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The purpose of this study was to examine associations among maternal attributions for infant behavior, maternal attachment, and representations of the self as caregiver, as well as to examine the stability of maternal attributions from the prenatal to the postpartum period. Eighty-one primiparous mothers completed measures of attachment and attributions for imagined infant behavior in their third trimester of pregnancy and completed measures of attributions for actual infant behavior and caregiving representations at 6 months postpartum. Correlational analyses and multiple regressions were performed. Consistent with predictions, attributions were moderately stable from the prenatal to the postpartum period. Contrary to predictions, mothers with a dismissing attachment classification predominantly accounted for the change in maternal attributions over time. Also consistent with predictions, the attachment-based positive view of the self was associated with maternal investment in the parenting role. However, contrary to predictions, the attachment-based positive view of the self, rather than the positive view of the other, was also associated with prenatal maternal attributions. There were no associations with overall representations of the self as a caregiver or with postpartum maternal attributions. The current study highlights the relationship between attributions and attachment styles and demonstrates the need for further research in this area.

ATTRIBUTIONS: RELATIONS TO ATTACHMENT AND CAREGIVING  
REPRESENTATIONS

by

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## CHAPTER I

### INTRODUCTION

The challenges of parenting can be daunting, particularly for new mothers. It is believed that sensitive maternal behavior towards the infant is important in determining future outcomes for the child (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969). However, mothers are not always sensitive towards their children. In general, research has demonstrated that behavior is determined in part by thoughts and feelings, so that positive perceptions of the child may influence mothers to behave in sensitive ways. There is a wide body of research demonstrating that positive and negative attributions for oneself and for another person's actions influence one's behavior accordingly (Bradbury & Fincham, 1990; Bugental, 1987; Bugental & Shennum, 1984; Heider, 1958; Johnston & Freeman, 1997; Johnston & Ohan, 2005; Patterson, 1997). However, little is known about the processes that determine whether mothers interpret their infant's behavior in positive versus negative ways. In this study we test the hypotheses that the quality of maternal attachment-based views of the self and other influences maternal perceptions of themselves as caregivers and attributions for their infant's behavior.

#### *Attributions*

An area of social psychological research that has received much attention is the study of attributions. Attribution theory is concerned with how individuals interpret events and how this relates to their thinking and behavior. Heider (1958) was the first to

propose a psychological theory of attribution, but Weiner and colleagues (e.g., Jones et al., 1972; Weiner, 1974, 1985) developed a theoretical framework that has become a major research paradigm of social psychology. Attribution theory assumes that people try to determine why people do what they do. That is, they attribute causes to the behavior. A person seeking to understand why another person did something may attribute one or more causes to that behavior. A three-stage process underlies an attribution: (1) the person must perceive or observe the behavior; (2) the person must believe that the behavior was intentionally performed; and (3) the person must determine if they believe the other person was forced to perform the behavior (in which case the cause is attributed to the situation) or not (in which case the cause is attributed to the other person).

Weiner focused his attribution theory on achievement (Weiner, 1974). He identified ability, effort, task difficulty, and luck as the most important factors affecting attributions for achievement and classified attributions along three causal dimensions: locus of control, stability, and controllability. The locus of control dimension has two poles: internal versus external locus of control. The stability dimension captures whether causes change over time or not. For instance, ability can be classified as a stable, internal cause, and effort classified as unstable and internal. Controllability contrasts causes one can control, such as skill/efficacy, with causes one cannot control, such as aptitude, mood, others' actions, and luck. Weiner also postulated a strong relationship between self-concept and achievement. "Causal attributions determine affective responses to success and failure. For example, one is not likely to experience pride in success, or feelings of competence, when receiving an 'A' from a teacher who gives only that grade,



or when defeating a tennis player who always loses. On the other hand, an 'A' from a teacher who gives few high grades or a victory over a highly rated tennis player following a great deal of practice generates great positive affect" (Weiner, 1980, p. 362).

Attributions have been studied in a variety of contexts. For example, Heider (1958) argued that the attributions one makes about another person should be associated with whether one likes the other person. Thus, attributions can either maintain or change relationship quality in the view of the attributor. They also have been extensively studied within marital relationships. In this regard, Fincham and Bradbury (1990) delineated two main subtypes of attributions: causal attributions, which relate to explanations for who or what caused an event, and responsibility attributions, which relate to judging the accountability or liability of the "other" for an event. Both attributional dimensions comprise several subfactors: causal attributions include locating the cause of an event within or outside of another person (locus) and believing that the event or behavior does or does not occur across situations (globality) and is or is not likely to change (stability); responsibility attributions include believing that the other person is or is not worthy of blame for the event (blame), did or did not perform the behavior intentionally (intent), and did or did not act selfishly (selfish motivation) (Fincham, Beach, Arias, & Brody, 1998). Beliefs that the reason for someone's negative behavior is internally located, stable, global, and within the person's control are considered to be a negative attributional bias (Bugental, Blue, & Lewis, 1990; Dix, 1991). The alternate set of beliefs, that the reason for the person's negative behavior is externally located, not stable,

not global, and not within their control, is considered a more positive attributional bias (Dix, 1991; Gretarsson & Gelfand, 1988).

The application of attribution theory also has expanded to include peer relationships and parenting. With regard to parenting, Patterson (1997) suggested that parental cognitions influence children and the family through the influence of cognitions, and their associated emotions, on parenting behavior. How parents respond is determined by how they interpret behavior, especially negative behavior (McFall, 1982). Similarly, according to Bugental (1987), the same child behavior (i.e., unresponsiveness) is perceived differently by adults based on their attributional style, which in turn influences their affect and behavior. Stated another way, parental attributions act as mediators between child behavior and parental reactions (Johnston & Ohan, 2005).

Several studies have supported these conclusions. Larrance and Twentyman (1983) found that abusive neglectful mothers attributed negative child behaviors to more internal stable causes than controls did. Authoritarian parents tend to see children as responsible for their misbehavior (Dix, Ruble, & Zambarano, 1989). Bugental and Shennum (1984) found that mothers who perceived successful outcomes of interactions with children as caused by luck and not their own ability also viewed unresponsive children as more difficult and reacted in ways to encourage this unresponsiveness, whereas those who attributed the successful outcome to their own ability reacted in a way that elicited responsiveness from the unresponsive child. Mothers who attributed the cause of a negative outcome of an interaction with a child as the child's responsibility

and not their own had stronger negative affect in response to noncompliance from their own child (Katsurada & Sugawara, 2000).

Parenting attributions and reactions have frequently been examined in the context of behavioral disorders, as well. Johnston and Ohan (2005) argue that “parental attributions for child behavior have considerable potential to advance our understanding of the origins and trajectories of parent-child problems in families of children with AD/HD, ODD, and/or CD problems” (p. 167). For example, for children with AD/HD, parents perceive impulsive behaviors as controllable, intentionally performed, and worthy of blame. Because these behaviors, as well as oppositional behaviors, are seen as being under the child’s control, they are more likely to elicit more negative reactions compared to inattentive behaviors (Freeman, 2000). Parents of children with AD/HD also rated prosocial behaviors as being less internally caused and less stable than comparison groups did (Johnston & Freeman, 1997), and responded less positively to prosocial behaviors when inattentive-hyperactive or oppositional-defiant behaviors were also exhibited (Freeman, Johnston, & Barth, 1997).

A benefit of the aforementioned line of research is that attributions are helpful in explaining behavior. In examining this research, the outcomes of specific attributions seem fairly clear. Negative parental attributions lead to feelings of dissatisfaction and anger as well as negative behavioral reactions that may contribute to conflict in the parent-child relationship. This is demonstrated by the differences in attributions shown among people who use various parenting strategies, such as the abusive or authoritarian

parents mentioned previously. More positive attributions for child behavior do not lead to these outcomes, and instead lead to more cooperative, sensitive parenting responses.

However, there seems to be something largely missing in the attribution research literature. While the outcomes, in terms of emotions and behavior, of certain attributions have been well documented, it is less clear what leads parents to have certain attributions regarding their children (Daggett, O'Brien, Zanolli, & Peyton, 2000; Johnston & Ohan, 2005). Research has indicated that most parents have positive attributional biases with regard to their own children's behavior (Coplan, Hastings, Lagacé-Séguin, & Moulton, 2002). Parents in general tend to make more internal attributions for their child's positive behavior than their negative behavior, while the opposite pattern is seen for parents' external attributions (Dix, Ruble, Grusec, & Nixon, 1986; Gretarsson & Gelfand, 1988). Similarly, it has been shown that people typically make positive internal attributions for their own successes and see these as occurring because of enduring traits about themselves, whereas they see their failures as unrelated to pervasive personal traits (Mezulis, Abramson, & Hyde, 2004). Despite this, the literature shows that parents frequently do not make such favorable attributions for their child's behavior, or for themselves as parents. What can account for this?

The child's own behavior and personal characteristics seem to be important, as demonstrated by the research on attributions made by parents of children with AD/HD or other disruptive behavior disorders. However, the child's own characteristics do not account for all of the variation seen in parental attributions. Dix et al. (1986) found that negative affect among parents was related to their dispositional and intentional

attributions for children's negative behavior; so, perhaps the parents' own feelings were influencing their attributions about their children's behavior. Bugental, Blue, and Cruzcosa (1989) found that mothers with low perceived control by self and high perceived control by the child over caregiver failure were more likely to be abusive and display a high degree of coercive behavior compared to mothers without that attributional style; this demonstrates that differences in the mothers' own perceptions of themselves affects how they perceive the behavior of their child. This is true even without a "real" child in the interaction; Bugental, Blue, and Cortez (1993) found that women with low perceived control over failure (PCF) scores reported greater negative affect in response to a computer-simulated unresponsive child than did women with high PCF. By Bugental's model, the same behavior (i.e., unresponsiveness) is perceived differently by adults based on their attributions regarding themselves.

Therefore, it seems that the child's characteristics alone do not fully account for the variation seen in parenting attributions. The parent brings personal factors to the relationship, as well. The parent's own contribution to their attributions, the parent factors that seem to predispose someone to making certain attributions rather than others, are not as well studied (Johnston & Ohan, 2005). What about parents themselves leads parents to make negative attributions about their child? Perhaps turning to other literatures that have examined perceptions of the self and "other" can provide answers to this question.

### *Attachment*

The attachment literature has extensively examined people's perceptions of themselves and others in relationships. The notion of attachment was formulated initially by Bowlby to suggest an essential component of natural human functioning that evolved primarily to promote protection and safety, particularly in childhood but also continuing throughout the lifespan (Ainsworth & Bowlby, 1991). While attachment is often discussed in terms of emotions, cognitive factors are extremely important in relation to attachment styles. Bowlby's initial notion of working models implies cognitive factors in attachment. These working models were defined as "dynamic mental processes that influence an individual's affect, behavior, and perceptions of the self, others, (and) relationships" with a "propensity for stability within individuals and across generations" (Benoit & Parker, 1994, p. 1444; Bowlby, 1969). Bowlby (1969) proposed that these working models are transmitted from one generation to the next through parent behavior that reflects the parent's own state of mind regarding attachment. The parent's behavior towards the child then helps to determine the child's own working models regarding attachment, perhaps perpetuating similar styles across generations.

### *Attachment as Views of the Self and Other*

Many of the cognitive factors regarding attachment revolve around views of the self and "other." Bowlby emphasized the formation of working models of both the self and the attachment figures, thought to guide interactions between mother and child, and that there could be more than one internal working model of each attachment figure and of the self, which could be in direct contrast with one another (Ainsworth & Bowlby,

1991). He argued that these early relationship patterns were the basis of the expectations that adults have about their current meaningful relationships and that while these models may have been at one time adaptive or appropriate they could equally become the cause of inappropriate problematic behaviors in the adult's current relationships (Ainsworth & Bowlby, 1991). These expectations function as filters of perception to interpret new information (Bugental, 1992). Thus, when adults differ in their internal models, they also differ in general retrospective interpretations of interactions with others, perceptions of self and others, and emotional experiences; these models are hypothesized to be based on early experiences in childhood but to include experiences from later significant relationships as well (Pietromonaco & Barrett, 1997).

Other attachment theorists have also proposed that cognitive representations, or working models, comprise goals, beliefs, and expectations about the self and others to guide perceptions, interpretations, and responses in interpersonal relations (Hazan & Shaver, 1987; Pietromonaco & Barrett, 1997). The internal working models that underlie attachment have been described as falling along two dimensions: anxiety, which relates to the view of the self, and avoidance, which relates to the view of others (McGowan, 2002).

### *Attachment in Adulthood*

Accordingly, although originally studied in children, attachment in adulthood has been widely investigated. Self-report measures are widely used to assess adults' attachment style. These measures can be either categorical, classifying respondents into one attachment style category, or continuous, providing degrees of how much a

respondent is like each of the attachment types. Research has supported that both types of measures assess similar constructs and have similar outcomes, with relatively high correlations between the scales (Backstrom & Holmes, 2001; Griffin & Bartholomew, 1994).

Adults are generally classified in three main ways: autonomous (secure), dismissing (avoidant), and preoccupied (resistant/anxious-ambivalent). Hazan and Shaver (1987) found that these three styles occur in adults with 50% to 56% secure, 23% to 28% dismissing, and 19% to 21% preoccupied. People with these styles differ in terms of their views of their own attachment history, experiences in romantic relationships, work and “exploratory” activities, and mental models with which they identify.

Secure adults have been found to recount positive early attachment experiences, be happy, trusting, and friendly with others, accept and support their partners, have better communication, self-disclose more, have less conflict, have the most long-lasting love relationships that are less likely to end in divorce, have high self-esteem, and be predominantly positive and confident in relationships (Feeney & Noller, 1990; Stackert & Bursik, 2003). Alternately, those who are dismissing tend to be mistrustful and distanced from others, to fear intimacy, to report never having been in love and having low intensity of romantic experiences, to lack confidence, and to have low idealization of love and partners (Feeney & Noller, 1990; Stackert & Bursik, 2003). Lastly, those who are preoccupied tend to recount a lack of parental support, be dependent and need commitment in relationships, have the least long-lasting romantic relationships, be jealous, have emotional highs and lows, have extreme sexual attraction, lack confidence,



and endorse extreme approaches to romantic relationships including obsessions, passion, and “love addiction.” Adults can also be unresolved (disorganized), particularly in the case of mourning a deceased parent or as the result of extreme childhood trauma related to the parent-child relationship; when discussing their own attachment experiences as children, these adults make statements that are confused, incorrect, and odd (Feeney & Noller, 1990).

Bartholomew (1990) and Bartholomew and Horowitz (1991) demonstrated that four attachment styles could be ascertained through interactions between two scales underlying internal working models: view of self as “worthy” of love and view of others as available and responsive. In this way, people with secure attachment have a positive self/positive other style and those with a preoccupied attachment style have a negative self/positive other style. By this categorization, there were two types of avoidant classifications: dismissing and fearful. Those who were dismissing did not want intimate relationships and had a positive self/negative other style, while those who were fearful desired but feared intimate relationships and had a negative self/negative other style, similar to Hazan and Shaver’s (1987) avoidant style.

Feeney and Cassidy (2003) state that people with insecure attachment interpret social events more negatively than people with secure attachment do, exhibited in more negative perceptions of the behaviors and intentions of others, while people with secure attachment tend to have more positive perceptions of the behaviors and intentions of others (Cassidy, Kirsh, Scolton, & Parke, 1996; Collins, 1996) and perceive support more positively (Feeney & Cassidy, 2003). These results are consistent with the propositions of

attachment theory that people who are insecurely attached have mental representations of others as inconsistently available and responsive and the self as unlikely to receive help (Feeney & Cassidy, 2003). Furthermore, Feeney and Noller (1990) indicate that the three styles of adult attachment they studied were much more strongly distinctive in terms of their mental models about views of themselves and of relationships in general than they were in terms of ideas about romantic love.

McGowan (2002) demonstrated that these views of self and other influenced one's ability to seek comfort and support from another person, just as attachment is believed to do in childhood. It was found that people with secure attachment are the ones who can use the other as a safe haven when distressed; for those people who are insecure, images of the significant other increase distress. Furthermore, because positive models of the other only decreased distress when there was also a positive model of the self and actually increased distress when a negative self-model was present, positive models of the other were not the mediator; rather, the author asserts that reflected appraisals of the self mediate this effect. The model of self significantly predicted distress after thinking about a significant other, while the model of the other did not (McGowan, 2002).

Research has also shown that an insecure style of attachment, and its more vulnerable views of the self and other, leads to greater reliance on irrational beliefs modeled from the family or developed as a coping strategy (Stackert & Bursik, 2003), including those reflected in depression. It has been postulated that the link between depression and marital dysfunction for spouses who are low on secure and high on preoccupied attachment is a result of the positive view of self and others that

accompanies security and the negative view of self in preoccupied attachment. These negative views are illustrated in their pervasive doubts about their lovability and self-worth, which may render them more vulnerable to being self-critical and experiencing hopelessness when they are confronted with relationship difficulties (Scott & Cordova, 2002). People who are mildly depressed have been found to endorse less positive experiences as children as well as preoccupied and avoidant relationship beliefs, which translates to having a negative view of the self but both positive and negative views of others (Carnelley, Pietromonaco, & Jaffe, 1994).

With regard to parenting, maternal attachment styles have been linked to maternal perceptions of infant emotions. This research has yielded interesting and theoretically-supported findings of differences among mothers in their perception of infants' emotions based on the mothers' own attachment classification; autonomous mothers perceive the widest range of emotions and perceive them most accurately, while preoccupied mothers exaggerate the intensity of negative emotion and dismissing mothers minimize the intensity of negative emotion and prefer positive emotion or less emotional states, such as interest, from their infants more than other mothers do (Adam, Tanaka, Brodersen, & Gunnar, 1998; Blokland & Goldberg, 1998). These perceptions are related to mothers' own experiences of emotions: similar to their reactions to infant emotions, above, autonomous adults experience a range of positive and negative emotions, while preoccupied adults experience more extremes of both positive and negative emotions and dismissing adults experience less positive emotion overall (Adam, Gunnar, & Tanaka, 2004). Thus, perhaps insecure adult attachment is linked with the experience of more

negative affect, which may in turn prime mothers with insecure attachment to make more negative attributions for their infants' behavior.

In examining the current literature regarding attachment styles and internal models, it is clear that attachment experiences across the lifespan help to shape one's views of both the self and of others. These views have been shown to impact the expectations and interpretations one has for the behavior and intentions of other people. Similarly, attributions comprise interpretations of others' behavior, as well. However, as mentioned previously, it is unclear what leads to the specific attributions people have. Daggett et al. (2000) found that mothers' perceptions of their own childhood experiences, as well as expectations of child behavior and attitudes about life, were associated with their interpretations of the behavior of their own children. Leerkes and Siepak (2006) found that having a history of parental emotional rejection was linked with more negative and internal attributions for infant behavior; additionally, attachment-based avoidance was associated with more negative attributions for infant fear responses, with a similar trend for infant anger responses. Johnston and Ohan (2005) suggest that "investigating differences in attributional patterns that may be based in parents' own histories or personalities versus those that develop over the course of interacting with a particular child may clarify the origins and potential malleability of parental attributions" (p. 179). Perhaps a study of attachment in relation to attributional patterns can begin to address this issue. Because attachment is thought to form very early in childhood and to continue to develop over time, and because sophisticated cognitive processes develop somewhat later in childhood, it is likely that the first internal working models of attachment are present

before attributions for others' behavior are developed. Thus, by examining more closely the views of self and other captured by attachment styles, the attachment literature may help to explain some of the causes of attributions about relationships in general.

However, because parenting is a specific type of relationship, and because parents' views of their own abilities as parents have been shown to influence parental attributions about child behavior (Bugental et al., 1989; 1993), examination of the caregiving literature is warranted.

### *Caregiving Representations*

Related to the attachment literature, but linked more closely to the task of parenting, is the caregiving literature. This literature examines a parent's views of the self specifically with regard to parenting ability, perceptions about the tasks involved in caring for a child, and subjective evaluations of the impact parenting has on one's own life. This line of research stems from a desire to understand more fully the maternal perceptions and cognitions underlying the variations in caregiving behavior seen in mothers with differing attachment classifications. Caregiver perceptions and cognitions comprise what Bowlby (1982) termed the "caregiving system." Bowlby suggested that the attachment system seen in the infant interacts reciprocally with the caregiving system in the mother, which comprises behaviors intended to protect the infant as well as an internal working model that impacts maternal behavior through its influence on her cognitions and perceptions regarding caregiving experiences (Ungerer, Sygall, Dolby, & Marvin, n.d.). Differences in these perceptions about caregiving are thought to underlie the observed differences in maternal behavior by attachment classification. Maternal

behavior towards the infant then functions as an important contributor to the infant's own developing internal working models of the self and others, as illustrated in the attachment literature.

Recently, several researchers have examined views of the self in the parenting role by assessing caregiving representations in conjunction with attachment. Huth-Bocks, Levendosky, Bogat, and von Eye (2004) found that maternal representations of caregiving (i.e., representations of the unborn infant and of the self as mother) measured during pregnancy were significantly associated with the mother's own recalled attachment experiences and with the child's attachment style at one year of age. Thus, mothers who recalled negative childhood experiences (expressed as insecure attachment) had caregiving representations during pregnancy that were less secure and less sensitive towards the infant, while those who had more secure attachment had caregiving representations that were more secure and sensitive towards the infant. In turn, having negative representations during pregnancy was related to greater infant attachment insecurity one year after birth, while positive representations were related to increased infant attachment security at one year. This shows that a mother's concepts or schemas of herself and of the infant even before birth are important in determining the later quality of the parent-child relationship.

Other studies have demonstrated supportive findings along these lines. George and Solomon (1996) found that prenatal as well as postpartum maternal representations of the child are significantly related to the mothers' own representations of her childhood attachment experiences (69% using four classifications and 77% using three

classifications). Dismissing mothers tend to portray themselves and their child as “unwilling and unworthy to participate in a relationship” (George & Solomon, 1996, p. 210). They commonly make negative evaluations of their own caregiving and of their child, which can justify their rejection of the role of caregiver (Ungerer et al., n.d.). Preoccupied mothers tend to have inconsistent perceptions that vacillate between positive and negative appraisals of themselves and their child and to “split” their child’s negative affect from the child itself (George & Solomon, 1996; Ungerer et al., n.d.). Autonomous mothers have rich, realistic, and coherent perceptions, with a balance of positive and negative elements (George & Solomon, 1996; Ungerer et al., n.d.). Thus, mothers with insecure attachment classifications tend to have less positive evaluations of themselves as caregivers and of their infants. Other research has also shown that mothers’ recollections of their own attachment experiences influence their perceptions of themselves as mothers (Ammaniti, 1991; Slade & Cohen, 1996) and their infants’ attachment quality (Ammaniti, 1991; George & Solomon, 1996). These perceptions have been shown to be fairly stable over time (Ammaniti, 1991; Slade & Cohen, 1996).

Bates and Dozier (2002) found that foster mothers’ attachment classifications interacted with their infants’ age at placement to predict their acceptance of the baby and their belief in their own ability to influence the development of the infant. It has been shown that maternal representations of the infant predict differences in infant behavior during stressful situations and that maternal behavior mediates this relationship (Rosenblum, McDonough, & Muzik, 2002). Along these lines, Button, Pianta, and Marvin (2001) found that maternal representations of caregiving are related to maternal

behavior apart from the effects of maternal age or education, parenting stress, and child age or gender. Mothers' representations accounted for differences in maternal behavior in problem-solving interactions with their children, such that having negative representations was linked to insensitive, unsupportive maternal behavior (Button et al., 2001).

Thus, the caregiving literature demonstrates that mothers' own attachment experiences do impact their evaluations of themselves as parents and of their infants and lead to differences in maternal behavior towards the infant. However, it is unclear precisely how attachment experiences come to impact caregiving representations. Representations of the self as a caregiver are similar to attributions in that both comprise evaluations of and expectations for behavior. However, the attribution literature has focused largely on evaluations of others' behavior and intentions, while the caregiving literature examines views of the self. These differences are similar to the dimensions of self and other underlying the various attachment classifications. Additionally, the caregiving literature examines views specifically regarding the task of parenting. Therefore, perhaps by combining these elements of research, the processes that form parents' appraisals and evaluations of the self as well as their infants can become clearer.

In the present study, caregiving representations will be comprised of four dimensions: investment, competence, integration, and satisfaction. Investment refers to how much time a parent devotes to reading, thinking, and talking with others about being a parent and parenting strategies. Competence refers to how confident and effective parents feel at parenting and how well they feel they understand and meet their children's



needs. Integration refers to how well parents feel that parenting fits into their lives: how much time they feel they have for themselves, whether they resent the sacrifices parenting requires, and whether they are able to maintain social ties outside of the family. Satisfaction refers to how much parents enjoy having children and whether they regret or wish they had not become parents. These factors have been shown to be important contributors to parenting and outcomes for parents and children (Bornstein, Hendricks, Hahn, Haynes, Painter, & Tamis-LeMonda, 2003).

#### *Current Study*

Thus, in examining the research it is clear that the attribution literature, while quite useful in understanding behavior following certain attributions, is largely missing an examination of what about the parents themselves leads parents to make particular attributions about their children. The literature often seems to assume that the individual child leads to certain parental attributions. Therefore, removing the child from the equation, or assessing parental attributions before the child has any real “control” or powerful characteristics in a situation, might be a way to examine the parents’ own contributions to their attributions. This could be accomplished by examining potential parenting attributions prenatally or while the child is still a very young infant, unlikely to contribute much purposefully to any parent-child interaction. Parents’ attributions at these times could be assessed for the typical positive bias seen in parents, as well as for stability from the prenatal to the early postpartum period. Because the parents’ own characteristics in terms of attachment are thought to influence their attributions of their children’s behavior, and because attachment is considered to be fairly stable over time, it

would seem that parental attributions for the same types of child behavior would be fairly stable over time, as well.

At this point, if parents are negative in their attributions for the child's behavior, it is clearly not the child who is contributing largely to that evaluation. This can be difficult to evaluate in much of the existing attribution literature. For example, parents of children with AD/HD may be accurate at times in their perception that the child has performed a negative behavior intentionally, as a result of a stable, internal cause. On the other hand, this is much less likely to be true in the case of young infants. If something about the parents themselves is contributing to their parenting attributions, it stands to reason that evidence of this could be seen even in the prenatal period, and certainly in the early postpartum period. Information from other literatures that have examined perceptions of the self and "other," such as the attachment and caregiving literatures, may be helpful in understanding what the parent precursors are to their own negative parenting attributions.

The examination in the attachment literature of perceptions of self and other is one way to perhaps better understand what leads parents to have certain attributions. Based on the typology by Bartholomew and Horowitz (1991), one would expect that mothers with a positive view of the "other" (autonomous, preoccupied) would make more positive attributions for their child's behavior, while those with a negative view of the "other" (dismissing, fearful avoidant) would make more negative attributions for their child's behavior. However, the research has demonstrated that in general, secure (autonomous) mothers make the most positive appraisals of their children and their emotions, while preoccupied mothers vacillate between positive and negative appraisals

and maximize the distress of their infants. Dismissing mothers do make negative evaluations of their infants, but there is not much known about the appraisals of fearful avoidant mothers. This style is thought to desire interaction with others, unlike the dismissing style, so perhaps their appraisals of the infant would be less negative.

Bartholomew and Horowitz's (1991) typology would also lead one to predict that mothers with positive views of the self (autonomous, dismissing) would have more positive caregiving representations about their role as parents, while those with negative views of the self (preoccupied, fearful) would have more negative caregiving representations regarding their role as parents. However, research has shown that dismissing mothers have negative views of themselves as parents, and that preoccupied mothers have inconsistent perceptions of themselves as parents that are sometimes positive. Again, not much is known about the perceptions of fearful avoidant mothers. Therefore, examining the current attachment literature in conjunction with literature regarding either attributions of the infant or caregiving representations leaves us with inconsistencies.

Despite these inconsistencies, research has demonstrated that attachment classification does predict caregiving representations. Perhaps by examining all factors together, the quality of attributions can be better understood. Attachment has not been related in the literature to attributions previously, although it has been related to perceptions of infants' emotions, as mentioned previously. By linking attributions with attachment -- a global sense of the view of self and others, and caregiving representations

-- more closely related to parenting, perhaps the contributions to parental attributions by the parents themselves can be more fully understood.

Additionally, many studies of prenatal relationships between maternal attachment and caregiving representations have had very limited samples with respect to ethnicity and SES, with largely Caucasian samples from middle- to upper-middle-class backgrounds (Huth-Bocks, 2004). In contrast, Huth-Bocks et al. (2004) had a sample that was much more diverse in terms of ethnicity and SES and the authors expressed the need for further research with such participant samples in order to increase generalizability of relevant findings.

Thus, the current study seeks to expand the knowledge base by examining the linkages among attributions, attachment security, and representations of the self as caregiver. It also seeks to assess attributions for stability or change from the prenatal period to 6 months postpartum. This will be done with a more diverse sample than similar research has had, potentially allowing for greater generalizability of findings.

Additionally, several potential covariates will be measured and controlled for if they are found to be correlated with the outcome variables. In terms of psychological factors, there is a wide body of literature showing that maternal depression has negative effects on children through maternal behavior (Lovejoy, Graczyk, & O'Hare, 2000) and that depression is associated with attributions, particularly causal attributions (Robins, 1988), so depression will be assessed prenatally and postpartum to assess for depression initially as well as possible development of postpartum depression. General anxiety will also be examined in order to account for any potential overlap with the attachment-based

positive view of the self factor, which is also conceptualized as attachment-based anxiety, as discussed previously.

Regarding demographic factors, Huth-Bocks et al. (2004) found that low SES and single parenthood are related to less secure caregiving representations during pregnancy. Fox, Platz, and Bentley (1995) found that mothers who were younger, single, and had lower income and education levels demonstrated more negative parenting practices in terms of nurturing and discipline with their young children. Race has been linked to parenting styles and attitudes and discipline strategies (McLoyd, Cauce, & Takeuchi, 2000), as well as to knowledge of child development and the relationship between that knowledge and parenting behavior (Huang, Caughy, & Genevro, 2005). Huang et al. (2005) also found that older, married mothers with higher income and education and lower depressive symptoms were more accurate in their knowledge about age-appropriate child behaviors. Thus, information regarding income, relationship status, age, education, and race will be collected.

It is clear that psychological and demographic factors can have great impact on many aspects of parenting. Considering the impact these factors could have on attributions and caregiving representations, they will be measured and treated as covariates if they are found to have associations with these constructs.

### *Hypotheses*

Similar to previous literature, it is predicted that the majority of mothers will demonstrate generally positive attributional bias for their children and that these attributions will remain stable from prenatal assessment to six months postpartum.

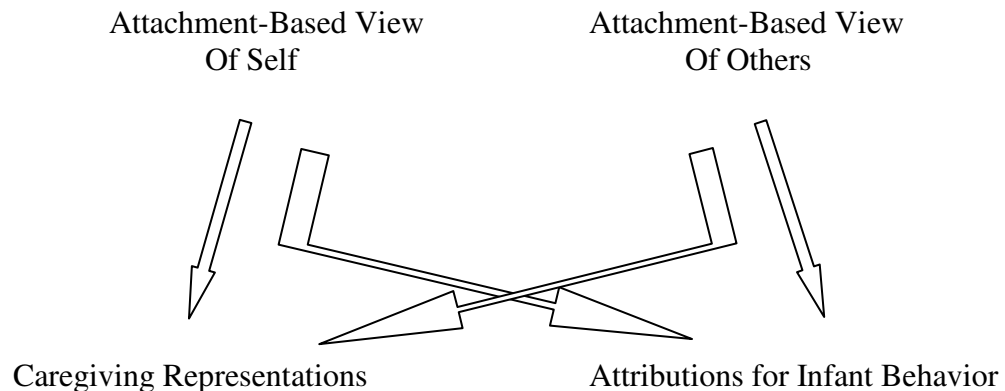
However, if there is change from the prenatal to the postpartum assessment, it is hypothesized that mothers whose attributions changed will have a more negative view of self and more positive view of others, as the preoccupied mothers who fit this typology (i.e., negative view of self and positive view of others) have been shown in the research mentioned above to have inconsistent, alternatingly positive and negative appraisals of themselves as caregivers and of their children.

Maternal attachment will be assessed in terms of views of the self and views of the “other.” It is hypothesized that attachment status will predict both representations of the self as caregiver (caregiving representations) and attributions. However, more specifically it is expected that the “view of self” attachment scale will primarily predict the caregiving representations, while the “view of other” attachment scale will primarily predict the attributions for the infant, as these constructs are more indicative of those respective scales. Those who score more positively on attachment-based views of self will score more positively on overall caregiving representations. Similarly, those mothers who score more positively on attachment-based views of the other will score more positively on overall appraisals of their infant’s behavior (see Figure 1).

Despite these predictions, it is important to consider the unique circumstance of the mother-infant relationship. Specifically, particularly in the prenatal period, the mother may not view her infant as distinctly separate from herself, as she is more likely to do with other significant people in her life. While this “blending” of self and other may be less likely to occur after the child is born and as the child ages, the mother may never view the child as being separate from her to the degree that other individuals are.

Figure 1

Proposed Relations Among Attachment, Attributions, and Caregiving Representations



Additionally, McGowan (2002) found that models of the self, rather than models of the other, mediated the link between attachment style and the ability to seek comfort from significant others, illustrating that the view of self is important in determining perceptions of and behavior towards others. Furthermore, Bugental et al. (1989) and Bugental and Shennum (1984) found that mothers' perceptions of themselves regarding caregiving failure determined how they interpreted the behavior of their child, even when there was not a "real" child in the interaction (Bugental et al., 1993). Therefore, it is also hypothesized that, especially because of the unique closeness of the "other" to the self in the case of mothers and young infants, and because of the unique responsibilities of that role, the views of self and other will influence the opposite construct, as well. Because mothers' views of their caregiving abilities have been shown to influence their interpretations of their child's behavior, and because the attachment-based view of the self is thought to be primarily associated with caregiving representations, it is predicted

that the attachment-based negative view of self will influence attributions for the infant, but it will do so through the quality of caregiving representations as a mediator.

Furthermore, as previous research has demonstrated, spouses with low secure and high preoccupied attachment have doubts about their own self-worth, which lead them to be self-critical and feel hopeless when they are confronted with relationship difficulties (Scott & Cordova, 2002). This demonstrates that perceptions of difficulty in significant relationships with others lead to negative appraisals of the self. This is particularly relevant in the parent-child relationship, as parents are likely to see themselves as more responsible for the behavior of their children than for that of more general “others.” Thus, it is also predicted that the attachment-based positive view of other will influence caregiving representations, but it will do so through the quality of attributions for the infant as a mediator.

In sum, it is expected that: 1) at both the prenatal and the postpartum measurement, there will be mothers who demonstrate a negative attributional bias about infant behavior; 2) attributions will remain stable from the prenatal to the postpartum assessment; 3) if attributions are not stable, mothers with a preoccupied classification will account for the change; 4) the attachment-based positive view of self will predict overall caregiving representations, while the attachment-based positive view of the other will predict attributions for infant behavior; and 5) caregiving representations will mediate any relationship between the attachment-based positive view of self and attributions for infant behavior, while attributions will mediate any relationship between the attachment-based positive view of the other and caregiving representations.



## CHAPTER II

### METHOD

#### *Participants*

Participants were drawn from a sample from a larger study about the origins of maternal sensitivity. Participants were 89 pregnant women recruited from the Guilford County Department of Public Health, Women's Hospital, and YWCA classes for pregnant teens. However, 8 participants were excluded from analyses because of missing data, resulting in 81 participants. In order to be included in the study, women were required to be experiencing their first pregnancy. Women participated during their last trimester of pregnancy and again when their infant was six months old. This timeline was chosen for several reasons. First, in practical terms, this was the timeline of the larger study from which the participants were drawn. Second, in theoretical terms, the prenatal assessment allows for evaluation of attributions without the influence of specific and concrete characteristics of the actual infant, amounting to a more pure examination of the parental contributions. The postpartum assessment allows for evaluation of stability over time as well as responses to an actual infant, but at a time when the infant is still young enough not to be contributing purposefully to the interactions with mothers. During the prenatal phase, the larger study comprised 134 primiparous mothers; of these, 118 mothers, or 90%, participated in the postpartum phase with completed data. Leerkes and Beaudry (2006) compared the demographics (age, education, income, relationship length,

and race) of these mothers to those who dropped from the study after the prenatal phase and found that three times as many minority versus White mothers discontinued (20% versus 7%;  $\chi^2(1) = 4.62$ ;  $p < .05$ ). For the current study, data collection began after the postpartum phase of the larger study began and those families who had already participated were recontacted and had the option to complete the data for the current study. Thus, the current study had fewer than the potential 118 participants. All babies were healthy and full-term. The demographics (age, education, income, race, relationship with the baby's father, baby's gender, and hours working per week) of the 81 participants in the current study were compared to those of the full postpartum sample of 118 and no significant differences emerged.

Demographic information relating to the women's age, education level, SES, marital or relationship status, employment status, and race was obtained. There was a range of age, education levels, annual income, relationship status, employment status (30% not working outside the home and 70% working or attending school) and hours worked per week, and ethnic backgrounds (see Tables 1 and 2).

### *Procedures*

Participants were recruited through information presented to them by the staff during childbirth education classes. The study was described as exploring the origins of maternal sensitivity. The women were asked to consent to participate prenatally and again at 6 months postpartum. Once informed consent was obtained, women were given a packet of consent forms and questionnaires (RSQ, RQ, CESD, ASMP) during the third trimester of pregnancy and brought these with them for their appointment for a lab visit

Table 1

<u>Demographic Frequencies</u>						
	Whole Sample (N = 81)		Dismissing (N = 10)		Not Dismissing (N = 71)	
Variable	Frequency	Percent	Freq	Percent	Freq	Percent
<u>Maternal Education</u>						
Less Than 12 <sup>th</sup> Grade	1	1.2	0	00.0	1	1.4
Graduated High School	6	7.4	2	20.0	4	5.6
Some College	18	22.2	3	30.0	15	21.1
Associate's Degree	2	2.5	0	00.0	2	2.8
Bachelor's Degree	39	48.1	4	40.0	35	49.3
Graduate Degree	15	18.5	1	10.0	14	19.7
<u>Maternal Race</u>						
African American	15	18.5	3	30.0	12	16.9
Asian American	1	1.2	0	00.0	1	1.4
Caucasian American	62	76.5	7	70.0	55	77.5
Mixed Race	1	1.2	0	00.0	1	1.4
Other	2	2.5	0	00.0	2	2.8
<u>Relationship with Baby's Father</u>						
Married	66	81.5	5	50.0	61	85.9
Living Together	6	7.4	1	10.0	5	7.0
Dating	3	3.7	1	10.0	2	2.8
Single Mother	5	6.2	2	20.0	3	4.2
Other	1	1.2	1	10.0	0	00.0
<u>Baby's Gender</u>						
Male	43	53.1	7	70.0	36	50.7
Female	38	46.9	3	30.0	35	49.3

Table 2

Descriptive Statistics

Variable	Mean	SD	Range
<u>Demographics</u>			
Maternal Age	28.08	4.43	16.00-38.00
Maternal Income (in thousands)	66.52	33.02	6.00-150.00
Hours Work Per Week	21.67	17.78	0.00-45.00
<u>Psychological Factors</u>			
BAI Anxiety	7.01	6.87	0.00-33.00
CESD Prenatal Depression	10.60	6.38	0.00-30.00
CESD Postnatal Depression	8.70	6.10	0.00-29.00
<u>Variables of Interest</u>			
Prenatal Maternal Attributions	94.93	16.97	53.00-128.00
Postnatal Maternal Attributions	68.92	19.92	28.00-119.00
Representations of Self as Caregiver	69.71	9.55	24.00-84.00
Investment	15.39	4.44	3.00-24.00
Attachment-Based Positive View of Self	2.10	.70	1.00-4.50
Attachment-Based Positive View of Other	2.59	.67	1.25-4.17

as part of the larger study. The mothers then completed additional measures (CESD, BAI, ASMP, SPPR) that were mailed to them when the child was six months old. Most of the mothers again brought these back when they arrived for their appointment for a lab visit within the larger study. However, the current study began after the postpartum phase of the larger study was underway. Thus, those mothers who had already participated were recontacted by mail with the additional questionnaires and asked to complete and mail

back the questionnaires. The women were given gift cards for their participation prenatally (\$15) and 6 months postpartum (\$20) and were given a book relevant to early parenting experiences at the postpartum measure.

### *Measures*

*Maternal Attachment.* Mothers' representations of their own attachment experiences were assessed prenatally using the Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994; see Appendix A). This measure is a self-report questionnaire containing 30 items consisting of statements about close relationships. Participants rate each item on a 5-point Likert scale to describe how much they endorse the statement in terms of their own feelings about relationships. Responses range from 1 (*Not at all like me*) to 5 (*Very much like me*). Sample items are, "I am comfortable without close emotional relationships," "I want to merge completely with another person," and, "I find it relatively easy to get close to others." The RSQ produces continuous scores on the four attachment styles (secure, preoccupied, dismissing avoidant, and fearful avoidant) for each participant. This instrument has good test-retest reliability ( $r = .65$ ; Fraley & Shaver, 1997) and has been shown to have moderate to strong construct validity when compared with the neuroticism and extraversion scales of the NEO-PI (Backstrom & Holmes, 2001; Griffin & Bartholomew, 1994). Responses to this questionnaire were averaged to create two continuous scales, view of the self and view of the other. As previous work (Griffin & Bartholomew, 1994; McGowan, 2002) has indicated that the anxiety scale represents the view of the self and the avoidance scale represents the view of the other, these scales were used. Based on a previous factor

analysis (Leerkes & Siepak, 2006), responses to items 9, 11, 16, 18, 21, 23, 25, and 28 were averaged to create the positive view of the self (anxiety) scale. This scale has demonstrated good internal reliability ( $\alpha = .84$ ). Averaged scores could thus range from 1 to 5, with higher scores representing more endorsement of attachment-based anxiety. Similarly, responses to items 1, 2, 3, 6, 10, 13, 20, 24, 26, 27, 29, and 30 were averaged to create the positive view of the other (avoidance) scale, with items 3, 10, 27, and 30 reverse-scored in order to account for the difference in the direction of the more positive response. This scale has also demonstrated good internal reliability ( $\alpha = .83$ ). Again, averaged scores could range from 1 to 5, with higher scores representing more endorsement of attachment-based avoidance. In the current sample, internal reliability was good for both the anxiety factor ( $\alpha = .82$ ) and the avoidance factor ( $\alpha = .87$ ).

Attachment was also assessed using the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991; See Appendix B). This measure is a self-report questionnaire containing brief descriptions of each of the four theoretical types of attachment classification (secure, fearful, preoccupied, and dismissing). Participants choose the description that best characterizes their reactions to close relationships. This instrument has moderate interrater reliability ( $k = .35$ ; Scharfe & Bartholomew, 1994). The RSQ and RQ have been shown to have moderate positive correlations in their classification of the four attachment styles ( $r$ 's from .60 to .67) and to have comparable factor loadings in Principal Component Analysis (Backstrom & Holmes, 2001). In the current sample, the distribution of attachment classifications was somewhat different than what is found in the general population: 42% secure, 35.8% fearful, 9.9% preoccupied,

and 12.3% dismissing (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987; van Ijzendoorn & Bakermans-Kranenburg, 1996), with a larger percentage of fearful participants, resulting in smaller percentages among the other groups.

The relationship of the scores of these two measures of attachment for participants in the current study follows the expected trend (see Table 3). In general, participants with RQ secure and dismissing classifications had lower, or more positive, scores on the RSQ positive view of self scale, which affirms the theoretical assertion that these groups have a positive sense of self. Participants with RQ secure and preoccupied classifications had lower, or more positive, scores on the RSQ positive view of others scale, which relates to the theoretical view that these groups have a more positive view of others.

Table 3

RQ Classifications with RSQ Scales

	View of Self				View of Other			
	Min	Max	Mean	SE	Min	Max	Mean	SE
Secure	1.00	3.50	1.78	.09	1.25	3.67	2.15	.09
Fearful	1.00	3.50	2.46	.11	2.08	4.17	3.08	.10
Preoccupied	1.50	4.50	2.47	.33	1.58	2.58	2.16	.12
Dismissing	1.00	2.88	1.84	.19	2.42	3.58	2.96	.12

*Maternal Attributions.* Mothers' attributions of potential future childrearing successes and challenges were assessed using the Attributional Style Measure for Parents questionnaire (ASMP; O'Brien & Peyton, 2002). A future-oriented variant of the

questionnaire was used prenatally while a present-oriented version of the same questions was used at six months postpartum (see Appendix C). This measure was used to assess mothers' causal and responsibility attributions for their infant's behavior in four hypothetical challenging parenting situations (e.g., spitting out food, demanding attention, fussy, uncooperative). A brief description of the situation is provided, followed by a list of 8 statements assessing the purposefulness, globality, stability, selfish motivation, internal locus of control, blame, intent to annoy, and controllability of the behavior on the part of the infant. Participants respond to each of the eight statements on a Likert-type scale ranging from 1 (*disagree strongly*) to 6 (*agree strongly*). Higher scores represent more negative attributions. Four of the statements assess causal attributions (globality, stability, internal locus of control, and controllability) and four assess responsibility attributions (purposefulness, selfish motivation, blame, and intent to annoy). Causality and Responsibility subscale scores are computed by adding scores for the four relevant items over each of the four situations. However, within the current sample correlational analyses indicated that the Causality and Responsibility subscales were highly intercorrelated both prenatally ( $r = .57, p < .01$ ) and postpartum ( $r = .64, p < .01$ ). Therefore, for the purposes of this study, the subscales were added together to form one "quality of attributions" (negative versus positive) factor and were not examined separately. Responses to the questions for each of the four situations were averaged and could range from 1 to 6, with higher scores indicating more negative attributions. This measure has been shown to have internal consistency ratings of .69 to .92 for the various dimensions of causality and responsibility that are measured. It has also been shown to



have statistically significant correlations of test-retest reliability, ranging from .33 to .80 across the dimensions measured. Prenatal and postpartum attributions were examined separately in the analyses presented. In the current sample, this measure had good internal reliability at both the prenatal ( $\alpha = .90$ ) and the postpartum ( $\alpha = .87$ ) measurements.

*Maternal Representations of Self as Caregiver.* Mothers' caregiving representations were assessed at 6 months postpartum using the Self-Perceptions of the Parental Role questionnaire (SPPR; MacPhee, Benson, & Bullock, 1986). This measure is a self-report questionnaire containing 22 items comprising four scales that represent mothers' feelings about various aspects of the parenting role: Competence, Investment, Role Balance, and Satisfaction. The SPPR draws on social psychological theories of self-esteem (Harter, 1983) and provides information about the mother's representations of herself as a parent. Each item comprises a pair of statements describing opposite endpoints of the relevant dimension. For example, one item is, "Some mothers and fathers aren't sure they were suited to be parents" but "Parenting comes easily and naturally to other parents." The participant selects the statement that best describes her and checks *Sort of true for me* or *Really true for me*. This results in four response choices weighted 1, 2, 4, and 5 to account for the absence of a neutral response. Subscale scores can be calculated by using the mean of the weighted responses for the items on a scale. Possible scores range from 1 (*low perceived competence, investment, role balance or satisfaction*) to 5 (*high perceived competence, investment, role balance, or satisfaction*). SPPR subscales have been shown to have good internal reliability (MacPhee et al., 1986)

and test-retest reliability over three weeks in mothers (Seybold, Fritz, & MacPhee, 1991), as well as construct validity (Bornstein, Haynes, Painter, Tamis-Lemonda, & Pascual, 1997; Bornstein et al., 1998).

Within the current sample, the investment subscale did not correlate well with the other subscales, exhibiting either a negative or extremely weak correlation (with integration,  $r = -.10$ , ns; with competence,  $r = -.23$ ,  $p < .05$ ; and with satisfaction,  $r = .08$ , ns). Conversely, the other subscales correlated positively with one another at the 0.01 level. Therefore, the investment subscale ( $\alpha = .73$ ) was removed from the total score in further analyses and examined separately, while integration, competence, and satisfaction were examined together as the representations of self as caregiver ( $\alpha = .84$ ) scale.

*Maternal Depression.* In order to ensure that maternal depression did not confound results, mothers' level of depression was assessed prenatally and at 6 months postpartum using the Center for Epidemiologic Studies – Depression Scale (CES-D; Radloff, 1977; see Appendix D). This measure is a self-report questionnaire containing 20 items regarding moods, feelings, and cognitions associated with depression, such as, “I felt that everything I did was an effort” and “I had crying spells.” Respondents rate how often they experienced each item over the last week according to a Likert-type scale ranging from 0 (*Rarely/Never*) to 3 (*Most of the time*). Possible scores range from 0 to 60. Higher scores indicate greater and more persistent symptomatology, with scores of 16 or higher suggesting potential depression. The CES-D has demonstrated convergent validity with the Research Diagnostic Criteria, a standardized psychiatric interview, and with the Beck Depression Inventory (Spitzer, Endicott, & Robins, 1978) and predicts

dysfunctional parenting (Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986). Scores were averaged, allowing a range from 0 to 3. In the current sample, this measure had good internal reliability at both the prenatal ( $\alpha = .82$ ) and the postpartum ( $\alpha = .79$ ) measurement.

*Maternal Anxiety.* In order to assess mothers' general level of anxiety, the Beck Anxiety Inventory (BAI; Beck & Steer, 1993; see Appendix E) was administered at 6 months postpartum. The BAI is a 21-item self-report questionnaire measuring how much the respondent was bothered by symptoms of anxiety over the past week. Each item is scored on a 4-point Likert scale ranging from 0 (*not at all*) to 3 (*severely – I could barely stand it*). Scores range from 0 to 63, with higher scores representing more severe anxiety. The BAI has adequate test-retest reliability at a one-week interval ( $r = .75$ ; Beck & Steer, 1993) and moderate to high convergent validity ( $r_s > .50$  with other self-report measures of anxiety; Steer & Beck, 1997). Scores were averaged, allowing a range from 0 to 3. In the current sample, this measure had good internal reliability ( $\alpha = .88$ ).

*Demographic Information.* Mothers' demographic information was collected prenatally and updated at 6 months postpartum using a self-report questionnaire containing items to obtain information about ethnicity, education level, SES, employment status, and marital/relationship status. Prior studies (e.g., Huth-Bocks et al., 2004) have found that low SES and single parenthood are risk factors for having less secure caregiving representations during pregnancy. However, based on existing research, no other demographic variables were expected to correlate highly with the variables of interest.

## CHAPTER III

### RESULTS

#### *Preliminary Analyses*

First, descriptive statistics for all variables were calculated (see Tables 1 & 2), and distributions were examined for skew and kurtosis; none were problematic. Then, correlations between the variables of interest and potential covariates were examined (see Tables 4 and 5). None of the outcome variables had significant correlations with psychological or demographic variables with the exception of overall caregiving representations, which was correlated with maternal age ( $r = -.22, p < .05$ ) and race ( $F = 4.30, p < .05$ ), and prenatal attributions, which was correlated with prenatal depression ( $r = .23, p < .05$ ). Therefore, these variables were included as covariates in the following analyses.

#### *Attributional Bias*

In order to test the hypothesis that some mothers would exhibit a negative attributional bias about the behaviors of their infant, the number of mothers who endorsed a negative bias was calculated. Because there was a small numbers of mothers with very high scores, representing very negative attributions, the top 30% of the prenatal measurement was chosen to represent a negative bias. Thus, the cut-off score of 3.3 was used, as the most negative 30% of the sample had prenatal scores equal to or above 3.3. At the prenatal period, 23 mothers (28.4%) demonstrated this negative attributional bias.

Table 4

Correlations Among Variables of Interest and Potential Covariates

<u>Variables</u>	1	2	3	4	5	6	7	8	9	10	11
1. Prenatal Attributions	--										
2. Postnatal Attributions	.40**	--									
3. Investment	-.10	-.01	--								
4. Caregiver Reps	-.16	-.22*	-.11	--							
5. Pos View Self	.26*	.12	-.25*	.04	--						
6. Pos View of Other	.16	.09	.00	-.15	.38**	--					
7. Anxiety	.06	.11	.06	-.04	.37**	.31**	--				
8. Prenatal Depression	.23*	.13	.01	-.19	.35**	.34**	.47**	--			
9. Postnatal Depression	-.14	.00	.06	-.16	.24*	.15	.58**	.50**	--		
10. Age	-.05	.11	.17	-.22*	-.13	.03	-.27*	-.14	-.23*	--	
11. Income	-.11	.04	.08	.04	-.10	-.08	-.17	-.14	-.19	.45**	--

Note: <sup>t</sup>p < .10, \*p < .05, \*\*p < .01.

Table 5

Significant ANOVAs and Chi-Square for Maternal Relationship Status and Race with Other Variables

<u>Variables</u>	<u>Mean</u> <u>Age</u>	<u>F</u>	<u>Mean</u> <u>Income</u>	<u>F</u>	<u>Mean</u> <u>BAI</u>	<u>F</u>	<u>Mean</u> <u>Caregiving</u> <u>Reps</u>	<u>F</u>	<u>Mean</u> <u>Pos</u> <u>View</u> <u>Self</u>	<u>F</u>	<u>Race (N)</u>		
											<u>1</u>	<u>2</u>	<u>χ<sup>2</sup></u>
<u>Relationship Status</u>													
1. Married	29.29	13.10**	74.89	7.85**	0.33	2.18 <sup>t</sup>	4.18	0.13	2.04	1.76	56	10	14.96**
2. Living Together	23.67		34.67		0.17		4.08		2.69		3	3	
3. Dating	18.33		21.00		0.75		4.32		2.63		1	2	
4. Other	26.00		19.00		0.33		4.16		2.00		1	0	
5. Single	22.80		31.04		0.59		4.14		1.98		1	4	
<u>Race</u>													
1. Caucasian	28.82	9.47**	76.61	35.28**	0.37	.75	4.23	4.30*	2.17	3.01 <sup>t</sup>			
2. Minority	25.42		33.59		0.29		3.98		1.86				

Note: <sup>t</sup>p < .10, \*p < .05, \*\*p < .01. Variables displayed are those for which a significant difference was found among levels either relationship status or race; variables not presented were not significantly different among levels of either variable.

Conversely, when measured 6 months postpartum, only 6 mothers (7.4%) demonstrated this negative bias. As predicted, both prenatally and postpartum some mothers did experience a negative attributional bias regarding their infant; however, the number of mothers endorsing this negative bias at the postpartum measure was greatly reduced.

### *Stability of Attributions*

In order to test the hypothesis that attributions would remain stable from the prenatal to the postpartum period, the attribution scores from both measurements were correlated. Because attributions are thought in the current study to arise in large part from attachment style, which is considered fairly stable, and because attributions will be assessed regarding the same types of infant behavior at both measurements, it was expected that prenatal and postpartum attributions would be fairly highly correlated. In general, correlations of  $r = .6$  to  $.7$  are considered to be fairly high; thus, it was hypothesized that prenatal and postpartum attributions would have a correlation at or above  $r = .60$ . Attributions were found to be moderately but not highly stable from the prenatal to postpartum period ( $r = .40, p < .01$ ). Thus, the hypothesis regarding stability was only partially supported. Therefore, in further analyses prenatal and postpartum attributions were examined separately.

We also examined the stability of attributions by calculating the number of mothers who maintained either a positive or negative bias versus those whose bias shifted. In order to do this, a stability of attributions factor was created which assigned a score to each mother representing four categories: 1) positive prenatal and positive postpartum attributions ( $N = 54; 66.7\%$ ), 2) positive prenatal and negative postpartum

attributions (N = 4; 4.9%), 3) negative prenatal and positive postpartum attributions (N = 21; 25.9%), and 4) negative prenatal and negative postpartum attributions (N = 2; 2.5%). The same cut-off score of 3.3 was used, as discussed previously. Two-thirds of the mothers maintained a positive bias, offering support for the hypothesis of stability. Very few mothers maintained a negative bias or shifted from a positive to a negative bias, and in contrast one-quarter of the mothers shifted from a negative to a positive bias postpartum.

#### *Change in Attributions by Attachment Classification*

It was further hypothesized that any change in the quality of maternal attributions from the prenatal to the postpartum measurement would be driven by the mothers with a preoccupied attachment classification. In order to test this, a “change in attributions” variable was created by subtracting the postpartum attribution score from the prenatal attribution score and multiplying the result by negative 1. Thus, a negative score would reflect a lower, or more positive, attribution score at the postpartum than the prenatal measurement. Likewise, a positive score would reflect a higher, or more negative, attribution score at the postpartum than the prenatal measurement.

Then, an ANOVA was run to determine whether there were differences among the four attachment classifications yielded by the Relationship Questionnaire (RQ) in the change in attributions factor. To account for the different numbers of participants in each classification group, the weighted term is reported. There was a trend towards a significant difference among the four groups ( $F = 3.43, p < .10$ ). Examination of post-hoc tests and a means plot revealed that while the secure, fearful, and preoccupied groups



were not different from one another, the dismissing group differed from these three (see Table 6). While all groups overall had lower or more positive scores postpartum, the dismissing group had a greater decrease in scores than the other groups did. Therefore,

Table 6

ANOVA of Attachment Classification and Change in Attributions

<u>Classification</u>	<u>N</u>	<u>Mean</u>	<u>F</u>
Secure	34	-.57	3.43 <sup>t</sup>
Fearful	29	-.58	
Preoccupied	8	-.62	
Dismissing	10	-1.05	

Note: <sup>t</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ .

the dismissing group, rather than the preoccupied group, accounted for the change in maternal attributions from the prenatal to the postpartum period; thus, the hypothesis was not supported. The demographics (age, education, income, race, relationship with the baby's father, baby's gender, and hours worked per week) of the dismissing group were compared to those of the other participants (see Table 1). The only significant difference that emerged was regarding the relationship with the baby's father ( $F = 10.40$ ,  $p < .01$ ); those in the dismissing group were less likely to be married to or living with the baby's father (60%) than were the other participants (93%).

The question of stability by attachment group was also explored by examining the categorical stability of attributions factor created previously. In order to examine whether there was a relationship between a mother's attachment classification and the categorical

stability of her attributions, a chi square was performed ( $\chi^2(9) = 14.03$ , ns), indicating a trend towards a difference in stability among the attachment groups. Of the secure mothers (N = 34), 76.5% maintained a positive bias, 2.9% developed a negative bias postpartum, 14.7% developed a positive bias postpartum, and 5.9% maintained a negative bias. Of the fearful mothers (N = 29), 55.2% maintained a positive bias, 10.3% developed a negative bias postpartum, and 34.5% developed a positive bias postpartum. Of the preoccupied mothers (N = 8), 87.5% maintained a positive bias and 12.5% developed a positive bias postpartum. Finally, of the dismissing mothers (N = 10), 50% maintained a positive bias and 50% developed a positive bias postpartum. Thus, clearly the dismissing mothers had the lowest percentage of stable positive attributions and accordingly the greatest percentage of change from the prenatal to the postpartum period. Interestingly, for the dismissing mothers the change was fully in a positive direction. While both dismissing and fearful mothers had similar rates of maintenance of a positive bias, which were lower than those for the secure and preoccupied groups, dismissing mothers had a greater rate of development of a positive bias postpartum than fearful mothers did. The previous analysis also suggests that when the dismissing mothers shifted to a positive bias, it may have been a greater magnitude of change than it was for the fearful mothers.

#### *Effects of Attachment-Based Views of Self and Other*

In order to test the hypothesis that the attachment-based positive view of self would primarily be associated with overall caregiving representations, multiple regressions were performed with the caregiving representations and separate investment scales. Regressions were chosen for the following analyses because of the general

hypothesis of the current study that maternal attachment styles inform or are predictive of maternal attributions for infant behavior. As mentioned previously, maternal age, race, and prenatal depression were entered as covariates for overall caregiving representations. In the first regression, the relationship between the attachment-based views of the self and other with overall caregiving representations were examined (see Table 7). The three covariates were entered first ( $F = 6.74, p < .01$ ), followed by the positive view of the self factor ( $F = 5.00, p < .01$ ), and lastly the positive view of the other factor ( $F = 3.95, p < .01$ ). These three models each accounted for 21% of the variance in caregiving representations. Contrary to predictions there was no significant effect of the attachment-based positive view of the self in accounting for caregiving representations. Only the covariates were independent predictors.

In the second regression, the relationships between attachment-based views of the self and other with the investment subscale of caregiving representations were examined (see Table 7). The three covariates were entered first ( $F = .81, ns$ ), followed by the positive view of the self factor ( $F = 2.12, p < .10$ ), and then the positive view of the other factor ( $F = 1.79, ns$ ). These three models accounted for 3%, 10%, and 11% of the variance in investment, respectively. As predicted, the attachment-based positive view of the self independently predicted investment in the role as a caregiver, while the attachment-based positive view of the other did not. This indicates that a more positive attachment-based view of the self is associated with higher investment in the parental role. None of the covariates were significant independent predictors of investment.

Table 7

Regressions for Views of Self and Other with Caregiving Representations and Investment

	<u>1</u>					
<u>Predictors</u>	$\beta_1$	$\beta_2$	$\beta_3$	$R^2_1$	$R^2_2$	$R^2_3$
Age	-.37**	-.37**	-.36**			
Race	-.35**	-.35**	-.35**			
Prenatal Depression	-.24*	-.25*	-.24*	.21		
Positive View of Self		.02	.03		.21	
Positive View of Other			-.02			.21
	<u>2</u>					
Age	.17	.12	.11			
Race	-.02	-.09	-.11			
Prenatal Depression	.03	.13	.10	.03		
Positive View of Self		-.29*	-.33**		.10	
Positive View of Other			.10			.11

Note:  $\beta$  is standardized beta at entry. <sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ . 1 = Caregiving Representations, 2 = Investment.

In order to examine the hypothesis that the attachment-based positive view of the other would primarily be associated with attributions for infant behavior, regressions were run with the maternal attribution scores (see Table 8). In the first regression, the relationships between attachment-based views of the self and other with prenatal maternal attributions for imagined infant behavior were examined. The three covariates were entered first ( $F = 1.52$ , ns), followed by the positive view of the other factor ( $F =$

Table 8

Regressions for Views of Self and Other with Prenatal and Postpartum Attributions

<u>3</u>						
<u>Predictors</u>	$\beta_1$	$\beta_2$	$\beta_3$	$R^2_1$	$R^2_2$	$R^2_3$
Age	-.04	-.05	-.01	.06		
Race	-.06	-.07	-.02			
Prenatal Depression	.22*	.19 <sup>t</sup>	.15			
Positive View of Other		.10	.04		.07	
Positive View of Self			.19 <sup>t</sup>			.09
<hr/>				<hr/>		
Age	-.04	-.01		.06		
Race	-.05	-.01				
Prenatal Depression	.22*	.16				
Positive View of Self		.20 <sup>t</sup>			.09	
Investment						
<hr/>				<hr/>		
<u>4</u>						
Age	.14	.13	.15	.03		
Race	.03	.02	.06			
Prenatal Depression	.15	.13	.11			
Positive View of Other		.04	.01		.03	
Positive View of Self			.11			.04

Note:  $\beta$  is standardized beta at entry. <sup>t</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ . 3 = Prenatal Attributions, 4 = Postpartum Attributions.

1.32, ns), and lastly followed by the positive view of the self factor ( $F = 1.50$ , ns). These three models accounted for 6%, 7%, and 9% of the variance in prenatal attributions, respectively. Contrary to predictions, the positive view of the self had a trend towards

being a significant independent predictor; there was no significant effect of the attachment-based positive view of the other in accounting for the quality of prenatal maternal attributions for imagined infant behavior. This indicates that more negative scores on the attachment-based positive view of the self were associated with more negative prenatal maternal attributions for imagined infant behavior. None of the covariates were significant independent predictors of prenatal maternal attributions.

In the second regression, the relationships between attachment-based views of the self and other with postpartum maternal attributions for actual infant behavior were examined (see Table 8). The three covariates were entered first ( $F = .86$ , ns), followed by the positive view of the other factor ( $F = .67$ , ns), and lastly followed by the positive view of the self factor ( $F = .66$ , ns). These three models accounted for 3%, 3%, and 4% of the variance in postpartum attributions, respectively. Contrary to predictions there was no significant effect of the attachment-based positive view of the other in accounting for postpartum maternal attributions for actual infant behavior. None of the variables were significant independent predictors of postpartum maternal attributions.

### *Mediation*

It was further predicted that if, contrary to the main hypotheses, the positive view of the self factor was found to significantly affect attributions for the infant's behavior, or if the positive view of the other factor was found to significantly affect the caregiving representations, this would occur by mediation through the predicted pathways. In other words, the positive view of the self factor would affect attributions through its effect on caregiving representations as a mediator, and the positive view of the other factor would

affect caregiving representations through its effect on attributions as a mediator. In order to test this hypothesis, the procedure outlined by Frazier et al. (2004) was followed. First, the relationship between the positive view of the self factor (the predictor) and prenatal attributions for infant behavior (the outcome) was examined. The three covariates were entered first ( $F = 1.52$ , ns), followed by the positive view of the self factor ( $F = 1.88$ , ns). Second, the relationship between the predictor and the potential mediators was examined. The previous analyses also demonstrated that the positive view of self predicted investment but not overall caregiving representations. In order to complete the test for mediation, a regression was performed to examine the relationship between investment (the potential mediator) and prenatal attributions (the outcome) while controlling for the predictor (positive view of the self) and the covariate (prenatal depression) ( $F = 2.64$ ,  $p < .10$ ; 9% variance explained, investment  $\beta = -.06$ , ns) (see Table 8). Because there was no significant relationship between investment and prenatal attributions, mediation was not supported.

The same procedure was followed to examine a mediation effect for the positive view of the other on caregiving representations. The previous analyses revealed that the positive view of the other was not a significant predictor for either overall caregiving representations or investment. Therefore, with no effect of the predictor on the outcomes, there was no need to test further for a mediation effect through maternal attributions. Thus, the hypotheses regarding mediation were not supported.

## CHAPTER IV

### DISCUSSION

The purpose of this study was to examine whether maternal attributions for challenging infant behavior remain stable from the prenatal period to 6 months postpartum and whether maternal attachment style accounts for maternal caregiving representations and attributions. More specifically, it was hypothesized that some mothers would display a negative attributional bias regarding their infant's behavior and that maternal attributions would remain largely stable from the prenatal to the postpartum period. Additionally, it was predicted that the positive "view of self" factor underlying maternal attachment would primarily predict maternal caregiving representations, while the positive "view of the other" factor would primarily predict maternal attributions for infant behavior. Furthermore, it was hypothesized that the positive "view of self" factor would influence maternal attributions through caregiving representations as a mediator, and likewise that the positive "view of the other" factor would influence caregiving representations through maternal attributions as a mediator. The results partially supported some of the hypotheses.

#### *Attributional Bias*

When examining maternal attributions for infant behavior, the results indicated that 28% of mothers displayed a negative attributional bias for challenging infant



behavior prenatally, while only 7% of mothers displayed a negative attributional bias at 6 months postpartum. Thus, the hypothesis that some mothers would display a negative attributional bias was supported. However, the number of mothers who displayed a negative bias was greatly reduced from the prenatal to the postpartum period. This is somewhat surprising given the general hypothesis that maternal attachment styles, believed to be fairly stable over time, underlie or are predictive of maternal attributions regarding infant behavior. This finding will be further explored in the following discussion regarding the stability of maternal attributions.

#### *Stability of Attributions*

Correlational analysis further demonstrated that maternal attributions were moderately but not highly stable from the prenatal to the postpartum period. This partially supports the hypothesis that maternal attributions would remain stable from the third trimester of pregnancy to 6 months postpartum. However, when examined in terms of the percentage of mothers who maintained a positive or negative bias versus the percentage of mothers whose bias shifted, a majority of mothers (67%) maintained a positive attributional bias from the prenatal to the postpartum measurement; only 2.5% of mothers maintained a negative bias. Additionally, only 5% of mothers shifted to a negative bias, while 26% shifted to a positive bias postpartum. Examining the data in this way suggests that in fact, most mothers did have a fairly stable attributional bias towards their infant, providing further support for the hypothesis.

These results suggest that maternal attributions for challenging infant behavior are somewhat stable from pregnancy to the early months of the infant's life. The very notion

of an “attributional style” suggests stability over time and attributions have been shown to be somewhat consistent, even to the extent of being transmitted from one generation to the next within families (Martini et al., 2001). In particular, if attributions regarding the behavior of others are influenced by one’s own attachment style, as predicted, it stands to reason that these attributions would be fairly stable, as attachment has been shown to be fairly stable over time (Ammaniti, van Ijzendoorn, Speranza, & Tambelli, 2000; Sroufe & Waters, 1977).

However, the moderate stability shown in maternal attributions also indicates that the interpretations mothers have for challenging infant behavior are somewhat variable from pregnancy to 6 months postpartum and that attributions may become more positive during this time. There are several possible explanations for this finding. First, it is important to consider the differences between the two points of measurement. The prenatal assessment relied upon mothers’ attributions for imagined challenging infant behavior. These mothers were experiencing their first pregnancy and had had varying degrees of exposure to infants and infant behavior. Their impressions about the causes of challenging infant behavior may not have been based on personal experience with infants, so it may have been difficult for them to accurately imagine how they would respond to challenging behavior. Additionally, although mothers were asked to imagine that their own infant was displaying the challenging behavior, because they were first-time mothers they were almost certainly drawing upon their impressions of the behavior of other people’s children and what caused that behavior to occur. Research has indicated that in general, parents tend to have more positive attributions for the behavior of their

own children (Coplan et al., 2002). Thus, perhaps this phenomenon of viewing one's own children more positively was not yet in effect during pregnancy.

In contrast, for the postpartum assessment mothers were asked to think about a recent example of challenging behavior with their own infant. By this point, the mothers had gained considerable personal experience in the behavior of not only an actual infant, but also their own first child. It is not difficult to imagine that this could represent a transformative process for mothers, allowing them to develop a deeper and perhaps altogether different understanding of the causes of challenging infant behavior. Fortunately, it appears that this process largely allows mothers to develop more positive interpretations for the causes of such behavior.

However, it is also important to consider that the prenatal assessment asked mothers to imagine their own child at 18 months old, while the postpartum assessment asked mothers to think about a recent situation with their 6-month-old child. Therefore, it is possible that mothers are making more positive attributions for the postpartum assessment because the child under consideration is much younger and presumably less likely to perform actions intentionally for that reason. On the other hand, this possibility assumes a level of knowledge of child development that some mothers may not have had; additionally, even an 18-month-old child is not very likely to exhibit challenging behaviors intentionally or with the aim of frustrating someone else, so even at this age one would hope to see more positive attributions for challenging behavior.

Furthermore, perhaps the time of pregnancy and giving birth represents a general time of flux for mothers, in which there are both external and internal changes that can

affect the way the women view themselves, others, and the world. Because of this, it may be that their attributions are not as likely to remain stable during this time. While it may seem that pregnancy and the birth of a first child is an ideal time to measure the constructs under consideration in the current study, it could instead be a time so marked by changes that general stability is difficult to assess.

#### *Change in Attributions by Attachment Classification*

Regarding the group that may account for the change in maternal attributions over time, the results revealed a trend indicating that mothers who identified themselves as dismissive differed from the other groups (secure, fearful, and preoccupied) in terms of the stability of their attributions. In general, all groups demonstrated a more positive overall attribution score at the postpartum measure, with the dismissing group exhibiting an even larger change towards more positive attributions. This contradicts the hypothesis that the preoccupied mothers would be the ones to primarily account for instability. While the numbers are small, this result is surprising, given that mothers with a preoccupied attachment classification have been shown to exhibit inconsistent appraisals of themselves and their children. The only difference found between the dismissing mothers and the others was that the mothers classified as dismissing were far less likely to be living with or married to their baby's father. Perhaps this could offer some explanation for the results, such as dismissing mothers, who were more likely to be caring for the baby without a partner, were experiencing more negative thoughts prenatally about the challenges that lay ahead for them, and maybe the actual experience of their child was more positive than they had anticipated.

In exploring this question further and examining the categorical “stability of attributions” factor in relation to attachment classification, there was a trend to support the finding that the groups did differ in terms of stability and that the avoidant mothers were the least likely to maintain a positive bias; for dismissing mothers, their shift in bias was completely positive from the prenatal to the postpartum measurement. Thus, they were more likely than other mothers to have a negative bias in the prenatal period, but all of the dismissing mothers with this negative bias shifted to a positive bias by 6 months postpartum. While fearful mothers also had a lower rate of maintenance of a positive bias, their overall shift was less positive in nature. Examined with the previous analysis, it appears that the positive shift for dismissing mothers was greater in magnitude than it was for fearful mothers.

Again, the numbers are small so the results cannot be considered definitive, but this finding is quite interesting nonetheless. The above possibility regarding the relationship with the baby’s father may help to account for this difference. Additionally, dismissing mothers represent those who have a positive view of the self and a negative view of others. Perhaps in some way the baby was seen as more of an “other” to dismissing mothers in the prenatal period and became more closely linked to the self after the birth, allowing the positive view of self to influence the mothers’ attributions regarding the infant’s behavior. Alternately, people with avoidant attachment are thought to minimize negative emotions (Cassidy, 1994; Cassidy & Kobak, 1988); they also may have experienced parental rejection themselves, and both avoidant attachment and parental rejection can be associated with less accuracy in identifying infant emotions

(Blokland & Goldberg, 1998; Leerkes & Siepak, 2006). In contrast to the findings of the current study, Leerkes and Siepak (2006) found that avoidant mothers tended to make more negative attributions for infant fear responses, with a similar trend for anger responses. Despite this, however, perhaps the tendencies to minimize distress and incorrectly perceive infant emotions are related to the current findings regarding the stability of dismissing mothers' attributions. Perhaps when such mothers imagine challenging infant behavior, as in the prenatal measurement, they make more negative attributions for that behavior because they are not actually confronted with any distress. When actually considering incidents in which they were confronted with distress on the part of their own infant, as in the postpartum measurement, dismissing mothers may minimize that distress in order to feel more comfortable, resulting in less negative attributions about the behavior of the infant.

#### *Effects of Attachment-Based Views of Self and Other*

When examining the relationships between the attachment-based negative view of self and general caregiving representations, the results did not support the hypothesis. There was no evidence to suggest that the attachment-based positive view of self predicted the mothers' general caregiving representations. The only significant independent predictors of caregiving representations were mother's age, which was negatively associated with caregiving representations, and mother's race, such that minority mothers had less positive caregiving representations than Caucasian mothers did. However, in examining the investment scale alone, there was support for the hypothesis. As predicted, the attachment-based positive view of the self was related to

investment in the parenting role, such that a more negative attachment-based positive view of the self was associated with lower investment in the caregiving role, while a more positive view of the self was associated with greater investment in parenting. This offers support for the prediction that the attachment-based positive view of the self, versus the attachment-based positive view of others, would primarily be associated with caregiving representations. This suggests that mothers who have a more positive attachment-based view of themselves are more able to devote their time to reading, thinking, and talking with others about becoming a parent and how to parent well.

In terms of the demographic predictors, Huth-Bocks et al. (2004) found that low SES and single parenthood were risk factors for having less secure caregiving representations during pregnancy. While income was not significantly correlated with the variables of interest in the current study and thus was not included in the regression analyses, an ANOVA was performed to examine the difference in income between Caucasian and minority mothers; this revealed a significant difference ( $F = 35.28, p < .01$ ), such that the mean annual income for Caucasian mothers was \$76,600 versus \$33,600 for minority mothers. Therefore, the current results appear to support previous findings. Regarding age, the results are somewhat surprising. In terms of Huth-Bocks et al.'s (2004) findings, correlational analysis has already shown that older mothers were more likely to have higher incomes ( $r = .45, p < .01$ ), and an ANOVA revealed that older mothers were more likely to be married ( $F = 13.10, p < .01$ ). Thus, it does not appear that age is related to low SES or single parenthood in a way that accounts for this finding. Previous research has also shown that older mothers are more accurate in their

knowledge of child development (Huang et al., 2005) and are more positive in terms of nurturing and discipline strategies (Fox et al., 1995), which might seem to be related to more positive caregiving representations. However, this was not true in the current sample. Perhaps older first-time mothers are more critical of themselves as parents, especially since they may have wanted to have children for a longer time, allowing for the development of more expectations of themselves and perhaps allowing for more disappointment if their expectations are not met. Another possibility is that older first-time mothers may be more likely to place importance on their careers than younger mothers are; perhaps the demands of balancing career and family are difficult and cause these mothers to feel more negatively about their parenting abilities. Additionally, the constructs measured by the current study are somewhat different from the constructs measured in previous studies, so perhaps there is a difference in that regard, as well.

Regarding the relationship between the attachment-based positive view of the other and maternal attributions, results for the prenatal attributions did not support the hypothesis that the positive view of the other would predict the quality of attributions. On the contrary, the positive view of the self was found to approach significance in its association with prenatal maternal attributions. Furthermore, this effect was found only for anxiety associated with the attachment-based positive view of the self; there was no effect for the more general anxiety measured by the BAI on maternal attributions. Additionally, when prenatal depression was entered as a covariate with the positive view of the self, only the positive view of self approached significance as an independent predictor.



These results are somewhat surprising, since it would seem that the positive view of the other would be more predictive of someone's interpretations of someone else's behavior than would the positive view of the self. However, it has already been discussed that the relationship between "self" and "other" may function quite differently in the case of a mother and her infant. Quite possibly, particularly during pregnancy, the infant may be conceptualized as part of the "self" in a way that no other person would be. This does make sense, as the child is not yet physically separate from the mother and is not yet able to display its own unique personality and characteristics. In this way, especially during the prenatal period, the infant may be considered much more a part of the self than a separate "other." This association is supported particularly because more general anxiety was not associated with the quality of prenatal attributions. It must be considered, however, that perhaps the BAI failed to predict the quality of maternal attributions because the BAI was completed at a later time, within the postpartum measurement. However, since it also does not predict the postpartum quality of maternal attributions as discussed below, this is not likely to be the case.

Following the birth, however, at 6 months postpartum, neither the attachment-based positive view of the self nor of the "other" was predictive of maternal attributions regarding infant behavior. This is in contrast to the significant relationship between the positive view of the self and maternal attributions for imagined infant behavior during the prenatal period.

One explanation for these findings would be that after the infant is born, the mother may view the infant as less a part of the "self" than she did during pregnancy.

Alternatively, perhaps the timing of the measures is important to consider. Because mothers completed the attachment scale and the prenatal attribution measure at the same time, these measures may both be tapping into her experiences at that time because of being measured simultaneously, whereas the postpartum attribution measure was administered several months later.

An alternative explanation for this finding could be that mothers' attributions for challenging infant behavior changed as a result of having their own child. It has already been noted that the quality of attributions was found to be moderately but not highly stable from the prenatal to the postpartum measurement. This indicates that the way mothers perceive challenging infant behavior may be different after the experience of giving birth and caring for an infant for 6 months. Overall, attributions became generally more positive from the prenatal to the postpartum measurement. Thus, one explanation for the lack of a significant relationship between the attachment-based factors and maternal attributions postpartum is that mothers began to rely more on their experience with their own infant to understand the infant's behavior versus relying on their more general perceptions of themselves and of the behavior of others. This possibility may also be supported by the fact that while there was a significant correlation between depression and attributions in the prenatal period, by the postpartum measurement this association was no longer significant, suggesting that the mothers' own psychological contributions to their attributions may have lessened. Furthermore, if pregnancy is a time of general flux for mothers, then it may not be the best time to measure such constructs, even though it seems to be an ideal time to examine ideas about mothering and infant behavior.

Perhaps these mothers would exhibit more stability in their attributions if they were compared from 6 months to 18 months postpartum. Another possibility is that the mothers' own attachment style may have changed by the postpartum measurement. The transition to parenthood is a major life event, and perhaps the experience of having their own child caused a change in mothers' internal working models about themselves and others. If attachment had been measured again postpartum, maybe there would have been changes observed in mothers' responses, and perhaps these postpartum responses would have been predictive of postpartum attributions.

Yet another explanation for this finding relates to the earlier point about the differences between the two measurement points. The prenatal measure of attributions is based on mothers' views of imagined infant behavior, while the postpartum measure refers to instances in which their own infant has displayed the challenging behavior. Perhaps this difference accounts in some way for the differing effects of attachment-based factors on maternal attributions from the prenatal to postpartum period. For instance, when asked to imagine their unborn infant's future behavior and how they might respond, perhaps mothers drew more heavily on their own childhood experiences or their general views of the world, which may be more related to their attachment style, whereas after the experience of having the infant for 6 months, they were more able to draw upon those specific instances with that particular child. Additionally, perhaps by completing the attachment measure and the prenatal attribution measure at the same time, mothers were "primed" to answer the attribution questionnaire in ways that reflected their more general attachment style.

### *Mediation*

Regarding mediation, no support was found for a mediating relationship between each attachment-based factor and the other factor's proposed outcome. There was no evidence that attachment-based views of the self influence attributions through caregiving representations. Likewise, there was no evidence that the attachment-based views of the other influence caregiving representations through attributions for infant behavior. Thus, it appears that the linkage between the positive view of self and prenatal attributions is direct, or if it is mediated, it is not mediated through caregiving representations. This potentially suggests a direct path from a mother's view of herself to her perceptions of the challenging behavior of her infant. This, then, amplifies the initial acknowledgement that the relationship between a mother and her infant, particularly during pregnancy, is quite different than that between any other two people. The mother's concept of her infant is perhaps much more related to ideas about herself than to her perceptions of other people in general. This suggests an enmeshment of the mother's self-concept and her concept of her infant, to a degree not fully anticipated in the hypotheses of the current study.

### *Limitations and Future Directions*

An important limitation of the current study is the different infant age under consideration from the prenatal to the postpartum measure. This makes it difficult to draw firm conclusions regarding the change or stability of attributions over time. Another important limitation is the small sample sizes for the categorical analyses examining differences among attachment classifications, again requiring cautious interpretation of

results. Additionally, it is not known what relationships in particular the mothers may have been considering as they completed the attachment measures, making interpretation of the results more difficult. Overall, the current sample was low-risk; the mothers had relatively high incomes and were mostly married. Therefore, there may not have been as much variation among the participants as would be needed in order to fully examine the relationships under consideration.

Furthermore, even considering the significant relationship between the attachment-based positive view of the self and the mother's prenatal attributions, only 7% of the variance was accounted for. Given that this was a prenatal assessment, the infant was not contributing anything in terms of behavior to account for maternal attributions. Likewise, only 7% of the variance in investment was accounted for. One possible reason for this could be that the attachment measure used assesses the women's views in current significant relationships. While this could be a strength because it assessed their current state of mind with regard to attachment, it is also possible that a measure that assessed their early attachment relationships to their own caregivers may have more closely approximated the type of relationship they would have with their own infants and the feelings created by that relationship. Previous research offers potential support for this possibility, as Leerkes and Siepak (2006) found that mothers' own histories of parental rejection were linked with negative, internal attributions for infant behavior. Perhaps the relationships observed in the current study would have been stronger had the mothers' attachment to their own caregivers been assessed.

In addition, only self-report measures were used, and all data were collected from the point of view of the mothers. Therefore, it is possible that mothers may have responded inaccurately to questions concerning their behavior in significant relationships, either because of a desire to respond in a socially-desirable way or because of a lack of insight into their own behavior. Even mothers' attachment classifications may have impacted their accuracy: given the evidence from the AAI (Adam et al., 2004), dismissing mothers may have idealized their relationships in their ratings on the RSQ and RQ, perhaps making them appear more secure than they actually are. Likewise, mothers may have responded inaccurately to questions concerning their attributions about infant behavior for similar reasons. Having more objective information about mothers' behavior in significant relationships and their expressed thoughts about their infants' challenging behavior would be helpful in continuing to examine the relationships among the constructs studied. Another concern regarding this limitation is the possibility that relationships existed among the variables of interest because of shared method variance. Several of the questionnaires were presented in the same format, and perhaps this accounts for some of the relationships observed.

Finally, examining the relationships through the use of multiple regression presents the data as if direct relationships exist among the variables of interest. However, it is possible that the relationships are mediated by unknown variables that were not studied and thus cannot be assessed. Therefore, while a predictive relationship between attachment and both attributions and caregiving representations was hypothesized, this cannot necessarily be demonstrated within the current study.

Future research should further address the factors that lead to the development of maternal attributions for infant behavior. Because so much of the variance in maternal attributions for their infant's behavior remains to be explained, more research into the precursors of these attributions is needed. By understanding what factors cause mothers to develop negative versus positive attributions about their children's behavior, perhaps programs or interventions to target those precursors can be developed to aid in the early development of healthy mother-infant relationships. Because secure attachment in childhood is associated with so many varied positive outcomes, understanding how to support the development of secure attachments is in the best interest of children and the societies to which they contribute.

The results of the current study have important implications for interventions to promote healthy relationships between mothers and infants. Knowing that a new mother's attachment-based view of herself will impact her interpretations of her infant's behavior, and thus her responses to that behavior, can provide some insight into how to support the development of the attachment bond. Furthermore, while attributions remain somewhat stable from the prenatal to the postpartum period, there is the possibility of change, particularly positive change, which is an encouraging finding. Perhaps by identifying mothers at-risk of developing negative attributions about their infants and providing support for them to develop more positive views of themselves, both mothers and infants can lead healthier lives. Therefore, examining a new mother's perceptions of herself and intervening in a way that allows negative self-perceptions to become more positive could potentially improve the infant's later attachment security and future well-being.

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## RSQ

Please read each of the following statements and rate the extent to which you believe each statement best describes your feelings about close relationships.

		<b>Not at all like me</b>		<b>Somewhat like me</b>		<b>Very much like me</b>
1.	I find it difficult to depend on other people.	1	2	3	4	5
2.	It is very important to me to feel independent.	1	2	3	4	5
3.	I find it easy to get emotionally close to others.	1	2	3	4	5
4.	I want to merge completely with another person.	1	2	3	4	5
5.	I worry that I will be hurt if I allow myself to become too close to others.	1	2	3	4	5
6.	I am comfortable without close emotional relationships.	1	2	3	4	5
7.	I am not sure that I can always depend on others to be there when I need them.	1	2	3	4	5
8.	I want to be completely emotionally intimate with others.	1	2	3	4	5
9.	I worry about being alone.	1	2	3	4	5
10.	I am comfortable depending on other people.	1	2	3	4	5
11.	I often worry that romantic	1	2	3	4	5



	partners don't really love me.					
12.	I find it difficult to trust others completely.	1	2	3	4	5
13.	I worry about others getting too close to me.	1	2	3	4	5
14.	I want emotionally close relationships.	1	2	3	4	5
15.	I am comfortable having other people depend on me.	1	2	3	4	5
16.	I worry that others don't value me as much as I value them.	1	2	3	4	5
17.	People are never there when you need them.	1	2	3	4	5
18.	My desire to merge completely sometimes scares people away.	1	2	3	4	5
19.	It is very important to me to feel self-sufficient.	1	2	3	4	5
20.	I am nervous when anyone gets too close to me.	1	2	3	4	5
21.	I often worry that romantic partners won't want to stay with me.	1	2	3	4	5
22.	I prefer not to have other people depend on me.	1	2	3	4	5
23.	I worry about being abandoned.	1	2	3	4	5
24.	I am somewhat uncomfortable being close to others.	1	2	3	4	5
25.	I find that others are reluctant to get as close as I would like.	1	2	3	4	5
26.	I prefer not to depend on others.	1	2	3	4	5
27.	I know that others will be there when I need them.	1	2	3	4	5

28.	I worry about having others not accept me.	1	2	3	4	5
29.	Romantic partners often want me to be closer than I feel comfortable being.	1	2	3	4	5
30.	I find it relatively easy to get close to others.	1	2	3	4	5

## RELATIONSHIP QUESTIONNAIRE

Following are descriptions of four general relationship styles that people often report. Please read each description and **CIRCLE** the letter corresponding to the style that *best* describes you or is *closest* to the way you generally are in your close relationships. **Only circle one.**

**A.** It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

**B.** I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

**C.** I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

**D.** I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

## My Baby's Behavior

*This questionnaire asks you about your baby's behavior in day-to-day situations and how you feel about it. There are no right or wrong answers – we want to know your own ideas. Please do not spend a lot of time on any one question, but give your first response, circling the number that shows how much you agree or disagree with each statement.*

**Situation 1: Think about a time recently when your baby was difficult to feed (such as refusing the food you offered, spitting it out, or making a big mess).**

**Briefly describe:**

**What happened:** \_\_\_\_\_

---

**What you did:** \_\_\_\_\_

---

**And why you think your baby did this:** \_\_\_\_\_

---

**1 = disagree strongly**  
**2 = disagree**

**3 = disagree somewhat**  
**4 = agree somewhat**

**5 = agree**  
**6 = agree strongly**

1. My baby was difficult to feed on purpose rather than unintentionally	<b>1 2 3 4 5 6</b>
2. The reason my baby was difficult to feed is something that comes up often in my family	<b>1 2 3 4 5 6</b>
3. The reason my baby was difficult to feed is not likely to change	<b>1 2 3 4 5 6</b>
4. My baby was difficult to feed because he or she is motivated by selfish rather than unselfish concerns	<b>1 2 3 4 5 6</b>
5. My baby's behavior (in being difficult to feed) was due to something about him or her (for example, the mood he or she was in, his or her personality)	<b>1 2 3 4 5 6</b>
6. My baby deserved to be disciplined for being difficult to feed	<b>1 2 3 4 5 6</b>
7. My baby was difficult to feed mainly just to annoy me	<b>1 2 3 4 5 6</b>
8. My baby was able to control whether or not he or she was difficult to feed	<b>1 2 3 4 5 6</b>

**Situation 2: Think about a time recently when your baby demanded your attention and interfered with something you really needed to get done.**

**Briefly describe:**

**What happened:** \_\_\_\_\_

**What you did** \_\_\_\_\_

**And why you think your baby did this** \_\_\_\_\_

**1 = disagree strongly**  
**2 = disagree**

**3 = disagree somewhat**  
**4 = agree somewhat**

**5 = agree**  
**6 = agree strongly**

1. My baby demanded my attention on purpose rather than unintentionally	<b>1 2 3 4 5 6</b>
2. The reason my baby demanded my attention is something that comes up often in my family	<b>1 2 3 4 5 6</b>
3. The reason my baby demanded my attention when I was busy is not likely to change	<b>1 2 3 4 5 6</b>
4. My baby demanded my attention when I was busy because he or she was motivated by selfish rather than unselfish concerns	<b>1 2 3 4 5 6</b>
5. My baby's behavior (in demanding my attention) was due to something about him or her (for example, the mood he or she was in, his or her personality)	<b>1 2 3 4 5 6</b>
6. My baby deserved to be disciplined for demanding my attention when I was busy	<b>1 2 3 4 5 6</b>
7. My baby demanded my attention mainly just to annoy me	<b>1 2 3 4 5 6</b>
8. My baby was able to control whether or not he or she demanded my attention	<b>1 2 3 4 5 6</b>

**Situation 3: Think about a time recently when your baby fussed and cried for a long time even though he or she was not sick, hungry, or wet. Briefly describe:**

**What happened:** \_\_\_\_\_

---

**What you did** \_\_\_\_\_

---

**And why you think your baby did this** \_\_\_\_\_

---

**1 = disagree strongly**  
**2 = disagree**

**3 = disagree somewhat**  
**4 = agree somewhat**

**5 = agree**  
**6 = agree strongly**

1. My baby fussed and cried on purpose rather than unintentionally	<b>1 2 3 4 5 6</b>
2. The reason my baby fussed and cried is something that comes up often in my family	<b>1 2 3 4 5 6</b>
3. The reason my baby fussed and cried is not likely to change	<b>1 2 3 4 5 6</b>
4. My baby fussed and cried because he or she was motivated by selfish rather than unselfish concerns	<b>1 2 3 4 5 6</b>
5. My baby's fussing and crying was due to something about him or her (for example, the mood he or she is in, his or her personality)	<b>1 2 3 4 5 6</b>
6. My baby deserved to be disciplined for fussing and crying	<b>1 2 3 4 5 6</b>
7. My baby fussed and cried mainly just to annoy me	<b>1 2 3 4 5 6</b>
8. My baby was able to control whether or not he or she fussed and cried	<b>1 2 3 4 5 6</b>

**Situation 4: Think about a time recently when your baby became upset and uncooperative during a daily routine (such as diapering or getting ready to go on an errand with you).**

**Briefly describe:**

**What happened:** \_\_\_\_\_

---

**What you did** \_\_\_\_\_

---

**And why you think your baby did this** \_\_\_\_\_

---

**1 = disagree strongly**  
**2 = disagree**

**3 = disagree somewhat**  
**4 = agree somewhat**

**5 = agree**  
**6 = agree strongly**

1. My baby didn't go along with the routine on purpose rather than unintentionally	<b>1 2 3 4 5 6</b>
2. The reason my baby didn't go along with the routine is something that comes up often in my family	<b>1 2 3 4 5 6</b>
3. The reason my baby didn't go along with the routine is not likely to change	<b>1 2 3 4 5 6</b>
4. My baby didn't go along with the routine because he or she was motivated by selfish rather than unselfish concerns	<b>1 2 3 4 5 6</b>
5. My baby's behavior (in not going along with the routine) was due to something about him or her (for example, the mood he or she was in, his or her personality)	<b>1 2 3 4 5 6</b>
6. My baby deserved to be disciplined for not going along with the routine	<b>1 2 3 4 5 6</b>
7. My baby didn't go along with the routine mainly just to annoy me	<b>1 2 3 4 5 6</b>
8. My baby was able to control whether or not he or she goes along with daily routines	<b>1 2 3 4 5 6</b>

**Situation 5: Think about a time recently when your baby was easily cooperative and pleasant during a daily routine (such as going to sleep or getting in the car seat). Briefly describe:**

**What happened:** \_\_\_\_\_

**What you did** \_\_\_\_\_

**And why you think your baby did this** \_\_\_\_\_

**1 = disagree strongly**  
**2 = disagree**

**3 = disagree somewhat**  
**4 = agree somewhat**

**5 = agree**  
**6 = agree strongly**

1. My baby went along with the routine on purpose rather than unintentionally	<b>1 2 3 4 5 6</b>
2. The reason my baby went along with the routine is something that comes up often in my family	<b>1 2 3 4 5 6</b>
3. The reason my baby went along with the routine is not likely to change	<b>1 2 3 4 5 6</b>
4. My baby went along with the routine because he or she was motivated by unselfish rather than selfish concerns	<b>1 2 3 4 5 6</b>
5. My baby's behavior (in going along with the routine) was due to something about him or her (for example, the mood he or she was in, his or her personality)	<b>1 2 3 4 5 6</b>
6. My baby deserved to be rewarded for going along with the routine	<b>1 2 3 4 5 6</b>
7. My baby went along with the routine mainly just to please me	<b>1 2 3 4 5 6</b>
8. My baby was able to control whether or not he or she goes along with daily routines	<b>1 2 3 4 5 6</b>



**Situation 6: Think about a time recently when your baby was quickly and easily soothed after becoming upset. Briefly describe:**

**What happened:** \_\_\_\_\_

---

**What you did** \_\_\_\_\_

---

**And why you think your baby did this** \_\_\_\_\_

---

**1 = disagree strongly**  
**2 = disagree**

**3 = disagree somewhat**  
**4 = agree somewhat**

**5 = agree**  
**6 = agree strongly**

1. My baby was easily soothed on purpose rather than unintentionally	<b>1 2 3 4 5 6</b>
2. The reason my baby was easily soothed is something that comes up often in my family	<b>1 2 3 4 5 6</b>
3. The reason my baby was easily soothed is not likely to change	<b>1 2 3 4 5 6</b>
4. My baby was easily soothed because he or she was motivated by unselfish rather than selfish concerns	<b>1 2 3 4 5 6</b>
5. My baby's behavior (in being easily soothed) was due to something about him or her (for example, the mood he or she was in, his or her personality)	<b>1 2 3 4 5 6</b>
6. My baby deserved to be rewarded for being easily soothed	<b>1 2 3 4 5 6</b>
7. My baby was easily soothed mainly just to please me	<b>1 2 3 4 5 6</b>
8. My baby was able to control whether or not he or she was easily soothed	<b>1 2 3 4 5 6</b>

## CES-D

Instructions: Below is a list of the ways you might have felt or behaved. Please circle the number to show how often you felt this way during the past week.

During the past week:	Rarely/Never (less than 1 day)	A little (1-2 days)	Moderate Amount (3-4 days)	Most of the time(5- 7 days)
1. I was bothered by things that usually don't bother me.	1	2	3	4
2. I did not feel like eating; my appetite was poor.	1	2	3	4
3. I felt that I could not shake off the blues even with help from my family or friends.	1	2	3	4
4. I felt that I was just as good as other people.	1	2	3	4
5. I had trouble keeping my mind on what I was doing.	1	2	3	4
6. I felt depressed.	1	2	3	4
7. I felt that everything I did was an effort.	1	2	3	4
8. I felt hopeful about the future.	1	2	3	4
9. I thought my life had been a failure.	1	2	3	4
10. I felt fearful.	1	2	3	4
11. My sleep was restless.	1	2	3	4
12. I was happy.	1	2	3	4
13. I talked less than usual.	1	2	3	4
14. I felt lonely.	1	2	3	4
15. People were unfriendly.	1	2	3	4
16. I enjoyed life.	1	2	3	4
17. I had crying spells.	1	2	3	4

18. I felt sad	1	2	3	4
19. I felt that people dislike me.	1	2	3	4
20. I could not get “going”.	1	2	3	4

**BAI**

Date:

Below is a list of common symptoms of anxiety. Please read each item in the list carefully. Indicate how much you have been bothered by the symptom during the **PAST WEEK, INCLUDING TODAY** using the following scale:

**0 = NOT AT ALL**

**1 = MILDLY – IT DID NOT BOTHER ME MUCH**

**2 = MODERATELY – IT WAS VERY UNPLEASANT BUT I COULD STAND IT**

**3 = SEVERELY – I COULD BARELY STAND IT**

**Enter your response on the line to the left of each item.**

- |     |                                 |     |   |
|-----|---------------------------------|-----|---|
| ___ | 1. Numbness or tingling.        | ___ | 17. Scared.                               |
| ___ | 2. Feeling hot.                 | ___ | 18. Indigestion or discomfort in abdomen. |
| ___ | 3. Wobbliness in legs.          | ___ | 19. Faint.                                |
| ___ | 4. Unable to relax.             | ___ | 20. Face flushed.                         |
| ___ | 5. Fear of the worst happening. | ___ | 21. Sweating (not due to heat).           |
| ___ | 6. Dizzy or lightheaded.        |     |   |
| ___ | 7. Heart pounding or racing.    |     |   |
| ___ | 8. Unsteady.                    |     |   |
| ___ | 9. Terrified.                   |     |   |
| ___ | 10. Nervous.                    |     |   |
| ___ | 11. Feelings of choking.        |     |   |
| ___ | 12. Hands trembling.            |     |   |
| ___ | 13. Shaky.                      |     |   |
| ___ | 14. Fear of losing control.     |     |   |
| ___ | 15. Difficulty breathing.       |     |   |
| ___ | 16. Fear of dying.              |     |   |