

DIFFERENTIAL IMPACT OF PARENT FUNCTIONING ON INFANT SOCIAL  
EMOTIONAL FUNCTIONING DURING THE TRANSITION TO PARENTHOOD

A Dissertation

by

KATHRYN PATRICIA CARHART

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2011

Major Subject: Psychology

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Approved by:

Chair of Committee, Brian Doss  
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## ABSTRACT

Differential Impact of Parent Functioning on Infant Social Emotional Functioning

During the Transition to Parenthood. (May 2011)

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Chair of Advisory Committee: Dr. Brian Doss

This study examined the relations between parental and relationship functioning and infant social-emotional functioning, with an emphasis on the differential predictive power of mothers and fathers. This is the first study to examine certain specific predictors of parent functioning: parental alliance, parental identity, relationship adjustment and relationship conflict in an infant sample during the transition to parenthood.

Results indicated that fathers' functioning better predicted infants' dysregulatory problems, while mothers' functioning better predicted infants' internalizing problems. Specifically, fathers' functioning predicted negative emotionality and eating problems in their infants, while mothers' functioning predicted general anxiety and separation distress in their infants.

Results also showed that several combinations of differential predictive power (e.g., the highest functioning parent vs. the lowest functioning parent) were not significant predictors of difficulties in their infants, indicating that the impact of one parent does not depend on the functioning of the other. Important theoretical

implications based on the gender differences in predictive power found, as well as the lack of contextual effects found in the present sample, are discussed.

## DEDICATION

To my family: Christopher, Mom, Dad, Beckie, Rae and Lola

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## INTRODUCTION AND LITERATURE REVIEW

### *Impact of the Transition to Parenthood*

The transition to parenthood, or the period between pregnancy and the first several years postpartum, is a stage in familial development known for the challenges it brings to parents both individually and as a couple (Belsky & Pensky, 1988; Elek, Hudson, & Fleck, 2002). A couple's ability to manage stress and work together is put to the test as they face the increasing demands on their time that come with having a baby. Importantly, the way in which couples adjust to this transition can have a lasting impact on both their relationship and the functioning and development of their children (C. P. Cowan & Cowan, 2000).

### *Impact on the Individual*

As a couple's world shifts to incorporate the addition of a new family member, it can be a time of increased fatigue (Elek et al., 2002), stress and emotional upheaval (C. P. Cowan & Cowan, 2000). From the end of pregnancy to approximately one month after birth, levels of fatigue increase steadily for both mothers and fathers and persist for several months (Elek et al., 2002). Fatigue makes it difficult for couples to adapt efficiently to their new roles as parents, by making it hard to problem-solve and learn effectively (Hart, Freel, & Milde, 1990). It may also make it difficult for parents to be sensitive and responsive to their partners; in mothers, fatigue is related to lower levels of marital satisfaction post-birth (Elek et al., 2002).

Additionally, researchers note that, although the birth of a new child is a positive

event, major life changes can be stressful (C. P. Cowan & Cowan, 2000). New parents face an increase in the demands placed on their time, coupled with a loss of outside support from friends and co-workers (P. A. Cowan & Cowan, 1998). In the midst of these new demands, parents may face changes in their views of themselves. During the transition, the parent portion of mothers' and fathers' sense-of-self increases, and mothers' sense of their "worker/student" identity gets smaller (P. A. Cowan & Cowan, 1998)

Moreover, drops in self-esteem occur for young mothers between pregnancy and six months post-birth and for young fathers between six months and eighteen months post-birth, before eventually returning to baseline levels (C. P. Cowan & Cowan, 2000). These changes in self-esteem and identity may contribute to the feelings of depression that parents sometimes experience. Studies show that up to 50% of mothers may experience "the baby blues," defined as more minor symptoms of depression that subsist within 2 weeks post-partum (P. A. Cowan & Cowan, 1998). Additionally, up to 10% of mothers may experience more clinically impairing symptoms associated with post-partum depression (P. A. Cowan & Cowan, 1998).

### *Impact on the Couple*

Numerous studies show that marital satisfaction declines during the transition to parenthood (Belsky & Rovine, 1990; P. A. Cowan & Cowan, 1998; Gottman, Driver, & Tabares, 2002). While exact numbers vary across studies, a sizeable portion of all parents appear to experience decreases in relationship functioning across the transition. Belsky and Rovine (1990) found that 42% of the women and 46% of the men in their

sample experienced either linear or accelerated declines in love over the first three years of the transition to parenthood. Furthermore, Cowan and Cowan (1998) found that 45% of men and 58% of women in their sample experienced declines in satisfaction between pregnancy and eighteen months post-partum. Gottman et al. (2002) found that approximately 67% of couples in their sample experienced steep drops in satisfaction over the transition; however, this drop was experienced primarily by mothers. However, an important finding across studies is that a significant number of parents do not experience changes in satisfaction across the transition and some couples even experience increases (Belsky & Rovine, 1990).

Other studies have examined more specific areas of parents' relationships, in order to increase understanding of the specific areas that may begin to undermine overall satisfaction. A recent study demonstrated that both mothers and fathers show sudden deteriorations in both positive and negative aspects of relationship functioning following the birth of their first child (Doss, Rhoades, Stanley, & Markman, 2009). Specifically, mothers showed declines in functioning across relationship satisfaction, problem intensity, poor conflict management, negative communication and relationship confidence (Doss et al., 2009). Additionally, fathers showed a sudden drop in satisfaction, dedication and negative communication (Doss et al., 2009). Furthermore, across the transition, levels of conflict between parents increase (Belsky & Pensky, 1988; Belsky & Rovine, 1990), while positive exchanges and shared leisure activities between the partners decline (Belsky & Pensky, 1988).

### *Coparenting Relationship*

With the birth of the first child, a new dimension of a couple's relationship is also born: the coparenting relationship. Feinberg (2003) defines coparenting as "the ways that parents relate to one another in the roles as parent" (p. 96). There are several specific areas of relating that fall under the coparenting relationship. These include: agreement on childrearing in areas such as discipline, values or education; division of childcare labor, and whether or not parents can be flexible with this division and satisfied with the split; support for the other parent (e.g., respect for a parent's disciplinary decision) and joint family management, which calls for joint communication and balance of involvement with the child (Feinberg, 2003).

The coparenting relationship is conceptualized as separate and distinct from couples' romantic relationship; however, these two relationships are thought to influence one another in important ways (Feinberg, 2003). Parents begin their coparenting relationship with the same ability (or inability) to communicate that they had before the birth of their child in their romantic relationship (Feinberg, 2003). Alternatively, tension within the coparenting relationship has been shown to spill over into the romantic relationship (Feinberg, 2003). Researchers suggest that imbalances in the division of labor after birth may impact couple functioning (C. P. Cowan & Cowan, 2000). More specifically, mothers' met or unmet expectations about fathers' involvement in childcare are related to both partners' relationship satisfaction (C. P. Cowan & Cowan, 2000). Importantly for the present study, the coparenting relationship is thought to be more

highly associated with child outcomes, as it plays a more central role in parenting processes (Feinberg, 2003).

### *Impact on the Children*

Parents' romantic relationship and coparenting relationship difficulties during the transition can have lasting effects on their children's intellectual and social development (P. A. Cowan & Cowan, 1998). However, as reviewed later in this proposal, the specifics of how this occurs have not been fully explored. The following section will only reference research that has been done within the transition to parenthood period among parents having their first child. However, because few studies have examined relations between parent and child functioning in a transition to parenthood sample, later sections will explore parental impact on child development within the broader literature.

In the limited research to date, marital conflict during pregnancy was associated with infants' greater difficulty in regulating emotions three months after birth (Gottman et al., 2002). For fathers, marital satisfaction during pregnancy was associated with higher levels of involvement with their children six and twelve months post-partum; this relationship was not explored in mothers (Lee & Doherty, 2007). Furthermore, among fathers, more negative changes in marital quality across the first three years of the parenting transition was related to more negative and intrusive parenting exchanges between father and child, as well as displays of more negative affect and disobedient and strange behaviors by their children (Belsky, Youngblade, Rovine, & Volling, 1991). However, similar relations were not found for mothers (Belsky et al., 1991). Additionally, more positive marital interactions between parents when children are 3.5

years old predict higher levels of academic achievement and lower levels of shy/withdrawn and aggressive behaviors in children two years later (P. A. Cowan, Cowan, Schulz, & Heming, 1994)

### *Social-Emotional Development*

One of the most important areas of child development is social-emotional development (SED). SED refers to the extent to which children are able to acquire skills of emotional and social competence (Saarni, Campos, Camras, & Witherington, 2006). Emotional competence refers to the success with which individuals can understand, regulate and express their emotions (Denham, 1998). Specific skills of emotional competence include: being aware of your own emotions, the ability to express your emotions to others using appropriate vocabulary, the ability to be empathic to others' emotional experiences and the ability to regulate your emotions, whether they are positive or negative (Saarni et al., 2006). Social competence refers to the quality of a child's success in a given social situation; a specific social skill might include the ability to react pro-socially to a friend who is upset (Denham, 1998). The development of these competencies in early childhood can impact functioning in later childhood and adolescence. SED has even been deemed the "foundation" of many areas of child and adolescent adjustment (Deater-Deckard, 2008).

### *SED in Infants and Toddlers*

The first several years of a child's life are important in the development of social and emotional capacities. Within the first several days following birth, infants demonstrate awareness of their surroundings and the ability to learn (Crockenberg &

Leerkes, 2000). Within the first 6 weeks of life, infants begin to show emotional responses to external cues, such as another infant crying or their mother's native language (Saarni et al., 2006). During the time infants are between 6 weeks and 9 months old they become more sensitive to their primary caregiver's emotions and can match their own emotions to them (Saarni et al., 2006). At 2-3 months of age, infants begin to take turns within vocal interactions with parents, demonstrating responsiveness to their parent's behavior (Crockenberg & Leerkes, 2000). Between 7 and 9 months infants are able to use emotions to communicate with specific others and thus begin to more consciously use strategies to sustain contact with their parents (Crockenberg & Leerkes, 2000).

Between 9 months and 18 months infants are able to associate emotional meaning with their environment (Saarni et al., 2006). They show emotional sharing; for example, alerting a parent to moments of importance (Saarni et al., 2006). They also show emotional memory; an object that has an emotional impact on the infant will tend to have a similar impact on the infant in the future (Saarni et al., 2006). Between 18 and 20 months, advances in spoken language, as well as the ability to identify and hold goals, increases the capacity for goal-directed behavior (Crockenberg & Leerkes, 2000). Finally, between 18 months and into toddlerhood, children begin to show more variability in emotions, such as a distinction between anger and fear (Saarni et al., 2006). They also demonstrate more 'self-conscious' emotions such as guilt or pride (Saarni et al., 2006).

### *Importance of SED*

As infants and toddlers acquire new emotional skills, these competencies allow them to facilitate and maintain successful social interactions. Researchers believe that emotional competence plays a role in children's ability to develop socially (Denham, 1998). Children who show the ability to understand, express and regulate emotions are more likely to be viewed as socially competent by their peers (Denham, 1998). Many emotional competence skills lend themselves to also being characteristics of social success. In social situations the ability to recognize emotional cues leads to social responses, which will lead to more successful social interactions (Denham, 1998).

While most infants and toddlers progress through these stages of emotional and social development and acquire these necessary competencies, many children face difficulties with social-emotional functioning. Research indicates that between approximately 10% of infants and between 10-15% of toddlers have acute social-emotional and behavioral difficulties (A. S. Carter, Briggs-Gowan, & Davis, 2004). Moreover, early childhood difficulties often continue into later childhood (Lavigne et al., 1998).

Furthermore, even lags in normative emotional and social competency can place children at greater risk for developing SED problems later in childhood (A.S. Carter, Briggs-Gowan, Jones, & Little, 2003). The ability to develop age appropriate social and emotional skills makes it more likely that children will be socially and emotionally competent in later childhood and will not develop social, emotional or behavioral difficulties (A.S. Carter et al., 2003). Infants who show a greater preference for their



mothers, over an unfamiliar adult, and more persistence at a sensory-motor task at 1-year of age, show higher levels of compliance and participation in pre-school respectively (Klein & Durfee, 1979). Moreover, boys that show higher levels of negative affect and lower levels of positive affect in infancy tend to be more inhibited in nature at age 3 (Belsky, Putnam, & Crnic, 1996). Finally, children who more actively seek out contact with their parents in toddlerhood are likely to show fewer behavioral and social problems with peers in kindergarten (Goldberg & Easterbrooks, 1990).

#### *Infant-Parent Relationships and SED*

Children first explore these capacities to experience and express emotion and to form secure attachments within the context of infant-caregiver relationships (Crockenberg & Leerkes, 2000). Infants and toddlers are dependent on their caregivers and, as a result, their development is significantly shaped by their parents' influence (A. S. Carter et al., 2004). Children learn how to understand and express emotions by observing the way in which their parents respond to their own and their children's emotions (Denham, 1998). For example, a mother who responds to her son's angry outburst with disapproval teaches their child that anger is not an emotion that should be expressed.

There are several ways in which parents teach their children how to experience and express emotions. These include "modeling, coaching and contingency" (Denham, 1998). Parents model emotional and social skills when they express their own emotions or act out a social interaction with others that their child observes (Denham, 1998). Infants look to their parents in affectively arousing situations; research show that infants

take cues from their parents' responses and regulate accordingly (Crockenberg & Leerkes, 2000). Parents coach their children by talking them through an expression of emotion or a social interaction (Denham, 1998). Finally, contingency occurs when a child is rewarded or punished for expressing a feeling or carrying out a social interaction (Denham, 1998). Because children are constantly observing their parents and learning from their emotional and social interactions, parental difficulties in their interactions with either their children or their partners often impact their children's SED.

Additionally, mothers and fathers may interact with their children in different ways. A review of parenting influence concluded that while mothers' appear to spend more time with their children on average, fathers' tend to spend more time in play with their children (Lewis & Lamb, 2003). Moreover, fathers are more likely to engage in a specific type of play style, described as 'rough-and-tumble play,' that appears to be more physical, exciting and stimulating, and less predictable (Paquette, Carbonneau, Bubeau, Bigras, & Tremblay, 2003). Children may be able to learn different types of emotional or social skills, depending on the different types of interactions they have with parents. Researchers postulate that children have a need to experience what both parents have to offer, stimulation and excitement, as well as stability and safety (Paquette, 2004). As a result, these unique contributions made by mothers or fathers may differentially impact their children's development.

#### *Predictors of SED in Children*

Given that early social-emotional development can have such a significant impact on children's overall development, it is important to identify the specific

parenting and relationship factors that shape this area of functioning. Identifying these factors of influence gives researchers a model of how family functioning may influence child development. Furthermore, it pinpoints specific factors of risk within families, which allow clinicians to target areas of family functioning that have the greatest impact on their children.

While a large amount of research has been dedicated to examine these relationships in older children and adolescents (see Appendix II for a review), the first several years of life, which is a time of rapid growth in SED (Crockenberg & Leerkes, 2000), is relatively unexamined. Furthermore, social and emotional functioning during this period can impact later development throughout childhood and adolescence (Lavigne et al., 1998). Therefore, it is especially important to examine predictors of social and emotional difficulties during infancy and toddlerhood.

#### *Parenting Predictors*

The quality of specific parenting skills and areas of parent-child relationships have shown to be important predictors of children's SED development. Within a sample of 3.5 year old children and their parents, lower levels of maternal and paternal warmth, and but only lower levels of paternal control, predicted externalizing problems in their children (Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993). In a sample of boys, mothers' intrusiveness at 2 and 3 years, and fathers' insensitivity and lower levels of positive affect at 2 years, and intrusiveness and negativity at 3 years, was predictive of higher levels of disinhibition in 3 year-old boys than would be expected based on emotionality at 1 year (Park, Belsky, Putnam, & Crnic, 1997). This pattern of results

indicates that toddlers may need a ‘push’ to overcome emotional inhibition (Belsky et al., 1996). Furthermore, a follow-up study showed that unsupportive coparenting predicts higher levels of disinhibition in their 3-year olds even after controlling for the parenting qualities mentioned above (Belsky et al., 1996). These findings indicate that individual parenting styles and qualities are important influences children’s functioning, but the way in which parents work together as coparents can be impactful as well.

One way of measuring the success of a couples’ coparenting relationship is by examining the strength of their parenting alliance. Parenting alliance examines parents’ perceived agreement with one another concerning parenting issues (Abidin & Konold, 1999). While parenting alliance has not been examined in infant or toddler samples, greater strength in parenting alliance does predict a more self-focused emotional-relational style in children, ages 4 to 12 (Johnston, 1993). Furthermore, a related construct – parental conflict over parenting issues – has been examined in infants. Results show that at 12 months post-birth, mothers’ reports of parenting conflict predict internalizing behavior difficulties in infants (Bayer, Hiscock, Ukoumunne, Price, & Wake, 2008).

Research has also examined the relation between harsh and punishing parental interactions and difficulties in children. One study examined the association between mothers’ parenting qualities and problem behaviors in children at several time points throughout children’s first 3 years of life (Bayer et al., 2008). At 12 months, 18 months, 24 months and 36 months, mothers’ harsh discipline predicted externalizing behavior difficulties in infants (Bayer et al., 2008). Moreover, increases in the use of harsh

discipline between 18 and 24 months predicted externalizing behaviors in infants more strongly at 36 months than at 24 months (Bayer et al., 2008).

Additional research shows similar findings. Mothers' use of verbal and physical discipline predicted higher frequencies of behavioral problems (e.g., aggression) in a sample of 1 to 5 year old children (Brenner & Fox, 1998). Furthermore, fathers who showed a greater use of verbal and physical punishment with their 1 to 5 year old children, were more likely to have children that show not only more frequent, but also more intense, behavior problems as well as more challenging behavior (Burbach, Fox, & Nicholson, 2004). In a study that examined the differences in parenting between samples of clinical and non-clinical groups of 2 to 5 year olds, mothers in the clinical sample reported greater use of verbal and physical punishment and lower frequency of nurturing interactions (Perez & Fox, 2008). Furthermore, a longitudinal study showed that when mothers were more angry and punishing in their interactions with their 3-month old infants, these children as toddlers were more angry and non-compliant and more often withdrew from contact with their mothers (Crockenberg, 1987).

Moreover, fathers' style of play with their children has been shown to predict developmental outcomes in toddlers. More complex social play with their toddlers is related to toddlers' emotional regulation at two time points: 24 and 36 months (Roggman, Boyce, Cook, Christiansen, & Jones, 2004). Furthermore, more complex social toy play at 14 months predicts emotional regulation at 24 months, even after controlling for earlier levels of toddler emotion regulation (Roggman et al., 2004).

Finally, father involvement, as well as fathers' abusive patterns, have been shown to predict outcomes in children; however, these constructs has not been examined in toddler or infant samples. In a sample of children with a mean age of 6, higher levels of father contact predicted higher levels of adaptive behavior, and lower levels of internalizing and externalizing problems (Perloff & Buckner, 1996). Moreover, physical abuse by fathers predicted lower levels of adaptive behavior and higher levels of internalizing problems, while sexual abuse of a child predicted higher levels of externalizing problems (Perloff & Buckner, 1996).

#### *Romantic Relationship Predictors*

Researchers have also sought to examine how the romantic relationship between two parents can impact child development. A meta-analytic review found a positive relation between marital quality and positive parent-child relationships, with a mean effect size of  $d = 0.46$  (Erel & Burman, 1995). More specifically, reviews of the literature conclude that interparental conflict may be the most damaging to children's SED (Emery, 1982; Fincham, Grych, & Osborne, 1994; Zimet & Jacob, 2001). In particular more open, hostile and long-term conflict appears to be more detrimental to children (Emery, 1982), as does more poorly resolved and child centered disputes (Fincham et al., 1994). Furthermore, conflict appears to have a variety of negative impacts on children, including both internalizing and externalizing difficulties, and it may have a bigger impact on sons (Emery, 1982). There are also several hypothesized mechanisms of impact, such as modeling, changes in the parent-child relationship, stress-coping abilities, emotion regulation or children's appraisals of conflict (Fincham

et al., 1994; Zimet & Jacob, 2001). One review hypothesized that marital conflict impacts child functioning by causing the parenting alliance to break down, and thus undermining parents ability to co-lead the family (Johnston, 1993).

However, it appears that while most studies of marital quality and child outcomes have focused on older samples, only a few have focused on infants and toddlers. In a laboratory study in which toddlers were exposed to angry interactions between two adults, children showed signs of distress, which increased after a second exposure to conflict, and showed increased levels of aggression within their peer interactions following the exposures (Cummings, Iannotti, & Zahn-Waxler, 1985). Interestingly, 2-year old boys showed higher levels of aggression than girls, while 2-year old girls showed higher levels of distress than boys (Cummings et al., 1985).

Another study found that marital discord, as reported by both mothers and fathers, predicted poor emotional adjustment when children were 2 years old (Weindrich, Laucht, Esser, & Schmidt, 1992). Additionally, maternal reports of couple conflict predicted externalizing behavior problems in their 3.5 year old children (Miller et al., 1993). Furthermore, when marital harmony worsened from 3 months to 24 months, children showed increases in behavior problems (Weindrich et al., 1992). In addition, both paternal and maternal reports of marital harmony predict higher levels of positive affect and a greater ability to stay on task during a puzzle exercise in toddlers (Goldberg & Easterbrooks, 1984). Finally, maternal reports of partner support (based on measures of partner support quality, frequency of contact with partner and partner

satisfaction) at 6 months predicted toddlers' expectations of being cared for at 24 months (Heinicke et al., 2006).

### *Limitations of Existing Research*

While previous research has examined the relations between parental and relationship functioning and child social-emotional functioning, there are several important limitations to this literature. To date, few studies have looked at the differential predictive power that mother or father parental or relationship functioning has on children's social-emotional development and even fewer studies have examined this differential impact on infants and toddlers. Furthermore, no studies have explored what combinations of parenting or relationship constructs are especially influential on children's social-emotional development.

### *Differential Impact*

#### *Why Might Parents Have a Differential Impact?*

Because parenting and relationship functioning appear to have such a significant impact on child development, it is important to untangle the effects that mothers and fathers may have. Research indicates that mothers and fathers are likely to have important differences in the way they experience familial transitions and the way they interact with their children. These differences open up the possibility for further differences in the way mothers and fathers may impact their children.

*Different Experiences during the Transition to Parenthood.* Research has demonstrated that the transition to parenthood period, in particular, may intensify already present differences between parents (P. A. Cowan, Cowan, & Kerig, 1993).



Mothers' identity as parent appears to strengthen, while their identity as partner appears to weaken to a significantly greater extent than fathers across the transition (P. A. Cowan et al., 1993). In terms of marital satisfaction, mothers tend to experience the largest drops in satisfaction during the first 6 months after the baby is born, while fathers tend to experience the greatest declines when infants are between 6 and 18 months old (P. A. Cowan et al., 1993). Furthermore, mothers and fathers tend to experience declines in distinctive aspects of relationship functioning over the transition. Specifically, mothers show declines in functioning in problem intensity, poor conflict management, and relationship confidence, while fathers showed a sudden drop in dedication (Doss et al., 2009). In addition, mothers and fathers' contact outside the home tends to differentiate as well, as mothers spend more time at home than they did before birth and become less involved with careers (P. A. Cowan et al., 1993). Mothers also take on a greater extent of housework and childcare (P. A. Cowan et al., 1993). This differentiation often takes a toll; research shows that absolute differences between husbands and wives scores on parental identity, satisfaction with the breakdown of childcare, and ideas about parenting predicted decreases in marital satisfaction and increases in marital conflict (P. A. Cowan et al., 1993). Moreover, these differences between spouses also predicted differences in the way mothers and fathers interacted with their children (P. A. Cowan et al., 1993). Differences between partners during pregnancy, as well as an increase in differences across the first 6 months of the transition, predicted larger differences in parenting styles between the parents (P. A. Cowan et al., 1993).

*Different Types of Interactions with Their Children.* In the more general literature, research shows that mothers and fathers are likely to interact with their children in different ways (Parke et al., 1989). Mothers, on average, interact with infants more often, even when fathers are present in the home (Clarke-Stewart, 1978). Mothers' play interactions are characterized as predictable, secure and more verbal in nature, while fathers' interactions are more unpredictable and physically stimulating (Parke et al., 1989). These differences may add to their children's emotional development in different ways, as evidenced by studies that show two-parent families, with more differentiated mother or father roles, have children that show better social functioning outcomes (Paquette, 2004). Recent work has found that children may have different responses to mother and father use of conflict behaviors (Goeke-Morey & Cummings, 2007). Children appear to be more responsive to sadness in mothers, and anger in fathers (Goeke-Morey & Cummings, 2007).

Additionally, studies show that difficulties within the marital relationship are more likely to spill over into the father-child relationship than the mother-child relationship (L.F. Katz & Gottman, 1996). For example, in one study, while reports of marital harmony did not appear to impact mother-child relationships, they were related to more sensitive and less aggravated father-child interactions (Goldberg & Easterbrooks, 1984). In summary: mothers and fathers appear to interact differently with their children, their children tend to respond differently to them and dysfunction in one portion of parents' relationship may affect parents differently. Each of these

differences makes it more likely that mothers and fathers will impact their children's SED in important and unique ways.

#### *Current Research on Differential Impact*

The few studies that have examined a differential impact in older children or in other areas of child development indicate that important differences may be present. A meta-analysis examining the relation between marital quality and parent-child relationships, showed that while the overall effect size for parents is  $d = 0.59$ , it is  $d = 0.51$  for fathers and only  $d = 0.37$  for mothers (Erel & Burman, 1995). However, a meta-analysis that examined the relation between the quality of caregiving behaviors and frequency of externalizing behaviors in children found that mothers ( $r = 0.30$ ) had a significantly greater impact than fathers (Rothbaum & Weisz, 1994).

When depression, positive affect, couple conflict, parental control, and parental warmth were used to predict children's externalizing behavior problems, the model for mothers' predicted 34% of the variability in children's externalizing behavior problems, while the fathers' model predicted only 19% in an adolescent sample (Miller et al., 1993). In contrast, in a toddler sample, the model for mothers' predicted 48% of the variability in children's externalizing behavior problems, while the fathers' model predicted 51% (Miller et al., 1993). Unfortunately, the authors did not test whether these differences in explained variance were significantly different.

Studies examining the differential impact of maternal and paternal control and support on adolescent empathy, self-worth and social competence found that the only characteristic of fathers that was related to child functioning was their level of support

(which predicted children's empathy). In contrast, mothers' support individually predicted both empathy and self-worth. As a result, mothers predicted a greater share of the variance in empathy than fathers did (Laible & Carlo, 2004). Moreover, mothers' control individually predicted social competence and self-worth (Laible & Carlo, 2004). However, studies examining the differential impact between mother and father involvement have shown that father involvement, measured by the frequency of father-child communication about school topics, predicts children's achievement scores above and beyond the variability accounted for by mothers' involvement (McBride, Schoppe-Sullivan, & Ho, 2005).

Another study examined the differential importance of having two supportive parents, one supportive parent or two non-supportive parents in predicting cognitive outcomes in cognitive functioning (Ryan, Martin, & Brooks-Gunn, 2006). They found that infants with two supportive parents had the highest cognitive functioning and infants with two non-supportive parents had the lowest cognitive functioning (Ryan et al., 2006). However, infants with at least one supportive parent had higher cognitive functioning than those with two non-supportive parents (Ryan et al., 2006). Furthermore, there was no difference in functioning whether the supportive parent was the mother or father (Ryan et al., 2006).

Another study examined the differential impact of mother-child and father-child attachment on kindergarteners' socioemotional competence (Verschueren & Marcoen, 1999). Results showed that mother-child attachment was a better predictor of children's positivity, while father-child attachment was a better predictor of children's anxious and

withdrawn behavioral difficulties (Verschueren & Marcoen, 1999). Furthermore, children that had secure attachments with both mother and father had higher levels of social competence and lower levels of anxious and withdrawn behavioral difficulties than children with two insecure attachments (Verschueren & Marcoen, 1999). Children with one secure and one insecure attachment showed moderate levels of social competence, anxiety and withdrawn behaviors (Verschueren & Marcoen, 1999).

*Theoretical Model: Couple and Coparenting Relationships, Parenting and Child Functioning*

Research over the past several decades has made it clear that the couple relationship is closely linked to both parenting and child functioning (Feinberg, 2003). Research has demonstrated that several areas of the couple functioning, in particular couple conflict, as well as multiple domains of parenting are related to child outcomes (Feinberg, 2003). As mentioned above, however, one limitation to the current literature is that studies often focus either on the couple's relationship or parenting, instead of looking at how these two areas may influence one another (Feinberg, 2003). Recent theorists have posited that taking a couples' coparenting relationship into account may be one way of 'bridging the divide' when examining couple relationships and parenting (Feinberg, 2003). Feinberg's model of coparenting views the coparenting relationship as a bridge between both couple functioning and individual parent functioning, and parenting and child adjustment (See Figure 1; Feinberg, 2003). This model is a starting point for the current study and demonstrates the ways in which these variables may be interrelated.

### *The Current Study*

In the current study, multiple combinations of parental influences were examined to determine which would be the most predictive of children's development. For example, was the child's social-emotional development most affected by the highest-functioning parent, limited by the lowest-functioning parent, or determined by an interaction between the two parents? Alternatively, was the functioning of the mother more influential than that of the father or do they contribute relatively equally? While using multiple methods of examining couple functioning is sometimes done in the couple literature (Attridge, Berscheid, & Simpson, 1995), this strategy had not been used to predict child outcomes. In the current study, I examined a variety of ways to measure functioning across the parenting and couple variables following general recommendations by Baucom and Mehlman (1984): mother functioning, father functioning, functioning of parent who is the primary caregiver, functioning of parent who is the non-primary caregiver, parent with highest functioning, parent with lowest functioning, the interaction of the parents' functioning and the absolute difference between parents' functioning.

The proposed study sought to answer one<sup>1</sup> main question: (1) Which combination of measurements of parents' functioning were most predictive of infant social-emotional

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<sup>1</sup> The current study also sought to examine whether combinations of parental influences were *causally* related to children's social-emotional development. However, the intervention effects explored were found to be insignificant, therefore prompting the researcher to follow an alternate plan for analyses in which I omitted the focus on the question of intervention differences, causality, and mediation (i.e., Questions 2 and 3) from the main paper. Instead, I analyzed the data by collapsing across intervention groups and conducted Question 1 analyses controlling for intervention condition using

functioning? Within this question, there were multiple objectives that I hoped to determine:

Objective 1a: Determine whether levels of mother functioning or father functioning were most predictive of infant SED<sup>2</sup>.

Objective 1b: Determine whether one parent's functioning predicted infant SED above and beyond the other parent's functioning.

Objective 1c: Determine whether the impact of one parents' functioning on infant SED was dependent upon the other parents' level of functioning.

Objective 1d: Determine whether the parent with highest functioning or lowest functioning was most predictive of infant SED.

Objective 1e: Determine whether the difference between parents' functioning was predictive of infant SED.

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Equations 1-10 (as described in the main paper). The analyses and results that were conducted for Questions 2 and 3 are described in Appendix I.

<sup>2</sup> I had originally planned to use four separate models to examine the differential predictive power of mothers, fathers, primary caregivers and non-primary caregivers on infant SED. However, descriptive analyses of parental caregiving indicated that, of the 89 couples in our sample on whom we had caregiver data, 13 couples did not agree on who the primary caregiver was; additionally, of the 76 couples that did agree, all but one indicated that the mother was the primary caregiver. Given these results, I concluded that gender was confounded with caregiver status in our sample and instead focused this objective on gender differences.

## METHOD

### *Participants*

The current study was part of a larger research project designed to examine the effects of different types of interventions on couples during the transition to parenthood. Ninety heterosexual couples (180 individuals) having their first child participated in the larger study. Couples were recruited from the community and had to meet several criteria in order to participate. Couples had to be: (1) 18 years age or older, (2) currently living together, (3) English-speaking, (4) having their first child (neither parent could have a previous child whether it was biological, step or adopted) and (5) staying within the geographical region for the next year. Additionally, because research shows that interventions may be most successful when couples are at moderate risk for difficulties during the transition to parenthood (Halford, Sanders, & Behrens, 2001), couples had to have at least one of the following factors demonstrated to place couples at higher risk for developing problems over the transition to parenthood: (1) being unmarried, (2) either partner feeling unsure about wanting to have a baby at the current time, (3) either partner having been married previously, (4) either partner experiencing relationship dissatisfaction, (5) either partner experiencing low to medium levels of depression, (6) either partner experiencing low-level relationship violence in the past year, (7) mothers who had divorced parents, (8) fathers who had witnessed their own father's violence towards their mother. Furthermore, couples were excluded from the study if they had any of the following severe factors of risk: (1) either partner was receiving treatment for a psychotic, bipolar mood, or organic brain disorder, (2) either partner reported medium



to high levels of suicide risk, (3) either partner reported medium to high levels of relationship violence. All couples deemed ineligible due to severe factors of risk were offered referrals for treatment in the community.

The individuals participating in the study were on average 28 years of age and had 16 years of education. The majority (87%) of couples in the study were married. Couples reported having lived together, on average, for 3 years and married couples reported being married for approximately 2.5 years, on average, at the time of intake. 88.3% of the sample identified themselves as Caucasian, 1.1% as African American, 2.2% as Asian/Pacific Islander, 7.8% as Hispanic, and 3.3% as Native American/Alaskan Native (See Table 1).

#### *Procedure*

Recruitment for couples utilized a number of methods: announcements in local childbirth/infant care classes, advertisements in local newspapers, pamphlets given to pregnant couples by local OB/GYNS, and pamphlets and flyers posted at various locations within the community. Interested couples were given a brief overview of the study and answered questions to determine eligibility over the phone; each partner completed the phone screen separately. After determining eligibility, a graduate student therapist was assigned to each couple. At approximately 7 months into pregnancy, eligible couples attended an initial assessment session in order to provide informed consent and fill out a pre-treatment packet of questionnaires. Couples were then randomized to one of the following conditions: Information control, Couple-focused, or Coparenting-focused. Couples in the Information group attended one 90 minute meeting

before birth, while couples in the Couple and Coparenting groups attended two 90 minute meetings before birth and two 90 minute meetings approximately 3.5 months after birth.

The Information condition reviewed topics such as infant care and financial management, but did not include a focus on any parenting or relationship topics. For couples in the Couple condition, there was a focus on identifying and maintaining positive aspects, and reducing negative aspects, of their romantic relationship. In the Coparenting condition, couples discussed their expectations for parenthood and designed a coparenting plan for their child's first year of life.

For the current study, data taken from couples' mailed and in-person 12-month assessments was used. Couples were given instructions to complete the mailed portion of their assessment separately and were given two envelopes to mail their assessment back separately. Additionally, couples were assured that their data would be kept confidential from their partners. During the in-person assessment, couples were separated and asked to complete their questionnaires individually. Couples were paid \$150 (\$75 per partner) for completing the entire 12-month assessment.

Six individuals dropped out of the study before the 12 month assessment. Additionally, two individuals were separated and thus did not provide information on relationship functioning (but did on parenting and infant functioning), and 4 individuals did not return their packets, but completed a subset of measures collected over the phone. Individuals with missing data at 12 months differed from those who completed all the measures at the 12-month assessment on several demographic variables.

Specifically, individuals with missing data were younger ( $t(178) = -3.260, p = .001$ ), had less education ( $t(177) = -2.065, p = .040$ ), were less likely to be married ( $t(178) = -5.418, p = .000$ ), had spent less time living together ( $t(177) = -2.103, p = .037$ ), and had been married for fewer years ( $t(177) = -2.179, p = .031$ ) than individuals with complete data. However, none of these parent variables were significantly related to either internalizing or dysregulation in their infants. There were no differences in ethnicity or in pre-treatment levels of relationship adjustment between the two groups.

### *Measures*

The current study used a subset of measures collected during the larger study. Specifically, measures of couple conflict, relationship satisfaction, parenting alliance and parenting identity were used as predictor variables. These measures were all collected during the mailed portion of the 12-month assessment. Finally, two subscales of a measure of infant SED were used to as the dependent variables. This measure was administered during the in-person portion of the 12-month assessment. Measures used in the current study are described in detail below.

*Dyadic Adjustment Scale (Spanier, 1976).* The DAS is a 32-item measure of relationship adjustment, which includes areas of emotional expression, cohesion, satisfaction and agreement. The overall internal consistency of the measure is  $\alpha = .96$ . The DAS has been shown to have strong content, criterion and construct validity. Reliability in the current sample was high,  $\alpha = .91$ .

*Frequency and Acceptability of Partner Behavior Inventory, Demand Subscale (Doss & Christensen, 2006).* The FAPBI is a 20-item measure of the frequency and

acceptability of positive and negative relationship behaviors; however, the current study only examined frequency, as this is what children would have been most likely to experience. The Demand subscale of the FAPBI includes the following items: Critical of me, Verbally abusive, Controlling and bossy, and Argues with me. The frequency items of the Demand subscale have been shown to have adequate internal consistency ( $\alpha = .79$ ) in a group of heterosexual parents. The FAPBI has also been shown to have strong criterion validity. In the current study reliability was strong,  $\alpha = .99$ .

*Parenting Alliance Measure (Abidin & Konold, 1999).* The PAM is a 20-item measure of parents' perceived alliance with one another concerning parenting issues. Abidin and Konold (1999) have reported strong internal consistency ( $\alpha = .97$ ) and test-retest reliability ( $\alpha = .80$ ). In the current study, reliability was high,  $\alpha = .94$ .

*Pie Chart, Parent Identity (C. P. Cowan & Cowan, 1990).* The Pie Chart is used to measure individuals' sense of identity in terms of their social roles and relationships. The Pie Chart asks each partner to split their identity into the following pieces: Parent, Partner/Lover, Worker/Student, Family Member (daughter/sister; son/brother) and Social /Leisure. This measure allows individuals to quantify the importance of each role, one's satisfaction with each role, and the complexity of one's identity. Individuals fill out a pie chart based on "how they are now" and "how they would like to be." Each pie chart is made of 20 slices and each slice is worth 5% of their total identity. The current study used each partner's ratio of the "Parent" portion of his or her identity as a measure of parenting identity. This measure has been shown to have adequate test-retest reliability; test-retest reliability for the parent role was .92 across 1 year.

*Infant-Toddler Social and Emotional Assessment; (A.S. Carter & Briggs-Gowan, 2006)*. The ITSEA is a 139-item parent-reported measure of infant social and emotional functioning. The ITSEA measures four major domains of functioning: Internalizing, Externalizing, Regulatory and Competence. The current study focused on the Internalizing and Regulatory domains, as these were thought to be the *most* applicable to infants one-year of age. The Internalizing domain includes the subscales of Depression/Withdrawal, General Anxiety, Separation Distress and Inhibition to Novelty, and has high internal consistency for both girls and boys at 12 to 17 months ( $\alpha = .83$  and  $\alpha = .82$  respectively). The Regulatory domain includes Negative Emotionality, Sleep, Eating and Sensory Sensitivity subscales, and has been shown to have high internal consistency for 12 to 17 month old infants (girls:  $\alpha = .85$ , boys:  $\alpha = .85$ ). The ITSEA has also been shown to have strong test-retest reliability, inter-rater agreement and validity. In the current study, the Regulatory domain showed good reliability ( $\alpha = .82$ ), while the Internalizing domain showed only acceptable reliability ( $\alpha = .69$ ). The current study used the average of mother and father ITSEA domain scores<sup>3</sup>.

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<sup>3</sup> Analyses showed that mother and father reports were highly correlated (See Results for more detailed information). Furthermore, when mother and father reports were examined separately, within individual relations were stronger; however, the same general pattern of findings was replicated.

## ANALYSES

Analyses focused on answering the following question: Controlling for intervention condition, which combination of measurements of parents' functioning was most predictive of infant social-emotional functioning? Analyses first examined individual predictive power, followed by couple-level predictive power and finally interactions between couple level predictive power. Each of the four predictive variables examined, both parenting (Parenting Alliance and Parenting Identity) and relationship (Relationship Satisfaction and Relationship Conflict), were substituted into each of the models described below. Each of the following equations was analyzed using linear regression models in SPSS 16.0 controlling for intervention condition in all cases. Controlling for the intervention condition assured that other variables that may have been influenced by the interventions were not better accounting for the relations between the dependent variable and the predictor of interest. Specifically, interventions were entered as a series of two dummy codes, in which the Information group was coded as zero.

The first set of analyses examined predictive power at the level of the individual parent. Analyses were aimed at answering the following question: (1a) Which measure of parents' functioning was the most predictive of infant SED: mother functioning or father functioning?

$$(1)Y(\text{Infant SED}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Dummy Code 1}) + \beta_3(\text{Dummy Code 2}) + r$$

$$(2)Y(\text{Infant SED}) = \beta_0 + \beta_1(\text{Father Functioning}) + \beta_2(\text{Dummy Code 1}) + \beta_3(\text{Dummy Code 2}) + r$$

The second set of analyses determined the relative effect of infant SED at the level of the couple. Specifically, analyses determined whether the predictive power of one parent's functioning on infant SED was significant above and beyond the predictive power of the other parent's functioning. Analyses answered the following question: (1b) Was mother's (or father's) functioning significantly predictive of infant SED above and beyond father's (or mother's) functioning?

$$(3)Y(\text{Infant SED}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) + \beta_3(\text{Dummy Code 1}) + \beta_4(\text{Dummy Code 2}) + r$$

The third set of analyses examined the contextual effects of parental and relationship functioning. The following analyses examined the differential predictive power of the interaction between parents, the highest functioning parent, the lowest functioning parent, and the difference between parents' functioning. The following analyses explored or demonstrated: Did the impact of one parents' functioning on infant SED depend on the other parents' level of functioning (Objective 1c)? Was the parent with highest functioning or lowest functioning most predictive of infant SED (Objective 1d)? Was the difference between parents' functioning predictive of infant SED (Objective 1e)?

$$(4)Y(\text{Infant SED}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) + \beta_3(\text{Mother's Functioning *Father's Functioning}) + \beta_4(\text{Dummy Code 1}) + \beta_5(\text{Dummy Code 2}) + r$$

$$(5) Y(\text{Infant SED}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) \\ + \beta_3(\text{Highest Parents' Functioning}) + \beta_4(\text{Dummy Code 1}) + \beta_5(\text{Dummy Code 2}) + r$$

$$(6) Y(\text{Infant SED}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) \\ + \beta_3(\text{Lowest Parents' Functioning}) + \beta_4(\text{Dummy Code 1}) + \beta_5(\text{Dummy Code 2}) + r$$

$$(7) Y(\text{Infant SED}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) \\ + \beta_3(\text{Difference between Parents' Functioning}) + \beta_4(\text{Dummy Code 1}) + \\ \beta_5(\text{Dummy Code 2}) + r$$

Additionally, when significant predictors of the broader infant SED domains (e.g., Internalizing, Dysregulation) were found, analyses explored which specific subscales (e.g., Depression, Negative Emotionality) of these domains were predicted by these variables.



## RESULTS

### *Descriptive Statistics*

#### *Independent Variables*

Analyses indicated that the parenting identity comprised a sizeable portion of their overall identity for both mothers ( $M = 39.4\%$ ,  $SD = 2.84$ ) and fathers ( $M = 29.1\%$ ,  $SD = 1.98$ ). On average both mothers ( $M = 112.74$ ,  $SD = 17.80$ ) and fathers ( $M = 115.35$ ,  $SD = 9.83$ ) showed relatively high levels of relationship adjustment compared to community norms (Funk & Rogge, 2007). Additionally, on average, both mothers ( $M = 85.47$ ,  $SD = 11.52$ ) and fathers ( $M = 88.75$ ,  $SD = 8.08$ ) showed relatively high levels of parental alliance compared to a community sample of parents (Hughes, Gordon & Gaertner, 2004). Finally, compared to means of a community sample of parents (Doss & Christensen, 2006), both mothers ( $M = 1.94$ ,  $SD = 1.17$ ) and fathers ( $M = 2.13$ ,  $SD = 1.08$ ) showed relatively lower levels of relationship conflict on average (See Table 2).

#### *Dependent Variables*

Father's ( $M = 0.38$ ,  $SD = 0.18$ ) and mother's ( $M = 0.43$ ,  $SD = 0.21$ ) reports of their infant's internalizing behaviors were highly correlated ( $r(82) = 0.50$ ,  $p < .001$ ). Similarly, father's ( $M = 0.44$ ,  $SD = .23$ ) and mother's ( $M = 0.43$ ,  $SD = 0.23$ ) reports of their infant's dysregulating behaviors were also highly correlated ( $r(82) = 0.57$ ,  $p < .001$ ). Therefore, mother and father reports of infant SED were averaged to create the dependent variables: Infant Internalizing ( $M = 0.41$ ,  $SD = 0.17$ ) and Infant Dysregulation ( $M = 0.43$ ,  $SD = 0.20$ ; See Table 3).

### *Individual Level Effects*

#### *Individual Models*

The first set of analyses examined predictive power at the level of the individual parent, (i.e., Which measure of parents' functioning was the most predictive of infant SED: mother functioning or father functioning?; See Table 4). Results showed that none of the measures of mothers' functioning (Parenting Alliance, Parenting Identity, Relationship Adjustment, and Relationship Conflict) significantly predicted their child's internalizing or dysregulation. However, results indicated that several aspects of fathers' functioning significantly predicted their child's dysregulation behaviors. Specifically, higher levels of fathers' parenting alliance ( $b = -0.007$ ,  $t(81) = -2.678$ ,  $p < .01$ ) and relationship adjustment ( $b = -0.005$ ,  $t(81) = -2.394$ ,  $p < .05$ ) and lower levels of relationship conflict ( $b = 0.046$ ,  $t(80) = 2.197$ ,  $p < .05$ ) were predictive of fewer dysregulation symptoms in their children. Fathers' functioning was not related to their children's internalizing behaviors.

#### *Differences in Prediction between Models at the Domain Level*

To test whether fathers' effects on infant SED were significantly stronger than mothers' effects, a multivariate, two-level model in HLM was estimated with estimates of influence on infant functioning were calculated with individuals' reports of infant functioning at level 1 nested within couples at level 2. A cross-level gender-of-reporter (at level 2) by predictor (at level 1) interaction was non-significant in all cases. Therefore, father effects on infant dysregulation were not significantly stronger than mother effects. Therefore, while results initially indicated that fathers' functioning

significantly predicts their child's dysregulation and mothers' does not, these findings were not significantly different from one another.

#### *Individual Level Effects on Subscales of Infant Functioning*

Since only father functioning was predictive of their child's dysregulation, analyses next examined how father functioning predicted the specific subscales that make up this SED domain (See Table 5). The Regulatory domain includes Negative Emotionality, Sleep, Eating and Sensory Sensitivity subscales.

Results indicated that higher levels of parenting alliance ( $b = -0.008$ ,  $t(79) = -2.407$ ,  $p < .05$ ) and relationship adjustment ( $b = -0.012$ ,  $t(80) = -4.842$ ,  $p < .001$ ), and lower levels of relationship conflict ( $b = 0.056$ ,  $t(79) = 2.349$ ,  $p < .05$ ), as reported by fathers, predicted lower levels of negative emotionality. Additionally, higher levels of parenting alliance ( $b = -0.011$ ,  $t(79) = -2.990$ ,  $p < .01$ ) and relationship adjustment ( $b = -0.007$ ,  $t(80) = -2.294$ ,  $p < .05$ ), as reported by fathers, predicted lower levels of eating difficulties in their infants.

#### *Differences in Prediction between Models at the Subscale Level*

To test whether fathers' effects on infant SED subscales were significantly stronger than mothers' effects, a multivariate, two-level model in HLM was estimated. Results indicated that fathers' relationship adjustment predicted infant negative emotionality significantly stronger than did mothers' relationship adjustment ( $b = 0.008$ ;  $t(166) = 2.233$ ;  $p < .05$ ). In all other cases prediction differences were non-significant.

### *Couple Level Effects*

#### *Couple Level Models*

The second set of analyses determined the relative effect of infant SED at the level of the couple (i.e., Was mother's (or father's) functioning significantly predictive of their child's SED above and beyond father's (or mother's) functioning?; See Table 6).

Analyses already reported indicated that mother functioning was not predictive of their child's dysregulation at the couple level; however, when controlling for father functioning, higher levels of mothers' relationship conflict was predictive of higher levels of infants' internalizing difficulties ( $b = 0.046$ ,  $t(78) = 2.187$ ,  $p < .05$ ). In contrast, father functioning was not predictive of their child's internalizing at the couple level. However, father functioning was predictive of their infant's dysregulation above and beyond mother functioning in two instances. Higher levels of fathers' parental alliance ( $b = -0.008$ ,  $t(79) = -2.678$ ,  $p < .05$ ), and relationship adjustment ( $b = -0.006$ ,  $t(80) = -2.511$ ,  $p < .05$ ) were both predictive of lower levels of dysregulation in their infants, after controlling for mother reported functioning.

#### *Couple Level Effects on Subscales of Infant Functioning*

To further examine the relation of mother and father functioning above and beyond the effects of their partner, analyses next examined relations with specific subscales that make up each infant SED domains (See Table 7).

Results showed that higher levels of parental alliance ( $b = -0.007$ ,  $t(78) = -2.049$ ,  $p < .05$ ) and relationship adjustment ( $b = -0.012$ ,  $t(79) = -4.298$ ,  $p < .001$ ), as reported by fathers, predicted negative emotionality, after controlling for mother reported

functioning. Additionally, higher levels of parental alliance ( $b = -0.011$ ,  $t(78) = -2.980$ ,  $p < .01$ ) and relationship adjustment ( $b = -0.009$ ,  $t(79) = -2.659$ ,  $p < .01$ ), as reported by fathers, predicted eating difficulties in their infants, after controlling for mother reported functioning.

Results indicated that higher levels of relationship conflict, as reported by mothers, predicted higher levels of general anxiety ( $b = 0.025$ ,  $t(78) = 2.103$ ,  $p < .05$ ) and separation distress ( $b = 0.087$ ,  $t(78) = 2.201$ ,  $p < .05$ ) in their infants, after controlling for father reported functioning.

#### *Contextual Effects*

The third set of analyses examined the contextual effects of parental and relationship functioning (i.e., the differential predictive power of the interaction between parents, the highest functioning parent, the lowest functioning parent, and the difference between parents' functioning). Results indicated that none of these contextual variables (across all four indices of functioning) were significant predictors of either internalizing or dysregulation difficulties in their children.

## DISCUSSION

### *Individual Level Effects*

Research shows that the first several years of life are important in the development of social and emotional capacities for children (e.g., Saarni et al., 2006). Furthermore, it is around 12 months of age that children are first beginning to be able to associate emotional meaning with their environment (Saarni et al., 2006). Therefore, identifying predictors of variability in social and emotional development is important. Unfortunately, relatively few studies have examined parent functioning predictors of children's SED in an infant sample. Specifically, previous studies have found that mothers' reports of parenting conflict predicted internalizing behaviors, while mothers' use of harsh discipline predicted externalizing behaviors in their infants (Bayer, Hiscock, Ukoumunne, Price, & Wake, 2008; Brenner & Fox, 1998). Additionally, in a sample of children aged 1 to 5, it was found that fathers who showed a greater use of harsh punishment were more likely to have children that showed more frequent and intense behavior problems (Burbach, Fox, & Nicholson, 2004). To date, no studies have examined the impact of relationship functioning on infants. Thus, the current study is the first to examine parental alliance, parental identity, relationship adjustment and relationship conflict in an infant sample.

Results from the current study showed that several indices of fathers' functioning were predictive of their infant's dysregulatory problems. Specifically, higher levels of fathers' reports of parenting alliance and relationship adjustment, and lower levels of fathers' reports of relationship conflict were predictive of fewer dysregulation problems

in their children. Fathers' functioning was not predictive of their children's internalizing difficulties. In separate models, mothers' functioning was not predictive of their infant's SED. These specific predictors are consistent with the more general literature on predictors of child SED (i.e., not limited to infancy), where reviews have concluded that interparental conflict may be the most damaging to children's SED (Emery, 1982; Fincham, Grych, & Osborne, 1994; Zimet & Jacob, 2001). Moreover, another review hypothesized that marital conflict may impact child functioning by causing the parenting alliance to deteriorate, which might undermine the parents' ability to co-lead the family (Johnston, 1993). These reviews are consistent with Feinberg's (2003) model of coparenting, which views the coparenting relationship as a bridge between both couple functioning and individual parent functioning, and parenting and child adjustment

*Differences in Prediction between Models at the Domain Level*

However, while initial results indicated that fathers' functioning was significantly predictive of their child's dysregulation and mothers' functioning was not, further analyses showed that these findings were not significantly different from one another. Although no studies to date have examined the differential impact of parent functioning on infant SED, this finding is consistent with a previous study which examined differential prediction of mother and father functioning on infant cognitive functioning (Ryan, Martin, & Brooks-Gunn, 2006). This study found that while it was important for infants to have at least one supportive parent in regards to functioning, there was no difference in the functioning of the infant whether the supportive parent was the mother or father (Ryan, Martin & Brooks-Gunn, 2006).

*Individual Level Effects on Subscales of Infant Functioning*

Given that analyses at the domain level indicated that father functioning played a larger role in predicting dysregulatory problems in their infants, it was important to examine which of the specific subscales of the Dysregulation domain were predicted by father functioning. While previous research has focused largely on the broader Internalizing and Externalizing domains of infant SED (e.g., Emery, 1982; Bayer et al., 2008), little research has been conducted on more specific social-emotional problems in development in infants (e.g., negative emotionality, separation distress; Crockenberg, Leerkes, Lekka, 2007). Specific indices of social-emotional competence are important, as researchers, parents and teachers frequently cite them as being common problems faced by infants and toddlers (Briggs-Gowan & Carter, 1998). Additionally, the nature of these issues may be very different than those expressed by children and adolescents (Briggs-Gowan & Carter, 1998), who are more frequently researched.

Current results showed that lower levels of relationship conflict, as reported by fathers, predicted lower levels of negative emotionality in their infants. Negative emotionality in older children has been previously shown to be predicted by parental negative emotionality and damaging conflict tactics in the context of a marital conflict (Cummings, Goeke-Morey, Papp & Dukewich, 2002). Interestingly the Cummings et al. study differed from the current results by demonstrating that both fathers and mothers impacted their children's emotional dysregulation during conflict (Cummings, Goeke-Morey, Papp & Dukewich, 2002). Although the current study did not examine such differences, Cummings et al. (2002) also found a difference in children's reactivity to the



emotion expressed by other parent; children were most reactive to expressions of father's anger, but mother's sadness, indicating that children may respond to different aspects of parental functioning. Additionally, in the current study, father reports of higher levels of parenting alliance and relationship adjustment predicted lower levels of negative emotionality and eating difficulties in their infants. While no studies have examined parental predictors of eating difficulties in infants, at least one study shows that father contact with infants immediately following birth is important in facilitating pre-feeding behaviors (e.g., rooting, sucking; Erlandsson, Dsilna, Fagerberg & Christensson, 2007).

#### *Differences in Prediction between Models at the Subscale Level*

Differential prediction analyses indicated that father effects' (of relationship adjustment) were significantly more predictive of infant negative emotionality than mother effects. However, in most specific areas of infant dysregulation father effects on infant dysregulation were not significantly stronger than mother effects. This implies that perhaps relationship adjustment is a particularly important area in which fathers' functioning tends to have a greater impact on infant functioning than mothers, and especially on how infants manage negative emotions.

#### *Couple Level Models*

The current study examined the relative effect of infant SED at the level of the couple in order to determine whether one parent's functioning predicted infant SED above and beyond the other parent's functioning. Results indicated that fathers' functioning was predictive of their infants' dysregulation above and beyond mothers'

functioning. Specifically, father reports of higher levels of parental alliance and relationship adjustment were both predictive of lower levels of dysregulation in their infants, after controlling for mother reported functioning. Father functioning was not predictive of infants' Internalizing scales. Additionally, although not significant when entered by itself, mother functioning was predictive of their infant's internalizing when father functioning was entered simultaneously. Specifically, mother reports of higher levels of relationship conflict was predictive of higher levels of internalizing difficulties in their infants, while controlling for the level of father reported relationship conflict.

These results revealed that mothers appear to play a greater independent role in predicting internalizing behaviors in their infants and fathers appear to play a larger independent role in predicting dysregulatory behaviors in their infants. Furthermore, this difference holds even when mother and father functioning are entered simultaneously, demonstrating that one parent predicts a specific domain of social and emotional competency above and beyond the other parent's functioning. These results are interesting, given that a previous meta-analysis found that mothers have a significantly greater impact than fathers in predicting children's externalizing behaviors (Rothbaum & Weisz, 1994).

While much of the previous literature examining predictors of children's SED has examined mother and father prediction in separate models (e.g., Miller et al., 1993), few studies have examined whether one parent's functioning predicts above and beyond the other parent's (e.g., McBride, Schoppe-Sullivan & Ho, 2005). One study found that father involvement predicts achievement scores in their children above and beyond the

involvement of mothers (McBride et al., 2005). Furthermore, another study found that infants with at least one supportive parent had higher cognitive functioning than those with two non-supportive parents (Ryan, Martin & Brooks-Gunn, 2006). No previous studies have explored SED as a dependent variable.

#### *Couple Level Effects on Subscales of Infant Functioning*

Analyses next examined which of the specific subscales of the Dysregulation domain were predicted by father functioning and which of the specific subscales of the Internalizing domain were predicted by mother functioning. These couple-level models demonstrate how one parent may predict each specific area of social and emotional competency above and beyond the other parent's functioning. Current results showed that, after controlling for mothers' functioning, father reports of higher levels of parental alliance and relationship adjustment predicted lower levels of negative emotionality and eating difficulties in their infants. Results also showed that mother reports of higher levels of relationship conflict predicted higher levels of general anxiety and separation distress in their infants, after controlling for father reported functioning. So while analyses at the level of SED domain make it clear that fathers' functioning better predicts dysregulatory problems and mothers' functioning better predicts internalizing problems, each parent appears to predict only specific types of these issues.

#### *Gender Differences*

Previous literature, primarily using toddler and early childhood samples, has found more mixed results in terms of gender being predictive of SED. For example, multiple studies have shown that mothers and fathers both predict infants' internalizing

and externalizing behaviors in toddler and early child samples (e.g., Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993; Perloff & Buckner, 1996; Bayer, Hiscock, Ukoumunne, Price, & Wake, 2008). While the current results need to be replicated in order to ensure these gender differences are generalizable, the results may indicate that gender of the parent may be most important in impacting children in infancy than at later ages. In other words, perhaps mothers and fathers have differential impacts on different components of social and emotional competency when children are approximately 12 months old, an age at which research shows they are first beginning to be able to associate emotional meaning with their environment (Saarni et al., 2006), but these differential impacts become less important as children grow older.

Why might mothers be most impactful on infants' internalizing behaviors, but fathers' are most impactful on infants' dysregulation behaviors? Research shows that marital difficulties are more likely to spill over into the father-child relationship than the mother-child relationship (L.F. Katz & Gottman, 1996). Perhaps both fathers' parenting and marital domains were predictive of their children's SED because their marital difficulties are more likely to impact their view of the parenting relationship. Furthermore, research shows that in terms of overall marital satisfaction, mothers experience the largest drops during the first 6 months after birth, while fathers experience the greatest declines when infants are between 6 and 18 months old (P. A. Cowan et al., 1993). Given the timing of the current study, perhaps 1 year after birth is the prime time for father's functioning to take a hit and to, in turn, affect infant functioning.

It is also possible that this difference occurs because mothers and fathers tend to interact with their infants in different ways. For example, research shows that mothers' play interactions are characterized as predictable, secure and more verbal in nature, while fathers' interactions are more unpredictable and physically stimulating (Parke et al., 1989). These differences may add to their children's emotional development in different ways, as evidenced by studies that show two-parent families, with more differentiated mother or father roles, have children that show better social functioning outcomes (Paquette, 2004). Perhaps, mothers' predictable and secure interactions are most important in helping infants foster a sense of security, while infants learn how to regulate their emotions during more unpredictable and physically stimulating interactions with their fathers. The idea that mothers' sensitive and predictable interactions with their infants foster security is echoed in the theory of attachment. Research shows that these types of more stable and predictable interactions are necessary in helping infants develop secure-base behaviors (Seifer and Schiller, 1995). In terms of father interactions, Parke (1989) hypothesized that physical play involves the regulation of emotional stimulation and that during play parents and children play a role in this regulation. This idea was supported by a study that found a relationship between father's physical play and daughter's ability to accurately identify emotions, while a trend was found for sons (Parke, 1989).

#### *Contextual Effects*

While previous literature has examined gender differences in predicting infant SED before, the current study aimed to identify other important ways of examining

parent functioning. Using multiple methods of examining couple functioning is sometimes done in the couple literature (Attridge, Berscheid, & Simpson, 1995); however, this strategy had not been used to predict child outcomes. Multiple combinations of parental influences were examined in order to determine which would be the most predictive of children's development.

The current study examined each of these contextual effects of parental and relationship functioning (i.e., the differential predictive power of the interaction between parents, the highest functioning parent, the lowest functioning parent, and the difference between parents' functioning). However, results showed that none of these contextual variables were significant predictors of either internalizing or dysregulation difficulties in their children.

To date no other studies have explored what combinations of parenting or relationship constructs are especially predictive of children's social-emotional development. While these null results will need to be replicated in future studies in order to ensure generalization, my null findings are important in that they appear to indicate that contextual effects of parental and relationship functioning are not important in predicting infant SED. This indicates that an infant's social-emotional development is not affected by the highest-functioning parent, limited by the lowest-functioning parent, influenced by a difference in functioning between the parents or determined by an interaction between the two parents. Instead, it appears to be the individual effects of parent and relationship functioning, particularly of fathers, which are most important in predicting infant's social and emotional competence. Moreover, it appears that it may

not be appropriate to examine mean levels of combined mother and father functioning to examine effects of parental functioning. Research often uses this method of quantifying parent functioning to examine prediction of child outcomes (e.g., (Goldberg & Easterbrooks, 1984), assuming that these two measurements are equally predictive. However, our analyses indicate that this method of quantifying parent functioning examining may fail to account for important (but usually not significant) differences in predictive power between mothers and fathers.

#### *Limitations and Future Directions*

While this study adds to the literature in important ways, there are several limitations that should be addressed. First, the data was collected from a study originally designed to examine intervention effects. While analyses indicated that the interventions did not appear to impact the variables in the present study (See Appendix I) and although the intervention conditions were controlled for in analyses, simply having couples participate in any in-person meeting may have impacted the individuals in unknown ways. Future research should focus on replicating current results in a naturalistic study design.

Additionally, while this study felt it was important to examine infants at approximately 12-months of age in order to fill a void in the literature, null results found at this time point may be a product of the specific time point chosen. Perhaps, infants at this age are too young to be impacted by several of the variables of parent/relationship functioning examined. Future studies should attempt to examine infants and toddlers at

different ages (e.g., 18 months) or examine how parent functioning predicts how infant social and emotional competence changes over time.

Moreover, while the current study did not include a measure of infant temperament, this variable is an important one to consider when examining predictors of infant functioning. Without a measure of temperament, it is unknown how much variability in infant behavior temperament and influences of parent functioning each account for. Null results in the current study could be explained by infant temperament better accounting for variability in infant behavior than parent functioning. Future studies should explore this further by including a measure of infant temperament and controlling for this variable in prediction analyses.

Furthermore, the majority of individuals in the current study were Caucasian and had high levels of education. Moreover, couples had selected themselves to be part of an intervention focused on helping couples transition into parenthood. Perhaps this indicates that they were already at a higher level of functioning, since they were proactively seeking out relationship/parenting help. However, couples were only eligible to participate if they identified one or more risk factor for difficulties after the birth of their baby; therefore, the potential effect of this limitation may be muted. Future studies should be conducted to replicate the current study's results in a more representative sample.

Finally, while care was taken to select domains of infant functioning examined in the current study that would most likely be expressed in a 12-month sample of infants, it may be that the domains selected were difficult for the parents to report on. While the



Internalizing domain had acceptable internal consistency ( $\alpha = .69$ ), it was lower than previous studies. It may be that our sample of parents had difficulty reporting on Internalizing, making it less likely for predictors to be significant. Future studies should examine this domain in samples with higher internal consistency for this measure or perhaps examine alternate domains of infant SED.

## CONCLUSIONS

The current study focused on examining the relations between parental and relationship functioning and infant social-emotional functioning, and particularly at the differential predictive power that mother or father parental or relationship functioning has on their infant's social-emotional development. Results indicated that fathers' functioning better predicted specific areas of infant's dysregulatory problems, while mothers' functioning better predicted specific areas of infant's internalizing problems. Specifically, fathers' functioning predicted negative emotionality and eating problems in their infants, while mothers' functioning predicted general anxiety and separation distress in their infants. Results also showed that contextual variables (i.e., the differential predictive power of the interaction between parents, the highest functioning parent, the lowest functioning parent, and the difference between parents' functioning) were not significant predictors of either internalizing or dysregulation difficulties in their infants, indicating that the individual effects of parent and relationship functioning appear to be most important in predicting infant's social and emotional competence. Future research should focus on replicating the current results in a more diverse sample, in a naturalistic study design, examining additional domains of infant SED at additional time points.

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## APPENDIX I

*Transition to Parenthood Interventions: Examining Causality*

As described in the main section of the paper, the transition to parenthood is a period of increased stress and fatigue that can not only have lasting impact on individuals and couples, but can also influence children's development. Recently, attention has been given to intervening with couples in order to increase competence in parenting and relationships across the transition to parenthood. The transition has been identified as a prime time to intervene with couples, as they are often more open to information and support during this period of change (Cowan & Cowan, 2000). To date, interventions have focused on increasing competence in parenting (Bryan, 2000; Doherty, Erickson, & LaRossa, 2006; Magill-Evans, Harrison, Benzies, Gierl, & Kimak, 2007) or a combination of improving parenting skills and improving marital quality (Hawkins, Lovejoy, Holmes, Blanchard, & Fawcett, 2008; Schulz, Cowan, & Cowan, 2006; Shapiro & Gottman, 2005).

Many of these interventions show positive impacts on improving couple and parenting level functioning, such as maternal sensitivity, paternal fostering of social-emotional growth, paternal fostering of cognitive growth, father involvement, couple satisfaction, and couple communication (Bryan, 2000; Doherty et al., 2006; Hawkins et al., 2008; Magill-Evans et al., 2007; Schulz et al., 2006; Shapiro & Gottman, 2005). However, while these studies examined the intervention effects on parent-child relationships, they did not examine the direct impact on child functioning. Thus, the

potential influence that transition to parenthood interventions may play on infant SED is still a question that is unanswered.

Typically in studies of child development, naturalistic correlational designs (either cross-sectional or longitudinal) are employed. In the SED literature, minimal effort has been made to examine causality by experimentally manipulating family processes (Zahn-Waxler & McBride, 1998). However, in naturalistic designs, it is always possible that important third variables (e.g., family of origin functioning) are creating the observed relations. Intervention designs allow researchers to experimentally manipulate family processes and can demonstrate how increasing certain areas of family functioning can lead to improvements in other areas. In the few studies that have causally manipulated family processes (C. P. Cowan & Cowan, 2000), relationship and parenting variables have not been separately examined.

Furthermore, previous research has indicated that these interventions have a significant and important impact on couple and parenting functioning (Bryan, 2000; Shapiro & Gottman, 2005), and in turn parenting and relationship functioning appear to have important influences on child functioning (Cummings et al., 1985; Perez & Fox, 2008). However, studies examining mediation processes between transition to parenthood interventions, parent/relationship variables and infant social-emotional development have not been completed.

#### *Limitations of Previous Literature*

While studies have typically explored predictors of child development in more naturalistic, correlational designs; few studies have experimentally manipulated family

processes in order to examine causality. Moreover, the few studies that have used experimental manipulation have not separated out parenting and relationship effects.

### *The Current Study*

Another original goal of the study was to demonstrate that these combinations of parental influences were *causally* related to children's social-emotional development. The study used a randomized design of three conditions (information, parent-focused and couple-focused) designed to differentially influence parent's relationship functioning and co-parenting. The intervention design would potentially allow for stronger causal statements about whether different areas of family functioning (relationship and parenting) impact infant functioning.

In addition to the main question (Question 1) described in the body of the dissertation, the study had originally planned to examine two additional questions: (2) Which combinations of measurements of parents' functioning do the interventions differentially impact? (3) Do different measurements of parents' functioning mediate the impact that the interventions have on infant functioning?

### *Analyses*

Analyses had originally planned to follow guidelines for mediation proposed by Fritz and MacKinnon (2007). These guidelines, rather than the more familiar guidelines presented by Baron and Kenny (1986) were to be used because, Baron and Kenny's approach has been shown to limit statistical power. Analyses were organized into the two indirect paths (A and B), which are further illustrated in Figure 2. (Path B analyses,

which examined how each potential mediator (i.e., the parent functioning variables) predicted infant SED, are described in the main body of the paper).

*Equations: Path A*

Path A analyses focused on answering Question 2: Which combinations of measurements of parents' functioning did the interventions impact the most? Intervention effects were tested on each of the proposed mediators (Parenting Alliance, Parenting Identity, Relationship Conflict and Relationship Satisfaction) in each of the individual-level methods of quantifying functioning (mother and father). For the Information group versus Coparenting group comparisons, the dummy codes were: 0= Information and 1= Coparenting. For the Information group versus Couple group comparisons, the dummy codes were: 0= Information and 1= Couple.

$$(8)(\text{Mother Functioning}) = \beta_0 + \beta_1(\text{Dummy Code 1}) + \beta_2(\text{Dummy Code 2}) + r$$

$$(9)(\text{Father Functioning}) = \beta_0 + \beta_1(\text{Dummy Code 1}) + \beta_2(\text{Dummy Code 2}) + r$$

For the contextual-level variables (e.g., difference between mother and father functioning, highest level of functioning), however, Equations 11-14 could not be used. In conducting the mediation analyses, it is important that the mediator in Path A be the same as the mediator in Path B. However, as presented above (Equations 7-10), in Path B, the mediator was entered along with the main effects of mother and father functioning. In this case, all the shared variance between the hypothesized mediator and the main effects of parent functioning would be ignored in analyses. Therefore, in order to ensure that the mediator variables contained the same amount of variance as in Path B

analyses, residuals of the mediator were calculated and used for Path A analyses by controlling for the main effects of parent functioning.

$$(10) Y(\text{Difference between Parents' Functioning}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) + r$$

$$(11) Y(\text{Mother Functioning*Father Functioning}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) + r$$

$$(12) Y(\text{Highest Parents' Functioning}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) + r$$

$$(13) Y(\text{Lowest Parents' Functioning}) = \beta_0 + \beta_1(\text{Mother Functioning}) + \beta_2(\text{Father Functioning}) + r$$

Subsequently, intervention effects were tested on each of the proposed residual mediators (Parenting Alliance, Parenting Identity, Relationship Conflict and Relationship Satisfaction) in each of the proposed methods of quantifying functioning (interaction between parents, highest parent, lowest parent and difference between parents). For the Information group versus Coparenting group comparisons, the dummy codes were: 0= Information and 1= Coparenting. For the Information group versus Couple group comparisons, the dummy codes were: 0= Information and 1= Couple. Finally, the base model for intervention effect analyses using couple-level variables is shown below:

$$(19) \text{Residual Mediator} = \beta_0 + \beta_1(\text{Dummy Code 1}) + \beta_2(\text{Dummy Code 2}) + r$$

## *Results*

### *Intervention Effects*

Path A analyses focused on identifying which combinations of measurements of parents' functioning the interventions impacted the most.

*Individual Level.* At the individual level intervention effects were tested on each of the proposed mediators (Parenting Alliance, Parenting Identity, Relationship Conflict and Relationship Satisfaction) in each of the individual-level methods of quantifying functioning (mother and father). Intervention effects were not found to be significant at the individual level for either mother or fathers on any of the proposed mediators.

*Contextual Level.* For the contextual-level variables residuals of the mediator were calculated and used for Path A analyses by controlling for the main effects of parent functioning. Subsequently, intervention effects were tested on each of the proposed residual mediators in each of the proposed methods of quantifying functioning (interaction between parents, highest parent, lowest parent and difference between parents). Intervention effects were not found to be significant at the contextual level for either mother or fathers on any of the proposed mediators.

### *Mediation*

The interventions did not create effect sizes large enough to be statistically significant in any of the mediators, potentially due to the small sample sizes of the intervention groups. Therefore mediation analyses were not conducted.

## *Discussion*

### *Intervention Effects*

*Individual Level.* The current study also examined whether there were intervention effects on each of the proposed mediators for both mothers and fathers. However, intervention effects were not found to be significant at the individual level for either mothers or fathers on any of the proposed mediators.

*Contextual Level.* The current study also examined whether there were intervention effects on each of the proposed residual mediators (i.e., Parenting Alliance, Parenting Identity, Relationship Conflict and Relationship Satisfaction) in each of the proposed methods of quantifying parent functioning (e.g., interaction between parents). However, intervention effects were not found to be significant at the contextual level for any of the proposed methods of quantifying parent functioning for any of the proposed mediators.

In the current study neither the couple-focused or parent-focused interventions had significant effects on any of the individual level or contextual level mediators. It is also possible that the interventions in the current study either do not affect the particular variables examined for either parent or the methods of quantifying parent functioning for each variable. Additionally, it is possible that the interventions show an effect on these variables or other methods of quantifying these variables at time points other than 1 year after birth.

### *Limitations and Future Directions*

There is also an additional limitation that should be addressed. Given the small sample sizes of the intervention groups, it is possible that the interventions did not create effect sizes large enough to be statistically significant in any of the mediators as a result of limitations of power. Future studies should focus on demonstrating how parental influences are *causally* related to infant SED using an intervention design with a larger sample of participants.

### *Conclusions*

While previous literature had examined parent predictors of infant SED, it has typically used naturalistic correlational designs, which does not account for important third variables that may be creating the observed relations. Therefore the current study also focused on demonstrating that these combinations of parental influences were *causally* related to children's social-emotional development by using an intervention design which would potentially allow for stronger causal statements about whether different areas of family functioning impact infant functioning. However, intervention effects were not found to be significant at the individual level for either mothers or fathers on any of the proposed mediators. Additionally, intervention effects were not found to be significant at the contextual level for any of the proposed methods of quantifying parent functioning for any of the proposed mediators. Therefore mediation analyses were not conducted and the current study was unable to determine whether parental influences were *causally* related to infant SED. It is possible that the interventions did not create effect sizes large enough to be statistically significant in any



of the mediators due to the small sample sizes of the intervention groups. Therefore, future research should focus on showing how parental influences are *causally* related to infant SED using an intervention design with a larger sample of participants.

## APPENDIX II

### *Predictors of SED in Older Children and Adolescents*

#### *Parenting Predictors*

The quality of specific parenting skills and areas of parent-child relationships have shown to be important predictors of children's SED development throughout childhood and adolescence. Research has focused on examining the impact that parents have on child outcomes, by focusing on parents as a unit, or examining mothers and fathers' impact on children separately.

Parenting style has been a well-examined predictor of child outcomes. Research on parenting indicates that parenting styles can be broken into four categories: authoritarian (highly restrictive and demanding), permissive (highly responsive, non-restrictive), authoritative (highly demanding and responsive) and disengaged (minimally restrictive or responsive) (Baumrind, 1991). Research indicates that adolescents who report having more authoritative parents, show higher levels of social competence, social acceptance and self-worth, as well as closer friendships and more acceptable behavioral conduct (McClun & Merrell, 1998).

Other studies have broken down the traditional parenting styles into 7 distinct categories (Baumrind, 1991; Weiss & Schwarz, 1996). In the first study, parents were each put into separate categories and then combined, as long as they matched in category, for prediction analyses (Baumrind, 1991). Authoritative parents (highly demanding and responsive) and democratic parents (moderately demanding, but highly responsive) had adolescents who were competent in regulating emotion and acting in a

socially responsible manner, and had few internalizing and externalizing behavior problems (Baumrind, 1991; Weiss & Schwarz, 1996). Authoritarian-directive parents (moderately demanding, minimally responsive, highly restrictive and intrusive) and nonauthoritarian-directive parents (moderately demanding, minimally responsive and highly restrictive) had adolescents who were less socially conscious (Baumrind, 1991). Good-enough parents (moderately responsive, demanding and restrictive) of girls, had adolescents who were socially isolated and exhibited low levels of self-esteem (Baumrind, 1991). Non-directive parents (highly responsive, but non-restrictive) had adolescents who were less socially responsible and less competent in emotional regulation (Baumrind, 1991). Finally, unengaged parents (non-restrictive and non-responsive) had adolescents who had more externalizing problem behaviors; female adolescents also had more internalizing problem behaviors (Baumrind, 1991).

In the second study, each parent was placed into a separate category and then combined for predictive analyses; data for parents that did not match in category were not used (Weiss & Schwarz, 1996). Authoritative, nonauthoritarian-directive and non-directive parents had adolescents that were more socially conforming than adolescents with unengaged parents (Weiss & Schwarz, 1996). Additionally, sons with authoritative parents were less maladjusted than sons with authoritarian-directive or unengaged parents, and daughters with democratic parents were less maladjusted than daughters with most other types of parents (Weiss & Schwarz, 1996).

Studies also indicate that other parenting qualities are associated with social-emotional functioning in children. Mothers and fathers who demonstrate deregulated

emotions and inconsistency in parenting have children that are more aggressive and unmanageable (Becker, Peterson, Hellmer, Shoemaker, & Quay, 1959). Furthermore, harsh parenting from both mothers and fathers impairs kindergarten children's ability to regulate emotions and this, in turn, leads to higher levels of aggression; however, fathers' impact is slightly stronger (Chang, Schwartz, Dodge, & McBride-Chang, 2003). Finally, lax and inconsistent parenting is more highly related to externalizing behavior problems in boys, than more democratic parenting is (Lindahl & Malik, 1999).

Responsive parenting predicts higher levels of positive social behavior in children, while efficacious discipline predicts lower levels of negative social behavior in children (Mistry, Vandewater, Huston, & McLoyd, 2002). In addition, higher levels of harsh-inconsistent parenting and hostile parenting, and lower levels of nurturant-involved parenting and warmth, are associated with conduct problems in older children (Kim et al., 2003). Finally, higher levels of harsh-inconsistent parenting and lower levels of nurturant-involved parenting are associated with higher levels of depression in older children (Kim et al., 2003).

One study examined the differential treatment of mothers' towards each of their identical twins and how this difference in parenting predicts SED. Results showed that the twin who received higher levels of mothers' negativity showed higher levels of negative emotions, noncompliance and activity, as well as lower levels of positive emotions, responsiveness to mother and the ability to remain on-task (Deater-Deckard et al., 2001). Furthermore, the twin who received higher levels of harsh discipline showed higher levels of problem behaviors, emotional difficulties and emotional responsiveness,

as well as lower levels of prosocial behavior and responsiveness to mother (Deater-Deckard et al., 2001).

Another study showed that mothers who act tense, domineering, and ‘thwarting’ have children who were more aggressive and difficult to control (Becker et al., 1959). Further research found that mothers who were more engaged, direct, verbally stimulating and able to bring out more positive emotions in their children had boys that were more socially popular in preschool (Parke et al., 1989). For girls, only mothers’ tendency to be direct was associated with popularity (Parke et al., 1989). Finally, in a sample of 9 to 13 year olds children and their parents, lower levels of maternal warmth predicted externalizing problems in their children (Miller et al., 1993).

Fathers’ who are more engaged in parenting have boys who are more popular (Parke et al., 1989). However, fathers’ tendency to be direct is associated with lower levels of popularity in boys (Parke et al., 1989). For girls, fathers’ more physical play and emotions shown during play are associated with higher levels of popularity, while verbal dialogue and a tendency to be direct is associated with lower levels (Parke et al., 1989). Fathers who are permissive have children who demonstrate problems with aggression and an inability to regulate themselves, while, fathers who are more ‘thwarting’ in their parenting, have children who are more introverted and easily upset (Becker et al., 1959). Furthermore, fathers’ use of harsh parenting predicts higher levels of aggression in kindergarten children (Chang et al., 2003). One study showed that in a sample of children between 3 and 12 years of age, father warmth and overall relationship quality predicted overall child well being (Harper & Fine, 2006). Additionally, while

father's limit setting was not predictive of childrens' well-being in the sample as a whole, it was predictive among African-American children (Harper & Fine, 2006). Finally, lower levels of paternal warmth and control predicted externalizing behavior problems in a sample of 9 to 13 year old children (Miller et al., 1993).

### *Relationship Predictors*

Marital distress predicted higher levels of emotional and behavioral problems in their children, ages 8 to 16 years (Papp, Cummings, & Shermerhorn, 2004). Marital conflict was associated with lower levels of warmth and higher levels of conflict in children's sibling relationships, and higher levels of problems in children's peer relationships (Stocker & Youngblade, 1999). It was also associated with children feeling threatened by the conflict and feeling as though they were to blame for the conflict (Stocker & Youngblade, 1999). Recent work has found that children may have negative responses to mother and father use of conflict behaviors (Goeke-Morey & Cummings, 2007). When children are faced with negative emotions, such as anger, fear or sadness by either mothers or fathers, they tend to react with affective uncertainty (Goeke-Morey & Cummings, 2007).

Maternal reports of couple conflict predict externalizing problems in their children, 9 to 13 years of age (Miller et al., 1993). In a sample of 3 to 12 year olds, both mother and non-resident father reports of interparental conflict were related to lower levels of child well-being (Harper & Fine, 2006). Furthermore, in a sample of 7 to 11 year old boys, both mother and father reports of general conflict and conflict over parenting predicted externalizing behavior (Lindahl & Malik, 1999). Another study

found that, both mothers and fathers' use of destructive conflict tactics, negative affect shown during conflict and use of child and marital topics during conflict predicted aggressive behavior in children, aged 8 to 16 (Cummings, Goeke-Morey, & Papp, 2004). Couples with a hostile-detached communication style (in which both parents had negative styles of speaking and listening), had children with more externalizing behavior problems (Lynn Fainsilber Katz & Woodin, 2002). Additionally, when marital satisfaction is lower, both boys and girls express more positive and negative responses to mothers, and girls are less compliant and more controlling in interactions with their fathers (Kerig, Cowan, & Cowan, 1993). Another study found that both mother and father reports of marital adjustment predicted lower levels of externalizing behaviors in children (Papp, Goeke-Morey, & Cummings, 2004).

One study showed that mothers' report of marital conflict predicted both internalizing and externalizing behavior problems in their 9 to 12 year old children (Cummings, Davies, & Simpson, 1994). In a sample of children 3 to 8 years of age, mothers' report of parenting disagreement predicted aggressive behavior in children. Moreover, in boys, both parenting agreement and marital adjustment predicted anxiety (Dadds & Powell, 1991). In a study that compared child behavior in a sample of mothers who were maritally distressed against a sample of mothers who were nondistressed, children in the maritally distressed sample showed higher levels of aggressive and externalizing behavior problems (Bond & McMahon, 1984).

APPENDIX III

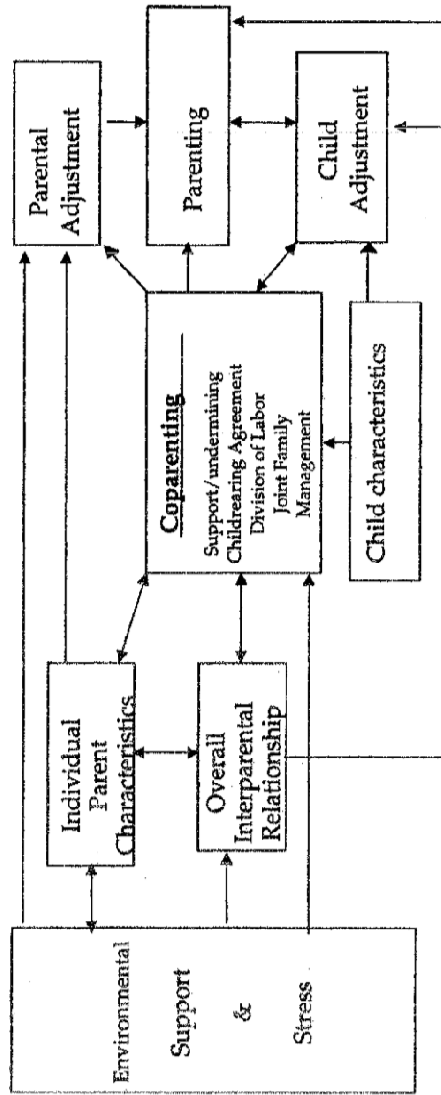


Figure 1. Ecological Model of Coparenting (Feinberg, 2003).



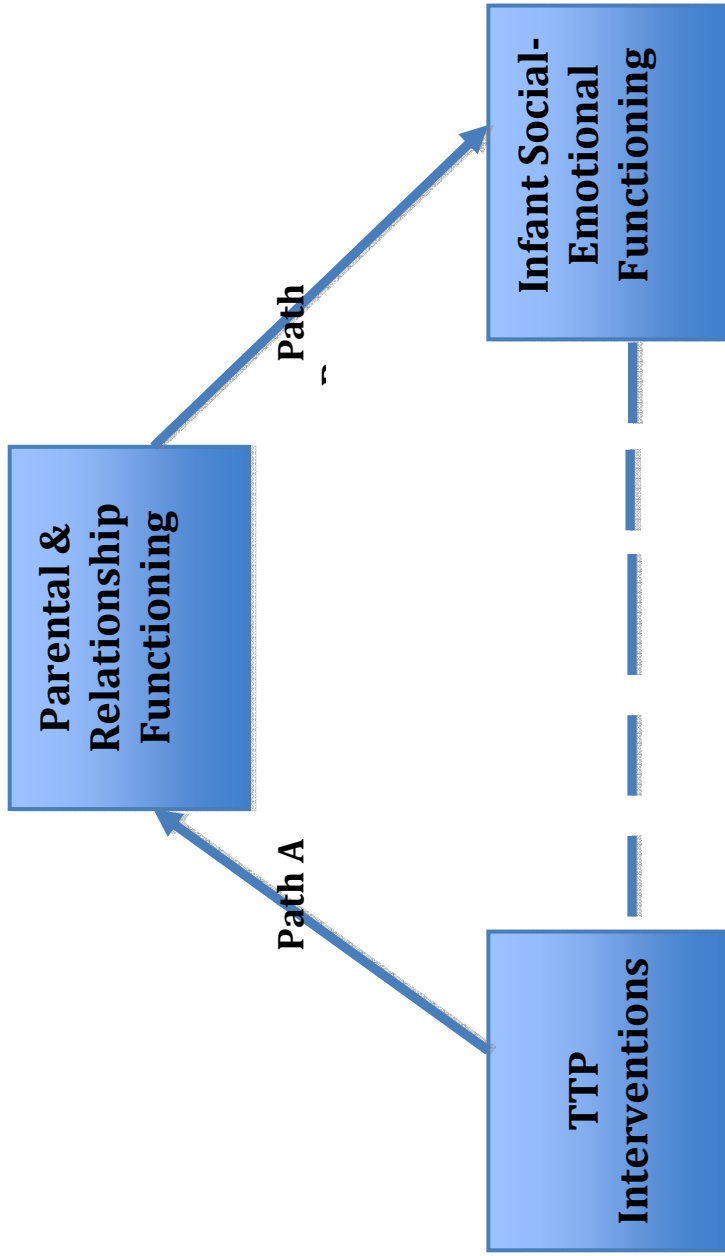


Figure 2. Overview of study analyses.

Table 1.

<i>Demographic Variables Split by Intervention Condition.</i>			
	Control Condition	Co-Parenting Condition	Couple Condition
<i>Race</i>	%	%	%
Caucasian	88.3	93.3	83.3
African-American	1.7	1.7	0.0
Asian/Pacific Islander	3.3	1.7	1.7
Hispanic	6.7	3.3	13.3
Native American/Alaskan	3.3	1.7	5.0
Native			
<i>Marital Status</i>	%	%	%
Married	86.7	90.0	86.7
<i>Other Demographics</i>	Mean (in years)	Mean (in years)	Mean (in years)
Age	27.5	28.3	27.5
Education	16.0	17.6	16.4
Years Married (if married)	2.5	3.0	2.1
Years Living Together	3.2	3.4	2.7



Table 3.

*Dependent Variable Means for Mothers and Fathers.*

<i>Dependent Variables</i>	<i>Mothers</i>		<i>Fathers</i>		<i>t</i>	<i>df</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
<b>Internalizing</b>	0.43	0.21	0.38	0.18	1.67	169
Depression	0.03	0.06	0.06	0.11	2.22*	169
General Anxiety	0.11	0.13	0.12	0.12	0.52	169
Separation Distress	0.89	0.44	0.77	0.39	1.89	169
Inhibition to Novelty	0.70	0.48	0.57	0.41	1.90	169
<b>Dysregulation</b>	0.43	0.23	0.44	0.23	0.28	169
Neg. Emotionality	0.48	0.25	0.49	0.31	0.23	169
Sleep	0.51	0.56	0.51	0.49	0.00	169
Eating	0.40	0.30	0.40	0.30	0.00	169
Sensory Sensitivity	0.33	0.27	0.36	0.26	0.74	169

\* =  $p < .05$ ; \*\* =  $p < .01$ , \*\*\* =  $p < .001$ ; (Full domain scales are **bolded**).

Table 4.

*Individual Level Parent Functioning Predicting Infant SED Domains.*

<i>Dependent Variables</i>	<i>Parenting Alliance</i>			<i>Parenting Identity</i>			<i>Relationship Adjustment</i>			<i>Relationship Conflict</i>		
	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>
	<i>Mothers</i>											
Internalizing	-0.001	0.002	-0.591	0.003	0.007	0.430	0.000	0.001	-0.740	0.028	0.016	1.708
Dysregulation	0.000	0.002	-0.282	0.015	0.008	1.853	0.000	0.001	-0.173	0.026	0.020	1.327
	<i>Fathers</i>											
Internalizing	-0.001	0.002	-0.484	0.010	0.009	1.031	-0.003	0.002	-1.776	0.018	0.018	1.000
Dysregulation	-0.007**	0.003	-2.678	0.022	0.011	1.944	-0.005*	0.002	-2.394	0.046*	0.021	2.197

\* =  $p < .05$ ; \*\* =  $p < .01$ , \*\*\* =  $p < .001$

Table 5.

*Couple Level Parent Functioning Predicting Infant SED Domains.*

<i>Dependent Variables</i>	<i>Parenting Alliance</i>			<i>Parenting Identity</i>			<i>Relationship Adjustment</i>			<i>Relationship Conflict</i>			
	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>	
	<i>Mothers</i>												
Internalizing	-0.002	0.002	-0.985	0.002	0.007	0.311	-0.002	0.002	0.002	-1.077	0.046*	0.021	2.187
Dysregulation	0.001	0.002	0.240	0.014	0.008	1.727	0.002	0.002	0.002	0.865	0.018	0.025	0.693
	<i>Fathers</i>												
Internalizing	0.000	0.002	-0.144	0.009	0.010	0.905	-0.002	0.002	0.002	-1.034	-0.003	0.020	0.886
Dysregulation	-0.008**	0.003	-2.678	0.021	0.011	1.876	-0.006*	0.003	0.003	-2.511	0.039	0.024	1.640

\* =  $p < .05$ ; \*\* =  $p < .01$ , \*\*\* =  $p < .001$

Table 6.

*Individual Level Parent Functioning Predicting Infant SED Subscales.*

<i>Dependent Variables</i>	<i>Parenting Alliance</i>			<i>Parenting Identity</i>			<i>Relationship Adjustment</i>			<i>Relationship Conflict</i>		
	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>
<i>Mothers</i>												
<i>Internalizing</i>												
Depression	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
General Anxiety	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Separation Distress	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Inhibition to Novelty	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
<i>Dysregulation</i>												
Neg. Emotionality	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Sleep	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Eating	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Sensory Sensitivity	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
<i>Fathers</i>												
<i>Internalizing</i>												
Depression	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
General Anxiety	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Separation Distress	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Inhibition to Novelty	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
<i>Dysregulation</i>												
Neg. Emotionality	-0.008*	0.003	-2.407	-----	-----	-----	-0.012***	0.002	-4.842	0.056*	0.024	2.349
Sleep	-0.011	0.007	-1.552	-----	-----	-----	-0.002	0.006	-0.253	0.052	0.052	0.996
Eating	-0.011**	0.004	-2.990	-----	-----	-----	-0.007*	0.003	-2.294	0.042	0.028	1.460
Sensory Sensitivity	-0.002	0.003	-0.520	-----	-----	-----	-0.003	0.003	0.261	0.036	0.022	1.591

\* = p &lt; .05; \*\* = p &lt; .01, \*\*\* = p &lt; .001

Note: Specific subscales were only examined in predictors found to be significant at the domain level.

Table 7.

*Couple Level Parent Functioning Predicting Infant SED Subscales.*

<i>Dependent Variables</i>	<i>Parenting Alliance</i>		<i>Parenting Identity</i>		<i>Relationship Adjustment</i>		<i>Relationship Conflict</i>	
	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>	<i>t</i>	<i>b</i>	<i>SE(b)</i>
<i>Mothers</i>								
<i>Internalizing</i>								
Depression	-----	-----	-----	-----	-----	-----	0.004	0.008
General Anxiety	-----	-----	-----	-----	-----	-----	0.025*	0.012
Separation Distress	-----	-----	-----	-----	-----	-----	0.087*	0.039
Inhibition to Novelty	-----	-----	-----	-----	-----	-----	0.067	0.050
-----	-----	-----	-----	-----	-----	-----	-----	1.351
<i>Dysregulation</i>								
Neg. Emotionality	-----	-----	-----	-----	-----	-----	-----	-----
Sleep	-----	-----	-----	-----	-----	-----	-----	-----
Eating	-----	-----	-----	-----	-----	-----	-----	-----
Sensory Sensitivity	-----	-----	-----	-----	-----	-----	-----	-----
<i>Fathers</i>								
<i>Internalizing</i>								
Depression	-----	-----	-----	-----	-----	-----	-----	-----
General Anxiety	-----	-----	-----	-----	-----	-----	-----	-----
Separation Distress	-----	-----	-----	-----	-----	-----	-----	-----
Inhibition to Novelty	-----	-----	-----	-----	-----	-----	-----	-----
<i>Dysregulation</i>								
Neg. Emotionality	-0.007*	0.003	-2.049	-----	-----	0.003	-0.012***	-4.298
Sleep	-0.011	0.007	-1.616	-----	-----	0.007	-0.004	-0.542
Eating	-0.011**	0.004	-2.980	-----	-----	0.004	-0.009**	-2.659
Sensory Sensitivity	-0.001	0.003	-0.429	-----	-----	0.003	-0.002	-0.746

\* = p < .05; \*\* = p < .01, \*\*\* = p < .001

Note: Specific subscales were only examined in predictors found to be significant at the domain level.



## VITA

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**Education** New York University-Bellevue Hospital Center, Manhattan, NY  
APA Accredited Pre-doctoral Internship, June 2011

Texas A&M University, College Station, TX  
Doctor of Philosophy in Psychology, May 2011  
Master of Science in Psychology, December 2008

University of Connecticut, Storrs, CT  
Bachelor of Arts in Psychology, May 2006

**Select Presentations And Publications** Sanders, M., Doss, B., Coop-Gordon, K., & Slep, A. (2009) In M. Morrill & K. Carhart (Co-Chairs), *Coupled and Parenting in 2009: The Intersection of Romantic Relationships and Parenting Behaviors*. Panel Discussion at the Association for Behavioral and Cognitive Therapies 43<sup>rd</sup> Annual Convention, New York, NY.

Doss, B. D., Carhart, K., Hsueh, A., & Rahbar, K. (2009).  
Serving rather than recruiting couples: Thoughts on the delivery of current and future couple interventions. In K. Hahlweg, Grawe-Gerber, & D. Baucom (Eds). *Couples in Despair*. Zurich, Switzerland: Klaus-Grawe Institute.

Carhart, K. & Doss, B.D. (2008). Intergenerational transmission of relationship functioning during the transition to parenthood. Poster presented at the Association for Behavioral and Cognitive Therapies 42<sup>nd</sup> Annual Convention, Orland, FL.

**Select Clinical Experience** Sandypoint Brazos County Jail, Bryan, TX  
*Therapist*, June 2009-May 2010

Texas A&M Psychology Clinic, College Station, TX  
*Therapist*, August 2007- May 2010

Health for All, Bryan, TX  
*Therapist*, September 2008- May 2009

Brazos Juvenile Academy, Bryan, TX  
*Therapist*, June 2008- September 2008