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## **Maternal and Child Anxiety: Do Attachment Beliefs and Parenting Behaviors Mediate the Association?**

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MATERNAL AND CHILD ANXIETY: DO ATTACHMENT BELIEFS  
AND PARENTING BEHAVIORS MEDIATE THE ASSOCIATION?

A Thesis

Submitted to the Graduate Faculty of the  
University of New Orleans  
in partial fulfillment of the  
requirements for the degree of

Master of Science  
in  
Psychology

by

Natalie Marie Costa

B.A., University of New Orleans 2001

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## Abstract

This paper examines the role of attachment beliefs and parenting behaviors on the association between maternal and child anxiety in a community sample of mothers and their children aged 6-17 ( $N = 89$ ). Maternal anxiety was assessed through the SCL-90 & STAI-T. Child anxiety was assessed through the RCMAS-C, STAIC-T, RCMAS-P, & CBCL. Attachment beliefs were assessed through the Experiences in Close Relationships (maternal) and the Inventory of Parent and Peer Attachment (child). Parenting behaviors were assessed through the Alabama Parenting Questionnaire and the Children's Report of Parent Behavior Inventory. Significant associations were found between maternal and child anxiety, attachment beliefs, and parenting. Multiple regression analysis indicated that Anxious Attachment Beliefs and Parental Involvement appeared to mediate the association between maternal and child anxiety. Findings are discussed in terms of elucidating the role of attachment beliefs and parenting behaviors on the association between maternal and child anxiety.

## Introduction

Anxiety has been considered a transient developmental experience in childhood and adolescence (Last, Perrin, Hersen, & Kazdin, 1996). However, anxiety disorders are among the most common and prevalent forms of psychopathology in youth with estimates of prevalence ranging from 5% to 18% (Albano, Chorpita, & Barlow, 1996; Anderson, 1994; Kashani & Orvaschel, 1990; Kashani, Orvaschel, Rosenberg, & Reed, 1989; Labellarte, Ginsburg, Walkup, Riddle, 1999). Bell-Dolan, Last, and Strauss (1990) examined anxiety symptomatology in normal children and found that as many as 30.6% reported clinical anxiety disorder symptoms. Such prevalence suggests that it is quite possible for anxiety in childhood and adolescence, a once transient developmental experience, to become chronic and pervasive, which may then further develop into an anxiety disorder (Keller, Lavori, Wunder, Beardslee, & Schwartz, 1992; Last et al., 1996; Messer & Beidel, 1994; Ollendick & King, 1994; Orvaschel, Lewinsohn, & Seeley, 1995). Therefore, anxiety may be particularly salient in the lives of youth and studying anxiety is essential in order to better understand the origins of anxiety disorders.

In addition to prevalence, at least three other reasons make understanding the origins of anxiety disorders in youth important. First, in both clinical and normative samples of children and adolescents, anxiety disorders have high rates of comorbidity with other disorders, such as depression, ADHD, and conduct/oppositional disorders (Anderson, 1994). Comorbidity among other anxiety disorders ranges from 14-39% in normative samples (Anderson, Williams, & McGee, 1987; Kashani & Orvaschel, 1990; McGee, Feehan, Williams, Partridge, Silva, & Kelly, 1990; McGee, Feehan, & Williams, 1992) to 50% in clinical samples (Last, Hersen, Kazdin, Finkelstein, & Strauss, 1987). Estimates of the overlap of anxiety and depression vary from 17% to 69% in youth (Anderson et al., 1987; Kashani & Orvaschel, 1988; Kashani, Beck, Hooper,

Fallahi, Corcoran, McAllister, Rosenberg, & Reid, 1987). Estimates of anxiety disorders comorbid with ADHD vary from 25% to 33% (Anderson et al., 1987; Bird, Canino, Rubio-Stipec, 1988; Strauss, Lease, Last, & Francis, 1988). Rates of comorbidity between anxiety disorders and conduct/oppositional disorders are less frequent in normative samples, but range from 14% to 27% in clinical samples (Last, Strauss, & Francis, 1988). These rates of comorbidity suggest that the presence of anxiety problems during childhood may significantly increase the probability of having other concurrent disorders (Last et al., 1996; Orvaschel et al., 1995).

Second, the presence of anxiety problems during childhood and adolescence not only increases the risk of having additional concurrent disorders, but it also significantly heightens the risk for developing disorders in adulthood (Last et al., 1996; Orvaschel et al., 1995). For example, empirical research has demonstrated an association between childhood and adolescent anxiety disorders and adulthood anxiety and depressive disorders (Pollack, Otto, Sabatton, Majcher, Worthington, McArdle, & Rosenbaum, 1996). In a four-year longitudinal study, Last et al. (1996) demonstrated that over 30% of children with an anxiety disorder had developed other psychiatric disorders at the follow-up period. Leonard, Swedo, and Lenane (1993) yielded similar results in that 96% of the anxiety disordered children in the study met criteria for other psychiatric disorders seven years later. Finally, Pine, Cohen, and Gurley (1998) found that anxiety disorders in adolescence predicted a 2- to 3-fold increased risk for adulthood anxiety or depressive disorders.

Associations between separation anxiety disorder (SAD) in childhood and depressive disorders in adulthood have also been reported. Several studies have shown that 50-75% of children and adolescents that met criteria for separation anxiety disorder meet criteria for

depressive disorders years later (Orvaschel & Weissman, 1986; Orvaschel, Lewinsohn, & Seeley, 1995). In addition, separation anxiety disorder has been linked to panic disorder in adulthood. Over 55% of adults with panic disorder met criteria for childhood anxiety disorders, specifically SAD, through retrospective reports (Aronson & Logue, 1987; Deltito, Perugi, Maremmani, Mignani, & Cassano, 1986; Otto, Pollack, Rosenbaum, Sachs, & Asher, 1994; Pollack, Otto, Rosenbaum, Sachs, O'Neil, Asher, & Meltzer-Brody, 1990; Thyler, Nesse, & Cameron, 1985). Thus, childhood anxiety disorders may endure for many years and may also contribute to the development of other disorders over time.

Third, research on childhood and adolescent anxiety disorders suggests a link between anxiety and poorer psychosocial functioning as an adult (Flament, Koby, Rapoport, 1990; Markowitz, Weissman, Ouellette, Lish, & Klerman, 1989; Ollendick, Lease, & Cooper, 1993). Woodward and Fergusson (2001) examined this link and discovered that having an anxiety disorder in adolescence increased the risk of later dependence of nicotine, drugs, and alcohol, suicidal behavior, educational underachievement, and early parenthood. Support for impaired social relationships has also been demonstrated (Buitelaar, van Andel, Duyx, van Strien, 1994). Due to the physical, psychological, and social consequences that are associated with anxiety disorders in childhood and adolescence, an understanding of the factors in the development and maintenance of anxiety disorders during this time period is critical.

#### Factors Influencing the Development of Anxiety

Numerous factors affect an individual's risk for developing anxiety. These factors can be associated with the child, the parents, the environment or a combination of these factors. Previous research of risk factors suggests that a potentially important line of inquiry is elucidating the association between parent and child anxiety. In general, research suggests that

parent ratings' of their own anxiety is moderately related to their children's anxiety. The effect sizes that have been reported vary due to differences in methodology and instruments used, however estimates range from .28 to .45 (e.g., Frick, Silverthorn, Evans, 1994; Krain & Kendall, 2000; Costa, Weems, Pellerin, & Dalton, manuscript submitted).

Two types of studies have been used to show that parent and child anxiety are related: top down and bottom up. Top-down studies examine the prevalence of psychopathology in children whose parents have received an anxiety diagnosis. Bottom-up studies examine the prevalence of psychopathology in parents of children who have received an anxiety diagnosis (Silverman & Ginsburg, 1998). Both of these approaches assume that psychopathology in one-generation influences psychopathology in another. In both types of studies, findings demonstrate that parental psychopathology places the child at a higher risk for developing psychopathology (Rutter, 1996).

In terms of top-down studies, Weissman, Leckman, Merikangas, Gammon, and Prusoff (1984) examined children of women with anxiety and depressive disorders. Thirty-seven percent of children of mothers with panic disorder and depression met the diagnosis for an anxiety disorder. Similarly, Turner, Beidel, and Costello (1987) found that 38% of children with an anxiety disordered parent received a diagnosis of an anxiety disorder. In other words, children of anxiety-disordered parents were found to be seven times more likely to receive an anxiety-disorder diagnosis than children of non-anxious parents (Turner, Beidel, & Costello, 1987). In a similar study, Beidel and Turner (1997) also found that children of anxiety-disordered parents were almost five times more likely to meet criteria for an anxiety disorder. In more recent studies, maternal anxiety, in particular, has been found to increase risk for child anxiety such that children of mothers with anxiety problems were at a higher risk for developing anxiety problems

than children of non-anxious mothers (McClure, Brennan, Hammen, & LeBrocq, 2001; Whaley, Pinto, & Sigman, 1999).

Numerous bottom-up studies have also been conducted which yield results similar to those obtained by top-down studies. Last, Hersen, Kazdin, Francis and Grubb (1987) compared mothers of children with anxiety disorders to mothers of control children and found that 83% of mothers with anxiety disordered children also had an anxiety disorder, where as only 40% of mothers with control children had an anxiety disorder. In fact, the majority of mothers with anxiety disordered children showed a lifetime history of anxiety disorders. In a smaller study, Bernstein and Garfinkel (1988) found that 58% of school phobic children had parents who had an anxiety disorder. More recently, Last, Hersen, Kazdin, Orvaschel, and Perrin (1991) reported that 65.6% of children with an anxiety disorder had at least one parent who also had an anxiety disorder.

Overall, top-down studies and bottom-up studies consistently suggest that anxiety problems co-occur in families (Dadds & Barrett, 1996; Dadds & Roth, 2001; McClure et al., 2001; Whaley et al., 1999). However, top-down and bottom-up studies do not necessarily explain why an association between parent and child anxiety exists. They simply establish an estimate of risk. Attempts to explain this association have focused on genetic and environmental influences.

In terms of genetics, although support for genetic transmission of anxiety disorders has been demonstrated, several studies have yielded very conflicting results (Hettema, Neale, & Kendler 2001; Thapar & McGuffin, 1994). In a meta-analysis of the genetic epidemiology of anxiety disorders, Hettema et al., (2001) reported that estimated heritabilities of anxiety disorders were found to be in a modest range (30-40%), which is significantly lower than for the majority of other disorders. Where as Kendler, Neale, Kessler, Heath, and Eaves (1992) reported

heritability estimates of 30% for certain anxiety disorders, two other studies failed to demonstrate any genetic influence for the same anxiety disorders (Andrews, Stewart, Allen, & Henderson, 1990; Torgerson, 1983). In a twin study examining anxiety symptoms, results were unclear as to whether environmental or genetic factors accounted for the transmission of anxiety symptoms (Mackinnon, Henderson, & Andrews, 1990). Specifically, genetic influences were thought to play a major role in the transmission of panic disorder. Even though panic disorder appears to be somewhat heritable (Torgerson, 1983), results of twin studies have not been able to decipher whether genes or environment play a more prominent role (Kendler et al., 1992).

In addition to genetic factors, temperamental factors have also been examined. Temperament has been defined as “constitutionally based individual differences in reactivity and self-regulation, influenced over time by heredity, maturation, and experience” (Rothbart & Ahadi, 1994). The most widely researched temperamental characteristic linked to anxiety problems is behavioral inhibition (BI). Behavioral inhibition is often described as the tendency to restrict exploration and avoid novelty (Manassis, 2000; Dadds & Roth, 2001). Avoidance, withdrawal, clinging or dependence on parents, and fearfulness are behaviors associated with BI (Kagan, Reznick, & Gibbons, 1987). Timidity, shyness, and emotional restraint when exposed to unfamiliar stimuli are also behaviors characteristic of inhibition (Asendorpf, 1993). Behavioral inhibition reflects an increased sensitivity to environmental stimulation. In other words, behaviorally inhibited children seem to react to novel experiences or mild environmental changes with higher increases in physiological arousal than non-behaviorally inhibited children.

Empirical research highlights the importance of behavioral inhibition on the emergence of anxiety problems. Children with behavioral inhibition exhibit similar behavioral, affective, and physiological characteristics as children with anxiety disorders (Silverman & Ginsburg,

1998). Biederman, Rosenbaum, Hirshfeld, Faraone, Bolduc, Gersten, Meminger, and Reznick (1990) postulated that behavioral inhibition in infancy may increase risk for future anxiety disorders in childhood. Consistent with this prediction, the presence of behavioral inhibition during childhood has been found to predict adolescent anxiety problems (Dumas, LaFreniere, & Serketich, 1995). Thus, this distinct temperamental characteristic seems to heighten the risk for anxiety problems. Although behavioral inhibition may be a risk factor in anxiety's development, it is important to note that research suggests that not all children with behavioral inhibition exhibit anxiety disorders. In a study by Biederman et al. (1990), only 30% of behaviorally inhibited children met the criteria for an anxiety disorder.

In sum, temperament research on the transmission of anxiety disorders has suggested an important role for temperaments such as behavioral inhibition in the development of anxiety. However, the high number of inhibited children that are free of anxiety disorders suggests that the development of anxiety disorders may also depend upon environmental factors (Manassis, Bradley, Goldberg, Hood, & Swinson, 1995; Turner, Beidel, & Wolff, 1996). Research has begun to demonstrate the role of family based factors on the development of anxiety disorders. These factors may involve the family context, the parent, the child, or the interaction among the three. The mother-child relationship, in terms of attachment beliefs, mother-child interactions, and parenting behaviors, has emerged as an important component in childhood anxiety research. Thus, the following sections specifically address each of these family based factors on the emergence of anxiety disorders in children.

### Attachment

Attachment style, particularly insecure attachment, has been found to be a risk factor in the development of anxiety disorders in children and adolescents (Manassis, Bradley, Goldberg,

Hood, & Swinson, 1994; Manassis et al., 1995; Muris & Meesters, 2002; Warren, Houston, Egeland, & Sroufe, 1997). Insecure attachment refers to those children who have one of two types of attachment styles: avoidant or ambivalent. An avoidant attachment style is characterized by a tendency of the child to ignore or avoid their caregiver when confronted with stressful situations. An ambivalent attachment style is characterized by a tendency of the child to display inconsistent behaviors, such as excessive clinging or angry, rejecting behaviors to their caregiver when confronted with distress (Cole & Cole, 1996; Murris & Meesters, 2002). As postulated by Bowlby (1973), a secure attachment conveys the message to a child that his/her caregiver is accessible, responsive, communicative, and trustworthy, where as an insecure attachment conveys the very opposite message. The caregiver is unreliable, untrustworthy and uncommunicative. Children with who receive these types of messages from their caregivers because of an insecure attachment subsequently may develop insecure attachment *beliefs*, which may come into play when developing future relationships. As a child gets older, he/she may develop an approach to interpersonal relationships based on these types of insecure attachment beliefs, meaning that he/she may approach other relationships with these same beliefs (Weems, Berman, Silverman, Rodriguez, 2002). As a result of this, the child begins to develop avoidant behaviors characterized by lack of communication and distrust (see for a review Manassis & Bradley, 1994) due to the beliefs that people will be unreliable, untrustworthy, and uncommunicative.

Although the majority of research on attachment has been conducted using children, a recent line of research has begun to focus on the attachment beliefs and styles of adolescents and adults (e.g., Weems et al., 2002). Attachment has been characterized as a “foundation from which individuals explore and experience interpersonal as well as instrumental aspects of the

world (pp.874)” (Vasquez, Durik, & Hyde, 2002). This foundation begins as an infant and continually builds into adulthood. Attachment does not simply just end when one enters adulthood. Attachment issues have been theorized to be particularly salient in adulthood, especially after entering parenthood (Bowlby, 1973). Bartholomew (1990) proposed a model of attachment styles in adults based on two continuous dimensions of interpersonal attachment-based cognitive styles. Each dimension focuses on the degree to which an adult views themselves and others positively or negatively. The first dimension is the “Model of Self” (i.e., anxious attachment beliefs) and is a continuum from no fear and anxiety about rejection or abandonment by others to intense anxiety about rejection because of feelings of personal unworthiness. The second dimension is the “Model of Others” (i.e., avoidant attachment beliefs) and is a continuum from interpersonal trust to intense interpersonal distrust, avoidance of others, and discomfort with interpersonal closeness because of distrust. In terms of the association between maternal and child anxiety, examining maternal attachment beliefs may be important for at least two reasons.

First, just as a child’s attachment beliefs to his/her caregiver may place him/her at a higher risk for developing an anxiety disorder, it is conceivable to hypothesize that the caregiver’s attachment beliefs may also place the child at risk. For example, a caregiver who has insecure attachment beliefs [e.g., tends to score high on either both or one of the “Model of Self” (i.e., anxious attachment beliefs) and “Model of Others” (i.e., avoidant attachment beliefs) dimensions] will have a negative view about him/herself and/or others with regard to interpersonal relationships (Weems et al., 2002). Consequently, these negative views may directly and indirectly influence their child. Vasquez, Durik, and Hyde (2002) found that parents negative on both the “Model of Self” (i.e., high anxious attachment beliefs) and “Model of

Others” (i.e., high avoidant attachment beliefs) were overly concerned about all aspects of parenting and demonstrated a high level of anxiety when separated from their child. This over-concern and high level of anxiety by the caregiver can possibly send the message to the child that there is something to be afraid of, which could increase the child’s level of anxiety and fear.

Second, a child may model their caregiver’s attachment beliefs. Bowlby (1988) proposes that working models of attachment have a tendency to be stable across generations. Parenting behaviors and parent-child interactions have been found to contribute to this stability and intergenerational transmission. Therefore, children are thought to develop similar attachment beliefs as their parents. Empirically, consistent support for this notion has been demonstrated using prospective, retrospective, and concurrent data (Benoit & Parker, 1994; Crowell & Feldman, 1991, Fonagy, Steele, & Steele, 1991). For example, adult’s ratings on the Adult Attachment Interview have been found to predict the type of attachment beliefs their child will develop (Boris, Aoki, Zeanah, 1999; van IJzendoorn, 1997). Additionally, in a study using young adults, a direct association between the young adult’s attachment beliefs and their caregiver’s attachment beliefs existed (Mikulincer & Florian, 1999). Therefore, it is plausible to think that if a mother experiences high levels of anxious attachment beliefs, the child may also experience less secure attachment beliefs to his/her mother.

Given the research on child and parent attachment beliefs, a correspondence between maternal and child attachment beliefs would be expected (e.g., Boris, Aoki, Zeanah, 1999). Moreover, a mother’s attachment beliefs *or* a child’s attachment beliefs may possibly place a child at risk for developing anxiety (Manassis et al., 1994; Vasquez, Durik, & Hyde, 2002). If these associations exist they may help to account for the association between maternal and child anxiety. Thus, it is plausible that attachment beliefs of the mother *or* child may mediate the

association between maternal and child anxiety. Examining these associations may help to elucidate why maternal and child anxiety is related.

### Mother-child Interactions

Recently, mother-child interactions have become a focus of research in order to better understand the association between maternal and child anxiety disorders. Two possible reasons exist for this focus on mother-child interactions. First, mothers with an anxious child tend to display different behaviors during interactions than mothers with a non-anxious child. Second, anxious mothers also tend to display different behaviors during interactions than non-anxious mothers (Whaley et al., 1999; Woodruff-Borden, Morrow, Bourland, & Cambron, 2002). Both of these reasons will be discussed.

In terms of mothers with an anxious child, empirical research has demonstrated that mothers of anxious children may treat their children much differently than mothers of non-anxious children in efforts to protect their children from situations or events that are anxiety provoking. For example, Dumas, LaFreniere, and Serketich, (1995) found that mothers of anxious children have been found to be more restrictive and overly protective during mother-child interactions. Mothers of anxious children seem to demonstrate higher levels of domineering, overprotective, and over involved parenting (Dadds & Barrett, 1996; Hudson & Rapee, 2002) and ambivalent, rejecting, and hostile behaviors (Silverman & Ginsburg, 1998) than mothers of non-anxious children. This maternal restriction and overprotection seems to enhance children's anxiety by: (1) increasing the likelihood that children will cognitively interpret this behavior as a signal that a particular situation is threatening or dangerous and (2) preventing children from facing fear-provoking events, which in turn, hinders the ability to develop solutions to face fear (Gerlsma, Emmelkamp, & Arrindell, 1990; Krohne & Hock, 1991;

Rapee, 1997; Menzies & Clarke, 1994; Rapee, 1997; Vasey & Dadds, 2001; Vasey & Ollendick, 2000). Siqueland, Kendall, and Steinberg (1996) examined the idea that mothers with an anxious child tend to display different behaviors during interactions than mothers with a non-anxious child. Mother-child interactions in 17 clinically anxious children (ages 9-12) and their families and in 27 control children (ages 9-12) and their families were examined. To assess mother-child interactions, numerous techniques were utilized. Independent observers rated mothers on dimensions of psychological control, warmth, and acceptance while participating with their child in a problem-solving discussion task.

Additionally, the child completed the Children's Report of Parent Behavior Inventory (CRPBI), which assesses the child's perception of their parents' behavior towards them based on three sub-scales: acceptance, psychological control, and firm control. Mothers of children with anxiety disorders were rated by independent observers as more psychologically controlling than mothers of control children during the problem-solving discussion task. Interestingly, children's reports based on the CRPBI matched observer ratings; anxious children also reported more psychological control than control children. The convergence between children and observer ratings suggests that anxious children may not be biased in their perception of parenting behavior.

In terms of anxious mothers, Whaley et al. (1999) examined the idea that these mothers tend to display different behaviors during interactions than non-anxious mothers. The contribution of maternal behaviors in the development of anxiety's transmission in families was examined in 18 clinically anxious mothers with and without anxious children and 18 control mothers with non-anxious children. Mother-child behaviors were observed during two separate interactions, a conflict conversation and an anxiety discussion. Five maternal behaviors were

examined across both groups: psychological control, warmth, catastrophizing, criticism, and positivity.

As compared to control mothers, anxious mothers were more psychologically controlling, catastrophized more, and were more critical during each interaction (Whaley et al., 1999). Anxious mothers, regardless of their child's anxiety status, exhibited less warmth and positivity than the control mothers with non-anxious children (Whaley et al., 1999). Although the anxious mothers showed similar behavioral characteristics throughout both of the interactions, the anxious mothers with anxious children showed higher levels of psychological control and maternal criticism and catastrophizing (Whaley et al., 1999). Interestingly, the characteristics displayed by the anxious mothers tended to be the most salient predictors of child anxiety (i.e., were better predictors than maternal anxiety). This finding makes it plausible to hypothesize that certain types of parenting behaviors, such as high psychological control, high behavioral control, and low acceptance, may be potential mediators of the association between maternal and child anxiety.

Overall, research on mother-child interactions suggest several important conclusions about the relation between maternal and child anxiety. Specific parenting strategies, whether engaged in due to the mother's own anxiety or in response to the child's anxiety may influence the risk for anxiety in children. Mothers of anxious children and anxious mothers seem to try to regulate their children's interactions with their social environment. They are more psychologically controlling, grant less behavioral independence, and are more restrictive and controlling of their behavior. This over-protective and over-involved interactional style seems to reinforce their children's anxiety. Within the mother-child dyad, the presence of at least one anxious member increases risk for such parenting strategies. That is, the convergence between

the parenting characteristics of anxious mothers and non-anxious mothers of anxious children is striking. These two mothers appear virtually indistinguishable in the quality of their parenting, although anxious mothers seem to exhibit higher quantities. What this suggests is that maternal anxiety status does not solely predict child's anxiety status. Rather, the types of parenting behaviors displayed in these mother-child dyads are more predictive of the development or maintenance of child's anxiety and therefore may mediate the association between maternal and child anxiety (Whaley et al., 1999).

### The Proposed Study

The purpose of this study is to expand on previous research by further examining the role of parenting behaviors on the association between maternal and child anxiety. Additionally, this study contributes a novel piece to the research literature by examining the role of maternal and child attachment beliefs on the association between maternal and child anxiety.

The study was conducted with a community sample and anxiety was assessed with a dimensional system, rather than a categorical diagnostic system such as the DSM-IV. The dimensional approach recognizes that anxiety symptoms manifest on a continuum, and anxiety symptoms become a problem when an excess or abnormally high burden of symptoms, in either number or severity, is present (Anderson, 1994). It is important to study anxiety through a dimensional approach, while using a community sample, given the high percentage of anxiety symptomatology in children and adolescents (e.g., Bell-Dolan, Last, & Strauss, 1990). Using the dimensional approach will also maximize the capacity to test for mediation by using a hierarchical linear regression approach.

## Hypotheses

Since previous research has demonstrated a modest association between maternal and child anxiety, it was hypothesized that a small to moderate association between maternal and child self-reported anxiety would exist. Exploratory analyses were conducted to examine the potential influence of age on these associations. The main reason this was investigated was to see if the associations between maternal and child anxiety and the influence of attachment beliefs and parenting behaviors show subtle difference in their measurement capacity in younger versus older children. In order to examine this, the sample was divided into two age groups: (1) children 11 years old and younger and (2) children older than 11 years. These age groups were based on biological (i.e., pubertal) and cognitive changes (Marshall & Tanner, 1970; Piaget, 1983). Additionally, the potential influence of gender was examined, given that studies have demonstrated that females are more likely than males to experience a greater amount of anxiety symptoms (see Yonkers & Gurguis, 1995, for a review).

Next, it was hypothesized that attachment beliefs and parenting behaviors would be associated with maternal and child anxiety. This hypothesis was examined by testing six predictions based on the literature review. First, maternal attachment beliefs (i.e., maternal avoidant “Model of Others” and anxious attachment “Model of Self”) would be related to maternal anxiety with the expectation that maternal *anxious* attachment beliefs would demonstrate larger effect sizes than maternal *avoidant* attachment beliefs (Prediction 1). This was expected given that research has shown anxious attachment beliefs tend to be more associated with a person’s level of anxiety (Weems et al., 2002). Second, child attachment beliefs would be negatively related to child anxiety, in that the less secure a child rates his/her attachment beliefs to his/her mother, the more anxiety a child will report experiencing

(Prediction 2). Third, maternal ratings of parenting behaviors, such as parental involvement, positive parenting, poor monitoring, and inconsistent discipline, were hypothesized to be associated with both maternal and child anxiety. More specifically, parental involvement and inconsistent discipline were hypothesized to be positively associated with maternal and child anxiety, whereas positive parenting and poor monitoring would be negatively associated with maternal and child anxiety (Prediction 3). Fourth, child ratings of parenting behaviors, such as acceptance and psychological and firm control, were hypothesized to be associated with child and maternal anxiety. More specifically, acceptance was hypothesized to be negatively associated with child and maternal anxiety, whereas psychological and firm control were hypothesized to be positively associated with child and maternal anxiety (Prediction 4).

Given the large number of potential predictor variables in the current study, each predictor variable needed to demonstrate the hypothesized associations as listed in the first four predictions. If a variable did not demonstrate these associations, it was not used in further mediational analyses. For the variables that did demonstrate the associations as hypothesized, standard multiple linear regression analyses were run to determine which specific variables (i.e., types of attachment beliefs and parenting behaviors) were the strongest predictors of child anxiety, and subsequently should be used in the mediation regression analyses. This was done to maximize the power in these analyses. Fifth, maternal and child attachment beliefs, in particular, higher maternal anxious attachments beliefs and lower child secure attachment beliefs, were hypothesized to mediate the association between maternal and child anxiety (Prediction 5). Lastly, because research has begun to demonstrate that certain types of parenting behaviors are more predictive than maternal anxiety status of the development of anxiety in children, maternal

and child ratings of parenting behaviors were hypothesized to mediate the association between maternal and child anxiety (Prediction 6).

## Method

### Participants

Data was collected as a part of the Youth and Family Anxiety, Stress, and Phobia Lab. Eighty-nine mothers and their 6-17 year old children were recruited to participate in the study. Mothers were compensated \$20.00-\$30.00 for each child with whom she participated in the study with. For mothers who participated in the study with numerous children, a target child was randomly selected from the family to be used in the current study. The sample was comprised of 50 males and 39 females ( $N = 89$ ), with a mean age of 11.0 years and an age range of 6 to 17 years. Fifty-three percent of the participants were Caucasian, 30% were African American, and 8% were Hispanic, and 7% were of other ethnic backgrounds. Forty-two percent of the participants were married, 25% were divorced, 24% were single, 5% were separated, 2% were widowed, and 2% were remarried. The majority of the sample had either some college (42%) or college (37%) education level. Of the remaining sample, 16% had a high-school education, 2% had some high school, and 3% had an advanced degree. The range of the participants' family income was as follows: Zero to \$11,999 (20%), \$12,000-\$20,999 (18%), \$21,000- \$30,999 (12%), \$31,000-\$40,999 (9%), \$41,000 - \$50,999 (11%), over \$51,000 (27%), and 2% did not report their present family income. Thirteen percent of the children had elevated symptoms of anxiety (i.e., T-scores over 60 on RCMAS-C). Only 6% of children and 3% of mothers were currently on any form of psychotropic medications.

### Measures

**Maternal Anxiety.** Mothers rated their level of anxiety on the Symptom Checklist-90-Revised (SCL-90; Derogatis, 1983). The SCL-90 is a widely used measure of anxious symptoms and consists of ratings of 90 symptoms on a 5-point scale (0 = not at all, 4 = extremely),

indicating how frequently the mother has experienced these symptoms in the last week. For purposes of this study, the anxiety sub-scale was used. The SCL-90 has good reliability estimates. For example, internal consistency has been reported to range from .79 to .90 for all subscales and test-retest reliability has been reported to range from .68 to .80 (Kaslow et al., 2004). In the current study, the alpha for the SCL-90 was .89.

The State-Trait Anxiety Inventory-Trait Version (STAI-T; Spielberger, Gorsuch, & Lushene, 1970) was also given to assess convergent validity of the SCL-90 within this sample. The STAI-T is a widely used 20-item measure of trait anxiety rated on a 3-point Likert scale (hardly ever, sometimes, or often true). The STAI-T has good reliability estimates. For example, internal consistency has been reported to range from .86 to .92 and test-retest reliability has been reported to range from .65 to .75 (Spielberger, 1983). In the current study, the alpha for the STAI-T was .93. Convergent validity of the SCL-90 with the STAI-T was  $r = .66, p < .001$  in this sample.

**Maternal Depression.** Mothers rated their depressive symptoms on the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979). The BDI consists of 21- items, rated on a 4-point scale, which assess symptoms of depression experienced within the past week. The BDI was only used in one analysis for the purposes of examining the potential influence of maternal depression on the association between maternal anxiety and certain parenting behaviors. The BDI has good reliability estimates. For example, internal consistency has been reported at .81 and retest reliability ranges from .60 to .83 (Beck, Steer, & Garbin, 1988). In the current study, the alpha for the BDI was .88.

**Child Anxiety.** Child anxiety was assessed through the self-report Revised Children's Manifest Anxiety Scale (RCMAS-C; Reynolds & Richmond, 1978), which is comprised of 37-

items designed to assess anxiety in children from 6 to 19 years old. Twenty-eight items are summed from 'yes' or 'no' responses to produce a total anxiety score, which is comprised of three sub-scales: Worry-Oversensitivity (11 items), Physiological (10 items), and Concentration (7 items). The remaining nine items make up the Lie sub-scale. The RCMAS has good reliability estimates. For example, internal consistency has been reported to range from .83 to .87 and retest reliability ranges reported to be .75 (Cole, Hoffman, Tram, & Maxwell, 2000; King, Gullone, & Ollendick, 1992; Muris, Merckelbach, Ollendick, King, & Bogie, 2002). In the current study, the alpha for the RCMAS-C was .83 for the total sample, .72 for children 11 years old and younger, and .72 for children older than 11 years.

The State-Trait Anxiety Inventory for Children (STAIC-T; Spielberger, 1973) was also given to assess convergent validity of the RCMAS-C in this sample. The STAIC-T is a widely used 20-item measure of trait anxiety, which was modeled after a similar measure for adults (Spielberger, Gorsuth, & Lushene, 1970). Each item is rated on a 3-point Likert scale (hardly ever, sometimes, or often true). Evidence of test-retest reliability, internal consistency, and construct validity has been found (Spielberger, 1973). In the current study, the alpha for the STAIC-T was .82 for the total sample, .75 for children 11 years old and younger, and .89 for children older than 11 years. Convergent validity of the RCMAS-C with the STAIC-T was  $r = .61, p < .001$  for the total sample. For children 11 years old and younger, convergent validity of the RCMAS-C with the STAIC-T was  $r = .46, p < .001$ . For children older than 11 years old, convergent validity of the RCMAS-C with the STAIC-T was  $r = .79, p < .001$ .

Maternal ratings of child anxiety were assessed through the Revised Children's Manifest Anxiety Scale-Parent (RCMAS-P; Reynolds & Richmond, 1978). The RCMAS-Parent is comprised of the same 37 items as on the RCMAS child version. The stem of each item in the

RCMAS-C was changed from “I...” to “My child...” (e.g., My child worries about what is going to happen”). The RCMAS-P has good reliability estimates. For example, internal consistency has been reported to be .90 and retest reliability has been reported to be .76 (Cole, Hoffman, Tram, & Maxwell, 2000; Pina, Silverman, Saavedra, & Weems, 2001). In the current study, the alpha for the RCMAS-P was .81.

The Child Behavior Checklist (CBCL; Achenbach, 1991) was also given to assess cross-informant validity of the RCMAS-C, as well as convergent validity of the RCMAS-P. The CBCL was completed by the mother to assess the child’s internalizing symptoms, as well as specific behavioral problems. Items are rated on a 2-point scale ranging from 0 (not a lot) to 2 (a lot). The CBCL has yielded good reliability and validity (Achenbach, 1991). For purposes of this study, the anxious/depressed subscale was used. The aggression subscale was also used in one analysis for the purposes of examining the potential influence of child aggression on the association between certain parenting behaviors and child anxiety. Cross-informant validity of the RCMAS-C with the CBCL was  $r = .32$ ,  $p < .001$  in this sample. Convergent validity of the RCMAS-P with the CBCL was  $r = .61$ ,  $p < .001$  in this sample.

**Child Attachment Measure.** The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenburg, 1987) is a 60-item (20: mother, 20: father, 20: peers) self-report scale designed to assess children’s attachment beliefs about their parents and peers. For purposes of this study, only the 20-item attachment to mother scale was used. Each item is rated on a 5-point Likert scale ranging from never true to always true. The IPPA consists of three subscales: Trust, Communication, and Alienation, where Attachment Beliefs = (trust + communication) - alienation. Higher attachment belief scores indicate higher security in attachment beliefs, whereas lower attachment belief scores indicate lower security in attachment beliefs. The IPPA

has good reliability and validity estimates. For example, internal consistency of the three subscales ranges from .86 to .91 and retest reliability over a 3-week period was .93 (Armsden & Greenburg, 1987). The IPPA has also demonstrated convergent validity (i.e. correlation coefficients of .56, .52, and .78 with Family Environment sub-scales of Cohesion and Expressiveness and Family Self-concept) (Armsden & Greenburg, 1987). In the current study the alphas were: .89 (Trust), .80 (Communication), .54 (Alienation), and .78 (Attachment score) for the total sample. For children 11 years old and younger, the alphas were: .85 (Trust), .74 (Communication), .50 (Alienation), and .70 (Attachment score). For the children older than 11 years, the alphas were: .93 (Trust), .87 (Communication), .63 (Alienation), and .86 (Attachment score).

**Maternal Attachment Measure.** The Experiences in Close Relationships (ECR; Brennan, Clark, & Shaver, 1998), a 36-item self-report measure, was administered to assess maternal attachment beliefs. It uses a 7-point Likert scale ranging from disagree strongly to agree strongly. The ECR has two 18-question subscales labeled “Model of Self” and “Model of Others.” Higher scores on the Model of Self (i.e., anxious attachment beliefs) indicate more anxiety about rejection and feelings of personal unworthiness, where as, higher scores on the Model of Others (i.e., avoidant attachment beliefs) indicate more interpersonal distrust and avoidance of closeness. To ensure that the Anxious Attachment belief sub-scale was asking questions that were conceptually different than the questions asked on the measure of maternal anxiety (SCL-90), the items on each measure were examined (See Table 1). There was little if any over-lap in the types of questions asked on the ECR as compared to the SCL-90. The ECR has good reliability estimates. For example, internal consistency and test-retest reliability for its two subscales have been reported at .94 and .90 for avoidance and .91 and .91 for anxiety,

respectively (Fraley, Waller, & Brennan, 2000). In the current study, the alphas for the two subscales were .84 (Model of Self) and .86 (Model of Others) for the total sample.

**Table 1.** ECR Maternal Anxious Attachment beliefs and SCL-90 Maternal Anxiety items

Experiences in Close Relationships: Maternal Anxious Attachment Beliefs Items	Symptom Checklist-90-Revised: Anxiety Items
2. I worry about being abandoned.	2. Nervousness or shakiness inside
4. I worry a lot about my relationship	17. Trembling
6. I worry that romantic partners won't care about me as much as I care about them.	23. Suddenly scared for no reason
8. I worry a fair amount about losing my partner.	33. Feeling fearful
10. I often wish that my partner's feelings for me were as strong as my feelings for him/her.	39. Heart pounding or racing
12. I often want to merge completely with romantic partners, and this sometimes scares them away.	57. Feeling tense or keyed up
14. I worry about being alone.	72. Spells of terror or panic
16. My desire to be very close sometimes scares people away.	78. Feeling so restless you couldn't sit still
18. I need a lot of reassurance that I am being loved by my partner.	80. The feeling that something bad is going to happen to you
20. Sometimes I feel that I force my partners to show more feeling, more commitment.	86. Thoughts and images of a frightening nature
22. I often do not worry about being abandoned.	
24. If I can't get my partner to show interest in me, I get upset or angry.	
26. I find that my partner(s) don't want to get as close as I would like.	
28. When I am not involved in a relationship, I feel somewhat anxious and insecure.	
30. I get frustrated when my partner is around as much as I would like.	
32. I get frustrated when romantic partners are not available when I need them.	
34. When romantic partners disapprove of me, I feel really bad about myself.	
36. I resent it when my partner spends time away from me.	

**Child-report of Parenting Behaviors.** The Children's Report of Parent Behavior Inventory (CRPBI; Schluderman & Schluderman, 1970) was used to assess the child's perceptions of his/her mothers' behavior toward them. Each child completed the CRPBI on his/her mother. The 30-item questionnaire consists of three subscales: Psychological Control (PC), Acceptance (AC), and Firm Control (FC). The CRPBI has good reliability estimates. For

example, internal consistency ratings for these subscales have been found to range from .65-.74 (Schwartz, Barton-Henry, and Pruzinsky, 1985). In the current study, the alphas were: .85 (Acceptance), .75 (Psychological Control), and .65 (Firm Control) for the total sample. For children 11 years old and younger, the alphas were: .77 (Acceptance), .72 (Psychological Control), and .60 (Firm Control). For children older than 11 years, the alphas were: .89 (Acceptance), .72 (Psychological Control), and .73 (Firm Control).

**Maternal-report of Parenting Behaviors.** The parent global report form of the Alabama Parenting Questionnaire (APQ; Frick, 1991) was also used in order to assess maternal perceived parenting behaviors toward their child. The APQ consists of 42 items rated on a 5-point frequency scale (1= never to 5 = always). The items are broken down into 5 parenting constructs: Parental Involvement (10 items), Positive Parenting (6 items), Poor Monitoring/Supervision (9 items), Inconsistent Discipline (6 items), and Corporal Punishment (3 items). Additionally, there are 7 items measuring specific discipline practices other than corporal punishment. Frick, Christian, and Wootton (1999) demonstrated the internal consistency of the parent global report for all subscales in three age groups (young, middle, adolescent). For young kids (ages 6-8 years), the internal consistencies of the subscales were: .77 (Parental Involvement), .77 (Positive Parenting), .67 (Poor Monitoring), and .69 (Inconsistent Discipline). For middle-aged kids (ages 9-12 years), the internal consistencies of the subscales were: .79 (Parental Involvement), .80 (Positive Parenting), .49 (Poor Monitoring), and .55 (Inconsistent Discipline). For adolescents (ages 13-17 years), the internal consistencies of the subscales were: .82 (Parental Involvement), .79 (Positive Parenting), .67 (Poor Monitoring), and .70 (Inconsistent Discipline). In the current study, the alphas for the subscales were: .77 (Parental Involvement), .73 (Positive Parenting), .79 (Poor Monitoring), and .77 (Inconsistent Discipline) for the total sample.

## Procedure

Families were recruited through university classes at the University of New Orleans and one local high school. Assessments took place at the Youth and Family Anxiety, Stress, and Phobia Lab on the University of New Orleans's campus. Assessments lasted approximately 2-½ hours. Upon arrival to the lab, the research assistant went over the consent forms and all questionnaires with both the mother and child before beginning the actual assessment. To ensure that respondents felt comfortable enough to answer honestly, the mother and the child were placed in separate rooms while completing the questionnaires. During the assessment, the child was administered the child questionnaire battery, which addresses the child's anxiety, fear, depression, behaviors, and relationships with others. Research assistants were present in the assessment room at all times in case the child had questions. If the child was younger (under 12 years old), the questionnaires were read to him/her by a research assistant as needed. The mother was also administered a parent questionnaire battery, which addresses the parental psychopathology and relationships with others, along with their feelings about their child's feelings and behaviors. The mother was instructed to ask any questions that he/she may have about the questionnaires.

## Results

**Table 2.** Means, Standard Deviations, Ranges, Skews

	Mean	Standard Deviation	Range	Skew
STAI-T	38.34	11.5	20-66	.48
SCL-90 (anxiety)	.55	.63	.00-2.4	1.1
CBCL(anxious/depressed)	4.48	4.9	.00-21	1.4
RCMAS-P	8.40	5.99	0-25	.88
RCMAS-C	11.60	6.6	0-27	2.3
STAIC-T	36.13	6.7	22-60	.31
IPPA Trust	42.79	7.7	15-50	-1.3
IPPA Communication	19.61	4.5	7-25	-.61
IPPA Alienation	11.45	3.7	5-21	.40
IPPA Attachment	51.00	13.6	11-69	-.81
ECR Avoidant Attachment Beliefs	2.82	1.0	1-5.83	.65
ECR Anxious Attachment Beliefs	2.92	1.3	.94-6.5	.55
CRPBI Acceptance	25.56	3.9	13-30	-1.1
CRPBI Psychological Control	18.91	4.2	11-30	.33
CRPBI Firm Control	21.79	3.4	13-30	-.61
APQ- Parental Involvement	39.76	5.5	28-50	-.42
APQ- Positive Parenting	25.57	3.4	13-30	-1.03
APQ- Poor Monitoring	15.53	5.9	10-49	2.5
APQ- Inconsistent Discipline	14.45	4.2	6-28	.25
CBCL (aggression)	7.6	6.6	0-30	1.1
BDI- Parent	8.5	7.3	0-39	1.5

*Note:* STAI-T = State-Trait Anxiety Inventory-Trait Version, SCL 90 = Symptom Checklist-90-Revised, CBCL = Child Behavior Checklist, RCMAS = Revised Children's Manifest Anxiety Scale, IPPA = Inventory of Parent and Peer Attachment, CRPBI = Children's Report of Parenting Inventory, and APQ = Alabama Parenting Questionnaire

Table 2 presents the mean scores, standard deviations, ranges, and skew for all measures as well as the individual sub-scales used in this study. Examination of the scores on all measures indicated acceptable ranges for the planned analyses. As can be seen in Table 2, some of the questionnaires were skewed (either positively or negatively). The positive skewness as seen in the anxiety questionnaires is expected given that the sample is a community sample as opposed

to a clinical sample, and therefore should report lower levels of anxiety overall. The negative skewness as evidenced in two of the three components of child attachment beliefs (i.e., IPPA Trust and Communication), as well as, the overall attachment belief score, is also expected given that levels of trust, communication, and overall attachment security are expected to be higher in a normative sample. This is also the case with two of the parenting behaviors (i.e., CRPBI Acceptance and APQ Positive Parenting)<sup>1</sup>.

### *Maternal and Child Anxiety Correlations*

To test the first hypothesis, that a small to modest correlation would exist between maternal and child anxiety, correlations between maternal and child anxiety measures were run for the total sample, and then by age and gender. Results are presented in Table 3. For the total sample, significant correlations between maternal anxiety (SCL-90) and child self-reported anxiety (RCMAS-C) were found as hypothesized ( $r = .24, p < .001$ ). For both age groups ( $\leq 11$  and  $>11$ ), the associations between maternal and child anxiety were quite similar to the associations seen in the total sample. Correlations between maternal anxiety (SCL-90) and child self-reported anxiety (RCMAS-C) were statistically significant for children older than 11 years ( $r = .36, p < .05$ ). Although this association was not significant for children 11 years old and younger, the effect size of the association is fairly similar to the effect size of the association in the total sample (.17 for children 11 years old and younger vs. .24 total sample). For gender, the associations between maternal and child anxiety for both females and males were quite similar to the associations seen in the total sample. Correlations between maternal anxiety (SCL-90) and child self-reported anxiety (RCMAS-C) were statistically significant for males ( $r = .34, p < .05$ ). Although this association was not significant for females, the effect size of the association is fairly similar to the effect size of the association in the total sample (.17 for females vs. .24 total

sample). It is important to note that females and males reported experiencing quite similar levels of anxiety symptoms on the RCMAS-C (mean scores Females: 12.10 and Males: 11.00), which means that in this sample, females are not experiencing a greater level of anxiety as opposed to males.

Even though the associations were non-significant for younger children and females, both groups were used in subsequent analyses for several reasons: (1) a small sample size, (2) it was not hypothesized in this study that age or gender differences would occur, and (3) both age and gender were controlled for in regression analyses.

**Table 3.** Correlations between Maternal and Child Anxiety

	SCL-90 (anxiety)	RCMAS-P
<b>Total Sample (N =89)</b>		
RCMAS-P	.31**	
RCMAS-C	.24**	.24*
<b>Age &lt;=11 (N =54)</b>		
RCMAS-P	.42**	
RCMAS-C	.17	.25 <sup>†</sup>
<b>Age &gt; 11 (N =35)</b>		
RCMAS-P	.23	
RCMAS-C	.36*	.25
<b>Female (N =50)</b>		
RCMAS-P	.40**	
RCMAS-C	.17	.28*
<b>Male (N =39)</b>		
RCMAS-P	.26	
RCMAS-C	.34*	.22

\*  $p < .05$ , \*\*  $p < .001$ , <sup>†</sup>  $p < .08$

#### *Associations between Attachment Beliefs, Parenting Behaviors, and Maternal and Child Anxiety*

The following sections will address the hypothesis that attachment beliefs and parenting behaviors are associated with maternal and child anxiety. This will be done by testing the six

predictions as listed in the hypotheses. First, the prediction will be re-stated and then the results will be presented first for mothers and then for children.

*Associations between Maternal and Child Attachment Beliefs and Maternal and Child Anxiety*

Table 4 presents the correlations between maternal and child attachment beliefs and maternal and child anxiety for the total sample and by age and gender in order to test prediction one and two regarding attachment beliefs: (Prediction 1) Are maternal avoidant and anxious attachment beliefs related to maternal anxiety and do maternal *anxious* attachment beliefs demonstrate a stronger association with maternal anxiety as opposed to maternal *avoidant* attachment beliefs? (Prediction 2) Are child attachment beliefs negatively related to child anxiety, in that the less secure a child rates his/her attachment beliefs to his/her mother, the more anxiety a child will report experiencing?

**Table 4.** Correlations between Maternal and Child Anxiety and Attachment Measures

	ECR Maternal Anxious Attachment Beliefs	IPPA Child Attachment Beliefs
<b>Total Sample (N =89)</b>		
SCL-90 (anxiety)	.60**	.02
RCMAS-P	.36**	-.21
RCMAS-C	.26*	-.32**
<b>Age &lt;=11 (N =54)</b>		
SCL-90 (anxiety)	.52**	.11
RCMAS-P	.54**	-.02
RCMAS-C	.22	-.30*
<b>Age &gt; 11 (N =35)</b>		
SCL-90 (anxiety)	.72**	-.08
RCMAS-P	.25	-.35*
RCMAS-C	.32	-.36*
<b>Female (N =50)</b>		
SCL-90 (anxiety)	.52**	.02
RCMAS-P	.42**	-.24
RCMAS-C	.24	-.39**
<b>Male (N =39)</b>		
SCL-90 (anxiety)	.74**	.06
RCMAS-P	.33*	-.22
RCMAS-C	.30	-.18

\* p < .05, \*\* p < .001

### *Maternal Attachment Beliefs*

Maternal anxious attachment beliefs were significantly correlated with maternal anxiety (SCL-90) for the total sample ( $r = .60, p < .001$ ), for children 11 years old and younger ( $r = .52, p < .001$ ), for children older than 11 years ( $r = .72, p < .001$ ), for females ( $r = .52, p < .001$ ), and for males ( $r = .74, p < .001$ ). Maternal avoidant attachment beliefs were not significantly associated with maternal anxiety for the total sample or by age and gender and therefore will not be used in subsequent analyses. Given the non-significant associations between maternal avoidant attachment beliefs and maternal anxiety, the associations between maternal anxious attachment beliefs and maternal anxiety were obviously larger in effect size, as hypothesized. Additionally, maternal anxious attachment beliefs were also significantly correlated with child self-reported anxiety (RCMAS-C) for the total sample ( $r = .26, p < .05$ ) and with maternal report of child's anxiety (RCMAS-P) for all groups.

### *Child Attachment Beliefs*

As hypothesized, negative associations were found between the child attachment beliefs and child self-reported anxiety, indicating that children who report lower levels of secure attachment beliefs with their mother also report higher levels of anxiety. For the total sample, child attachment beliefs were significantly negatively correlated with child self-reported anxiety on the RCMAS-C ( $r = -.32, p < .001$ ). For the children 11 years old and younger, children older than 11 years, and females, child attachment beliefs were also significantly negatively correlated with child self-reported anxiety on the RCMAS-C ( $r = -.30, r = -.36, p < .05, \& r = -.39, p < .001$ ), whereas for males, child attachment beliefs were not significantly related with their anxiety. No significant correlations were found between child attachment beliefs and maternal anxiety.

*Associations between Maternal and Child Report of Parenting Behaviors and Maternal and Child Anxiety*

In Table 5, correlations between maternal and child report of parenting behaviors and maternal and child anxiety are presented for the total sample and by age and gender in order to test prediction three and four regarding parenting behaviors: (Prediction 3) Are maternal ratings of parental involvement and inconsistent discipline positively associated with maternal and child anxiety and positive parenting and poor monitoring, negatively associated with maternal and child anxiety? (Prediction 4) Are child ratings of acceptance negatively associated with maternal and child anxiety and psychological and firm control positively associated with maternal and child anxiety?

*Maternal Report of Parenting Behaviors*

APQ Parental Involvement was significantly negatively correlated with maternal anxiety (SCL-90,  $r = -.22$ ,  $p < .05$ ) and child self-reported anxiety on the RCMAS-C ( $r = -.26$ ,  $p < .05$ ) for the total sample, which is in the opposite direction as hypothesized. APQ Inconsistent Discipline was significantly positively correlated with maternal anxiety on the SCL-90 ( $r = .38$ ,  $p < .001$ ) as hypothesized and with maternal report of child's anxiety on the RCMAS-P ( $r = .27$ ,  $p < .05$ ). No significant correlations were found between APQ Inconsistent Discipline and child self-reported anxiety. APQ Positive Parenting and Poor Monitoring were not significantly associated to maternal and child anxiety for the total sample and by age and gender and therefore will not be used in subsequent analyses.

*Child Report of Parenting Behaviors*

Significant positive correlations were found between CRPBI Psychological Control and child self-reported anxiety on RCMAS-C ( $r = .25$ ,  $p < .05$ ) for the total sample as hypothesized

and for females ( $r = .43, p < .05$ ). No significant correlations were found between CRPBI Psychological Control and maternal anxiety. CRPBI Acceptance and Firm Control were not significantly associated to maternal and child anxiety for the total sample and by age and gender and therefore will not be used in subsequent analyses.

**Table 5.** Correlations between Maternal and Child Anxiety and Parenting Behaviors

	APQ Parental Involvement	APQ Inconsistent Discipline	CRPBI Psychological Control
<b>Total Sample (N =89)</b>			
SCL-90 (anxiety)	-.22*	.38**	-.06
RCMAS-P	-.20	.27*	.13
RCMAS-C	-.26*	.01	.25*
<b>Age &lt;=11 (N =54)</b>			
SCL-90 (anxiety)	-.36*	.44**	-.18
RCMAS-P	-.20	.31*	-.18
RCMAS-C	-.28*	.05	.19
<b>Age &gt; 11 (N =35)</b>			
SCL-90 (anxiety)	.02	.27	.17
RCMAS-P	-.22	.26	.40*
RCMAS-C	-.27	-.02	.29
<b>Female (N =50)</b>			
SCL-90 (anxiety)	-.09	.32*	.06
RCMAS-P	-.38**	.34*	.30*
RCMAS-C	-.26	-.02	.43**
<b>Male (N =39)</b>			
SCL-90 (anxiety)	-.44**	.47**	-.25
RCMAS-P	-.05	.23	-.03
RCMAS-C	-.27	.05	.05

\*  $p < .05$ , \*\*  $p < .001$

#### *Multiple Linear Regression Analyses Predicting Child Anxiety*

Given the large number of potential predictor variables, each predictor variable needed to demonstrate the hypothesized associations as listed in the first four predictions in order to be considered in the mediational analyses. Since, ECR Maternal Avoidant Attachment beliefs, CRPBI Acceptance, CRPBI Firm Control, APQ Positive Parenting, and APQ Poor Monitoring did not demonstrate the predicted associations, they were not used in the further analyses. For all

other variables, standard multiple linear regression analyses were run to determine which specific attachment beliefs and parenting behavior variables were the strongest predictors of child anxiety while controlling for child's age and gender, and subsequently should be used in the mediation regression analyses. Two multiple linear regression analyses were run, one predicting maternal report of child anxiety (RCMAS-P) and one predicting child self-reported anxiety (RCMAS-C), and are presented in Table 6.

**Table 6.** Multiple Linear Regression Analyses Predicting Child Anxiety

<i>Maternal Report of Child Anxiety</i>				
Predictor	<i>t</i>	<i>p</i>	Beta	
Child Age	.05	.95	.00	
Child Gender	-.66	.51	-.07	
CRPBI Child Psychological Control	1.41	.16	.16	
IPPA Child Attachment Beliefs	-.24	.81	-.03	
ECR Maternal Anxious Attachment Beliefs	3.88	.00	.45	
APQ Parental Involvement	-.98	.33	-.11	
APQ Parental Inconsistent Discipline	1.14	.26	.12	
$R^2 = .30, p < .001$				
<i>Child Report of Anxiety</i>				
Predictor	<i>t</i>	<i>p</i>	Beta	
Child Age	.22	.82	.02	
Child Gender	-1.50	.14	-.15	
CRPBI Child Psychological Control	2.45	.02	.28	
IPPA Child Attachment Beliefs	-1.55	.13	-.17	
ECR Maternal Anxious Attachment Beliefs	2.60	.01	.30	
APQ Parental Involvement	-2.20	.03	-.24	
APQ Parental Inconsistent Discipline	-2.12	.04	-.22	
$R^2 = .30, p < .001$				

The first regression, predicting maternal report of child anxiety, was significant overall ( $R^2$  change = .30,  $p < .001$ ). The only predictor variable that was significant was ECR Maternal Anxious Attachment beliefs ( $\beta = .45, p < .001$ ). The second regression, predicting child self-reported anxiety, was significant overall ( $R^2$  change = .30,  $p < .001$ ). Four of the five predictor

variables were significant: CRPBI Psychological Control ( $\beta = .28, p < .05$ ), ECR Maternal Anxious Attachment beliefs ( $\beta = .30, p < .01$ ), APQ Parental Involvement ( $\beta = -.24, p < .05$ ), and APQ Inconsistent Discipline ( $\beta = -.22, p < .05$ ). Thus, in terms of attachment variables, only maternal attachment beliefs (i.e., ECR Maternal Anxious Attachment beliefs) will be used in the mediational models and in terms of parenting behavior variables, CRPBI Psychological Control, APQ Parental Involvement, and APQ Inconsistent Discipline will be used in the mediational models.

#### *Hierarchical Regression Tests for Mediational Effects*

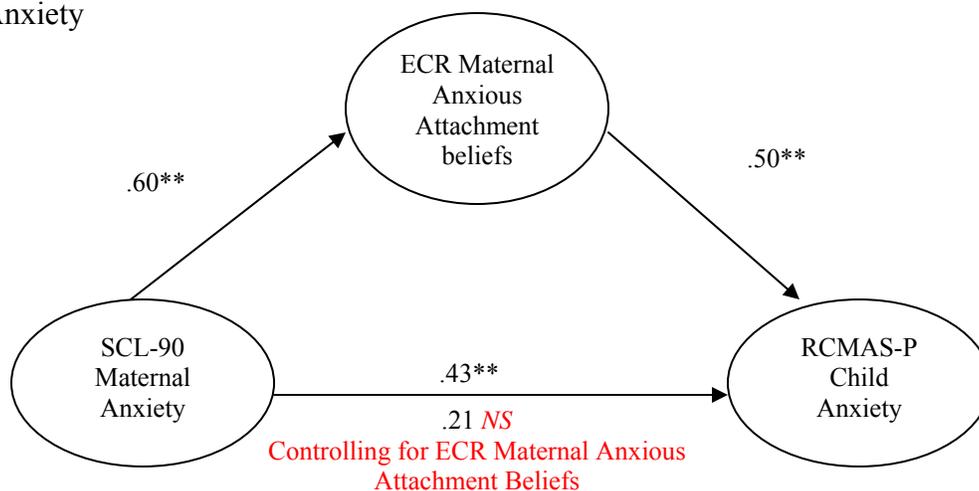
On the basis of the regression selection procedure (i.e., Table 6), ECR Maternal Anxious Attachment beliefs, CRPBI Psychological Control, APQ Parental Involvement, and APQ Inconsistent Discipline were used in the mediational models in order to test part of prediction five and prediction six: (Prediction 5) Will higher maternal anxious attachments beliefs mediate the association between maternal and child anxiety? (Prediction 6) Will CRPBI Psychological Control, APQ Parental Involvement, and APQ Inconsistent Discipline mediate the association between maternal and child anxiety? To test the mediating role of these four variables on the association between maternal and child anxiety, a multiple regression approach was used as suggested by Baron and Kenny (1986), in which child's age and gender was controlled for. In this approach, four conditions must be met for any variable to be considered a mediator. Since there are four possible mediator variables being tested, the explanation of these four conditions will be demonstrated by using ECR Maternal Anxious Attachment beliefs as the mediator. The first condition is that maternal anxiety predicts ECR Maternal Anxious Attachment beliefs. The second condition is that maternal anxiety predicts child anxiety. The third condition is that ECR Maternal Anxious Attachment beliefs predicts child anxiety. Condition four is tested by determining if maternal anxiety is no longer predictive of child anxiety when controlling for ECR Maternal Anxious Attachment beliefs using hierarchical regression. Identical regression

analyses were done using CRPBI Psychological Control, APQ Parental Involvement, and APQ Inconsistent Discipline as the mediator variable.

Two of the possible mediator variables did not meet certain conditions of mediation. Specifically, CRPBI Psychological Control did not meet condition one: SCL-90 maternal anxiety did not predict CRPBI Psychological Control ( $\beta = -.06, p = .58$ ). APQ Inconsistent Discipline did not meet condition three: APQ Inconsistent Discipline did not predict child self-reported anxiety (RCMAS-C) ( $\beta = .01, p = .89$ ). Therefore, CRPBI Psychological Control and APQ Inconsistent Discipline were not considered to be mediating the association between maternal and child anxiety. ECR Maternal Anxious Attachment beliefs and APQ Parental Involvement, however, did meet all four conditions of mediation, and are presented below.

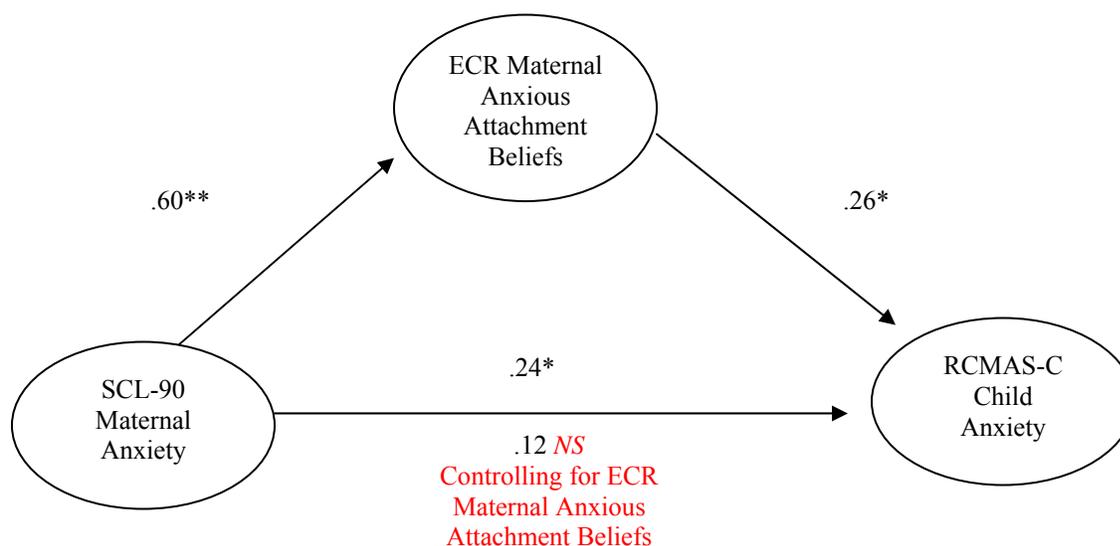
Three significant mediation models were demonstrated and are presented in Figures 1-3. Figure 1 demonstrates that the first three conditions were met by the significant beta weights and that the fourth condition was met, in that, maternal anxiety was no longer a significant predictor of *maternal report of child anxiety* after controlling for ECR Maternal Anxious Attachment beliefs (Figure 1:  $\beta = .21, p = .10$ )<sup>2</sup>. Therefore, ECR Maternal Anxious Attachment beliefs appeared to mediate the association between maternal anxiety (SCL-90) and maternal report of child anxiety (RCMAS-P).

**Figure 1.** Mediation Model on the Association between Maternal Anxiety and Maternal Report of Child Anxiety

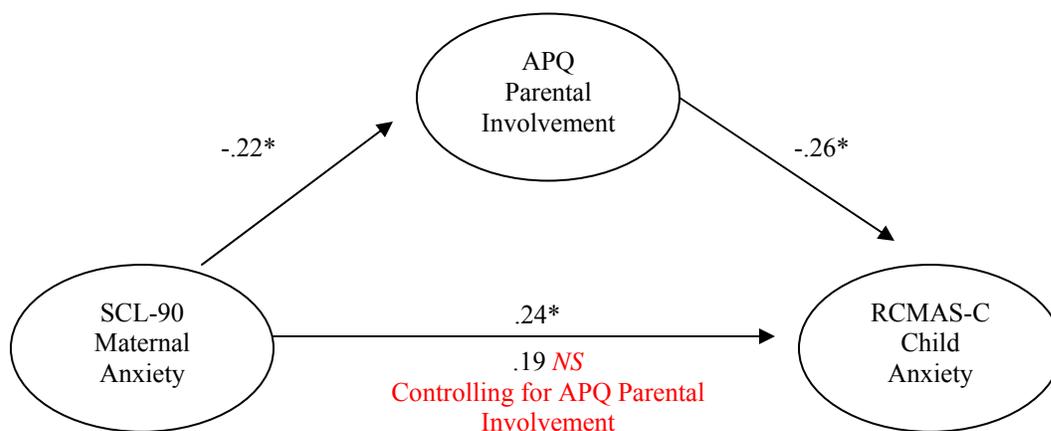


Figures 2 and 3 demonstrate that the first three conditions were met by the significant beta weights and that the fourth condition was met, in that, maternal anxiety was no longer a significant predictor of *child self-reported anxiety* after controlling for ECR Maternal Anxious Attachment beliefs (Figure 3:  $\beta = .12, p = .35$ )<sup>3</sup> and APQ Parental Involvement (Figure 4:  $\beta = .19, p = .10$ ). Therefore, ECR Maternal Anxious Attachment beliefs and APQ Parental Involvement appeared to mediate the association between maternal anxiety (SCL-90) and child self-reported anxiety (RCMAS-C). Upon inspection of the beta weights, an unexpected finding emerged for Figure 3. The associations between SCL-90 maternal anxiety to APQ Parental Involvement ( $\beta = -.22, p < .05$ ) and APQ Parental Involvement to RCMAS child anxiety ( $\beta = -.26, p < .05$ ) were in the opposite direction (i.e., negative) as hypothesized. Higher levels of maternal anxiety were predicting *lower* levels of parental involvement and lower levels of parental involvement were predicting *higher* levels of child anxiety.

**Figure 2.** Mediation Model on the Association between Maternal Anxiety and Child Self-reported Anxiety



**Figure 3.** Mediation Model on the Association between Maternal Anxiety and Child Self-reported Anxiety



Given the direction of the beta weights, further steps were taken to better understand these associations in terms of clarifying the specificity of the mediational process (i.e., is it the unique contribution of maternal anxiety that is predicting parental involvement or is it influenced by co-morbid symptoms in the mother?) Because research has indicated that depression has high rates of comorbidity with anxiety and that depression is associated with low rates of parental involvement, the influence of depression on the association between maternal anxiety and parental involvement was examined (Downey & Coyne, 1990). An independent measure of maternal depression, the BDI was used, as opposed to the SCL-90 depression subscale, given that the SCL-90 anxiety and depression subscale are derived from the same measure and have high inter-correlations ( $r = .90$ ; Derogatis, 1983) between them. Results indicated maternal depression was not significantly associated with APQ Parental Involvement ( $r = -.12$ ,  $p = .28$ ). In addition, two hierarchical regressions were run to determine which variable, maternal anxiety or depression had higher incremental prediction. In the first regression, APQ Parental Involvement was entered as the dependent variable, SCL-90 maternal anxiety was entered in Step 1, and BDI maternal depression was entered in Step 2 and in the second regression, BDI maternal depression was entered in Step 1, and SCL-90 maternal anxiety was entered in Step 2. The only significant

model was step one in the first regression where SCL-90 maternal anxiety was entered first [ $F = 4.04, p < .05; R^2 = .05$ ]. Results indicated that BDI maternal depression did not significantly predict APQ Parental Involvement over SCL-90 maternal anxiety (change in  $R^2 = .00, p = .70$ ) and the SCL-90 maternal anxiety approached significance in predicting APQ Parental Involvement over BDI maternal depression (change in  $R^2 = .04, p = .07$ ) and produced a larger change in  $R^2$ . Taken together, these results indicate that neither maternal anxiety nor maternal depression have statistically significant incremental prediction over the other one in predicting parental involvement, however anxiety appears to be a somewhat stronger predictor. However, it appears that the association between maternal anxiety and parental involvement is not being accounted for by maternal depression.

For the negative association between APQ Parental Involvement and RCMAS-C child anxiety, research has shown that child aggression is negatively associated with parental involvement (Campbell, Shaw, & Gilliom, 2000). Therefore, the influence of child aggression, as measured by the CBCL aggression subscale, was examined. CBCL aggression was significantly associated with APQ Parental Involvement ( $r = .21, p < .05$ ), but partial correlations run between parental involvement and child anxiety, while controlling for aggression, indicated that the association was still significant and negative ( $r = -.24, p < .05$ ). Therefore, the association between APQ Parental Involvement and RCMAS child anxiety is not being accounted for by child aggression.

## Discussion

This study adds to the literature by helping to elucidate the association between maternal and child anxiety. Specifically, this investigation sought to explore the associations among maternal and child anxiety, attachment beliefs, and parenting behaviors. Results were consistent with the hypothesis that an association between maternal and child anxiety would exist. The effect sizes are slightly larger than those demonstrated in other community samples ( $r = .18$ , see Connell & Goodman, 2002), and are somewhat similar to the effects sizes demonstrated in clinical samples (e.g.,  $r = .28$ , see Krain & Kendall). This demonstrates that associations between maternal and child anxiety that exist in clinical samples also exist in community samples.

Maternal Anxious Attachment beliefs were significantly related to maternal and child anxiety. Theoretically, this means that mothers who have attachment beliefs characterized by anxiety about rejection also experience higher levels of anxiety within themselves and have children who experience higher levels of anxiety. The results support the idea that Maternal Anxious Attachment beliefs have a more detrimental effect on their own and their children's anxiety than Maternal Avoidant Attachment beliefs given the non-significant associations with maternal anxiety. One possible reason that Maternal Avoidant Attachment beliefs were not significantly associated with maternal anxiety is that these beliefs are characterized by distrust, avoidance, denial of attachment, and dismissing attitudes. Anxiety or fear is not characteristic of these beliefs; however, avoidant attachment beliefs often result in a lack of attachments or relationships to other people, leaving one possibly feeling alone. Research has shown that feelings of loneliness tend to be associated with depressive symptoms; therefore it may be plausible that these attachment beliefs are associated with depression as opposed to anxiety<sup>4</sup>.

Child Attachment beliefs were found to be negatively associated with their anxiety, meaning that the less secure a child reports his/her attachment beliefs to be, the more anxiety a child will also report. This is consistent with past literature on insecure attachment, in that children with insecure attachments tend to display more anxious behaviors and are at a

heightened risk for developing an anxiety disorder later (Manassis, Bradley, Goldberg, Hood, & Swinson, 1994; Manassis et al., 1995).

In terms of maternal report of parenting behaviors, several unexpected findings were demonstrated. First, positive parenting and poor monitoring were not associated with maternal or child anxiety; however, the directions of the effect sizes were in the hypothesized direction (i.e., negative). Upon inspecting the specific questions that tapped into each of these parenting behaviors, it appears that the types of questions may have contributed to the lack of significant associations. For example, positive parenting questions ask parents if they “praise their child if he/she behaves well” or “compliment their child when he/she does something well.” A negative direction is expected given that research has shown that mothers with higher levels of anxiety tend to be less positive with their children (Whaley et al., 1999). However, these mothers also tend to be more critical and negative, which is not specifically tapped into by these questions given that a lack of positive parenting does not necessarily equal more negative or critical parenting.

For poor monitoring, it was expected that a negative association would be demonstrated given that research has shown that mothers with higher levels of anxiety tend to be overly-involved with their child and monitor their child’s activities excessively (Dadds & Barrett, 1996; Hudson & Rapee, 2002). Questions tapping into this parenting behavior ask parents if “your child is out in the evening past the time he/she is supposed to be home” or “your child is out with friends you don’t know.” As will be explained in more detail later, a lack of poor monitoring, as tapped by these questions, simply means that a mother watches and is aware of his/her child’s activities. This does not mean a mother is excessively over-controlling of a child’s activities, which may account for the lack of significance with maternal and child anxiety.

In terms of child report of parenting behaviors, acceptance and firm control were not associated with child self-reported anxiety, even though there is an abundance of literature supporting their association (Silverman & Ginsburg, 1998; Siqueland, Kendall, & Steinberg,

1996). One possible reason for this is because the majority of studies that have shown these associations have been conducted using a clinical sample of mothers or children with anxiety disorders. Having an anxiety disorder has been shown to evoke the extremes of these parenting behaviors (i.e., acceptance: highly critical and firm control: highly controlling and intrusive). In the current community sample of mothers and children with overall lower levels of anxiety, these types of parenting behaviors were more average, which may account for the lack of significance with child anxiety. In contrast, psychological control was associated with child self-report anxiety, which was hypothesized and consistent with past literature (Siqueland, Kendall, & Steinberg, 1996). This finding adds to the literature in that research has questioned the reliability of younger children to report on constructs such as psychological control (Boyce, Frank, Jensen, Kessler, Nelson, & Steinberg, 1998). However, more recent research has begun to demonstrate that children as young as 6 years old can reliably report on psychological control (Morris, Steinberg, Sessa, Avenevoli, Silk, and Essex, 2001).

Unexpectedly, psychological control was not associated with maternal anxiety. Even though psychological control was associated with child self-reported anxiety, which is why it met criteria to be used in the regression selection procedure, it did not meet condition one of mediation (maternal anxiety did not significantly predict psychological control). This finding is consistent with past research conducted on child report of parenting behaviors using clinical samples of mothers and children with anxiety disorders (McClure et al., 2001). This calls into question the associations between child report of parenting behaviors and child anxiety. A possible reason given for this association in clinical samples is that children's perceptions of their mother's parenting behaviors may have little basis in their actual parenting behaviors. Instead, children's perceptions may reflect patterns of cognition associated with anxiety (e.g., attention to negative or threatening cues, McClure et al., 2001; Vasey, Daleiden, Williams, & Brown, 1995; Watson & Clark, 1984) or the tendency to negatively interpret or recall information (Amin, Foa, & Coles, 1998). A result of this may lead to a misinterpretation of

normal parenting behavior as more negative or controlling (McClure et al., 2001). Since this conclusion has been made in clinical samples, it may be a possible reason for the lack of findings among children's ratings of parenting behaviors and maternal anxiety in this study.

The mediating roles of Maternal Anxious Attachment beliefs and Parental Involvement on the association between maternal and child anxiety was supported. Several possibilities exist that may explain the role of maternal anxious attachment beliefs on maternal and child anxiety. Mothers with higher levels of these types of beliefs also tend to experience higher levels of anxiety about rejection, feelings of personal unworthiness, and the need for extreme closeness in romantic relationships. Their relationship quality and interactions with romantic partners are typically characterized as distrustful, jealous, clingy, dissatisfying, conflictual, coercive, dominating, and uncompromising due to their anxious attachment beliefs (Feeney, 1999). Past research has shown that parents with relationships characterized by these anxious attachment beliefs tend to be overly concerned about all aspects of parenting and may subsequently engage in interactions with their child based on these beliefs (Vasquez, Durik, and Hyde, 2002). For example, because these mothers are jealous, clingy, and dominating with their romantic partner, along with being dissatisfied in general in their relationship, a mother may become overly involved and dependent on her child to either take the place of her relationship with her romantic partner or may engage in these types of behaviors simply because that is how the mother typically interacts with others. Just as demonstrated in the research on mother-child interactions, this over-involved, dependent, or intrusive behavior may: (1) prevent children from facing a fear-provoking event, a seemingly positive consequence that allows children to develop solutions to face fear or (2) send the message that particular stimuli are threatening or dangerous, which reinforces a child's anxiety (Gerlsma, Emmelkamp, & Arrindell, 1990; Menzies & Clarke, 1994; Rapee, 1997; Vasey & Dadds, 2001; Vasey & Ollendick, 2000). Both of these consequences of maternal anxious attachment beliefs may establish an anxious mother-child relationship, in which the child's sole source of anxiety and his/her inability to effectively cope with it, are based

on their mothers anxious attachment beliefs, therefore explaining the association between maternal and child anxiety.

In terms of parental involvement's mediating role, a negative association was found between parental involvement and maternal and child anxiety, contrary to what was proposed. This is unexpected in that high levels of anxiety tend to be associated with higher levels of involvement, specifically, over-involvement and intrusiveness (Dadds & Barrett, 1996; Hudson & Rapee, 2002). The supplemental analyses showed that it was not the influence of co-morbid symptomatology in the mother or the child (i.e., depression or aggression) that was accounting for this negative relationship. Therefore, the questions tapping into this construct were examined. Questions tapping into this parenting behavior ask parents if "you play a game or do other fun things with your child" and "you help your child with his/her homework." These types of questions do not necessarily tap into the type of involvement that is expected to be associated with anxiety: intrusiveness or over-involvement. This construct of parental involvement delineates a type of involvement that is normal, healthy, and positive, meaning that higher scores on parental involvement do not necessarily mean over-involvement. Therefore, lower scores on parental involvement may mean lower levels of *positive* involvement, which may be associated with anxiety. This is a possible reason why the relationship between parental involvement and maternal and child anxiety is negative.

Another possible reason for the negative relationship is that research showing anxiety to be associated with intrusiveness and over-control are referring to these types of parenting behaviors within parent-child interactions, whereas parental involvement, in the current study, is referring more to interactions that a mother has outside the child. Stark, Humphrey, Crook, and Lewis (1990) found that children from families with pathology tend to have parents that are perceived as seemingly disengaged from outside pleasurable activities involving their child. This may be because mothers with higher levels of anxiety could possibly experience higher levels of

agoraphobic or avoidance symptoms, which is common to anxiety. Therefore, these mothers may be less involved in interactions that take place outside of the child. In other words, higher levels of anxiety in mothers may hinder their ability to be positively involved in their child's life, which may send the message to the child that there is something wrong with him/her, thereby creating anxiety in the child and explaining the association between maternal and child anxiety.

In general, the purpose of this study was to demonstrate the associations between maternal and child anxiety, attachment beliefs, and parenting behaviors in a sample of children and adolescents. However, due to developmental differences, the potential influence of age and gender was examined in exploratory analyses. The findings regarding age and gender on all of these associations can only be viewed tentatively due to small sample size and power in these sub-groups. For example, the sample sizes range from 35 to 54 in these four sub-groups, which only allows for power at the .25 to .50 levels given the population correlation coefficient squared (.05-.07) (Jaccard & Becker, 2002). Power at these levels will obviously produce little to no statistical significance. What is important to note is that in examining the effect sizes of these associations reported for both younger and older and female and male children as compared to the total sample, similar effect sizes were demonstrated. This may mean that the association between maternal and child anxiety and the influence of attachment beliefs and parenting behaviors may be similar in younger and older and female and male children; however this statement is made cautiously. Given this, larger sample sizes are needed in order to further examine these associations in younger and older and female and male children.

Despite the important contributions this study makes in exploring maternal and child anxiety and the role of attachment beliefs and parenting behaviors, the study is not without limitations. First, the current study is limited by the cross-sectional nature of the investigation and therefore can not make any assumptions about directionality or causality. Further

investigation would benefit from collecting data at multiple time points to untangle the temporal associations implicated by our findings. Second, the current study is limited in that it is based solely on self-report. Further investigation would benefit from including observational techniques to examine mother-child attachment and parenting behaviors more specifically (i.e., in terms of certain behaviors associated with attachment beliefs and specific parenting behaviors). Finally, our findings can be generalized only to community samples.

#### End Notes

<sup>1</sup> To ensure that the skew did not affect the reported results, numerous steps were taken. First, as recommended by Tabachnick & Fidell (2001), the skew was divided by the standard error to get a z-score. Z scores that are substantially higher than 3 may be problematic (Tabachnick & Fidell, 2001); therefore variables that yielded scores higher than 3 were log transformed to reduce positive skewness and inverse transformed to reduce negative skewness. The analyses were re-run using the transformed scores to examine if there were different results and the results were virtually identical to those presented below (i.e., non-transformed). Because there were no substantial differences and because the non-transformed data represent the actual distribution, analyses on the original variables are presented.

<sup>2</sup> Since ECR Maternal Anxious Attachment beliefs focus on a mother's anxiety about rejection, hierarchical regression analyses were run to ensure that ECR Maternal Anxious Attachment beliefs added a unique prediction of child anxiety beyond maternal anxiety. Child anxiety (RCMAS-P) was entered as the dependent variable, SCL-90 was entered as Step 1, and ECR Maternal Anxious Attachment beliefs were entered as Step 2. Results indicated that ECR Maternal Anxious Attachment beliefs predicted RCMAS-P beyond SCL-90 ( $R^2$  change = .10,  $p = .002$ ).

<sup>3</sup> Since ECR Maternal Anxious Attachment beliefs focus on a mother's anxiety about rejection, hierarchical regression analyses were run to ensure that ECR Maternal Anxious Attachment beliefs added a unique prediction of child anxiety beyond maternal anxiety. Child anxiety (RCMAS-C) was entered as the dependent variable, SCL-90 was entered as Step 1, and ECR Maternal Anxious Attachment beliefs were entered as Step 2. Results indicated that ECR Maternal Anxious Attachment beliefs predicted RCMAS-C beyond SCL-90 ( $R^2$  change = .03,  $p = .14$ ).

<sup>4</sup>In the current study, ECR Maternal Avoidant Attachment beliefs were significantly associated with BDI Maternal depression ( $r = .45, p < .001$ ).

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### **Vita**

Natalie Costa was born in New Orleans, LA and received her B.A. in Sociology (minor in Psychology) from the University of New Orleans in December 2001. Upon graduating, she worked as a research assistant in Dr. Laura Scaramella's laboratory. She was awarded the S. Thomas Elder Most Promising Undergraduate researcher award in April 2002. In 2002, she began the Applied Developmental Psychology Doctoral Program at the University of New Orleans. Currently, she conducts research with Dr. Carl F. Weems and is the Project Manager of the Youth and Family Stress, Phobia, and Anxiety Laboratory. Her specific research interests involve investigating the role of parent-child interactions, parenting behaviors, and attachment on the association between parental and child anxiety. She plans to continue this line of research for her dissertation.