al., 2003), especially in contrast to more active attentional strategies such as distraction (Grolnick, Bridges, & Connell, 1996), and is also related to increased risk for adjustment problems (Garber, Braafladt, & Weiss, 1995). This indicates that children who are exposed to maternal depression may acquire ER strategies that do not effectively minimize negative emotion in the face of stress. This problem is likely compounded by increased exposure to stress associated with maternal depression, placing these children at greater risk for the eventual development of psychological symptoms (Silk et al., 2006).

Paternal Depression Symptoms and Child Emotion Regulation

Although there is extensive evidence for the effects of maternal depression on children's emotional adjustment, the role of father depression has been virtually ignored within the literature. Indeed, fathers have historically been absent from family research altogether, with even studies examining marital conflict traditionally relying on wives'

potentially biased reports of husband behavior (Goeke-Morey & Cummings, 2007). The little existing evidence concerning the effects of father depression symptoms and conflict behavior on child adjustment is largely inconclusive. Some evidence suggests that maternal depression is more salient for family communication and child adjustment than is paternal depression (Hops, 1992; Jacob & Johnson 1997; Johnson & Jacob 1997). In one such study, families with a depressed mother were observed to express less positivity when interacting together than families with a depressed father; depressed mothers also exhibited more impaired interaction with their children in this study than depressed fathers (Jacob & Johnson, 1997). However, a recent meta-analysis based on 40 independent analyses of parent depression revealed that effect sizes for the effects of depression symptoms on parenting behavior were comparable for mothers and fathers (Wilson & Durbin, 2010), indicating that children may be equally impacted by depression symptoms in either parent.

Still further, there is evidence to suggest that indirect pathways to child adjustment may be especially relevant for fathers (Goeke-Morey & Cummings, 2007). Some studies have shown that an indirect link exists between depression symptoms and child internalizing problems through interparental conflict for fathers only, whereas mother depression symptoms relate to child adjustment directly (Du Rocher Schudlich & Cummings, 2003; Goeke-Morey & Cummings, 2007; Keller, Cummings, & Peterson, 2008). This indicates that indirect pathways from depression symptoms to children's emotion regulation, as through interparental conflict, may be particularly significant for fathers. However, other findings suggest just the opposite, reporting indirect links between maternal psychological

symptoms, marital satisfaction, and child adjustment but only direct links between paternal psychological symptoms and child outcomes (Papp, Goeke-Morey, & Cummings, 2004).

It seems the only real certainty is that potentially important differences between the relation of mothers and fathers to children's emotional development exist. In regards to emotion regulation, fathers are proposed to play a unique role in shaping children's ER through engagement in physically stimulating, rough-and-tumble play (Gottman, Katz, & Hooven, 1997; Lamb, 1977; Parke, 1994; Volling et al., 2002). However, research has yet to address how this role might change when fathers are dealing with depression symptoms or destructive forms of interparental conflict. Further research is needed to explicate the influence of father depression on children's emotional development in addition to, and perhaps beyond, the influence of maternal depression.

Additionally, much existing research has considered only clinically diagnosed levels of depression when examining the effects of parent depression on families and children (Downey & Coyne, 1990; Garber et al., 1991; Heene et al., 2007; Jacob & Johnson, 1997; Silk et al., 2006). These findings are valuable; however, they may not generalize to the experiences of the many parents living with symptoms of depression that are subclinical, yet still meaningful for family functioning. Thus, this study will expand on the existing literature by investigating the effects of parental depression symptoms along a continuous level within a community sample.

Interparental Conflict and Depression Symptoms

Examining the effects of depression on other family processes may provide information about the mechanisms whereby depression relates to child ER. There is a well-established link between depression and marital adjustment, with high co-occurrence of depression symptoms and marital disruption (Beach, Sandeen, & O'Leary, 1990; Heene, Buysse, & Van Oost, 2007; Proulx et al., 2007). According to the marital discord model of depression (Beach, Sandeen, & O'Leary, 1990), the relation between marital disruption and depression symptoms is explained in part by spouses' conflict behavior. Marital discord is associated with conflict resolution behavior that is unsupportive or hostile, and this dynamic is also predictive of future depression symptoms.

This theory is supported by a rich body of evidence demonstrating impaired conflict resolution among couples with a depressed partner (Jackman-Cram, Dobson, & Martin, 2006; Johnson & Jacob, 1997; Morris et al., 2007; Papp, Goeke-Morey, & Cummings, 2007; Schudlich, Papp, & Cummings, 2011). Research shows that, in dyadic laboratory interactions, couples with a depressed partner tend to engage in discussion that is more tense and hostile (Johnson & Jacob, 1997) and less supportive (Hautzinger, Linden, & Hoffman, 1982) than unaffected couples, using more negative and less positive verbal and nonverbal expressions. Even after statistically controlling for marital satisfaction, husbands' depression symptoms have been shown to predict more angry expressions during conflict resolution; both husbands' and wives' depression symptoms predict more depressive expressions during conflict and fewer attempts at problem-solving (Du Rocher Schudlich et al., 2004). Further, depression symptoms are associated with greater use of a variety of harmful conflict strategies, including verbal hostility, defensiveness, withdrawal, insults, and expressions of

sadness or anger (Du Rocher Schudlich et al., 2004, 2011; Jackman-Cram et al., 2006; Papp et al., 2007).

Interparental Conflict and Child Development

Although high frequency or high intensity interparental conflict is related to impaired child emotional development (Thompson & Calkins, 1996), not only extreme levels of conflict are harmful for child development. Rather, evidence indicates that specific behaviors and emotions expressed during everyday interparental conflict differentially predict child outcomes (Cummings, Goeke-Morey, & Papp, 2003). For example, Katz & Gottman (1993) demonstrated that, within the general population, specific conflict resolution behaviors predicted teacher reports of children's adjustment problems. In this study, marital conflict resolution behaviors characterized by interparental anger and husband withdrawal predicted children's internalizing problems (e.g. depressed, withdrawn) whereas conflict resolution behaviors that were mutually hostile, including expressions of belligerence and contempt, predicted children's externalizing problems (e.g. aggressive, hyperactive). In a more recent study, Jenkins (2000) demonstrated that parents' angry conflict was strongly related to their school-aged children's expression of anger in social interaction and aggression in social relationships. However, parents' angry conflict was not associated with internalizing problems or expressions of sadness.

There is also theoretical grounding for the notion that children are impacted not so much by the presence of conflict as by the way in which conflict is handled. The emotional security theory (Davies & Cummings, 1994; Cummings & Davies, 2010) posits that children

will be negatively impacted by exposure to conflict which they perceive as a threat to the soundness of their family system or to their well-being within that system. Thus, conflict is most detrimental to children's emotional security when it is goes unresolved, centers on child-related problems, or includes withdrawal or threats to leave the relationship (Cummings & Davies, 2010; Cummings, Goeke-Morey, Papp, & Dukewich, 2002; Davies & Cummings, 1994). In contrast, conflict that is resolved and dealt with positively may even increase emotional security by reinforcing children's sense of family stability and providing a model for dealing with difficult emotions (Cummings & Davies, 2010; McCoy et al., 2009).

A growing body of research has demonstrated the utility of considering interparental conflict behavior in three categories: destructive, depressive, and constructive (Cummings & Davies 2002, 2010; Du Rocher Schudlich et al., 2011; McCoy et al., 2009). Destructive conflict includes behavior that is angry, physically or verbally aggressive, defensive, or contemptuous in nature and is typically accompanied by high levels of conflict. The negative effects of these interactions on children have been well documented (El-Sheikh, Cummings, & Goetsch, 1989; Goeke-Morey, Cummings, Harold, & Shelton, 2003; Grych & Fincham, 1990; Koss et al., 2011). Alternatively, depressive conflict is characterized by withdrawal and expressions of sadness or anxiety. For example, a spouse using depressive conflict tactics may express high levels of sadness or worry during a disagreement or may avoid difficult issues altogether, physically or emotionally retreating when conflict arises. Depressive conflict is likely to be especially threatening to children's emotional security because these interactions afford little opportunity for the resolution of disagreements.

Additionally, evidence indicates that parents' expressions of more vulnerable emotions such as fear or sadness are particularly distressing for children, perhaps even more so than expressions of anger (Cummings et al, 2002; Du Rocher Schudlich & Cummings 2003; 2007). In contrast, constructive conflict behavior is characterized by regulated communication and self-disclosure, demonstration of support, and attempts at resolution. Research suggests that exposure to constructive conflict is not merely benign for children's development; rather, exposure to these more positive marital interactions has been positively linked to children's social functioning across time (McCoy et al., 2009).

Interparental Conflict and Child Emotion Regulation

There is a large body of evidence demonstrating the relation between interparental conflict and children's broad emotional adjustment. However, research examining the effects of interparental conflict on children's emotion regulation is quite limited. The existing research focuses mainly on physiological measures of stress or parent report to assess regulation and conflict behavior is typically assessed only indirectly via measures of global marital satisfaction or distress (Gottman & Katz, 1989; Porter et al., & 2003). Within this body of research, marital distress has been linked to high levels of stress hormones (Gottman & Katz, 1989) and a lessened ability to cope with emotions (Cummings, 1987; Katz & Gottman, 1993) among preschool and school-aged children and to lower vagal tone (a marker of high stress reactivity) and poorer parent-reported emotion regulation among infants (Porter, Wouden-Miller, Silva, & Porter, 2003). Relatedly, children exposed to domestic violence exhibit a delayed trajectory of emotion regulation development

throughout the preschool and school-aged years in comparison to their non-exposed peers (Rigterink, Katz, & Hessler, 2010).

Family researchers have also drawn upon emotional security theory (EST) to formulate a model whereby destructive interparental conflict leads to lessened emotional regulatory abilities for children. Using EST as a framework, researchers have postulated that exposure to destructive interparental conflict inhibits children's emotion regulation abilities by altering the way they interpret conflict interactions (Cummings & Keller, 2006; Thompson & Calkins, 1996). EST holds that children's emotional security, and thus future emotional responding, is shaped by their history of exposure to conflict; children develop a pattern of emotional insecurity when repeatedly exposed to conflict they perceive as threatening to their care, their family stability, or their physical safety (Cummings & Davies, 2010; Davies & Cummings 1994). Children who repeatedly witness destructive interparental conflict are likely to develop hypervigilance to conflict, responding with intense negative emotion to cues of a parental argument. Children who are frequently exposed to destructive conflict are repeatedly placed under stress, yet their efforts to regulate negative emotion in the face of parents' fighting, an event they have very little power to change, are likely to be unsuccessful (Thompson & Calkins, 1996). As EST states, rather than becoming desensitized to discord, these children tend to become more sensitive to conflict over time, responding with heightened stress and arousal to the precursors of interparental conflicts. This sensitization is problematic for successful ER development because the hypervigilance these children experience is likely to undermine their ability to acquire more effective ER strategies, such as distraction, due to their heightened attention to the precursors of conflict.

Additionally, this hypersensitivity may generalize to other social settings, causing children to respond negatively even to relatively benign conflict interactions between others (Cummings, 2006; Thompson & Calkin, 1996).

This provides a sound theoretical basis for the relation between interparental conflict and children's developing ER skills; however, empirical evidence is needed to elucidate this link. In particular, because conflict between spouses is inevitable, more information is needed about the specific conflict behaviors that negatively affect children's ER and whether exposure to some more positive types of conflict behavior may promote ER development. Ideally, multi-method research providing behavioral, as well as self-report or physiological evidence, is also needed to corroborate and expand upon existing findings.

Interparental Conflict as a Mediator

Recent findings indicate that interparental conflict serves as a mediator between parent psychological symptoms and child outcomes. Hipwell et al. (2005) found that children exposed to maternal depression were more likely to display aggression in an unstructured play interaction with a peer; however, this link was mediated by interparental conflict such that exposure to high levels of parental conflict explained most of the variance in child aggression. This relation seems to hold up in the context of children's broad emotional adjustment; Du Rocher Schudlich & Cummings (2003, 2007) found that destructive and depressive conflict styles mediated the relationship between parental dysphoria and child internalizing symptoms, with depressive conflict style serving as a particularly powerful predictor of child internalizing. Although there is evidence to support

this model in the context of children's general adjustment and psychological health, further research is needed to explore the validity of this model for the development of child emotion regulation.

The Current Study

The present study utilizes a multi-method approach to examine the specific effects of destructive, constructive, and depressive conflict styles on preschoolers' emotion regulation and to investigate interparental conflict as a mediator of the effects of parent depression symptoms on child emotion regulation. A novel contribution of this study will be to use behavioral observation to capture the effectiveness of children's attempts to manage emotion, indexed by flexibility of strategy use and down-regulation of negative emotion, in addition to the amount of emotion regulation behaviors and negative emotional reactivity displayed. This study also addresses a significant gap in the literature by exploring the different patterns of relations among fathers' and mothers' depression symptoms, interparental conflict, and child emotion regulation.

Aim 1. Examine the individual effects of destructive, constructive, and depressive conflict styles on child emotion regulation. Given the emotional security theory and previous literature regarding the effects of interparental conflict on children, constructive conflict is expected to positively predict emotion regulation whereas destructive and depressive conflict will negatively predict emotion regulation.

Aim 2. Investigate interparental conflict as a mediator of the effects of parental depression symptoms on child emotion regulation. Interparental conflict and parental

depression symptoms are both directly linked to child ER and recent work has identified marital conflict as a mediator of the effects of parental depression on children's broader measures of emotional adjustment (Du Rocher Schudlich et al., 2003; Hipwell et al., 2005). Thus, it is hypothesized that parent depression symptoms at Time 1 will indirectly predict decreased child emotion regulation at Time 2 through interparental conflict at Time 2.

Aim 3. Explore the different patterns of relations among maternal and paternal depression symptoms, interparental conflict, and child emotion regulation. Efforts to understand the potentially unique contributions of mothers and fathers for emotion regulation development are largely exploratory; however, there is reason to suspect that paternal depression symptoms will be indirectly related to child outcomes through interparental conflict, whereas maternal depression symptoms will be more directly related to child emotion regulation (Du Rocher Schudlich & Cummings, 2003; Goeke-Morey & Cummings, 2007).

Method

Participants

Participants were families recruited for a larger longitudinal study on family processes. At Time 1, participants included a community sample of parents and their infants aged 6-14 months. Initial recruitment was conducted using Whatcom County birth records and contacted families were eligible if parents were comfortable reading and speaking English and had been living together since the birth of their child. Only one of the 75 families that volunteered was not eligible to participate based on this criteria.

At Time 2, families were contacted by phone call and letter to participate in a larger follow-up study when children were between the ages of 3 to 4.5 years old; 33 families returned to complete the second wave of the study. This age was selected for follow-up because the preschool years represent an important time of cognitive and emotional development during which children's capacities for emotion understanding and regulation become more internalized and complex (Fox, 1994; Saarni, 1990). Demographic data reported for the entire family was collected based on mothers' reports. Sixteen children were boys and 17 children were girls. Of the husbands (M age = 37, SD = 5.22) and wives (M age = 35, SD = 5.05) who remained in the study at Time 2, 85% were Caucasian, 10% Asian American/Pacific Islander, and 3% Hispanic/Latino. For husbands, 27.6% reported a Master's degree as their highest level of education and 93.2% had attended some college. For mothers, 25.8% reported a Master's degree as their highest level of education 32.3% and 96.8% had attended some college. Median reported income for families was \$65,000 - \$80,000 per year; 29% of families reported earning over \$80,000 per year. Families received modest compensation for their participation at both time points.

Procedure

This study employed a multi-method approach, utilizing a combination of behavioral observation and self-report. Parents received self-report questionnaires by mail and completed them before coming into the family laboratory on campus. Before coming into the lab, parents separately indicated by questionnaire four topics of most typical disagreement for them. In the lab at Time 1 and Time 2, parents were first asked to choose one of the issues they listed that they would feel comfortable discussing with their child present. Parents were instructed to share their feelings about the issue, try to come to a

resolution during the 10-minute discussion, and to attend to their child as they normally would. Because of the child's presence, parents' discussions were limited to topics that did not involve their sexual relationship or their child.

At Time 2, following the conflict task, a family frustration task was used to elicit children's emotions and regulation strategies. The task was presented to families as simply a family task involving a story, with no mention of the true purpose, which was to elicit frustration in order to assess family regulatory capabilities. Given the family systems focus of the current study, a family task was chosen to measure child ER abilities rather than an individual child task in order to assess children's regulatory functioning within the family unit. This was especially important given the age of the children studied; although preschoolers are beginning to develop independent regulation skills, they remain somewhat dependent on parents for emotion regulation (Volling et al., 2002). Additionally, emotion regulation skills are learned in the context of interaction with others and parents typically represent the primary social relationships for preschool-aged children. For these reasons, we believe that including parents in the frustrating task provides a more authentic, ecologically valid representation of children's ER abilities. The boring story task is designed to elicit frustration in children; this is a common target emotion in studies utilizing observational measures of ER in young children and is often elicited through clean up and parent compliance paradigms or by denying access to desirable food and toys (Gottman, Katz, & Hooven, 1996; Kalpidou et al., 2004; Stansbury & Sigman, 2000). In the current study, frustration was selected as the target emotion, in part, in order to most closely parallel the negative emotions likely to be experienced by parents during the laboratory conflict

discussion. Frustration was also an ideal target emotion because it is a commonly experienced emotion for children of this age (Kalpidou et al., 2004; Stansbury & Sigman, 2000) and because, while still challenging for children to regulate, frustration is expected to be less distressing for children to experience in the laboratory than other negative emotions such as fear, sadness, or anger.

The child was first invited into a separate room to hear a story, where a research assistant read a brief children's story designed to be uninteresting and difficult to follow. Research assistants were trained to read in a rapid, monotone voice without making eye contact with the child or pausing to answer questions. Then, parents were given a blank sheet of paper and instructed to cooperate with their child to recreate and write down as much information about the story as possible, including a beginning, middle, and end, and to be sure to identify important characters and events. Families were given seven minutes to complete this task. Afterward, parents received a list of questions with which to prompt their child for more specific information about the story for another three minutes. These questions were designed to be very difficult or impossible for children to answer based on the story they heard and parents were informed they would receive a bonus if they answered five out of six questions correct. At the conclusion of the task, all children were offered a small sheet of stickers regardless of their performance during the task.

The boring story task was followed by a 10 minute family interaction in which parents and child were given a variety of craft materials (e.g. pipe cleaners, paper, scissors, glue) and were instructed simply to work together to make something of their choosing from

the materials. Observations from this family interaction were not included in the current study; however, this interaction served the important purpose of allowing families to end their visit by engaging in a positive interaction and was included at this point in the study with the purpose of decreasing any negative emotions parents and children may have experienced during the frustration task.

Because participant recruitment has sometimes informally involved the snowball method and because the validity of the frustration task is dependent on family's ignorance to the true purpose of the task, families were not debriefed regarding the purpose of the boring story task at the conclusion of the visit, beyond being informed that we were interested in how families interact in a variety of contexts. Families were, however given an opportunity to ask questions at the end of the visit and research assistants were trained to respond to family's questions or expressions of concern about the boring story task with supportive, normalizing statements (e.g. "many families find this task to be difficult"). Each task was followed by a brief, five minute break and families were offered a snack midway through. All interactions were videotaped for later observational coding.

Measures

Depression symptoms (Time 1). Parents' depression symptoms were assessed along a continuous range of clinical and subclinical symptoms using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is designed to measure depression symptoms in the general population with a focus on recent depressive mood. The scale includes 20 items that assess the frequency of participants' experience of depressive symptoms during the past week on a scale ranging from 0 (*less than one day*) to 4

(*five days*). This is a widely-used measure with well-established psychometric properties, including high internal consistency, test–retest reliability, and convergent validity with clinical and self-report measures of depression (Radloff, 1977; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). In this sample, Cronbach’s α s were .86 for mothers and .85 for fathers. Individual scale items were summed to create composite scores for mothers and fathers. Missing data was replaced with the sample mean; this resulted in four cases of replacement for mothers and five cases for fathers.

Interparental conflict (Time 1). Composite scores for interparental conflict were obtained from observational coding as well as parents’ self-reports of emotional reactions during the conflict discussion. Composites were further categorized as constructive, destructive, or depressive conflict.

Self-report. Immediately after their marital discussion, parents self-reported their own emotional interactions on a 10-point scale (0 = *not at all*, = 9 *a whole lot*). Participants rated the extent to which they felt a variety of emotions during the conflict task, including: (a) *happy*, (b) *loving*, (c) *angry*, (d) *scared*, (e) *sad*, (f) *worried*, (g) *helpless*, and (h) *hopeless*, as well as the degree to which the problem was resolved for them and for their partner.

Coding. An adapted version of The Marital Daily Records (MDR; Cummings, Goeke-Morey, Papp, & Dukewich, 2002) protocol was used to code observations of marital interactions responses during conflict interaction. This protocol assesses behavioral and emotional responses of partners separately across 14 conflict dimensions. Conflict dimensions included: (a) *conflict*, the level of tension, hostility, or negative affect partners

display, (b) *defensiveness*, whining, counter-blaming, avoiding responsibility, (c) *contempt*, sarcasm, insult, or derision of other partner, (d) *withdrawal*, avoiding the problem or emotionally shutting down, (e) *nagging*, not letting go of an issue, (f) *anger*, verbal and non-verbal expressions, (g) *sadness*, sad or depressed expressions or behavior, (h) *anxiety*, concern, anxiety, or fearfulness, (i) *positive affect*, warm, happy, or loving expressions, (j) *communication skills*, appropriate emotional expression and self-disclosure, (k) *support-validation*, positive listening, understanding, (l) *problem solving*, constructively working toward solutions, (m) *humor*, positive attempts to lighten tension, (n) *affection*, verbal and non-verbal demonstrations of positive or loving feelings, and (o) *resolution*, satisfaction with and confidence in resolution reached. Responses were coded on a 9-point scale (1 = *absence of behavior*, 9 = *most intense expressions*) based on frequency and intensity of the target behavior, affect, and overall content for the interaction. One score was coded for each of the 14 conflict dimensions for each spouse.

Each discussion was coded once by one of five undergraduate research assistants. The coders received extensive training by graduate students, under supervision of the principal investigator. Coders were taught to identify the conflict styles by means of written descriptions and by viewing prototypes of the individual tactics demonstrated on videotapes. Next they reviewed and discussed several practice interactions with the advanced research assistants. In order to ensure a high level of inter-rater reliability before training was completed, a subset of 25 interactions was used to assess the coders' agreement with the principal investigator's and each other's codes and for couples' tactics, emotions, and degree

of conflict resolution using Cronbach's α . Following training, alphas for conflict expressions ranged from .60 - .98, with a mean alpha of .91.

Emotion regulation coding (Time 2). Emotion regulation was indexed by children's use of emotion regulation behaviors as well as the overall effectiveness of these ER behaviors and the level of negative emotional reactivity displayed during the boring story task. Based on previous research (Stansbury & Sigman, 2000) as well as my observations of children's behavioral responses during the boring story task, ER behaviors included four behavioral domains with 14 individual codes. *Comfort*, use of physical touch or stimulation to soothe emotions, included the following codes: (a) *self-comforting*, (b) *comfort-seeking*, (c) *object comfort*, and (d) *self-stimulation*. *Instrumental* regulation behaviors, attempts to change or eliminate the source of frustration, included: (a) *help-seeking*, (b) *verbal-objections*, (c) *initiating new activity*, (d) *changing the subject*, (e) *giving reasons*, and (f) *negotiating*. *Distraction*, focusing attention away from the source of frustration, included codes for (a) *engagement with other objects/activities* and (b) *passive use of objects*. *Avoidance*, characterized by attempts to withdraw from or ignore the source of frustration, included (a) *withdrawal* and (b) *gaze aversion*. Emotion regulation behaviors were rated on a 4-point scale (0 = *absence of behavior*, 3 = *strong or intense behavior*) based on the frequency, intensity, and duration of each observed behavior. Because instrumental behaviors (e.g. *verbal objections*) have a high potential to be expressed negatively, behavioral codes within the instrumental domain were additionally rated as either constructive or destructive.

Coders also rated global negative emotional reactivity and the overall effectiveness of ER. Negative emotional reactivity was indexed by the frequency, intensity, and duration of negative emotional expressions and distress on a 4-point scale (0 = *very low reactivity*, 3 = *high reactivity*). Consistent with theoretical notions (Saarni, 1997; Silk et al., 2006; Thompson, 1994) the effectiveness of ER was conceptualized as the ability to flexibly employ behavioral strategies in order to down-regulate negative emotion. Effectiveness was indexed by the level of flexibility children displayed in shifting their regulation strategies to adapt to the situation as well as the observed pattern of negative emotional expression throughout the interaction. Thus, children who persisted in using the same one or two regulation strategies in spite of their ineffectiveness or whose negative emotional expressions increased or intensified throughout the interaction were coded as exhibiting ineffective ER. Children who employed new regulation strategies when previous regulation behaviors proved ineffective or whose negative emotional expressions decreased throughout the interaction were coded as displaying effective ER. Children whose expressions of negative emotion decreased temporarily throughout the interaction were coded as displaying ER that was somewhat effective. ER effectiveness was coded on a global, 4-point scale (0 = *very ineffective*, 3 = *very effective*).

Each interaction was coded once by a team of six undergraduate research assistants, along with the author. Coders received extensive training from the author, with supervision provided by the principal investigator. Coders were trained to correctly identify emotion regulation behaviors via written definitions of behaviors and by viewing prototypes of behaviors in a small subset of the boring story videos (six videos). Coders then used this

subset to practice coding. Coders were trained in one ER dimension at a time, moving on to the next dimension once the author determined they had mastered the previous. Weekly sessions were held to provide opportunity for coders to compare their codes to those of the principle investigators, to discuss questions and receive feedback. Coders were allowed to complete training and begin coding once their ratings of the practice videos showed a high level of agreement with one another and with the principle investigator's ratings, demonstrated by a Cronbach's α of .80 or greater for each ER behavior. For the purpose of analyses, the principle investigator and author's codes were used for this subset of practice videos. Once coders had completed the training phase, the mean alpha's coefficient for emotion regulation interrater reliability was .90, (range = .74 to .97)

Data Analysis Plan

I originally proposed to analyze cross-lagged panel correlations for depression and conflict data at both time points in order to assess directionality between these two variables. However, this was impossible due to a lack of significant correlations with T2 depression symptoms and interparental conflict data, both within T2 and across time points (see Table 1 and Table 2 below). Because cross-lagged panels analysis is based on a comparison of significant correlations (Kenny, 1975) this analysis was unfeasible. Interparental conflict data at T2 was additionally revealed to have poor factor structure and reliability, perhaps due to small sample size ($n = 33$). For these reasons, I decided to utilize depression symptom and interparental conflict data from T1 only.

Table 1
Correlations between Mothers' Depression Symptoms and Conflict Style at T1 and T2

Variable	1	2	3	4	5	6	7
1. T1 CESD	-						
2. T2 CESD	.02	-					
3. T1 Destructive	.09	.30	-				
4. T2 Destructive	-.23	.18	.48**	-			
5. T1 Depressive	.25*	.19	.24*	.01	-		
6. T2 Depressive	.04	.09	-.16	.04	.43*	-	
7. T1 Constructive	-.12	-.00	-.61**	-.32†	-.53**	-.14	-
8. T2 Constructive	-.08	-.06	-.06	-.48**	-.28	-.62**	.08

Table 2
Correlations between Fathers' Depression Symptoms and Conflict Style at T1 and T2

Variable	1	2	3	4	5	6	7
1. T1 CESD	-						
2. T2 CESD	.51**	-					
3. T1 Destructive	.31**	-.07	-				
4. T2 Destructive	.47**	.30	.27	-			
5. T1 Depressive	.40**	.06	.41**	.07	-		
6. T2 Depressive	.30†	.43*	-.08	.54**	.34†	-	
7. T1 Constructive	-.28*	.10	-.60**	-.29	-.52**	.01	-
8. T2 Constructive	-.34†	-.19	-.33†	-.67**	-.16	-.45*	.35*

Data Screening

Depression symptoms and interparental conflict. I screened depression symptoms and interparental conflict composites for normality using the skewness and kurtosis statistics in SPSS. Skewness results revealed maternal depression symptoms, paternal depression symptoms, paternal destructive conflict, maternal depressive conflict, and paternal

depressive conflict to be highly positively skewed. Maternal destructive conflict was moderately positively skewed; maternal constructive conflict, and paternal constructive conflict were approximately normally distributed. Kurtosis results revealed a leptokurtic distribution for maternal depression symptoms (kurtosis = 2.84), paternal depression symptoms (kurtosis = 1.71), paternal destructive conflict (3.84), maternal depressive conflict (kurtosis = 1.23) and especially paternal depressive conflict (kurtosis = 7.01). Leptokurtic distributions are characterized by tall, sharp peaks and long tails, indicating that variability is caused by a small number of extreme cases rather than by many modest departures from the mean (Tabachnick & Fidell, 1996).

In order to examine univariate outliers, I created standardized scores for depression symptom and interparental conflict composite variables. Standardized scores greater than 3.29 ($p < .001$) are considered outliers (Tabachnick & Fidell, 1996). Standardized scores revealed two outliers for maternal depression symptoms, one for fathers' destructive conflict, and one for fathers' depressive conflict.

Because they represent an aberration from healthy functioning, depression symptoms and negative interparental conflict are not expected to be normally distributed (Tabachnick & Fidell, 1996), and this is likely to be especially true in a community sample. After closer examination of the cases identified as outliers above, these scores appear to be reasonable given the ranges of the scales as well as similar to those previously obtained in community samples (Du Rocher Schudlich & Cummings, 2007). Therefore, although these cases are statistical outliers in the given sample, they appear to represent an expected level of

variability in the population of interest and to capture the very symptoms and behaviors the current study was designed to assess. For these reasons, composite parent depression and interparental conflict variables were included in analysis as is and without transformation.

Emotion regulation. Because the observational emotion regulation scale was created by the author for the current study, additional care was taken to screen the variables it produced. Before creating composite variables, I screened each individual emotion regulation variable for normality using the skewness and kurtosis statistics in SPSS. Skewness results revealed object comfort, help seeking, gives reasons, and negotiates to be highly positively skewed (skew statistic > 1.0), reflecting many low scores and few high scores for these variables. Indeed, frequencies for these variables were very low; scores were less than 1 (on a 0 to 3-point scale) in at least 70% of cases for each. The kurtosis statistic describes the shape of the distribution's peak, with a kurtosis statistic of approximately 0 indicating a normal distribution. Kurtosis results revealed these variables to be highly leptokurtic: object comfort = 5.62, help seeking = 8.12, gives reasons = 6.50, and negotiates = 1.16. Although conceptually valuable, the extremely low frequency with which these behaviors were observed in the current sample made the data impractical for use in analyses; therefore, these variables were dropped from subsequent analyses.

Changes subject and initiates activity were revealed to be moderately positively skewed (skewness statistic $> .50$ but < 1.0) and slightly platykurtic (kurtosis = $-.17$ and $-.33$, respectively). Platykurtic distributions are characterized by low, broad peaks and short tails, indicating large variation among cases (Tabachnick & Fidell, 1996). I performed the square

root transformation on changes subject and initiates activity before including them in subsequent analyses. Following square root transformation, changes subject and initiates activity were approximately normally distributed based on skewness results but somewhat platykurtic based on kurtosis results (kurtosis = -1.17 and -1.19, respectively).

Skewness results indicated that self-comfort, comfort-seeking, self-stimulation, verbal objections, engaged distraction, passive distraction, withdrawal, gaze aversion, negative reactivity, and effectiveness were all approximately normally distributed (skewness statistic $< .50$ or $> -.50$). Comfort-seeking, negative reactivity, and effectiveness of ER were all somewhat platykurtic (kurtosis = -1.22, -1.32, and -1.41, respectively). Given that these variables are approximately normally distributed based on skew and because of my desire to maintain interpretability of the original variables, I chose not to transform comfort-seeking, negative reactivity, or effectiveness of ER to correct for kurtosis.

After creating ER composites (based on factor analysis results described below), I additionally screened these variables for departures from normality. Based on these results, instrumental ER was highly positively skewed, positive ER was moderately positively skewed, and non-compliant ER was approximately normally distributed. Because the individual ER behavior variables composing instrumental ER had already been transformed to correct for positive skew, I chose not to transform the instrumental ER composite variable in order to avoid moving too far beyond the original data. Because the individual behavior variables composing positive ER were each approximately normal and because positive regulation strategies may not be expected to be normally regulated for children of this age

who are engaging in a frustrating task, I chose not to transform the positive ER composite variable.

I next calculated standardized scores for ER composites as well as negative reactivity and effectiveness of ER in order to screen for univariate outliers. Standardized scores revealed one outlier for instrumental ER and no outliers for positive ER, non-compliant ER, negative reactivity or effectiveness of ER. Upon closer examination of the instrumental case, it appeared to be reasonable given the range of the scale and so was retained in further analyses.

Multivariate screening. In order to screen for multivariate outliers, I calculated Mahalanobis distance for all model variables. Mahalanobis distance identifies multivariate outliers by calculating the distance between each case and the centroid, or the mean for all variables. The probability value associated with this distance is used as a standard for identifying outliers; distances with a probability less than or equal to .001 are considered true outliers (Tabachnick & Fidell, 1996). Mahalanobis distance results revealed no multivariate outliers for relations between parents' depression symptoms and conflict styles or for relations between parents' conflict styles and children's ER outcomes.

Data Reduction

Interparental conflict reduction. Because of insufficient power due to a small sample size at Time 2, I chose to utilize Time 1 interparental conflict data. For purpose of analyses and in keeping with previous research (Cummings & Davies, 2010; Du Rocher Schudlich et al., 2011), observational and self-report data for interparental conflict

composites were reduced into one of three categories: constructive, destructive, and depressive conflict style. The results of three-factor CFAs, conducted separately for mothers and fathers, only partially confirmed the existence of these factors. For mothers, Factor 1 included observed conflict, defensiveness, contempt, demand, and anger, anxiety, communication skills (negative loading), support-validation (negative loading), and problem-solving (negative loading). Factor 2 included observed humor (negative loading), and self-reported feelings of happiness (negative loading), loving (negative loading), anger, worried, scared, sad, hopeless, and helpless. Factor 3 included observed withdrawal (negative loading), sadness (negative loading), positive affect, communication skills, and support-validation. For mothers, Factor 1 accounted for 30.57% of variance (eigenvalue = 6.73), Factor 2 accounted for 13.81% of variance (eigenvalue = 3.04), and Factor 3 accounted for 10.26% of variance (eigenvalue = 2.26); in total, this model accounted for 54.65% of sample variance.

For fathers, Factor 1 included observed conflict, defensiveness, contempt, demand, and anger, and self-reported feelings of happiness (negative loading), loving (negative loading), and anger. Factor 2 included observed withdrawal (negative loading), sadness (negative loading), positive affect, communication skills, support validation, and humor. Factor 3 included observed anxiety and humor (negative loading), and self-reported feelings of worried, scared, sad, hopeless, and helpless. Factor 1 accounted for 34.08% of variance (eigenvalue = 7.16), Factor 2 accounted for 12.61% of variance (eigenvalue = 2.65), and Factor 3 accounted for 9.88% of variance (eigenvalue = 2.08); in total, this model accounted for 56.57% of sample variance.

The results of these analyses are not entirely in keeping with the proposed model of interparental conflict. However, because the proposed models of interparental conflict are strongly theoretically driven and empirically validated (Cummings & Davies 2002, 2010; Du Rocher Schudlich et al., 2011; McCoy et al., 2009), composites were created based on the originally proposed model rather than on the CFA results. Destructive, depressive, and destructive composite variables were created separately for mothers and fathers by summing observational and self-report scores for each category.

A reliability analysis confirmed that the variables in these composites hang together adequately; Cronbach's α for the composite conflict variables are as follows: father destructive conflict $\alpha = .89$, mother destructive conflict $\alpha = .85$, father depressive conflict $\alpha = .75$, mother depressive conflict $\alpha = .64$, father constructive conflict $\alpha = .82$, and mother constructive conflict $\alpha = .83$.

Emotion regulation reduction. Based on previous literature (Stansbury & Sigman, 2000) along with my observation of the behaviors children consistently employed during the boring story task, I originally proposed a four-factor model of emotion regulation wherein individual regulation behaviors are classified into four strategy types: comfort (including self-comfort, comfort seeking, object comfort, and self-stimulation, instrumental (including help-seeking, verbal objections, initiates new activity, changes subject, gives reasons, and negotiates), distraction (including engaged distraction and passive distraction), and avoidance (including withdrawal and gaze aversion). Based on data screening results, object comfort, help-seeking, gives reasons, and negotiates were omitted from data reduction

analyses. Additionally, the square root transformed variables for changes subject and initiates activity were used in data reduction analyses. Though conceptually sound (Stansbury & Sigman, 2000), this four-factor model based on the remaining ER variables was not supported by confirmatory factor analysis (CFA). A four-factor CFA indicated the following factors: Factor 1 included comfort-seeking, self-stimulation (negative loading), engaged distraction, and passive distraction; Factor 2 included verbal objections and withdrawal; Factor 3 included changes subject and initiates activity; Factor 4 included gaze aversion and self-comfort. Factor 1 explained 28.10% of variance (eigenvalue = 2.81), Factor 2 explained 18.59% of variance (eigenvalue = 1.86), Factor 3 explained 14.67% of variance (eigenvalue = 1.47), and Factor 4 explained 12.38% of variance (eigenvalue = 1.24). In total, this model accounted for 73.72% of the sample variance.

In order to further examine the underlying structure of the data, I next performed an exploratory factor analysis (EFA). The results of EFA revealed a four-factor solution with factor loadings and eigenvalues identical to those obtained through CFA. Factor 4 included self-comfort and gaze aversion (eigenvalue = 1.64, 11.73% variance explained). Although disparate from the factors I predicted, factors 1, 2, and 3 are theoretically defensible. Factor 1 included comfort (comfort seeking, self-stimulation) and distraction (engaged distraction, passive distraction) behaviors. In previous literature, comforting and distraction behaviors are considered to be positive, adaptive regulation strategies (Eisenberg & Fabes, 1994; Stansbury & Sigman, 2000). In the boring story task, both comforting and distraction behaviors tended to serve to distance the child somewhat from the distressing interaction, but did not represent an act of defiance or attempt to actively alter the interaction on the part

of the child. For example, a child who distracted herself with a toy or who snuggled into her parent's lap during the task appeared somewhat less engaged in the task than a child who actively answered her parents' questions without utilizing these behaviors. However, these behaviors are also functionally and conceptually distinct from instrumental behaviors, which might include asking to do something else or refusing to answer a parent's questions. Factor 2 included verbal objections and withdrawal. This is in direct contradiction of my original conceptualization of ER behavior; verbal objections, an instrumental behavior, was considered to reflect a child's active attempt to alter the interaction whereas withdrawal, an avoidance behavior, was considered to reflect a child's passive disengagement from the interaction. However, in the context of the boring story task, these two behaviors both tended to co-occur in a child's act of non-compliance. Although verbal objections had the potential to be constructive (e.g. calm refusals to answer parent's questions, perhaps accompanied by giving reasons for a lack of knowledge about the story), they were often destructive. In fact, 40% of verbal objections were rated as clearly destructive as indexed by the majority of the child's objections being made in a raised, negative, or whiny tone of voice. Verbal objections are also positively correlated with negative reactivity and negatively correlated with effectiveness in the current sample ($p < .001$), indicating that this was generally an ineffective regulation strategy. Withdrawal has most often been conceptualized as a non-adaptive regulation strategy in previous literature (Silk et al., 2006). I proposed that in the boring story task withdrawal may serve as an effective means of regulating emotion and accomplishing the child's goals (e.g. lessening the intensity of parent-child interaction or the parents' questioning). In fact, withdrawal was an ineffective

strategy of regulation in the boring story task (correlated positively with negative reactivity and correlated negatively with effectiveness, ($p < .001$) and tended to accompany escalating expressions of negative emotion and refusal to comply with parents' requests. Therefore, verbal objections and withdrawal both appeared to represent a negative, non-compliant approach to the interaction. Factor 3 included the two remaining proposed instrumental behaviors, changes subject and initiates activity and so was in keeping with my original, conceptual organization of the ER data.

Factor 4, however, made little theoretical sense. Comforting strategies are considered to be adaptive in previous literature, whereas avoidant behaviors are considered non-adaptive (Cole et al., 2009; Silk et al., 2003). An EFA run with gaze aversion omitted produced the same first three factors previously obtained, with self-comfort loading alone onto a fourth factor. The same was true of gaze aversion when self-comfort was omitted. However, I am aware of no evidence that these behaviors are conceptually distinct from other comfort or avoidant regulation behaviors. For this reason, gaze aversion and self-comforting were omitted from subsequent analyses.

A final EFA revealed a 3-factor solution, consistent with the first three factors described above. For factor 1, or positive ER, the eigenvalue = 2.6, accounting for 32.90% of the variance; for factor 2, or non-compliant ER, the eigenvalue = 2.06, accounting for 25.72% of the variance; and for factor 3, or instrumental ER, the eigenvalue = 1.31, accounting for 16.32% of the variance. In total, this model reproduced 75% of the sample variance. Table 3 shows factor pattern and structure coefficients for this solution below. For

all analyses, factors were extracted using principal components analysis and a promax rotation was used. Bartlett's test of sphericity was statistically significant ($p < .001$), indicating that the variables are correlated and therefore appropriate for factor analysis. It is worth noting that the Kaiser-Meyer-Olkin measure of sampling adequacy for each of these analyses was .47, indicating a low level of common variance among the variables. Factor analysis is not recommended for samples with a KMO value less than .50 (Kaiser, 1970). This may be related to small sample size ($n = 33$). For this reason, the results obtained from these factor analyses should be interpreted cautiously.

Table 3

Pattern (and structure) Coefficients for Emotion Regulation Behaviors

Variable	Factor		
	Positive ER	Non-compliant ER	Instrumental ER
Comfort-seeking	.76 (.74)	-.17 (-.12)	-.05 (.05)
Self-stimulation	-.75 (-.69)	.48 (.46)	.12 (.09)
Engaged Distraction	.77 (.83)	.16 (.28)	.29 (.46)
Passive Distraction	.83 (.84)	.41 (.45)	-.09 (.15)
Verbal Objections	.02 (.08)	.87 (.87)	.01 (.20)
Withdrawal	-.03 (.02)	.93 (.90)	-.10 (.10)
Initiates Activity	-.12 (.04)	-.04 (.15)	.88 (.85)
Changes Subject	.12 (.26)	-.06 (.12)	.80 (.81)

Composites were created by averaging the individual emotion regulation behavior variables. Reliability analyses confirmed that most of these variables hang together well; Cronbach's α s for the composite variables are as follows: Positive ER (includes comfort seeking, self-stimulation, engaged distraction, and passive distraction) = .74; Non-compliant ER (includes verbal objections and withdrawal) = .82; Instrumental ER (includes changes subject and initiates new activity) = .51. Negative reactivity and effectiveness of ER codes were used as variables alone.

Because many of the original instrumental behaviors (e.g. verbal objections) had potential to be expressed in either a constructive or destructive manner, a dummy code was originally included for all instrumental behaviors which classified them as constructive or destructive. Following the ER factor analyses, it was unclear whether this valence dummy code would still provide unique information given that verbal objections had fallen into a somewhat negative ER composite and many of the other instrumental behaviors had been dropped due to a very low frequency. I used cross-tabulation to determine whether, for each individual ER behavior, there were more destructive ratings than would be expected by chance. A cross-tabulation analysis run for verbal objections, changes subject, and initiates activity revealed statistically significant Pearson's chi-squared for verbal objections only. That is, for changes subject and initiates activity, the amount of destructive ratings are not significantly different than chance ratings. Because verbal objections had already fallen into a negative ER composite (correlates positively with negative reactivity and correlates negatively with effectiveness of ER) the instrumental valence variable no longer appeared to add unique information and so was dropped from further analyses.

Primary Analyses

In order to examine the relations between parent depression symptoms, interparental conflict style, and child emotion regulation, I tested mediation models using path analysis. I performed path analysis with AMOS 7.0 statistical package, using the maximum likelihood (ML) method to estimate parameters. Multiple fit indices are reported to facilitate evaluation of the degree to which the models fit the data. Although any statistical cut-off is somewhat artificial and model fit indices do not represent tests of significance, the following guidelines were used to assess fit: the traditional chi-square statistic indicates a good fit with the data when not statistically significant, the Tucker Lewis index (TLI), which adjusts for model complexity, represents good fit when above .95 (TLI indices greater than 1.00 are fixed at 1.00), and fit is adequate when the comparative fit index (CFI) is greater than .90 and the root mean square error of approximation (RMSEA) is less than .08 (Browne & Cudek, 1993). Models were tested separately for mothers and fathers; because parents' conflict styles are expected to be highly correlated, error terms for destructive, depressive, and constructive conflict style were allowed to covary in all models. In order to preserve power, models were also tested separately for each of the five emotion regulation outcomes (positive ER, non-compliant ER, instrumental ER, negative reactivity, and effectiveness of ER) resulting in a total of 10 models tested.

For models with significant indirect pathways, I used the Sobel test to assess the significance of mediation. The Sobel test works by calculating a critical ratio based on the regression weights for paths from the independent variable to the mediator and the mediator

to the dependent variable and the standard errors for these paths. The Sobel test is no longer recommended as a standard for tests of mediation due to its conservative nature and high level of Type 2 errors (MacKinnon, Warsi, & Dwyer, 1995). Instead, bootstrapping, a non-parametric measure based on sampling with replacement, is widely recommended for mediation testing (Shrout & Bolger, 2002). However, in order to perform bootstrapping, a data set free of missing data is required. This presented an obstacle for my data set, in which more than half of the emotion regulation data is missing due to a high level of attrition across time points (T1 $n = 72$, T2 $n = 33$). Because of this, bootstrapping would require either that I remove half of the T1 data from the calculations or double the T2 data using replacement. As this seemed unreasonable, I chose instead to use the Sobel test. However, I must note that the Sobel test assumes that the direct path from the mediator and the indirect path from the independent variable are independent from one another (Kenny, 1987), which is violated in the current study. Therefore, the current mediation results should be interpreted with care. Additionally, the small sample coupled with the conservative Sobel test is likely to result in a very low-powered analysis; therefore, I report both statistically significant findings ($p < .05$) as well as trends ($p < .10$) below.

Additional Exploratory Analyses

In order to assess whether parents' conflict behavior predicts child emotion regulation beyond the effects of child temperament, I additionally ran all models with parent-reported infant negative reactivity as a control variable. The infant negative reactivity variable was a composite of mothers' and fathers' reports of infants' difficult temperament

and negative emotionality drawn from responses to the Infant Behavior Questionnaire (Rothbart, 1981) at T1. For mothers, several associations were observed between infant negative reactivity and ER outcomes; infant negative reactivity was related to lower positive ER, lower non-compliant ER, and lower observed preschool negative reactivity. However, links between mothers' depression symptoms, conflict style, and ER outcomes were unaffected by inclusion of infant negative reactivity. In the father models, infant negative reactivity was related to lower positive ER and greater non-compliant ER. In one model, the mediation model predicting preschool negative reactivity, controlling for infant negative reactivity eliminated the link between fathers' depressive conflict and preschool negative reactivity. That is, when infant temperament is taken into consideration, fathers' conflict behavior is no longer a predictor of preschool negative reactivity. However, infant reactivity is not significantly related to preschool negative reactivity in this model, suggesting that some other, unaccounted for variable may predict preschool negative reactivity in the context of infant temperament. All other links between paternal conflict and ER outcomes were unaffected by the inclusion of infant negative reactivity. Infant negative reactivity also is not significantly correlated with observed preschool negative reactivity or effectiveness of ER. Because controlling for infant negative reactivity generally did not impact model results, the models reported below do not include infant negative reactivity. Based on this exploration, the results of fathers' mediation model for preschool negative reactivity should be interpreted cautiously.

Because a high level of attrition occurred across time points, I conducted a series of tests in order to assess whether attrition was random. To determine whether those parents

who returned to the study at T2 were higher functioning in measures of depression symptoms and interparental conflict style, I conducted *t*-tests comparing T1 depression symptom and interparental conflict scores of those parents who returned for follow-up and those who did not. Results of *t*-tests indicated that parents' T1 depression and interparental conflict scores did not differ significantly in any case (see Tables 4 - 6 below). However, although parents' scores did not differ at a statistically significant level, it is worth note that those parents who returned for follow-up did demonstrate a pattern of somewhat lower depression symptoms and less impaired conflict behavior at T1 than those who dropped from the study.

Table 4
Analysis of Attrition: T1 Depression Symptoms

	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Fathers remained	7.19	6.62	1.17	.25
Fathers dropped	9.16	7.48		
Mothers remained	8.69	7.45	.56	.58
Mothers dropped	9.66	7.08		

Note. n = 72

Table 5
Analysis of Attrition: Mothers' T1 Conflict Styles

	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Destructive: remained	16.95	7.15	.32	.75
Destructive: dropped	17.54	8.43		
Depressive: remained	10.97	4.84	-.22	.83
Depressive: dropped	10.71	4.66		
Constructive: remained	42.59	10.15	-.58	.83
Constructive: dropped	40.94	12.73		

Note. n = 72

Table 6
Analysis of Attrition: Fathers' T1 Conflict Styles

	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Destructive: remained	12.94	7.15	1.17	.25
Destructive: dropped	16.97	10.10		
Depressive: remained	8.63	2.45	1.84	.07
Depressive: dropped	11.03	6.98		
Constructive: remained	44.09	12.00	-.88	.39
Constructive: dropped	41.65	10.71		

Note. n = 72

Results

Descriptives

Mean depression symptom scores were 9.23 ($SD = 7.11$, range = 0 to 33) for mothers and 8.21 ($SD = 6.95$, range = 0 to 31) for fathers. Scores of 16 or greater are indicative of potentially serious depression symptoms (Ensel, 1982). Using this cut-off, 9.1 % of fathers and 15.2% of mothers reported serious depression symptoms. Of the seven families for which parents reported serious depression symptoms, four children were boys and three children were girls.

Table 7 below presents means and standard deviations for interparental conflict behavior composites; Table 8 below presents means and standard deviations for emotion regulation behaviors and composite variables, including those ER behaviors that were omitted from analyses. Table 9 presents correlations between parent depression symptoms

and interparental conflict styles. Mothers' depression symptoms are significantly correlated with maternal and paternal depressive conflict, whereas fathers' depression symptoms are significantly correlated with all paternal conflict styles as well as maternal constructive conflict. Mothers' and fathers' conflict behavior were also highly interrelated. Table 10 presents correlations between emotion regulation outcomes and interparental conflict styles. No significant correlations were observed between ER and interparental conflict; however, effectiveness of ER is significantly negatively correlated with both instrumental ER and negative reactivity. Table 11 below presents correlations between emotion regulation outcomes and parent depression symptoms. There is an overall lack of significant correlations between these variables; however, paternal depression symptoms are significantly negatively correlated with instrumental ER.

Table 7
Interparental Conflict Behaviors

	Mother			Father			Possible range of scores
	<i>M</i>	<i>SD</i>	Range of scores	<i>M</i>	<i>SD</i>	Range of scores	
Destructive Conflict	17.29	7.85	6 - 36	15.73	8.70	6 - 50	5 - 54
Depressive Conflict	10.79	4.73	6 - 25	9.92	5.41	6 - 32	3 - 72
Constructive Conflict	41.97	11.43	17 - 62	42.89	11.41	12 - 64	6 - 72

Note. $n = 72$

Table 8
Emotion Regulation Behaviors

	<i>M</i>	<i>SD</i>	Range of scores
Positive ER	1.17	.73	.00 – 3.00
Self-comfort*	.79	.61	.00 – 2.00
Comfort Seeking	1.14	.92	.00 – 3.00
Object Comfort*	.19	.42	.00 – 1.80
Self-Stimulation	1.85	.86	.00 – 3.00
Engaged Distraction	1.05	.93	.00 – 3.00
Passive Distraction	1.20	.82	.00 – 2.83
Non-Compliant	1.33	.77	.00 – 3.00
Help-seeking*	.18	.50	.00 – 2.00
Verbal Objections	1.30	.93	.00 – 3.00
Withdrawal	1.49	.83	.00 – 3.00
Gaze Aversion*	1.58	.84	.00 – 3.00
Instrumental Regulation	.84	.61	.00 – 3.00
Changes Subject	.71	.54	.00 – 2.86
Initiates New Activity	.84	.60	.00 – 3.00
Gives Reasons*	.47	.66	.00 – 3.00
Negotiates*	.47	.63	.00 – 2.29
Negative Reactivity	1.28	1.10	.00 – 3.00
Effectiveness	1.85	1.15	.00 – 3.00

Note: $n = 33$, behaviors were rated on a 0-3 scale.* indicates codes that were dropped from subsequent analyses based on data screening and factor analysis results.

Table 9
Correlations between Parental Depression Symptoms and Interparental Conflict

	1	2	3	4	5	6	7
1. Mother CES-D	-						
2. Father CES-D	.347**	-					
3. Mother Destructive	.089	.212	-				
4. Father Destructive	.081	.309**	.542**	-			
5. Mother Depressive	.246*	.160	.238*	.357**	-		
6. Father Depressive	.242*	.402**	.491**	.410**	.372**	-	
7. Mother Constructive	-.119	-.241*	-.605**	-.485**	-.532**	-.431**	-
8. Father Constructive	-.125	-.276*	-.513**	-.601**	-.500**	-.524**	.709**

Note: $n = 72$, CES-D = Center for Epidemiological Studies Depression Scale, * indicates $p < .05$, ** indicates $p < .001$.

Table 10
Correlations between Emotion Regulation and Interparental Conflict Style

Variable	1	2	3	4	5	6	7	8	9	10
1. Positive ER	-									
2. Non-Compliant ER	.04	-								
3. Instrumental ER	.18	.13	-							
4. Negative Reactivity	.08	.69**	-.11	-						
5. Effectiveness	.01	-.59**	-.07	-.80**	-					
6. Mother Destructive	-.07	.02	.11	.12	-.09	-				
7. Mother Depressive	.28	.07	-.01	-.10	.03	.24*	-			
8. Mother Constructive	-.15	-.07	-.17	-.10	.13	-.61**	-.53**	-		
9. Father Destructive	-.02	-.09	-.14	-.24	.21	.54**	.36**	-.49**	-	
10. Father Depressive	-.10	-.04	.15	.20	-.26	.49**	.37**	-.43**	.41**	-
11. Father Constructive	-.04	.09	.16	.09	-.02	.61**	-.50**	.71**	-.60**	-.52**

Note: Interparental conflict $n = 72$, emotion regulation $n = 33$. * indicates $p < .05$, ** indicates $p < .001$

Table 11
Correlations Between Emotion Regulation and Parental Depression Symptoms

Variable	1	2	3	4	5	6	7
1. Mother CES-D	-						
2. Father CES-D	.360**	-					
3. Positive ER	.26	-.15	-				
4. Non-compliant ER	.06	-.24	.040	-			
5. Instrumental ER	.06	-.42*	.179	.131	-		
6. Negative Reactivity	.07	-.15	.080	.693**	-.105	-	
7. Effectiveness	-.19	.13	.007	-.593**	-.071	-.80**	-

Note. CESD = Center for Epidemiological Depression Studies Scale, CES-D $n = 72$, ER $n = 33$, * indicates $p < .05$, $p < .001$.

Aim 1: Parent Depression Symptoms Predict Interparental Conflict Style

I hypothesized that mothers' and fathers' depression symptoms would predict greater levels of their own destructive and depressive conflict and lower levels of their own constructive conflict. This hypothesis was examined based on the Beta weights for paths between parent depression symptoms and conflict styles in the larger path analysis mediation models. I tested models separately for mothers and fathers and for each of the five child ER outcomes; however, the effects of parents' depression symptoms on their conflict styles were consistent regardless of the ER outcome being tested.

The results of path analysis partially supported hypotheses for mothers and supported hypotheses for fathers. Mothers' depression symptoms significantly predicted greater levels of mothers' own depressive conflict, but were not significantly related to maternal destructive or constructive conflict (see Figure 1). Fathers' depression symptoms significantly predict fathers' own destructive, depressive, and constructive conflict. As expected, paternal depressive symptoms were associated with greater levels of destructive and depressive conflict and lower levels of constructive conflict (see Figure 6).

Aim 2: Interparental Conflict as Mediator between Depression Symptoms and Child Emotion Regulation

I hypothesized that parental depression symptoms would indirectly predict child emotion regulation through interparental conflict. I tested this hypothesis using the path analysis mediation models described above. Figures 1-5 below present the results of the hypothesized model tests wherein maternal depression symptoms predict maternal conflict

styles, which in turn predict each of the five emotion regulation outcome variables. Standard errors are reported parenthetically. Hypotheses regarding these models were largely unsupported. Maternal depression symptoms significantly predict greater maternal depressive conflict; however, maternal depression symptoms are not significantly related to maternal destructive or constructive conflict and mothers' conflict did not predict child emotion regulation outcomes. In spite of an overall lack of significant pathways, fit indices for each of these models indicated a good fit with the data, including Positive ER, $\chi^2 (1, n = 72) = .924, p = .34$, CFI = 1.00, TLI = 1.02, and RMSEA = .00; non-compliant ER, $\chi^2 (1, n = 72) = .037, p = .85$, CFI = 1.00, TLI = 1.31, and RMSEA = .00; instrumental ER, $\chi^2 (1, n = 72) = .11, p = .74$, CFI = 1.00, TLI = 1.28, and RMSEA = .00; negative reactivity, $\chi^2 (1, n = 72) = .38, p = .54$, CFI = 1.00, TLI = 1.19, and RMSEA = .00; and effectiveness, $\chi^2 (1, n = 72) = .54, p = .46$, CFI = 1.00, TLI = 1.14, and RMSEA = .00.

Magnitude of effect: The effect size of mothers' depression symptoms on mothers' depressive conflict was small (standardized regression coefficient = .25).

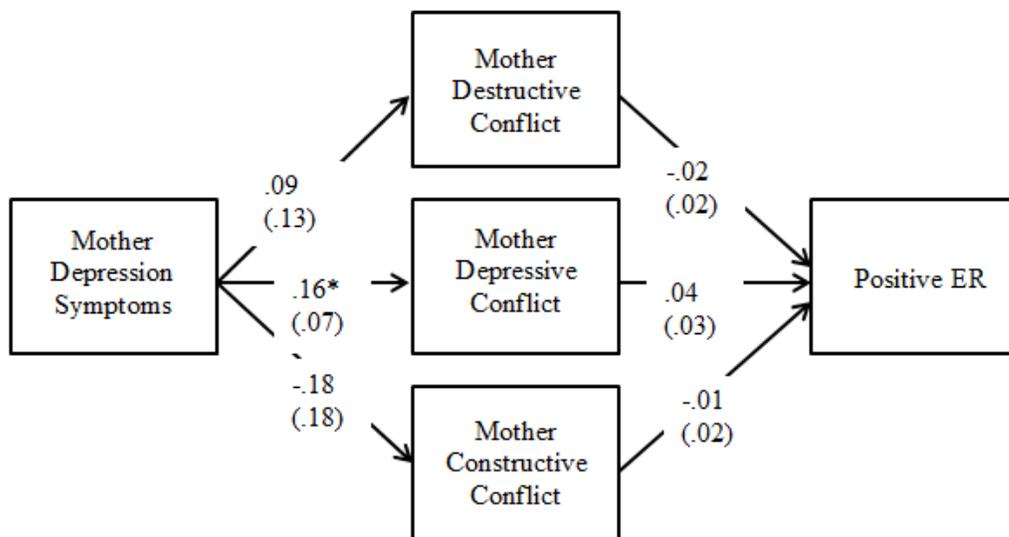


Figure 1. Mediation test of mother variables and positive ER.

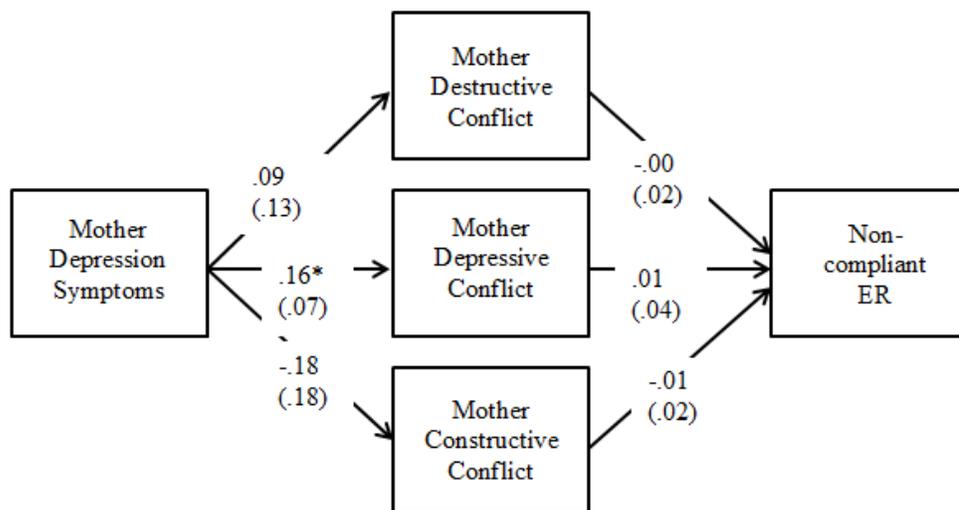


Figure 2. Mediation test of mother variables and non-compliant ER.

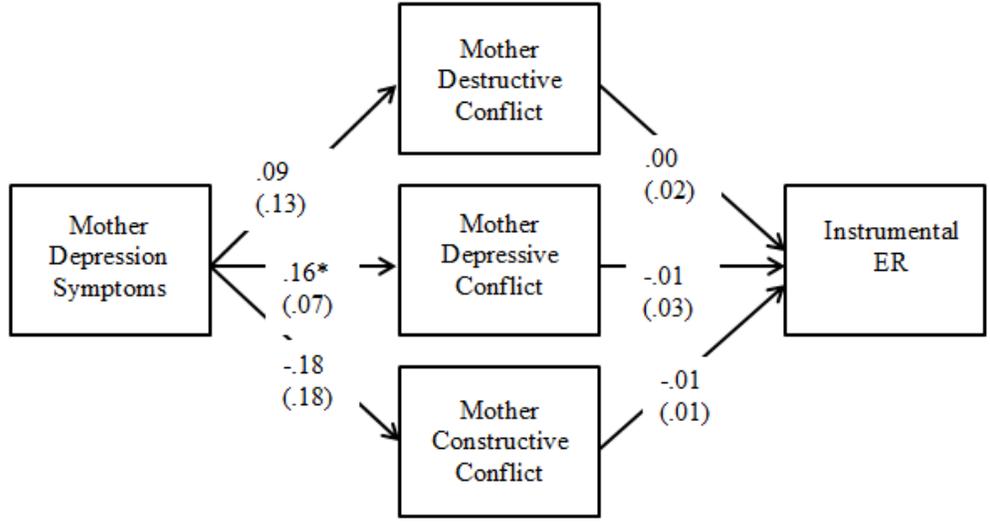


Figure 3. Mediation test of mother variables and instrumental ER.

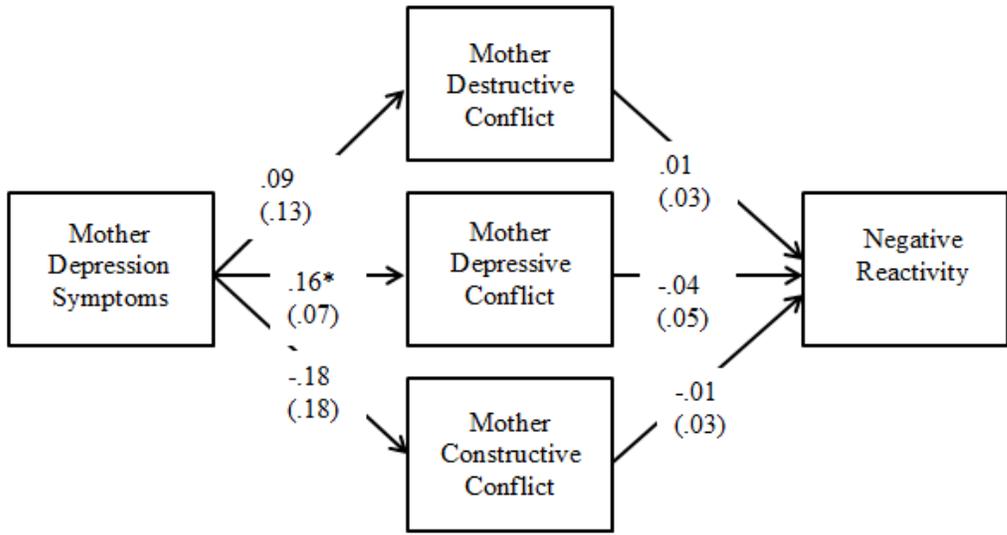


Figure 4. Mediation test of mother variables and negative reactivity.

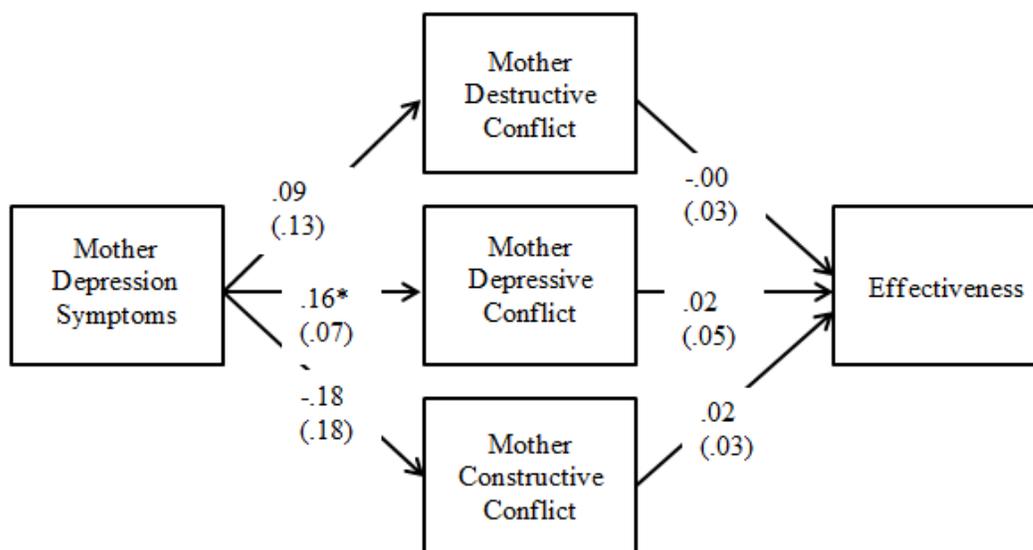


Figure 5. Mediation test of mother variables and effectiveness of ER.

Figures 6-10 below present the results of the hypothesized model tests wherein paternal depression symptoms predict paternal conflict styles, which in turn predict child emotion regulation outcomes. Hypotheses were largely supported by these models; paternal depression symptoms significantly predict greater destructive and depressive conflict and lower constructive conflict. Fathers' depressive conflict is also significantly related to emotion regulation outcomes. Paternal depressive conflict predicts significantly greater instrumental ER (Figure 8.1); however, the results of this model indicated poor fit with the data, $\chi^2(1, n = 72) = 7.19, p = .007, CFI = .91, TLI = -.43, \text{ and } RMSEA = .30$. Because a significant bivariate association exists between fathers' depression symptoms and instrumental ER, I additionally tested a mediation model for wherein paternal depression symptoms also relate directly to instrumental ER (Figure 8.2). In order to preserve indices of

fit, I freed the path between paternal destructive conflict and instrumental ER, which was near zero, in this model. Paternal depression symptoms significantly predict instrumental ER both directly and indirectly through depressive conflict. However, fathers' depression symptoms are associated with lower instrumental ER, whereas fathers' depressive conflict is associated with greater instrumental ER. Results for this model indicated good fit, $\chi^2 (1, n = 72) = .92, p = .57, CFI = 1.00, TLI = 1.02,$ and $RMSEA = .00$. Depressive conflict predicts greater negative reactivity and lower effectiveness of ER, with model results indicating a good fit with the data, respectively: $\chi^2 (1, n = 72) = .47, p = .49, CFI = 1.00, TLI = 1.13,$ and $RMSEA = .00$; $\chi^2 (1, n = 72) = .32, p = .57, CFI = 1.00, TLI = 1.17,$ and $RMSEA = .00$. Paternal depressive conflict also predicts Positive ER at a nearly statistically significant level ($p = .053$) and the results of this model indicate good fit with the data, $\chi^2 (1, n = 72) = .58, p = .45, NFI = .99, CFI = 1.00, TLI = 1.11,$ and $RMSEA = .00$. Paternal depressive conflict does not significantly predict non-compliant ER; the results of this model are also inconsistent and likely indicate a poor fit with the data, $\chi^2 (1, n = 72) = 1.87, p = .17, CFI = .99, TLI = .78,$ and $RMSEA = .11$.

Magnitude of effect: The effect size of paternal depression symptoms on paternal destructive conflict was small (standardized regression coefficient = .31), the effect size of paternal depression symptoms on paternal depressive conflict was small (standardized regression coefficient = .40), and the effect size of paternal depression symptoms on paternal constructive conflict was small (standardized regression coefficient = -.28). The effect size of paternal depressive conflict on Positive ER was small (standardized regression coefficient = -.37), the effect size of paternal depressive conflict on instrumental ER was near medium

(.46), the effect size of paternal depression symptoms on negative reactivity was small (.41), and the effect size of paternal depression symptoms on effectiveness of ER was medium (-.50).

I used the Sobel test to examine paternal depressive conflict as a mediator of the relation between paternal depression symptoms and Positive ER, instrumental ER, negative reactivity, and effectiveness of ER. Based on the Sobel test statistic, paternal depressive conflict is a statistically significant mediator of the effects of paternal depression symptoms on instrumental emotion regulation both with ($p = .01$) and without ($p = .04$) modeling the direct link between paternal depression symptoms and instrumental ER. Paternal depressive conflict is also a significant mediator for effectiveness of emotion regulation ($p = .03$). The Sobel test also revealed paternal depressive conflict to be a nearly statistically significant mediator of the effects of paternal depression symptoms on Positive ER ($p = .09$) and on negative reactivity ($p = .07$).

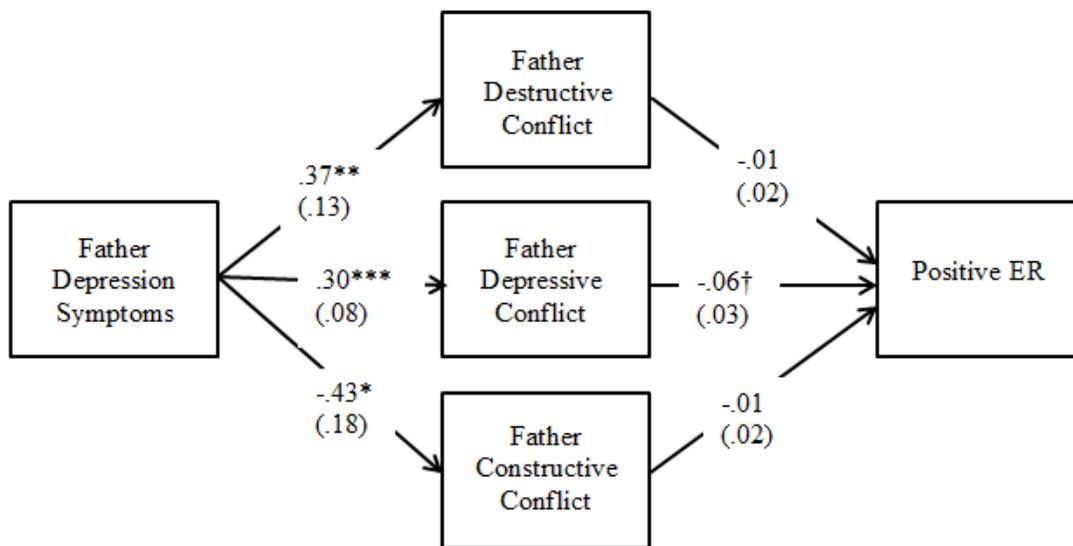


Figure 6. Mediation test of father variables and positive ER.

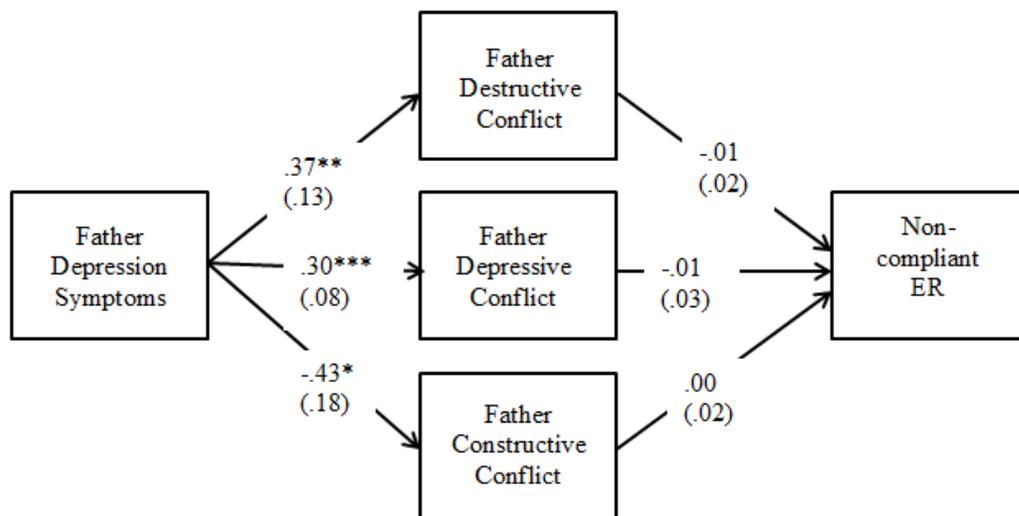


Figure 7. Mediation test of father variables and non-compliant ER.

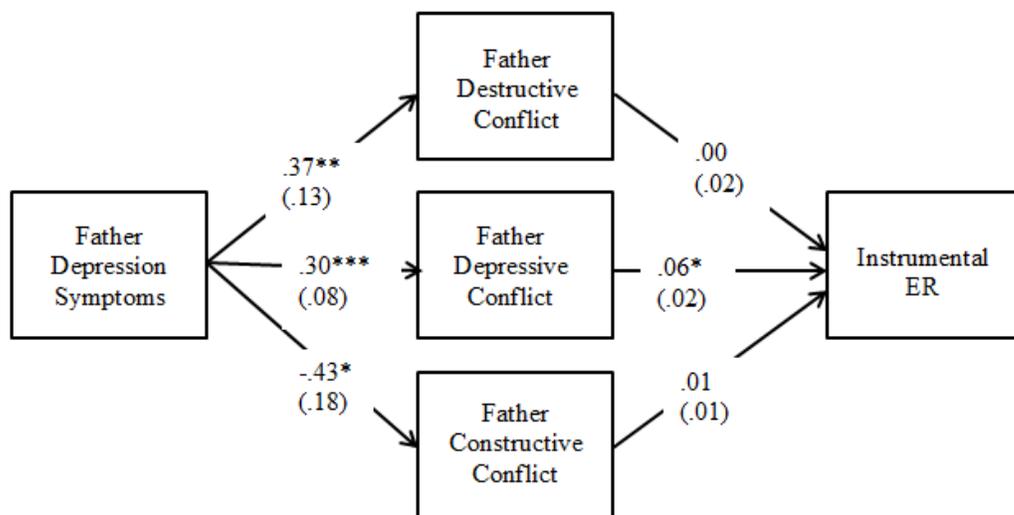


Figure 8.1. Mediation test of father variables and instrumental ER.

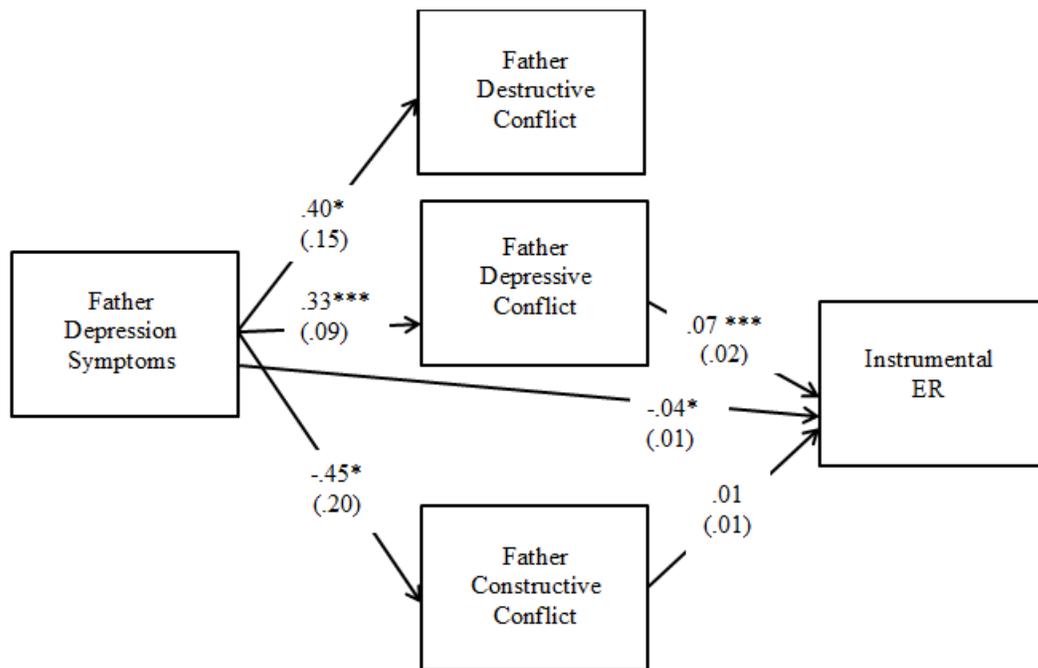


Figure 8.2. Direct and indirect effects of fathers' depression symptoms on instrumental ER.

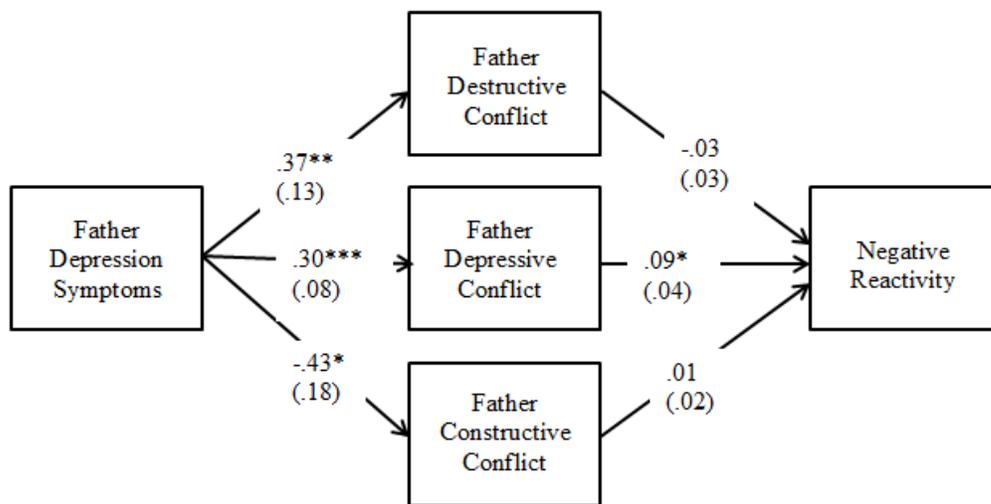


Figure 9. Mediation test of father variables and negative reactivity.

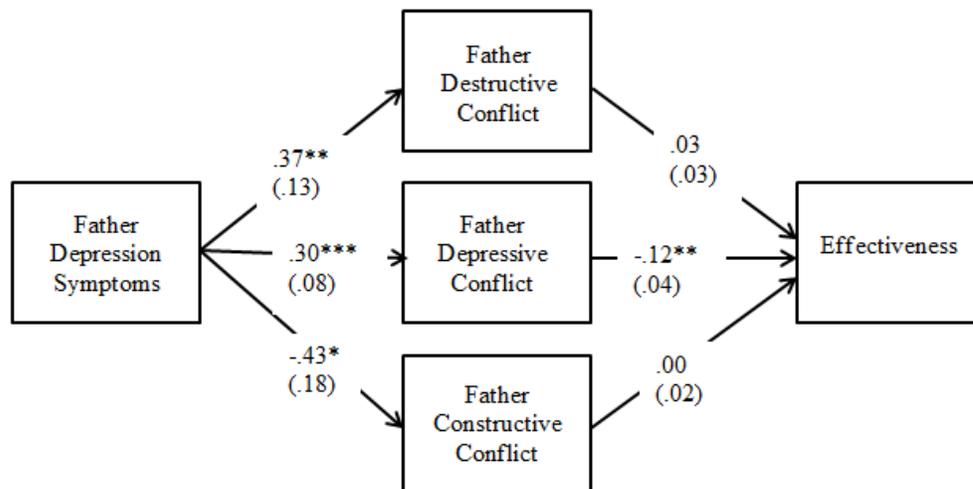


Figure 10. Mediation test of father variables and effectiveness of ER.

Aim 3: Do Patterns of Relations Differ for Mothers and Fathers?

The final aim for the current study was to explore differences in the pattern of relations among depression symptoms, interparental conflict style, and child emotion regulation for mothers and fathers. This issue has been understudied and so this aim was necessarily exploratory; however, I proposed that fathers' depression symptoms may be more likely to predict child ER given recent evidence that fathers' functioning may influence children's adjustment indirectly, whereas mothers' functioning is more likely to directly impact child adjustment (e.g. Goeke-Morey & Cummings, 2007). This hypothesis was confirmed by path analysis model results. Fathers' depression symptoms significantly predicted ER outcomes indirectly through depressive conflict; mothers' depression symptoms predicted maternal depressive conflict, but maternal conflict styles did not predict ER outcomes. Direct links between depression symptoms and child ER were not tested in these models; however, the lack of significant correlations between maternal depression

symptoms and ER outcomes does not support a direct link between maternal depression symptoms and ER.

Both mothers' and fathers' own depression symptoms predicted their levels of depressive conflict. In order to determine if this link was significantly stronger for mothers or fathers, I created a Fisher's z transformed confidence interval for the difference between the two correlation coefficients, following procedures recommended by Zou for comparing dependent, non-overlapping correlations (Zou, 2007). A 95% confidence interval for the difference between these correlations included zero, indicating that the relation between depression symptoms and depressive conflict is not significantly different for mothers and fathers.

Discussion

The results of this study supported hypotheses that parent depression symptoms would predict mothers' and fathers' use of destructive, depressive, and constructive interparental conflict styles in the laboratory. Depression symptoms were a more consistent predictor of conflict style for fathers than for mothers; paternal depression symptoms predicted greater paternal destructive conflict, greater depressive conflict, and lower constructive conflict, whereas maternal depression symptoms were associated with greater maternal depressive conflict only. This finding reflects spillover from depression symptoms into relationships as posited by interactionist theories of depression (Joiner, Coyne, & Blalock, 1999) and is also consistent with previous evidence that fathers' relationships may be more susceptible to spillover from personal difficulties than are mothers' (Du Rocher Schudlich & Cummings, 2003, 2004, 2007; Cummings, Goeke-Morey, & Raymond, 2010;

Fincham, Beach, Harold, & Osborne, 1997). In particular, previous research has found evidence that men are more likely to withdraw from relationships in the face of depression symptoms (Fincham et al., 1997) and that fathers' depression symptoms are associated with greater impairment in interparental conflict behavior, including greater use of angry, destructive strategies and lesser use of constructive strategies than are mothers' depression symptoms (Du Rocher Schudlich & Cummings, 2003, 2004, 2007). Although the underlying mechanism remains unclear, previous researchers have speculated that this may be because men tend to be less oriented toward interpersonal relationships and so may be less sensitive to their partner's emotions when experiencing depression symptoms than are women (Du Rocher Schudlich & Cummings, 2004). The pattern of previous findings suggests that men experiencing depression are more likely to shut down or channel their depressed feelings into anger and irritability when interacting with their partner (to the detriment of the relationship) whereas women experiencing depression may be more likely to express feelings of sadness and worry. This may also reflect the well-documented gender socialization of emotional expression, such that male expressions of anger are viewed as more acceptable than expressions of sadness or fear (e.g. Fivush, Brockman, Buckner, & Goodman, 2000).

I also hypothesized that parents' conflict styles would mediate the relation between their depression symptoms and their child's ER. The current study results supported this hypothesis for fathers but not for mothers. Although maternal depression symptoms were associated with greater maternal depressive conflict, maternal depressive conflict did not significantly predict ER outcomes, nor did other maternal conflict styles. In contrast, fathers'

depression symptoms predicted greater levels of paternal depressive conflict which, in turn, predicted lower positive ER, greater instrumental ER, greater negative reactivity, and lower effectiveness of ER.

The lack of significant links observed here for mothers may be related to issues around the distribution of the data; multiple multivariate outliers were detected for the relation between maternal depression symptoms and conflict as well as maternal conflict and child ER. However, these results are also congruent with theory and previous findings that children may be more negatively impacted by disturbances in paternal than maternal functioning. (Cummings 2004, Du Rocher Schudlich & Cummings, 2004, Goeke-Morey & Cummings, 2007, Sturge-Apple, Davies, & Cummings, 2006). As the fathering vulnerability hypothesis (Cummings, 2004) posits, father-child relationships are more sensitive to family stressors such as fathers' impaired conflict and psychological symptoms, with differentially negative implications for children's adjustment. This may be because fathers' parenting role is less-well defined than mothers' (Schoppe-Sullivan et al., 2008), and is therefore more susceptible to spillover from the interparental relationship. Relatedly, in many families fathers have fewer direct interactions with children than do mothers and so children may be more sensitive to indirect encounters with their fathers, such as observing negative interparental conflict, than their mothers. This notion is supported by a growing body of research suggesting that fathers are likely to powerfully impact child adjustment indirectly, as through interparental conflict behavior or through the link between psychological functioning and marital quality (for a summary, see Goeke-Morey & Cummings, 2004). One study (Sturge-Apple, Davies, & Cummings, 2007) found that, relative to mothers, fathers'

withdrawal during an interparental conflict laboratory task was highly related to their subsequent emotional unavailability to their child. Father's emotional unavailability was also a more consistent longitudinal predictor of children's adjustment in the Sturge-Apple et al (2007) study than was mothers'.

The current results indicated paternal depressive conflict as a particularly salient risk factor for children's emotion regulation. In contrast to my hypotheses, fathers' destructive and constructive conflict styles did not mediate the relation between paternal depression symptoms and child ER. These results are similar to findings obtained by Du Rocher Schudlich & Cummings (2003) when investigating the role of interparental conflict style in a community sample. Du Rocher Schudlich & Cummings found that, although destructive, depressive, and constructive interparental conflict styles each predicted school-aged children's internalizing problems when considered alone, only depressive conflict mediated the relation between parental dysphoria and child internalizing problems when conflict styles were considered together in a mediation model. Depressive conflict is characterized by more tender, vulnerable emotions (e.g. fear, sadness, helplessness, hopelessness, etc.) and these expressions are used less frequently in everyday interparental conflicts, especially by fathers, than are expressions of anger and frustration (Cummings, et al., 2002, Cummings & Davies, 2010). In part because they are unlikely to be witnessed by children except in cases of parental dysregulation, depressive conflict strategies have been particularly linked to child emotional insecurity in some cases (Cummings et al., 2002, Du Rocher Schudlich & Cummings, 2003). Fathers' expressions of these more tender emotions are likely to be especially distressing to children because they defy children's views of their fathers as

invulnerable as well as societal norms of masculine expression (Du Rocher Schudlich & Cummings, 2003; Du Rocher Schudlich et al., in press). This notion is further supported by a body of evidence that, although parents' expressions of anger, sadness, and fear in interparental conflict all elicit child emotional insecurity, children are especially sensitive to fathers' expressions of fear and mothers' expressions of sadness (see Goeke-Morey & Cummings, 2007 for a summary).

Based on the current findings, fathers' expressions of these more vulnerable emotions during conflict may also impair children's ability to regulate their own emotions effectively. EST (Cummings & Davies, 2010) posits that, over time, exposure to negative forms of interparental conflict leads children to develop hypervigilance to interpersonal conflicts in general, perceiving even relatively benign social interactions as threatening. This is also associated with a lowered threshold for emotional arousal, leading children to overreact emotionally or to withdraw inappropriately in mildly distressing or conflicted interactions with others. This pattern of insecure emotional responding, which includes ineffective emotion regulation in social interactions, is postulated to serve the mechanism by which exposure to negative interparental conflict predicts poor child socioemotional adjustment (Cummings & Keller, 2006). Thus, in the current study, children whose fathers display high levels of depressive conflict may perceive even relatively mildly conflicted interactions such as the boring story task to be threatening, resulting in higher negative reactivity and a lessened ability to regulate emotion relative to other children.

In addition to the negative emotional expressions described above, withdrawal from the conflict interaction is a major behavioral component of depressive conflict. Emotional security theory emphasizes that children are particularly negatively impacted by interparental conflict interactions that go unresolved (Cummings & Davies, 2010), as the resolution of even very negative conflicts may help to give the child a sense that the interparental relationship is stable. Depressive conflict style represents a very inactive approach to disagreements, however, and conflict interactions in which one or both partners are withdrawn are highly unlikely to be resolved. Therefore, children of parents who display high levels of depressive conflict are doubly at-risk because they are not only exposed to parents' distressing expressions of fear, sadness, or hopelessness, but are also less likely to observe their parents' disagreements being resolved.

Again, EST (Cummings & Davies, 2010) states that exposure to unresolved interparental conflicts over time leads to children's insecure emotional responding, including poor emotion regulation. This pattern of insecure emotional responding is also characterized by heightened emotional reactivity and overly negative attributions of both their parents' and their own social interactions (Cummings & Keller, 2006). Interparental withdrawal during disagreements is especially likely to contribute to children's emotional insecurity and ineffective emotion regulation for several reasons. First, although witnessing interparental conflict is somewhat distressing to most children, children who witness their parents resolve conflicts may learn to withstand a level of emotional distress related to interpersonal conflict and come to expect that conflicts can end positively. Conversely, children whose parents frequently withdraw and fail to reach a resolution during negative conflicts miss this

learning opportunity. Instead, children exposed to high levels of interparental withdrawal are more likely to perceive a range of interpersonal conflicts as threatening or highly distressing, inferring that conflicted interactions lead to dysregulation and do not end positively.

Additionally, rather than learning to use positive ER strategies, which requires an amount of family system regulation and parental support, these children may have learned to adapt to their parents' escalating conflicts by withdrawing or acting out. Therefore, when faced with subsequent stressful or conflicted interactions between their parents or between themselves and others, these children may be less equipped to regulate their emotions, due both to a lack of experience regulating their own emotions throughout parents' successfully resolved conflicts as well as to their perception that conflicted interactions are unmanageable.

Second, because children's emotion regulation strategies develop at least partially based on observation of family members' regulation behavior (Morris et al., 2007), the negative link between paternal depressive conflict and child ER observed here may reflect social learning. Interpersonal withdrawal is widely considered an ineffective strategy both for managing conflict as well as regulating emotion (Cole et al., 2009; Cummings et al., 2002; Silk et al., 2003) and so interparental withdrawal represents a poor model for children. Thus, this link may also have resulted from children's modelling of parents' withdrawal in order to regulate their emotions as well as from a lack of parent modelling of other, more constructive regulation strategies.

In general, links between paternal depressive conflict and child ER supported hypotheses that destructive and depressive conflict styles would predict lower child ER.

However, in contrast to this, paternal depressive conflict significantly predicts greater levels of instrumental ER. This is also in contrast to previous literature; instrumental regulation strategies are generally considered to be adaptive (Cole et al., 2009; Silk et al., 2003) and so would not be expected to be positively associated with impaired conflict styles. Depressive conflict, in particular, is characterized by a passive, emotionally dysregulated interaction style and is quite conceptually distinct from instrumental regulation behavior, which is characterized by active attempts to alter the interaction. This finding may be related to the problematic nature of the instrumental ER composite variable used in the current study. Although I originally proposed an instrumental ER composite including six different ER behaviors, several of these behaviors were omitted from analyses based on data screening and factor analysis results and so the final instrumental ER variable is comprised of only two of the six conceptually-derived behaviors. Even after transformation, this composite remains highly skewed and demonstrates poor reliability. Therefore, this result may reflect a Type 2 error related to the poor statistical properties of the instrumental ER variable.

Alternatively, it may be that the two behaviors included in the instrumental composite (changes subject and initiates activity) are conceptually distinct from the other instrumental behaviors originally proposed and from previous notions of instrumental ER behavior and so relate to interparental conflict behavior in unexpected ways. In comparison to other indices of ER in the current study, instrumental ER is entirely verbal and involves a fairly sophisticated level of child-parent communication. Theoretically, it would be quite adaptive for a child engaged in the boring story task to calmly ask their parent for help or explain to their parent why they were having difficulty with the task (Stansbury & Sigman,

2000). However, because of the limited language skills of the children studied, most seemed unable to utilize the instrumental behaviors in this way. Instead, these behaviors most often appeared as unsuccessful attempts to escape parents' questioning rather than successful attempts to shift the interaction. Although changing the subject and initiating new activity are not as negative or non-compliant as verbal objections, these behaviors may have represented a mild level of dysregulation for children in this sample. Accordingly, this link appears to reflect a relation between paternal depressive conflict and children's mildly dysregulated, ineffective attempts at managing their frustration. This is consistent with theory and previous findings that negative forms of interparental conflict hamper children's developing socioemotional competence (Cummings & Davies, 2010; Katz & Gottman, 1993; Thompson & Calkins, 1996).

A novel contribution of the current study was the creation of an observational measure of the effectiveness of children's emotion regulation strategies. Previous emotion regulation theorists have emphasized that flexibility is a central characteristic of effective emotion regulation; individuals must be able to shift their regulation strategies to address current goals in order to effectively regulate themselves across contexts (Cole et al., 1994; Saarni, 1997; Silk et al., 2006). However, existing measures of child emotion regulation often fail to evaluate the quality of children's regulation attempts. Child ER is often measured solely based on the frequency of regulation behaviors children display (Grolnick et al., 1996; Silk et al., 2003) and, if the merit of the regulation attempts is evaluated, children's regulation strategies are typically categorized as adaptive or non-adaptive based on theoretical notions and without consideration of the current context (Cassano et al., 2007;

Cole et al., 2009; Eisenberg et al., 1996; Silk et al., 2006). The goal of the effectiveness measure was to assess the successfulness of children's ER strategies in the current context, regardless of the strategy's preconceived quality. Especially because the current study utilized a frustrating family task, I proposed that children may use strategies that are not likely to be adaptive across many contexts, such as physically withdrawing, refusing to comply with parents, or even yelling at parents, to effectively alter the distressing family interaction (e.g. decrease parents' questioning) and thereby regulate their frustration.

Effectiveness of ER was evaluated on a 0-3 scale and was indexed by the child's pattern of emotional expressions throughout the interaction (e.g. did the child exhibit more or less negative emotions as the visit went on) and flexibility of ER behavior (e.g. if an initial ER strategy appears ineffective, does the child persist or try something new). Effectiveness was intended to be distinct from the measure of negative reactivity, so that a child could become very frustrated with the task but also demonstrate high effectiveness in calming him or herself down. However, in the current study, negative reactivity and effectiveness are highly significantly negatively correlated; this may suggest either that these two measures were not conceptually distinct in the current study (i.e. effectiveness simply measured a lack of negative reactivity) or simply that children are not well able to regulate their emotions effectively when they are highly negatively reactive to the situation at hand.

Several factors related to the design of the effectiveness code were problematic in practice. Although assessing a child's pattern of negative expressions throughout the interaction was intended to capture their effectiveness in maintaining regulation, this

appeared quite arbitrary for many children who did not display a linear pattern of negative expressions. For example, some children displayed only a few discrete instances of negative expression throughout the interaction which they quickly recovered from; however, based on the coding system negative expressions made closer to the end of the interaction were to be interpreted as a failure to regulate. This was doubly problematic because the majority of children seemed to make slightly more negative expressions as the task continued, likely as a natural result of growing frustration and fatigue.

Based on the coding system, flexibility was indexed by children's ability to employ a new regulation strategy when a previous ER strategy was unsuccessful. In practice, it was extremely difficult to infer whether or not a single observed regulation behavior had been effective. This was due in part to the somewhat unobservable nature of emotional experience and in part because it was difficult to discern whether children's current emotional expressions were a result of the effectiveness of a particular ER strategy, of their parents' behavior, or of something else entirely.

Conceptually, the effectiveness of emotion regulation is distinct from trait negative reactivity; however, these constructs proved quite difficult to tease apart utilizing behavioral observation. In future research, it may be more useful to rely on parents' reports of children's trait negative emotionality rather than attempting to observe this concurrently. In the current study, parent-reported infant negative reactivity was not significantly related to either observed preschool negative reactivity or effectiveness of ER. Thus, collecting multiple measures of children's negative reactivity at multiple time points may prove useful.

Because the effects of children's individual regulation behaviors were not easily observed, computer software could be utilized in order to record moment-by-moment behaviors more accurately. Moment-by-moment physiological measures of arousal (e.g. respiratory sinus arrhythmia) may also prove quite useful for inferring the effects of children's behavior on their inner emotional experience.

Limitations

There are several difficulties in the data set that may have impacted the statistical conclusion validity of the current study. This study was low-powered due to a small sample size at T2 ($n = 33$), especially given the size of the path models tested. Additionally, measures of model fit presented here may not be meaningful given the highly parameterized nature of the models tested (all model $df = 1$). In order to maintain a clinically meaningful level of variability, I chose not to transform positively skewed measures of parent depression symptoms and interparental conflict; because of this, model results may be disproportionately driven by a small number of (statistically) extreme cases.

There are a number of theoretically pertinent child and family factors that were not considered here. For example, child age, gender, and genetic make-up, and parent-child attachment are likely to impact child ER as well as the relation between parents' depression symptoms, interparental conflict, and child ER. However, the consideration of these links was beyond the scope of the current study, especially given the low power. In addition to being a relevant but unexamined variable, parenting may be a confound in this study. That is, because the measure of emotion regulation is a parent-child interaction in which parents

are seeking information and compliance from their child, the parents' approach is likely to substantially impact their child's emotional response. However, the family systems perspective (Cox & Paley, 1997) along with empirical evidence (Volling et al., 2002) suggest that, although preschoolers are beginning to develop independent regulation skills, their emotion regulation is still closely tied to the regulation of the family system at this age. Therefore, from a purely statistical standpoint parenting is a confound in this study; however, parents' close involvement in the boring story task also makes this an ecologically valid measure of preschooler emotion regulation.

It is important to note that while the hypothesized models postulate directionality between parent depression symptoms, interparental conflict, and child ER based on theory, this study is non-experimental and cannot infer causal relationships. Ethnic and socioeconomic diversity was quite low in the current sample and so these results may also have limited generalizability.

Implications and Future Directions

In general, these findings lend support to growing evidence that fathers differentially impact children's development and, in regards to certain processes, may even have a greater impact on children's development than do mothers. Family practitioners should particularly consider fathers' indirect effects on child adjustment, as through their handling of interparental conflict. Paternal depressive conflict was revealed to be particularly detrimental to children's emotion regulation here and so may represent a salient risk factor, especially for children of fathers experiencing depression symptoms. Perhaps couples

counselling should be given special consideration when fathers report depression symptoms in order to protect children from negative effects. Because emotional security theory posits (Cummings & Davies, 2010) and evidence has demonstrated (Cummings, Goeke-Morey, Papp, & Dukewich, 2002) that the resolution of interparental conflicts is particularly vital to children's emotional security, a wide range of families would benefit from skills training aimed at increasing parents' resolution of disagreements. Further, recent evidence (Cummings, Goeke-Morey, & Papp, 2004; Cummings et al., 2002) suggests that children may be especially sensitive to and benefited by fathers' use of constructive conflict behavior. Thus, building fathers' skill in constructively resolving conflicts represents a particularly beneficial focus of family intervention, as even relatively small changes in fathers' interparental conflict behavior may have a meaningful impact on their children's emotional development.

Further research is needed to more fully elucidate the role of fathers' depressive conflict in family processes. Few links were found here for mothers; future research may benefit from considering direct links to child adjustment for mothers, as from psychological functioning and parenting behavior. Future research utilizing multiple, moment-by-moment measures of ER as well as the child's reported trait negative emotionality may be more successful in measuring the contextual effectiveness of emotion regulation behaviors.

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