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Relationship Predictors of Prenatal Maternal Representations of the Child and Parenting Experiences One Year after Birth

by

Kylene Krause

Dissertation
Submitted to the Department of Psychology
Eastern Michigan University
in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy
in
Clinical Psychology

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ABSTRACT

Bowlby’s attachment theory (Bowlby, 1969/1982) is one of the most dominant approaches used to describe and investigate attachment relationships and emotional development throughout the entire lifespan. However, attachment research is typically conducted through two distinct fields of psychology: developmental and social/ personality psychology. These two fields tend to use different research strategies and measures and focus on different types and aspects of relationships, yet both make important contributions to the attachment literature (Bartholomew & Shaver, 1998). The goal of this investigation was to integrate attachment research from these two fields of psychology in order to broaden psychological and scientific understanding of the continuity of attachment quality (and relationship quality, more generally) from childhood to the transition to parenthood. Structural equation modeling was used to analyze data from a sample of 120 mostly economically disadvantaged single women who were followed from their third trimester of pregnancy to their child’s first birthday. Results were consistent with attachment theory and hypotheses. They indicated that a history of better relationship quality with one’s own mother, as well as better attachment with romantic partners, as reported during pregnancy, was related to more positive and balanced prenatal maternal representations of the child. In addition, a history of better attachment and more general relationship quality was related to lower parenting strain when children were 1 year of age. Finally, more positive and balanced prenatal maternal representations of the child were related to lower parenting strain, and partially mediated the association between maternal relationship experiences and parenting strain. Implications for these findings and directions for future research are discussed.
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INTRODUCTION

There has been, and continues to be, a significant number of empirical investigations which support Bowlby’s attachment theory (1969/1982, 1973, 1980). Today, attachment theory provides the base for all investigations of attachment and many investigations of relationships between individuals and emotional development. A major premise is that relationships formed throughout the lifespan, beginning in infancy, are carried forward through internal working models, which are ideas about the world and significant individuals within it that influence later relationships with significant attachment figures (Bowlby, 1973). The accumulation of interpersonal experiences, and interpretation of these experiences, has profound effects on one’s life and how one interacts with others, including one’s own children. Therefore, it is important to understand the development and evolution of the continuity of attachment quality and, more broadly, relationship quality, across the lifespan.

Previous research has shown that retrospective accounts of one’s relationship with parents is associated with later romantic attachment and romantic relationship quality (Crowell, Treboux, Gao, Fyffe, Pan, & Waters, 2002; Crowell, Treboux, & Waters, 2002; Feeney & Noller, 1990; Hazan & Shaver, 1987; Owens, Crowell, Pan, Treboux, O’Connor, & Waters, 1995; Roisman, Madsen, Hennighausen, Sroufe, & Collins, 2001; Treboux, Crowell, & Waters, 2004). Such results are consistent with attachment theory’s proposition that relationship experiences, and interpretation of such experiences, impact subsequent relationships (Bowlby, 1973; Mikulincer & Shaver, 2007). These relationships continue to have an impact on the individual’s thoughts about relationships, as well as one’s behaviors while interacting with others, leading to stability of relationship quality over time (Grossmann, Grossmann, & Waters, 2005; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000).
Not surprisingly, previous relationships have also been found to impact mothers’ thoughts and reactions to their children, often termed maternal representations of the child in the attachment field (George & Solomon, 1996; Howes, Vu, & Hamilton, 2011; Illicali & Fisek, 2004; Slade, Belsky, Aber, & Phelps, 1999); maternal representations of the child have also been found to remain stable over time (Benoit, Parker, & Zeanah, 1997; Borghini, Pierrehumbert, Miljkovitch, Muller-Nix, Forcada-Guex, & Ansermet, 2006; Theran, Levendosky, Bogat, & Huth-Bocks, 2005) and influence mothers’ behaviors towards their children (Aber, Belsky, Slade, & Crnic, 1999; Dayton, Levendosky, Davidson, & Bogat, 2010; Dollberg, Feldman, & Keren, 2010; Schechter et al., 2008; Slade et al., 1999). Maternal representations of the child also appear to impact other aspects of parenting experiences (Aber et al., 1999). In turn, parenting experiences have been found to be related to a multitude of outcomes for children and families, and parenting experiences, in general, tend to be relatively stable over time in those with small children (Crnic, Gaze, & Hoffman, 2005; Ostberg, Hagekull, & Wettergren, 1997).

Though they have provided some very valuable data, some of the aforementioned investigations need to be replicated and explored with more diverse samples and with different research methods and measures. In addition, prior investigations regarding attachment relationships over time generally come from two main fields of psychology including the developmental and the social/ personality psychology fields. Though both fields of study add valuable contributions to the literature (Bartholomew & Shaver, 1998), these fields are rarely combined when exploring the continuity of attachment, or relationship quality more generally. Researchers from the developmental field tend to rely on time- and labor-intensive semi-structured interviews and direct observations of behavior and thus conduct investigations with much smaller sample sizes, albeit with rich datasets. In addition, they tend to focus on aspects of
infant and infant-parent attachment specifically. Researchers from the social/ personality field tend to use self-report measures of attachment, thus greatly increasing potential sample size, but sacrificing important aspects of attachment constructs such as unconscious aspects of mental representations and interpersonal behaviors.

The present study will examine mothers’ history of relationships (with both caregivers and romantic partners) in relation to their prenatal representations of their children, as well as associations between these representations and later parenting experiences. Through its research design, this study also aims to integrate attachment research from both fields of psychology in order to broaden the psychological and scientific understanding of the continuity of attachment quality from childhood to the transition to parenthood.

Because this study is based on attachment theory, an overview of its development and main tenets of the theory will first be presented in order to provide a theoretical framework for the hypothesized model. The following chapters will also provide a comprehensive review of the attachment literature examining (a) relationship experiences and how they evolve over time, (b) relationship experiences and how they affect maternal representations of the child, (c) maternal representations of the child and their effect on parenting experiences, and (d) the associations between prior relationship experiences and parenting experiences. Next, the aims and hypotheses for the current study will be presented. Finally, a description of the research design and proposed data analyses will be provided.
CHAPTER 1: ATTACHMENT THEORY

History and Introduction

Though both were trained in psychoanalytic theory, John Bowlby disagreed with his supervisor, Melanie Klein, on how their young patient should be treated. While Klein stressed the role of the child’s fantasies and saw no reason to include the child’s mother in treatment, Bowlby saw the history of the relationship between the child and his mother as vital and the mother’s inclusion in treatment ideal. He struggled to explain the intense relationship between an infant and a mother, as well as a child’s dramatic response upon separation from his or her mother, using traditional psychoanalytic theory. Those using the latter approach conceptualized the attachment between an infant and his mother to be a result of the infant’s need for material comforts, such as food. Instead, Bowlby focused on the emotional relationship between children and mothers; he underplayed the role of sexuality and the Oedipus complex and questioned the sole role of unconscious fantasy (Bretherton, 1992; Marrone, 1998).

While employed at the Tavistock Clinic in London after World War II, Bowlby observed children during separations from their parents. He, along with social workers Joyce and James Robertson, who were using videotape methods to capture the children’s reactions to separations from their parents (‘A Two-Year-Old Goes to Hospital’, 1953), noticed that children who were separated for great lengths of time went through three stages of reaction to separation: protest (crying, clinging, and calling), despair (depressed mood, decreased appetite, disturbed sleep, and anxiety), and detachment (the termination of protest and despair, no apparent behaviors to elicit attention; Robertson & Bowlby, 1952; Shaver & Fraley, 2008). In order to achieve greater coherency and accuracy in describing and explaining behaviors made while observing these children, Bowlby began developing his own theory of development (Bowlby, 1953/1958/1960),
preserving what he felt were Freud’s most valuable concepts while drawing upon the work of various individuals (e.g., Kenneth Craik) and orientations from psychology, as well as fields outside of psychology. For example, he relied heavily on the field of ethology (especially the work of Konrad Lorenz) and combined these with ideas from psychoanalytic theory, animal research/biology (such as the work of Harry Harlow, John Young, and Conrad Waddington), and developmental psychology. Over the course of 15 years, Bowlby wrote about his theory of attachment in three papers which were later developed into a major book, forming a trilogy: *Attachment and Loss: Vol. 1. Attachment* (published in 1969 and revised in 1982), *Attachment and Loss: Vol. 2. Separation: Anxiety and Anger* (1973), and *Attachment and Loss: Vol. 3. Loss: Sadness and Depression* (1980).

While developing his theory, Bowlby borrowed the concept of a “behavioral system” from ethology; a behavioral system includes an inherently motivated set of behaviors which: 1) follow a recognizable pattern and predictable sequence, 2) are activated and deactivated/terminated by specific conditions (which may be internal or external), 3) lead to certain predictable goals, at least one of which contributes to the survival or reproductive fitness of the individual, and 4) operates within the context of a larger social system (Cassidy, 2008; Mikulincer & Shaver, 2003). With regard to the infant’s relationship with a caregiver, Bowlby proposed that an infant has an attachment behavioral system (typically referred to as “attachment system”), whereby infants have a fundamental instinctual drive to maintain physical and psychological proximity to a primary caregiver. Predictable behaviors (clinging, reaching, crawling towards, making eye contact, crying, smiling, and searching for a caregiver) are activated in response to a threat (e.g., loud noises, sudden darkness, hunger, pain, fatigue, or the presence of a stranger) in order to elicit comfort and protection from the caregiver. The
attachment behaviors are terminated after the receipt of care and protection and the reduction in threat. The activation of the attachment system increases the likelihood that the infant will be attended to, cared for, and more apt to survive (Bowlby, 1969/1982). Thus, the infant’s attachment system operates in a homeostatic loop, adjusting to the external environment in a manner which regulates the internal state. When there is no perceived threat to the infant’s safety in the environment, he or she pursues developmental growth by exploring his or her environment knowing that the caregiver will be there to provide care and protection if needed. In this way, the caregiver serves as a “secure base” from which to explore as well as a “safe haven” to return to when the infant feels threatened (Ainsworth, Blehar, Waters, & Wall, 1978). According to Bowlby’s evolutionary reasoning, infants who maintain proximity to a supportive caregiver are more likely to survive and eventually reproduce, causing genes that foster attachment behaviors in times of danger to be selected for and passed on to subsequent generations (Bowlby, 1958/1982).

For this reason, those using attachment theory view anxiety upon separation from a caregiver to be a normal and desirable process during early emotional development. Often an infant’s distress is soon relieved through reunion with the caregiver, but when separation is abrupt and long-lasting or there are other disruptions in the infant-caregiver relationship, the infant can be expected to not only be anxious but also go through predictable stages of grieving and emotional reorganization, as previously mentioned. Ideally, the caregiver supports the developing infant’s interactions with the environment by taking into consideration his or her lack of motor, communication, and social skills and protects the infant, while affording him or her as much independence as possible in order to facilitate skills necessary to self-soothe and regulate emotions independently until an attachment figure is needed.
Although trained in psychoanalytic theory, Bowlby relied so heavily on animal research and the notion of behavioral systems, he was strongly criticized by other psychoanalysts for being a “behaviorist.” However, akin to his former supervisor, Bowlby stood up for his beliefs despite reactions from others in the field. Today, his theory is one of the most dominant approaches used to describe and investigate attachment relationships and emotional development, not only in infancy but throughout the entire lifespan--“from the cradle to the grave” (Bowlby, 1979, p. 129).

**Attachment Development and Internal Working Models**

Attachment theory includes the idea that the desire to form strong attachments with others is an innate human characteristic. Bowlby (1969/1982) and colleague Mary Ainsworth (1973) proposed four phases in the development of infant-caregiver attachments. The first phase, pre-attachment, occurs between birth and 2 months of age. During this phase, infants are inherently interested in and responsive to social interactions with virtually anyone. However, during the second phase, attachment-in-the-making (roughly 2 – 6 months of age), infants begin to show preferences for certain individuals/ caregivers. During the third phase, clear-cut attachment (6 – 7 months), all of the behaviors that define attachment behaviors are typically selectively directed toward the primary caregiver. This is typically evident in the infant’s efforts to maintain proximity to the caregiver, the use of this person as a haven of safety in time of need, as a secure base for exploration, and distressed reactions to separation from this person. The fourth and final phase, goal-corrected partnership (beyond 2 years of age), refers to when children can endure longer periods of separation and are increasingly capable of synchronizing their proximity-seeking bids with caregivers’ goals and preferences.
As an infant’s attachment system is developing through these stages, and an infant experiences an infinite number of interactions with his or her caregiver and other significant individuals, episodic and affective memories from these interactions are stored in long-term associative memory networks. These memories accumulate, becoming increasingly complex over time, and become organized in a hierarchical manner (episodic memories become exemplars of relationship-specific models, and those models become exemplars of generic relational schemas). These “internal working models,” as Bowlby coined them, include ideas about the world and significant individuals within it, including the self (Bretherton, 1985; Collins & Read, 1990; Overall, Fletcher, & Friesen, 2003).

Furthermore, internal working models evolve as a result of age and experience (Bowlby, 1973). Even though ideas about the self and other are distinct, they remain closely intertwined. For example, if a caregiver frequently rejects an infant’s bids for care and protection, the infant may come to develop not only a sense of a rejecting caregiver but also of the self as being unworthy of care (Bretherton, 1992). This collection of memories allows the individual seeking care to predict future interactions with the caregiver and adjust proximity-seeking attempts without having to rethink each event (Mikulincer & Shaver, 2007).

Bowlby coined the term internal working model to emphasize his understanding of the construct as being a dynamic mental structure, from which an individual could generate predictions and extrapolate to future situations (Bretherton, 1990; Bretherton & Munholland, 2008). Additionally, Bowlby adopted the term “working,” as he felt it reflected the continuously developing aspect of a person’s cognitive and affective memories (Belsky, 2002). The term internal working model was made distinct by Bowlby from the term “representation,” which was typically used by psychoanalysts at the time (and viewed as a static construct), to refer to an
individual’s ability to conduct mental simulations of the external world before actually executing the behaviors (Bretherton, 1990; Bretherton & Munholland, 2008). However, attachment theorists and researchers today often use these terms (internal working model and representation) interchangeably, as will be done in this paper as well.

Internal working models are not only pivotal in allowing individuals to adjust their behavior to improve the chances of reaching their goals of care, proximity, and protection, but also play an important part in other developmental processes as well. For instance, internal working models guide behavior, cognitions, and feelings and can bias the ways in which an individual cognitively encodes, interprets, and stores memories of subsequent interactions with attachment figures and other individuals (Bretherton, 1990; Bretherton & Munholland, 2008). In addition, the individual unconsciously, but actively, participates in constructing his or her own experiences by behaving in ways that elicit responses from the environment that supports his or her previously established representations. Individuals also interpret ambiguous situations in a way that is consistent with established representations (Barrett & Holmes, 2001), and internal working models influence the recall of past events (Kuebli & Fivush, 1994). Thus, working models of self and others result from both accurate representations of experiences and subjective biases of actual experiences resulting from existing internal working models (Fraley, 2002a; Marrone, 1998).

Adjustment to the environment (and perceptions of the environment) may produce slight modifications in an individual’s behavior. However, internal working models tend to be conservative in that new experiences are assimilated into existing models more readily than models are accommodated to fit new experiences (Bretherton, 1985). Thus, it has been recognized that, because representations of the self and important others operate predominantly
outside conscious awareness, they are open, but resistant, to dramatic change over time (Bowlby, 1980). Indeed, many investigations have found that internal working models of attachment tend to be consistent over the lifetime (Berlin, Cassidy, & Appleyard, 2008; Bretherton, 1985; Fraley, 2002a; Kobak & Sceery, 1988; Main & Goldwyn, 1985; Steele & Steele, 2005; Waters, Hamilton, & Weinfeld, 2000; Waters et al., 2000), but experiences such as trauma, new relationships, loss of a caregiver, divorce, psychotherapy, a supportive romantic partner, or the birth of a baby are associated with changes in internal working models (Cassidy, 2000; Egeland, Jacobvitz, & Scroufe, 1988; George & Solomon, 1996; Iwaniec & Sneddon, 2001; Lewis, Feiring, & Rosenthal, 2000; Waters, Weinfield, & Hamilton, 2000).

**Types of Attachment**

Because the attachment system operates in a complex goal-corrected manner, an individual consciously and unconsciously evaluates the progress he or she is making towards achieving the set-goals of proximity and protection and, if necessary, corrects his or her behavior to produce the most effective action sequence in order to attain his or her goal of getting attachment needs met (Mikulincer & Shaver, 2007). Thus, the specific attachment behaviors which are displayed depend on the history of care received from the attachment figure (Ainsworth et al., 1978). The quality of interaction with attachment figures in times of need is the major source of individual differences in attachment system functioning. When a caregiver is consistently available, sensitive, and responsive to an infant’s proximity-seeking bids in times of need, the infant is likely to experience felt security, which is a sense that the self is worthy of care, that the caregiver will be available and comforting when called upon (to serve as a safe haven), and that the world is generally safe so that curious and confident exploration of the environment is possible (the attachment figure serves as a secure base; Sroufe & Waters, 1977).
This sense of felt security implies that the attachment system is functioning well and that proximity-seeking is a reliable and effective emotion regulation strategy.

However, not all caregivers are proficient or appropriate in their responsiveness. When a caregiver proves not to be physically or emotionally available on a consistent basis during times of need, is not responsive to an infant’s bids for proximity, or is inadequate at alleviating distress, the infant does not experience comfort, relief, or felt security. Rather, the distress that initially activated the system is compounded by serious doubts about the feasibility of attaining his or her goals of proximity and care.

In the 1970s, Mary Ainsworth devised a procedure to assess the quality of an infant’s attachment to his or her caregiver (Ainsworth et al., 1978) called the Strange Situation (SS). Using a series of eight episodes, the infant is presented with various situations in order to activate the attachment behavioral system through a series of separations and reunions with his or her caregiver as well as a stranger. Infants may then be classified into one of four categories of attachment (three described by Ainsworth et al. [1978] and one later described by Main and Solomon, [1986]). The ideal type of attachment is called Secure. Infants with this type of attachment tend to have caregivers who read their cues of distress and find effective ways to comfort them. When the infant is not in distress, his or her caregiver serves as a secure base from which to explore the environment and, during times of distress, serves as a safe haven. These infants are distressed by separations from their caregiver and may be somewhat comforted by a stranger but clearly prefer their caregiver. Upon reunion with their caregiver, they react with more than a casual greeting, are comforted fairly quickly, and are able to return to play. This is presumed to be due to consistent and effective care and protection from the caregiver in response to activation of the attachment system and the infant’s experience of felt security. These
behaviors reflect underlying internal working models that the world is a safe place, that caregivers will be available and responsive during times of need, and that they, themselves, are worthy of care. Approximately 65% of American infants are classified as Secure during infancy (van IJzendoorn & Kroonenberg, 1988). However, this figure has been known to be significantly lower in high-risk samples, such as those with families from lower socioeconomic backgrounds using public assistance programs (Egeland & Sroufe, 1981) and those who were both in poverty and reported high life stress (Weinfield, Sroufe, Egeland, & Carlson, 2008).

Ainsworth et al. (1978) also identified two types of problematic or insecure attachment categories, and these were termed Insecure-Avoidant and Insecure-Ambivalent. Infants who are classified as Insecure-Avoidant are believed to have caregivers who typically disapprove of and punish closeness and expressions of need or vulnerability (Cassidy & Kobak, 1988; Main 1990). In such cases, the child learns to expect better outcomes if signs of need and vulnerability are hidden or suppressed and proximity-seeking efforts are weakened or blocked; in this instance, the attachment system is chronically deactivated despite a lack of felt security, and the child attempts to deal with threats and dangers alone (a strategy that Bowlby called “compulsive self-reliance”). The primary goal of deactivating strategies is to keep the attachment system turned off or down-regulated so as to avoid frustration and distress caused by the caregiver’s unavailability. These infants tend to display little affect or exploration in general, no matter if they are in the presence of their caregiver, a stranger, both, or neither. Strangers and caregivers are often treated very similarly by the infant. They may show signs of emotional disengagement and withdrawal, appear very independent, and engage in behaviors that keep them distracted from the distress they are feeling (for example, focusing on toys instead of the caregiver). These behaviors reflect underlying internal working models that the world is not always a safe place,
that caregivers will not be available and responsive during times of need, that they, themselves, are not worthy of care, and one’s needs are not acceptable. Approximately 21% of American infants are classified as Insecure-Avoidant (van IJzendoorn & Kroonenberg, 1988); however, this figure has been known to be significantly higher in high-risk samples (Egeland & Sroufe, 1981; Weinfield et al., 2008).

Infants who are classified as Insecure-Ambivalent respond with frustration to inconsistently met attachment needs (Bowlby called their typical response to the caregiver “protest”). Protest is especially likely when a caregiver is sometimes responsive and sometimes not, placing the infant on a partial reinforcement schedule that rewards persistent and animated proximity-seeking attempts because these behaviors sometimes succeed in obtaining proximity and protection from the caregiver. In such cases, the infant does not easily give up on proximity seeking and, in fact, intensifies his or her attachment behaviors so as to pressure or coerce the caregiver’s attention, love, and support. The main goal of this strategy is to get the caregiver, viewed as unreliable or insufficiently responsive, to pay more attention and provide better protection and support (Cassidy & Kobak, 1988; Main 1990). Unfortunately, excessive demands for support begin to seem both natural and necessary, and can become a cause of further relational conflicts and emotional distress. These infants tend to be too anxious to explore or interact with a stranger, even in the presence of their mother. When they are separated from their caregivers they tend to get extremely distressed yet appear angry when their caregivers return. These infants are unable to be comforted by their caregivers, remain distressed, and are unable to return to play and exploration. These behaviors reflect underlying internal working models that the world is not always a safe place, that caregivers will only be available and responsive some of the time (unpredictably), so that they, themselves, are only worthy of care under extreme
circumstances. Approximately 14% of American infants are classified as Insecure-Ambivalent (van IJzendoorn & Kroonenberg, 1988). However, this rate has also been known to be significantly higher in high-risk samples (Egeland & Sroufe, 1981; Weinfield et al., 2008).

The fourth, and final, attachment classification emerged after approximately 200 cases, from various samples, were difficult to classify using the traditional Ainsworth et al. (1978) 3-category system (Main & Solomon, 1986). The Disorganized/Disoriented category was identified and described children who displayed bizarre or contradictory behavior patterns, movements, and expressions which lacked a readily observable goal, intention, or explanation including behaviors such as stilling/freezing, anomalous postures, rocking, self-injury, going prone on the floor, and fearful reactions to their caregiver (Main & Solomon, 1990). These infants often had histories of trauma or caregivers with unresolved trauma (Lyons-Ruth & Jacobvitz, 1999; Main & Hesse; 1990; Main, Kaplan, & Cassidy, 1985; van IJzendorrn, 1995). These disorganized and incoherent behaviors reflect underlying internal working models full of fear; namely, the world is dangerous and unpredictable and both self and other are extremely ineffective. These individuals do not typically have coherent internal working models like the other classifications; instead, their working models tend to be a mixture of both previously described insecure types with distinct features of fear, and the attachment system is believed to be collapsing. Approximately 13 - 38% of low-risk infants and 28 - 51% of high-risk infants (due to low income status, for example) are classified as Disorganized/Disoriented (Lyons-Ruth, Repacholi, McLeod, & Silva, 1991). In line with Bowlby’s original propositions, all four attachment classifications (or attachment strategies) serve to promote the survival of the infant by increasing the likelihood of receiving care and protection from a caregiver in their particular
PREDICTORS AND EFFECTS OF PRENATAL MATERNAL REPRESENTATIONS

environment (Weinfield et al., 2008), with the possible exception of the Disorganized/Disoriented category.

**Adult State of Mind with Respect to Attachment**

Bowlby argued that because internal working models are internalized and operate, at least partially, outside of conscious awareness, they remain fairly stable across future interactions with new individuals, including through childhood (Bretherton, 1985), adolescence (Aikens, Howes, & Hamilton, 2009; Allen, 2008; Carlson, Sroufe, & Egeland, 2004; Hamilton, 2000; Sroufe, Egeland, Carlson, & Collins, 2005), and into adulthood (Bowlby, 1973, 1980; Morris, 1982; Riggs, 2010; Scharfe & Bartholomew, 1994; Weinfield et al., 2008), especially when environments are generally stable. However, the attachment system is more comprehensively articulated for infancy than it is for adulthood at this time (Waters, Crowell, Elliott, Corcoran, & Treboux, 2002), and more work needs to be conducted for a better understanding of how the attachment system operates in adulthood, including all the ways in which it affects one’s life and the life of one’s offspring (Rothbard & Shaver, 1994).

A seminal paper by Main et al. (1985) expanded the study of attachment into adolescence and adulthood by introducing the notion that attachment quality and representations of attachment can be measured via verbal narratives in adulthood rather than inferred through behaviors as done in infancy. Their paper was based on research with the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985), a measure they developed to assess how memories of childhood experiences with attachment figures are organized mentally and verbally expressed through responses to questions about childhood experiences with attachment figures. These verbally produced memories are believed to tap into “states of mind with respect to
attachment.” Individuals may be categorized into one of four attachment classifications (Secure, Dismissive, Preoccupied, or Unresolved/Disorganized) which parallel the infant typologies.

Adults classified as Secure/Autonomous (analogous to the Secure classification in infancy) describe their own caregivers as available and responsive. They share memories of relationships with caregivers that are clear, convincing, and coherent. Their presentation and evaluation of attachment-related experiences is consistent and their responses are clear, relevant, and reasonably succinct. They believably describe diverse childhood experiences, value attachment relationships, and view attachment-related experiences as influential in their development. These narratives reflect underlying internal working models that the world is a safe and predictable place, that others will be available and responsive during times of need, and that they, themselves, are effective and worthy. Like the Secure typology of infant attachment, the majority of the adult population in the U.S. (55%) has been found to fit this classification (van IJzendoorn & Bakermans-Kranenburg, 1996).

There are three types of insecure states of mind with respect to attachment in adulthood. Individuals classified as Dismissing (equivalent to the Avoidant classification in infancy) insist that they are unable to remember childhood attachment experiences or describe their parents in highly positive terms (idealized) that are unsupported by episodic memories or are contradicted later in the interview. They deny or devalue the impact of attachment relationships and may share an early history of rejection. These narratives reflect underlying internal working models that the world is not always a safe place, that others will not be available and responsive during times of need, and that they, themselves, are only effective or worthy in isolation or outside of relationships. Approximately 25% of the U.S. population has been found to fit this classification (van IJzendoorn & Bakermans-Kranenburg, 1996).
Those classified as Preoccupied (equivalent to the Ambivalent classification in infancy) show confused, angry, or passive preoccupation with attachment figures, are hypersensitive to attachment experiences, and can easily retrieve negative memories but have trouble discussing them coherently without anger or anxiety. These narratives reflect underlying internal working models that the world is not safe or predictable, that others will only be available and responsive some of the time, and that they, themselves, are not worthy of care in most circumstances. Approximately 20% of the U.S. population has been found to fit this classification (van IJzendoorn & Bakermans-Kranenburg, 1996). Finally, those classified as Unresolved (equivalent to the Disorganized/Disoriented classification in infancy) relate memories of traumatic experiences involving loss or abuse. A lack of resolution of the trauma is evident by notable lapses in reasoning or discourse during their responses.

Consistent with the notion that internal working models are carried forward within the individual over time, a number of investigations have found evidence that the quality of infant attachment with a caregiver (which reflect certain types of working models) is usually correlated with state of mind with respect to attachment in adolescence (Hamilton, 2000) and adulthood (Frale, 2002a; Scharfe, 2003; Waters et al., 2002, Waters, Hamilton, & Weinfeld, 2000; Waters et al., 2000). For example, using a middle-class sample, Waters et al. (2000) conducted the Strange Situation with infants at 1 year of age and the AAI 20 years later and found that 72% received the same attachment classification (collapsed into Secure versus Insecure) over time. In addition, reports of negative life events (e.g., loss of parent, parental divorce, life-threatening illness of parent or child, or child experiencing physical or sexual abuse by family member) were significantly related to the likelihood of a Secure infant becoming insecure in early adulthood. Contrary to findings from low-risk samples, Weinfeld, Whaley, and Egeland (2004) found more
discontinuity of attachment over time (57% had the same classification in a high-risk sample \(N = 125\)) when collapsed into Secure versus Insecure groups based on Strange Situations between 12 and 18 months of age and AAIs at age 19. In this sample, considered to be high-risk due to poverty (all were living in poverty, most were young [median age = 20], single [58%], had unplanned pregnancies [82%], and 29% did not graduate from high school), the infant Secure group displayed substantial shifting to insecurity over time. Taken together, these results support Bowlby’s theory (1988) that individual differences in attachment security can be stable across significant portions of the lifespan and yet remain open to revision in response to experience.

While attachment classifications in infancy and adulthood are analogous, there are important differences between the attachment system in infancy/childhood and the attachment system in adolescence/adulthood (Zeifman & Hazan, 2008). The first is that the frequency of attachment behaviors may wane across development, due to increased ability of an individual to care for him or herself, a developed repertoire of coping and problem-solving strategies that can be exercised autonomously, as well as symbolic thought, which allows one to feel comfort from a partner when not in his or her immediate presence. These skills increase the threshold for activation of the attachment system over time and allow adults to self-soothe (for example, mental representations of attachment figures may increasingly create a sense of safety and security and become symbolic sources of protection in adulthood) and help regulate emotions when an attachment figure is not physically present. Second, there is typically a switch of primary attachment figures from a caregiver (usually one or more parental figures) to specific peers and romantic partners. Though caregivers often continue to be important attachment figures, they often take a secondary role (Doherty & Feeney, 2004; Weiss, 1991). In fact, during adulthood, a wide variety of relationship partners can act as attachment figures, including
parents, friends, and romantic partners. In addition, groups, institutions, and abstract or symbolic figures (e.g., God) can become targets of proximity-seeking in times of need (Feeney & Noller, 1996). Finally, the attachment system in adolescence and adulthood is not nearly as capable of overwhelming other behavioral systems as it is in infancy/childhood. While infants and children seem unable to give energy or attention to other matters when their attachment system is activated, adults can usually attend to other matters (though concentration may be decreased). It is important to note, however, that some research has demonstrated links between various types of trauma (which often damages the attachment system) at any age and the development of disturbances of self and identity (e.g., personality disorders), indicating possible detrimental effects at any age when the attachment system is compromised (Westen & Heim, 2008).

**Adult Romantic Attachment**

Working from a personality and social psychology perspective, Hazan and Shaver (1987), who had been studying loneliness in adolescence and adulthood, followed Weiss’s (1982) idea that chronic loneliness is correlated with insecure attachment. This work led to the proposal that romantic bonds in adulthood are conceptually parallel to infants’ emotional bonds with their primary caregivers (Shaver, Hazan, & Bradshaw, 1988). They contend that love in both infancy and adulthood includes behaviors such as eye contact, holding, touching, caressing, smiling, crying, and clinging; a mutual fascination and preoccupation with another; the development of “baby talk” and other created pieces of language; a desire to be comforted by the relationship partner (caregiver, romantic lover, or spouse) when distressed; the experience of anger, anxiety, and sorrow following separation or loss; and the experience of happiness and joy upon reunion. Further, it can be easily argued that a romantic partner promotes survival and the
passing on of genes to the next generation (Kirkpatrick, 1998; Wen, 2008; Zeifman & Hazan, 2008).

Zeifman and Hazen (2008) speculated that adolescent and adult romantic relationships develop through a set of stages similar to those observed in infant-caregiver attachment. Like others, they proposed four stages when describing romantic attachment development in adulthood, using names that were similar to those which were developed to describe infant attachment. During the first stage (preattachment/proceptive program), affiliation is established and behaviors such as flirtation and uncommitted sexual involvement increase. The second stage (attachment-in-the-making) involves increasing selectivity and commitment to the attachment figure, while in the third phase, open pledges of devotion, such as engagement and marriage, are evident. In the fourth and final stage (goal-corrected partnership), there is a decline in overt displays of attachment behavior and a redirection of attention to other aspects of life. Here again the attachment figure serves as a secure base, giving each individual the confidence to explore his or her environment with a greater sense of security.

In order to assess adult attachment in the context of romantic relationships, Hazan and Shaver (1987) devised a categorical classification system (Secure, Avoidant, and Anxious-Resistant) that is analogous to both the infant and AAI classification systems. Though researchers within the field of romantic attachment work from within Bowlby’s attachment theory, these investigators focus on the quality of adult-adult attachment relationships as opposed to parent-child relationships, and typically conduct investigations using larger samples with self-report questionnaire assessments. There has been debate regarding the relationship between these two lines of research (Shaver & Mikulincer, 2006). While some believe that self-report and interview measures of attachment patterns measure two very different constructs (Crowell,
Treboux, & Waters, 1999; Simpson, Rholes, Orina, & Gritch, 2002; Waters et al., 2002), others have found significant associations between the two (Bartholomew & Horowitz, 1991; Bartholomew & Shaver, 1998; Griffin & Bartholomew, 1994; Shaver, Belsky, & Brennan, 2000; Shaver & Mikulincer, 2002). Even though there is agreement that these two types of methodologies assess different attachment constructs, Waters et al. (2002) and others openly recognize the value of both types of assessments in order to gain the best understanding of significant relationships throughout the lifetime.

If an individual’s bids for proximity, protection, and felt security are met on a consistent basis, he or she tends to be comfortable with intimacy, willing to depend on others for support, and confident that he or she is loved and valued by others. As a result, the individual typically perceives romantic attachment figures as warm and responsive and has positive expectations about relationships in general. These adults are classified as Secure using Hazan and Shaver’s model (1987; analogous to Secure infant attachment and Secure/ Autonomous state of mind). Individuals classified as such find it relatively easy to get close to their romantic partners, are comfortable depending on and having their partners depend on them, and do not worry about being abandoned. In comparison to other adults, those classified as Secure are more likely to seek and report feelings of support and security from their partners when distressed and are more likely to provide support to their distressed partners (Simpson, Rholes, & Phillips, 1996). It has been reported that 55 - 77% of adults fit this classification (Collins & Read, 1990; Feeney & Noller, 1990; Kirkpatrick & Davis, 1994).

There are two types of insecure romantic attachment in Hazan and Shaver’s system (1987). Those classified as Avoidant (analogous to Insecure-Avoidant infant attachment and Dismissing state of mind) are only somewhat comfortable being close to their partners and find it
difficult to trust their partners completely or allow themselves to depend on them. These individuals are often nervous when a partner gets too close and often find that their partners want to be more intimate than they feel comfortable being. Simpson and Gangestad (1991) have found that Avoidant people often adopt a more unrestricted sociosexual orientation, which leads them to engage in casual, uncommitted sexual relationships. It has been reported that 14 - 30% of adults fit this classification (Collins & Read, 1990; Feeney & Noller, 1990; Kirkpatrick & Davis, 1994).

On the other hand, those classified as Anxious/ Ambivalent (analogous to Insecure-Ambivalent infant attachment and Preoccupied state of mind) find that their partners tend to be reluctant to get as close as they would like. They often worry that their partner does not really love them or want to stay with them. Therefore, these individuals want to get very close to their partners but feel that this sometimes scares their partner away. It has been reported that 9 - 15% of adults have been found to fit this classification (Collins & Read, 1990; Feeney & Noller, 1990; Kirkpatrick & Davis, 1994).

However, soon after Hazan and Shaver’s introduction of this classification system for romantic attachment, Bartholomew (1990) considered both types of adult attachment assessment (interview methodology from the developmental tradition and self-report methodology from the social-personality tradition) and highlighted some important differences. The biggest distinction between the two methods is that semi-structured interviews are more sensitive to unconscious aspects of attachment while questionnaires measure conscious feelings and behaviors in close relationships. Building on both lines of work, as well as Bowlby’s claim that internal working models are composed of models of the self as well as others, Bartholomew devised a self-report measure of experiences in close relationships (Bartholomew & Horowitz, 1991). She and her
colleagues proposed an expanded model of romantic attachment based on perceptions of self and other that included two forms of avoidance (and therefore four categories of romantic attachment). This 4-category system resulted in a Secure group, comprising about 47% of the population, a Preoccupied group, comprising about 14% of the population, a Fearful-Avoidant group, comprising about 21% of the population, and a Dismissive-Avoidant group, comprising about 18% of the population. According to this classification system, those classified as Fearful-Avoidant desire intimacy but distrust others, are socially insecure and desire approval from others, and lack assertiveness. Therefore, they tend to avoid close relationships that have the potential to result in loss or rejection. On the other hand, those classified as Dismissive-Avoidant tend to focus on achievement and self-reliance and appear socially cold. These individuals tend to conserve a sense of self-worth at the expense of intimacy.

More recently, researchers have used individual statements and factor analysis to investigate the structure of these categorical classifications (Bartholomew & Horowitz, 1991; Feeney, Noller, & Callan, 1994; Feeney, Noller, & Hanrahan, 1994). This has resulted in the identification of two high-order dimensional factors believed to underlie romantic attachment groups, including anxiety (about relationship issues) and avoidance (discomfort with intimacy and interdependence); these dimensions appear to be related to Bartholomew’s 4-category model, which was described previously (see Figure 1). More specifically, Secure adults are characterized by low anxiety and low avoidance, Preoccupied adults are characterized by high anxiety and low avoidance, Dismissive-Avoidant adults are characterized by low anxiety and high avoidance, and Dismissive-Fearful adults are characterized by high anxiety and high avoidance. The dimensional model of adult romantic attachment is currently considered the most useful model among romantic attachment researchers (Griffin & Bartholomew, 1994).
Figure 1. Categorical and Dimensional Model of Adult Romantic Attachment
CHAPTER 2: HISTORY OF ATTACHMENT RELATIONSHIPS AND ASSOCIATIONS
WITH MATERNAL REPRESENTATIONS OF AND RELATIONSHIP QUALITY WITH
THE CHILD

As reviewed above, decades of attachment research and theory development have indicated that there is continuity of attachment quality between an individual and significant attachment figures across the lifespan, with special importance placed on the earliest attachment experiences and early internal working models. Further, more generally, one would expect there to be significant associations between quality of previous relationships and an individual’s representations of his or her own child and the relationship with that child. In the sections that follow, empirical research that has examined associations between childhood relationships and later romantic relationships will be summarized, followed by a description of research investigating associations between mothers’ previous relationship experiences and their representations of their children and relationships with their children.

Associations Between Childhood Relationship Quality with Parents and Later Romantic Relationship Quality

As expected, there is consistent empirical evidence that the quality of child attachment and, more broadly, childhood relationship quality with one’s parents, is highly correlated with later romantic attachment and romantic relationship quality. For example, some studies have found retrospective self-reports of childhood relationship quality with one’s parents to be significantly correlated with currently perceived romantic relationship quality (Feeney & Noller, 1990; Hazan & Shaver, 1987, 1994; Hindy & Schwartz, 1994; Rothbard & Shaver, 1994; Scharf & Mayseless, 2008). In one of the earliest studies on this topic, Hazan and Shaver (1987) were able to correctly classify 75% of the Avoidant, 90.5% of the Anxious/Ambivalent, and 85.7% of
the Secure adults in their study based on the participants’ history of relationship quality with parents. Feeney and Noller (1990) were able to replicate this work in a sample of 374 undergraduates and added a noteworthy finding that those classified as Avoidant with respect to romantic relationships were most likely to report having experienced a lengthy separation from their mothers during childhood, as might be expected based on attachment theory.

Similarly, others have found significant correlations between adults’ state of mind with respect to attachment (based on the AAI) and self-reports of romantic relationship quality (Roisman et al., 2001; Shaver et al., 2000; Waters, Kondo-Ikemura, Posada, & Richters, 1991). For example, when comparing subscales of the AAI and a self-report measure of romantic relationship quality, Shaver et al. (2000) found 33% of the correlation coefficients to be significant at the .05 level, 20% at the .01 level or beyond, and 11% at the .001 level.

Still others have used observational methods, or a combination of observational and self-report measures, to assess attachment and relationship quality between parents in childhood and romantic partners in adulthood (Crowell et al., 2002; Roisman et al., 2001; Scharf & Mayseless, 2008; Wampler, Shi, Nelson, & Kimball). For example, Roisman et al. (2001) reported associations between the quality of parent-adolescent interactions at age 13 and relationship quality with romantic partners at age 20 (both interactions were coded by researchers via videotape). In another set of studies, from the Stony Brook Relationship Project, adults’ state of mind with respect to attachment (based on the AAI) were related to their representations about romantic relationship quality; specifically, there was 58% concordance between classifications (Crowell et al., 2002; Owens et al., 1995; Treboux et al., 2004). These researchers also found significant associations between state of mind with respect to attachment and self-reports regarding romantic relationship quality, although the associations between narrative measures of
romantic relationship quality were stronger than associations with the self-report measure. Thus, results from a number of studies indicate that, across a variety of measurement techniques, the relationship between childhood relationship quality with parents and later romantic relationship quality is pretty consistent. Those who have failed to find such relationships speculate that it is due to differing time points at which the measures were administered (Roisman, Collins, Sroufe, & Egeland, 2005), insufficient sample sizes which lacked statistical power (Bartholomew & Shaver, 1998), or inappropriate data analysis (Bartholomew & Shaver, 1998), as opposed to the absence of a relationship between these two constructs. Discrepant results could also be due to differences in specific measurement issues (e.g., self-report measures of relationship quality versus state of mind with respect to attachment; Waters et al., 2002) and variations across divergent samples as has been found in assessing other, similar constructs (Ganellen, 2007; Meyer et al., 2001).

Longitudinal studies that have explored the evolution of internal working models and relationship quality over the lifetime (infancy to young adulthood) have also provided evidence that childhood relationship quality with caregivers is related to adult romantic relationship quality. For example, the Minnesota Longitudinal Study (Roisman et al., 2005; Sroufe et al., 2005) followed a sample of 170 high-risk (due to being born into poverty) individuals from birth to age 26 and found that security of attachment to parents during infancy (Strange Situations were conducted at 12 and 18 months) was associated with the observed quality of participants’ romantic relationships (assessed via coded videotaped interactions when the participants were between 20 and 21 years of age). The association between infant relationship quality with caregivers and romantic relationship quality was found to be partially mediated by self-reports of romantic experiences, suggesting that one plausible mechanism through which infant
relationship quality with caregivers shapes young adults’ interactions with romantic partners is through perceptions of the quality of romantic relationships. This study also reported associations between individuals’ state of mind with respect to attachment and other evaluations of romantic relationship quality. Using similar methods with both high- and low-risk samples, other research groups have confirmed direct, as well as indirect, relationships between childhood relationship quality with caregivers and adult romantic relationship quality over time (Bielefeld and Regensburg Longitudinal Studies [Grossmann, Grossmann, & Kindler, 2005], the Berkeley Longitudinal Study [Main, Hesse, & Kaplan, 2005], and the Parent-Child Longitudinal Project [Roisman et al., 2001]). However, it is notable that the direct effects of early relationship on later romantic relationships appear to be stronger in high-risk samples, while the indirect effects appear to be most salient in low-risk samples. Together, results from both cross-sectional and longitudinal studies suggest that quality of childhood attachment and relationship quality with one’s parents are related to later romantic attachment and relationship quality. In other words, while relationship quality evolves, it is mostly stable over the lifespan because previous relationship experiences influence subsequent relationship experiences, as Bowlby originally suggested.

**Maternal Representations of the Child**

As previously described, internal working models continue to evolve over the course of the entire lifespan and influence relationship quality and attachment patterns in different types of important relationships. As will be described next, representations or working models of the self and others also influence the relationship between a parent (in this case, a mother) and her own child. While this paper has described the development of the attachment behavioral system from the perspective of the individual who is seeking care and protection, Bowlby also addressed the
“other side” of the attachment relationship, that is, the relationship from the perspective of the
*provider* of care and protection. In fact, attachment theory describes caregiving as a central
compact of human nature and a necessary element of personal and relational well-being
(Bowlby, 1973, 1982, 1988), driven by its own behavioral system, called the caregiving
behavioral system.

The caregiving behavioral system possesses all of the previously mentioned qualities of a
behavioral system. With regard to the caregiving system, caregivers are typically motivated to
protect their infant, thus improving their own reproductive fitness (Hamilton, 1964; Solomon &
George, 1996; Simpson & Belsky, 2008). Predictable behaviors (signaling the child to come
closer, going to the child, following, holding, caressing, carrying, etc.) are activated in response
to situations that the parent feels are frightening, dangerous, or stressful for the child. Caregiving
behaviors typically keep the infant close and safe during times of threat or danger (either directly
or by helping the child become more independent and capable). Interpretations of threat or
danger may also prompt the caregiver to feel increased levels of anger, sadness, fear, or anxiety,
especially if the caregiver is unable to care for or protect the infant. Caregiving behaviors are
terminated by physical or psychological proximity and indications that the child feels
comfortable and satisfied. This system, thus, operates in a homeostatic loop, like the attachment
behavioral system. When caregiving works effectively, it benefits the child being cared for by
reducing a threat, solving a problem, and increasing the child’s sense of felt security (Collins et
al., 2006).

The empirical examination of internal working models in relation to parenting began with
two major lines of work with different, but related, topics. One line of work investigated parental
perceptions of infant temperament. Researchers began to discover that parent-completed
questionnaires about their young children captured more about the parent than about the infant including maternal personality characteristics, previous parenting experiences, birthing experience, and demographic characteristics (Bates, Freeland & Lounsbury, 1979; Sameroff, Seifer, & Elias, 1982; Vaughn, Deinard, & Egeland, 1980), demonstrating that there was something about the caregiver that was influencing the way she viewed her infant. The second line of work investigated parents’ perceptions of their infants more generally. Multiple investigators discovered that parents developed perceptions of their infants even before the baby was born (Leifer, 1977; Lumley, 1982; Mebert, 1989), and these perceptions were associated with perceptions of their infants at 1 and 6 months postnatally (Zeanah, Keener, & Anders, 1986; Zeanah, Keener, Stewart, & Anders, 1985). In addition, Zeanah, Carr, and Wolk’s (1990) hypothesis that prenatal perceptions would be related to fetal movement as observed through ultrasound was unsupported, indicating that these perceptions may be derived from sources other than the fetus itself. The culmination of the aforementioned research prompted multiple attachment research groups to begin to consider how the mother develops representations about her child, herself as a mother, and her relationship with that child, as well as how the mother integrates these into existing working models.

Types of Representations of the Child

Subsequently, attachment researchers interested in studying these maternal representations of the parent-child relationship developed various semi-structured interviews which were styled after the AAI, but instead of focusing on attachment states of mind with respect to one’s own parents (representations of receiving care and protection), these newer interviews focused on the mother’s representations of her own child and her relationship with that child (representations of providing care and protection). The Working Model of the Child
Interview (WMCI; Zeanah & Benoit, 1995) is one of the most frequently used interviews assessing representations of the child and the relationship with that child. The scoring of this and similar interviews typically results in a classification reflecting an attachment category, parallel to those found in infancy (according to the Strange Situation) and adulthood (according to the AAI). In addition to three overall classifications (described below), there are also dimensional scales which assess qualities of maternal narratives such as coherence, infant difficulty, and affective valence (which is similar to the AAI). This coding system allows for categorical or dimensional examinations of maternal representations of the child and the relationship with that child.

Similar to other assessment methods, there is one category of maternal representations of the child which is considered ideal. These narratives, which reflect an underlying type of working model, include a full and rich description of both positive and negative characteristics of the infant, the relationship with the infant, and the experience of mothering the infant. In addition, these narratives are given in a coherent and genuine manner. They convey a sense of the mother as invested in the relationship with her infant and indicate an understanding that this relationship is important for the infant’s development. Mothers with this type of narrative show recognition of the infant as a separate being. Mothers’ representations of the child are expressed in a manner that gives the reader the sense that the mother is open to change in order to accommodate incoming information about the child and the caregiving experience. Maternal narratives which fit this description are generally referred to as Balanced (analogous to Secure infant attachment, Secure/ Autonomous state of mind, and Secure romantic attachment). Reports of low-risk samples in the literature have found that 52% to 65% of maternal narratives fit this description (Ammaniti et al., 2006; Benoit et al., 1997; Zeanah, Benoit, Hirshberg, Barton, &
Regan, 1994). Reports are generally much lower in high-risk samples and have been reported to be between 17% and 52% (Ammaniti et al., 2006; Huth-Bocks, Levendosky, Bogat, & von Eye, 2004; Schechter et al., 2008; Sokolowski, Hans, Bernstein, & Cox, 2007).

In contrast, there are two types of problematic maternal representations of the child. The first type is identified by animosity or a callous description of the infant and the relationship with the infant. The mother may talk about the infant and relationship with the infant at a very vague, cognitive level, void of feeling, emotion, or detail. Therefore, narratives are often shorter than those from individuals classified into other categories. In addition, there is no recognition of the infant’s subjective experience or flexibility to accommodate changes or new information about the infant or relationship with the infant. These representations reflect a tendency to dismiss the significance that parenting may have on the development of the infant. Maternal narratives which fit this description are generally referred to as Disengaged (analogous to Insecure-Avoidant infant attachment, Dismissing state of mind, and Avoidant romantic attachment). Reports of low-risk samples in the literature have found that 3% to 24% of mothers are classified as such (Ammaniti et al., 2006; Benoit et al., 1997; Zeanah et al., 1994), while between 23% and 36% have been reported in high-risk samples. High-risk samples include those with multiple psychosocial and demographic risks and/or high levels of depressive symptoms (Ammaniti et al., 2006), those with multiple demographic risks (e.g., low educational attainment and single parenthood) including high rates of trauma exposure (Huth-Bocks, Levendosky, Bogat et al., 2004; Schechter et al., 2008), and urban, minority samples with extreme levels of poverty and community violence (Sokolowski et al., 2007).

The second type of problematic maternal representation of the child is identified by a high level of involvement with the infant. A lot of emotion (either positive or negative) is usually
expressed about the infant and the relationship with the infant, but there is a lack of modulation and contextual meaning. As opposed to the first type of problematic representation of the child, these mothers often have a lot to say about their infant. However, what they say is unlike the Balanced representation of the child in that descriptions of the child and relationship with the child are often odd, contain unrealistic expectations and contradictions, and leave the reader perplexed. For example, the caregiver may appear very insensitive, interpret the child’s actions as intentionally evil, or the mother seems overwhelmed by the infant, other situations, or other relationships. Contrary to the previous type of representation, those with this classification do not dismiss parenting experiences as non-influential and unimportant; they only fail to fully recognize the detrimental impact their parenting may have on the infant. These maternal narratives may convey the sense of an unsuccessful struggle to feel close to the infant and are generally referred to as Distorted (analogous to Insecure-Ambivalent infant attachment, Preoccupied state of mind, and Anxious/Ambivalent romantic attachment). Investigations of low-risk samples in the literature report that 24% to 32% of mothers fit into this classification (Ammaniti et al., 2006; Benoit et al., 1997; Zeanah et al., 1994). Reports are generally much higher in high-risk samples and have been reported to be between 18% and 59% (Ammaniti et al., 2006; Huth-Bocks, Levendosky, Bogat, et al., 2004; Schechter et al., 2008; Sokolowski et al., 2007).

Similar to other representations, the function of maternal representations of the child and the relationship with the child is to help a mother interpret and anticipate her child’s behavior, as well as to plan and guide her own behavior in relation to the child. In addition, a mother’s representations of the child are modified and solidified by interpretations of ongoing interactions
with her child, which are integrated into her preexisting internal working models (Aber et al., 1999).

**Associations Between Mothers’ Relationships with Own Caregivers and Maternal Representations of the Child**

In line with Bowlby’s theorizing on representational models, numerous investigations have revealed significant associations between maternal experiences with caregivers during childhood (including attachment states of mind) and representations of, and relationships with, their own children (Ammaniti, 1991; Ammaniti et al., 1992; Atkinson et al., 2009; Barrett & Fleming, 2011; Crawford & Benoit, 2009; George & Solomon, 1996; Huth-Bocks, Levendosky, Bogat, et al., 2004; Slade & Cohen, 1996; Solomon & George, 1996). For example, George and Solomon (1996) reported a 69% concordance rate between mothers’ state of mind with respect to attachment (as assessed via the AAI) and their maternal representation of their own child. More specifically, it has been found that mothers categorized as Autonomous on the AAI (those who coherently described their own caregivers as available and responsive during their childhood) had more coherent and joyful representations of their current relationships with their toddlers than mothers who were classified as Dismissing or Preoccupied (Slade et al., 1999). Similarly, after controlling for family income in their sample of Mexican immigrant mothers living in the United States \((N = 88)\), Howes et al. (2011) recently found that mothers with Autonomous states of mind with regard to their own early relationships with parents described their relationships with their own child in ways that reflected a capacity to comfort, calm, and soothe their child when distressed. In addition, they found that mothers who were Dismissive of attachment and minimized negative aspects of their own early relationships with parents had problematic representations of their child and their relationships with the child. For example, these mothers
had representations of the child that reflected role reversal or there was evidence that the mother’s needs took precedence over the child’s needs.

Only a few such studies have been conducted with samples of pregnant women. These investigations have reached similar conclusions as those above, indicating that very early (i.e., prenatal) representations of the child are also influenced by recollections of how one was parented. For example, using chi-square analyses in a sample of predominantly married, middle class, Caucasian subjects \((N = 47)\), Atkinson et al. (2009) found a significant relationship between mothers’ state of mind with respect to attachment (as assessed via the AAI during pregnancy) and maternal representations of their unborn children (as assessed via the WMCI). Similar findings have been found in high-risk samples. For instance, in their sample of 206 high-risk, pregnant women (most had experienced interpersonal violence at some time in their life and almost half had experienced violence during the current pregnancy), Huth-Bocks, Levendosky, Bogat, et al., (2004) found that mothers who recalled more negative experiences with parents during childhood had less Balanced maternal representations of their own infants during pregnancy. Similarly, Malone, Levendosky, Dayton, and Bogat (2010) found that mothers who had experienced childhood physical neglect had higher rates of Distorted representations of their children during pregnancy, even after controlling for other risk factors, than mothers with no such history of neglect.

Crawford and Benoit (2009) also found that mothers classified as Unresolved with respect to early loss or trauma (on the AAI) were more likely to have what they termed “Disrupted” prenatal representations of their child and relationship with their child based on the WMCI. They proposed that this type of representation is particularly problematic and may be analogous to Disorganized infant attachment. In fact, these maternal narratives of the child and
relationship with the child did not fit into any of the original three WMCI classifications, but instead contained reports or descriptions of five main types of bizarre behaviors or statements including (a) affective communication errors, which include failure or inappropriate responding to infant cues; (b) role-boundary confusion, which is displayed by repeated self-references, asking the child for affection or attention, or sexualized behaviors; (c) fearfulness/dissociation/disorientation, referring to repeated use of frightening or ghostlike voices, extended episodes of trancelike behaviors, or speaking as if the infant was inanimate; (d) intrusiveness/negativity, which includes communication to the child through physical means (pushing, grabbing, or restraining), mocking or teasing the child, using negative terms to describe the infant’s personality, or exerting control through objects (withholding toys or food from the child); and (e) withdrawal, displayed by seeking physical distance from the child (placing them in another room or playing with them from behind), using verbal communication to initiate distance (dismissing a child’s need for contact), or directing the child to use toys or other objects as a substitute for closer contact.

These investigations support Bowlby’s theory that maternal experiences with caregivers during childhood greatly impact representations of their own children and relationships with their children. The use of pregnant samples provides useful information in that these studies suggest that representations of the child are influenced by previous relationships, not the children themselves, because the child is not yet born and able to influence the mother’s internal working models as much as post-birth when constant mother-infant interactions are occurring. Also, the association between the quality of relationship with one’s parents and maternal representations of the child during pregnancy has only been assessed in a sample of high-risk pregnant women once (Huth-Bocks et al., 2004). It is important to continue this line of research, as high-risk women
are those who are likely to have histories of poor relationships. In addition, pregnancy is a vulnerable time in that mothers-to-be are reevaluating existing relationships while developing a new relationship in preparation for motherhood (George & Solomon, 1999; Stern, 1995).

**Associations Between Mothers’ Relationships with Romantic Partners and Maternal Representations of and Relationship Quality with the Child**

Prior research has indicated that the quality of a mother’s romantic relationships, including romantic attachment style, also influences her perceptions of (Pesonen, Raikkonen, Lektikangas-Jarvinen, Strandberg, & Jarvenpaa, 2003; Priel & Besser, 2000; Scher & Mayseless, 1997) and behaviors toward her child. For example, Rholes, Simpson, and Blakely (1995) found that mothers who reported more Avoidant romantic attachment styles felt more distant from their young children and provided less support to them (as rated by observers) when trying to teach them a new task. In order to investigate this further, Rholes, Simpson, Blakely, Lanigan, and Allen (1997) examined some of the attitudes, values, and beliefs about children and parenthood that may be responsible for Avoidant parents’ unsupportive behavior and feelings of emotional distance. They found that college students who were classified as having Avoidant romantic attachment styles reported less desire to become parents, endorsed harsher disciplinary practices for young children, and expected that if they eventually became parents, their children would be less affectionate and more emotionally independent. One advantage of using a college student sample, similar to using a pregnant sample, is that their findings cannot be influenced by participant experiences with children as these students were not yet parents. However, it is unknown whether results would generalize to adults who already have children. Nevertheless, certain attitudes and beliefs may help explain why more romantically Avoidant mothers in the Rholes et al. (1995) study felt more distant from their children and behaved less supportively.
However, these investigations did not assess maternal representations of the child and the relationship with the child per se.

The majority of investigations that have included maternal representations of the child as one of their constructs have not assessed romantic attachment style per se but instead have assessed other aspects of romantic relationships (Ammaniti, 1991; Ammaniti et al., 1992; Sokolowsky et al., 2007). For example, Sokolowski et al. (2007) found that mothers who experienced more conflict with their infants’ fathers had increased odds of having Distorted representations of their infants and relationship with their infants. Similarly, Huth-Bocks and colleagues (Huth-Bocks, Levendosky, Bogat, et al., 2004; Huth-Bocks, Levendosky, Theran & Bogat, 2004) found that mothers who had experienced more domestic violence (presumably indicating more conflictual and less satisfying romantic relationships) had more negative and less Balanced representations of their infants during pregnancy. Both investigations add to the body of literature which supports attachment theory and the hypothesis that there is an association between the quality of a mother’s romantic relationship or romantic attachment style and her perceptions of her child. However, there is only one known investigation which assessed the association between the quality of a mother’s romantic relationships (outside of conflict experiences) or romantic attachment style and her representations of her child and relationship with the child. Ilicali and Fisek (2004) interviewed a sample of pregnant women and found that representations of their child (assessed with one open-ended question that was coded for representational features) were significantly correlated with representations of their partner (assessed with 1 question also). This investigation has not been replicated and its design is problematic (each construct was assessed with one question using a measure with unknown psychometric properties). Therefore, further investigations in this area are much needed.
CHAPTER 3: MATERNAL REPRESENTATIONS OF ONE’S CHILD AND ASSOCIATIONS WITH PARENTING EXPERIENCES

Although there is little research, in general, on maternal representations of relationships with one’s own child, some growing empirical evidence suggests that maternal representations of the child and relationship with the child tend to remain fairly stable over time (Aber et al., 1999; Bretherton, Biringen, Ridgeway, Maslin, & Sherman, 1989; Slade et al., 1999). For example, Borghini et al., (2006) found that 76% of mothers were categorized in the same representation category (concordant classifications) when representations of the child were assessed when the infant was 6 and 18 months of age (using 3 categories of representations). These representations have also been found to remain stable from pregnancy to the postpartum period. For example, Benoit et al. (1997) found a concordance rate of 80% between representations of the child when evaluated during pregnancy and 11 months postpartum. Similarly, Theran et al., (2005) found that when categories were collapsed into Balanced and Non-Balanced, there was a concordance rate of 71% between classification status during the third trimester of pregnancy and 1 year postpartum. All three of these investigations reported greatest stability for those within the Balanced classification. Furthermore, Theran et al. (2005) found that in the cases where representations of the child did change between pregnancy and the postpartum period, symptoms of depression, romantic relationship status, income, and partner abuse status predicted the change.

**Associations Between Maternal Representations of the Child and Parenting Behavior**

How these maternal representations of the child develop and evolve is important to understand since they tend to remain fairly stable over time and have been found to influence mothers’ behaviors towards their children and the quality of their interactions with their children
(Korja et al., 2010; Rosenblum, McDonough, Muzik, Miller, & Sameroff, 2002; Sayre, Pianta, Marvin, & Saft, 2001), as would be expected based on attachment theory and what is understood about the caregiving behavioral system. For example, mothers whose representations of the child contained more pleasure and coherence have been found to be more positive and less negative in interactions with their young children (Aber et al., 1999; Dollberg et al., 2010; Slade et al., 1999). On the other hand, maternal representations of the child which contain more anger have been found to be associated with more intrusive and less positive mothering behaviors (Dollberg et al., 2010; Slade et al., 1999).

In addition, it has been found that mothers whose representations of the child were classified as Disengaged or Distorted displayed more atypical parenting behaviors with their infants (Schechter et al., 2008). Distorted representations of the child were found to be especially problematic, as mothers with this classification displayed more hostile-intrusive/ negative or frightening behaviors, and to a lesser degree, frightened behaviors when caring for their children (Schechter et al., 2008). Sokolowski et al. (2007) found that Disengaged mothers were less sensitive, more passive, and less encouraging while interacting with their infants. Similarly, Dayton et al. (2010) found mothers with Distorted representations of the child during pregnancy displayed more hostile behaviors while playing with their infants 1 year later. They also found that mothers whose representations of the child were classified as Disengaged were more behaviorally controlling with their infants, while mothers with Balanced representations of the child demonstrated more positive parenting.
Associations Between Maternal Representations of the Child and Other Parenting Outcomes

Although parenting behaviors are often used to operationalize the construct of parenting quality, there are other aspects of parenting which have also been found to be related to adverse outcomes for children and families that are important to study. For example, there has been a significant amount of research regarding parents’ self-reported parenting stress, which refers to difficult life circumstances and global feelings about parenthood that make parenting more difficult for some mothers (e.g., stress that causes problems with a partner, the inability to do things one enjoys, and feeling trapped by responsibilities as a parent), as well as research on parenting daily hassles, which refers to specific everyday, minor frustrations and irritations that accompany childrearing (e.g., continually cleaning up messes of toys or food, needing to keep a constant eye on where the kids are and what they’re doing, or difficulty getting privacy). Though similar in some ways, these two types of parenting strain have been found to be distinct and affect parenting in different ways (Crnic & Greenberg, 1990).

Higher parenting stress has been found to be related to more maternal behavioral and emotional withdrawal when interacting with children (Hoffman, Sweeney, Hodge, Lopez-Wagner, & Looney, 2009; Repetti & Wood, 1997), poorer mother-child attachment (Jarvis & Creasey, 1991), more child behavior problems (Crnic & Greenberg, 1990; Patterson, Reid, & Dishion, 1992), lower expressive and receptive vocabulary skills in children (Noel, Peterson, & Jesso, 2008), and higher odds of child emergency room visits (Raphael, Zhang, Liu, & Giardino, 2010) in typically developing children, among other significant child and mother outcomes. Similarly, higher levels of self-reported parenting daily hassles have been found to be related to higher levels of maternal distress (Crnic & Greenberg, 1990; Creasey & Reese, 1996), lower
maternal satisfaction with the parenting role (Crnic & Booth, 1991; Crnic & Greenberg, 1990),
more irritability during mother-child interactions (Crnic & Greenberg, 1990), less functional
family status (Crnic & Greenberg, 1990), and more child behavior problems (Creasey & Reese,
1996; Crnic & Greenberg, 1990) in typically developing children.

However, there is only one known investigation which has assessed the relationship
between maternal parenting stress or daily hassles and maternal representations of the child.
Aber et al. (1999) used a measure of maternal representations of the child which did not group
participants into categories of representation types, but instead evaluated representations of the
child along 3 dimensional indexes (joy-pleasure/ coherence, anger, and guilt-separation distress).
In their sample of 125 married, middle- and working-class Caucasian mothers with firstborn
male toddlers, they found that mothers who experienced high levels of daily parenting hassles
had a significant increase in anger from their 15-month to 28-month assessment of maternal
representations of the child. This investigation, along with previous literature, provides some
preliminary evidence regarding the possible connection between maternal representations of the
child and relationship with the child and maternal parenting stress or daily hassles. However,
these results need to be replicated with other samples, especially more diverse and higher-risk
samples, as well as samples with both male and female children. In addition, a variety of
measures need to be used, as both global parenting stress and more specific parenting hassles
appear to be important, yet lead to unique family outcomes and may be more salient in different
populations (Bernier & Matte-Gagne, 2011). Further, like maternal representations of the child,
parenting stress and daily hassles have been found to be relatively stable over time with small
children (Crnic et al., 2005; Ostberg, Hagekull, & Wettergren, 1997), again highlighting the
importance of understanding what may or may not influence stress and hassles in the parenting
role. Together, the aforementioned investigations demonstrate the importance of understanding the development of parenting experiences beyond observable parenting behaviors and potential ways in which parenting experiences may be shaped. It would also be important for future research, such as the present study, to examine how maternal representations of the child during pregnancy might affect these other domains of parenting; to this investigator’s knowledge, this has never been done before.
Attachment theory proposes that the quality of parents’ emotional involvement with their children, and their willingness to be responsive and giving, is dependent on the parents’ own experiences of being cared for (see Bowlby, 1973 and Ricks, 1985, for reviews). Early research testing this hypothesis found similarities between pairs of adult sisters and their attitudes towards and behaviors with their 12- to 30-month old children (McGlaughlin, 1981). In addition, while conducting Strange Situations, Main and Goldwyn (1984) discovered that infants’ avoidance of their mothers’ was correlated with mothers’ reports of rejection by their own mothers in childhood (from the AAI). Since these early studies, there has been more investigation of the continuity of parenting across generations (often termed the “intergenerational transmission” of parenting; van IJzendoorn, 1992). Multiple research groups have found that individuals often describe their own childhood relationship experiences in similar ways to how they describe their own relationships with their children (Benoit & Parker, 1994; Crawford & Benoit, 2009; Huth-Bocks, Levendosky, Bogat et al., 2004; George & Solomon, 1996; Main et al., 1985; Slade & Cohen, 1996; Sokolowski et al., 2007). In general, mothers who recall more rejection, less affection, and more anger (reflecting insecure state of mind with respect to attachment) describe their own child and relationship with that child in a strained and/or negative light (also reflecting an insecure representation of the child).

Investigations of the intergenerational transmission of parenting have also found that individuals often interact with their children in a manner that is congruent with their description of how they were parented during their own childhood (Ammaniti, 1991; Huth-Bocks, Levendosky, Bogat et al., 2004; George & Solomon, 1996; Leerkes & Crockenberg, 2006; Slade
found that parents who reported a history of emotional rejection during childhood showed less
empathy, more negativity, and were less efficacious when their own children were in distress.
Longitudinal investigations have also added to this literature (Benoit & Parker, 1994; Koven,
Chung, & Sroufe, 2009). For example, Kovan et al., (2009) observed a sample of parent-child
dyads when the children were 2 years of age. When these children became adults and had their
own children, they too were observed interacting with their own 2 year old children. After
controlling for a host of factors, they found moderate stability ($r = .43$) in the quality of parenting
across generations (Sroufe et al., 2005).

Though these investigations suggest that an association between a mother’s early
attachment relationships with her own parents and her levels of parenting strain (parenting stress
and daily hassles) likely exists, there is only one known empirical investigation which has
examined the relationship between these two constructs. Willinger, Diendorfer-Radner,
Willnauer, Jorgl, and Hafer (2005) found that a diverse group of 120 Austrian mothers who
reported better relationships with their own parents also reported the lowest level of parenting
stress when thinking of their own children (mean age = 7.31, $SD = 3.19$). However, these results
need to be replicated with other measures and samples.

Early investigations of the transition to parenthood have also concluded that marital
relationship quality, another domain in which mothers gain attachment experiences, may be
related to mothers’ competence in infant feeding, as well as the quality of affect expressed by the
mother during the child’s first year of life (Pedersen, 1975; Pedersen et al., 1977). More
generally, Goldberg and Easterbrooks (1984) and Belsky (1984) noted that a positive marital
relationship appeared to provide critical emotional support which is vital for parents (in this case,
mothers) to sustain the energy they need to render sensitive parenting and feel positive about the caregiving role. Similarly, Engfer (1988) found that mothers who were in affectionate and communicative marital relationships enjoyed their babies and felt happy and competent in their maternal roles.

Since then, more investigations have assessed the relationship between romantic relationship quality or romantic attachment and parenting strain. For example, several studies found that single mothers rate their babies as more difficult than mothers who are married or living with their partners (Webster-Stratton, 1989; Wendland & Miljkovitch, 2003). In addition, lower marital satisfaction has been correlated with higher self-reported parenting stress (Deater-Deckard & Scarr, 1996; Webster-Stratton, 1989), while greater marital satisfaction has been related to less negative perceptions of toddlers (Easterbrooks & Emde, 1988).

Other investigations have found that more Avoidant individuals (in the context of romantic relationships) are less interested in being parents (Rholes et al., 1995; Rholes et al., 1997), even during pregnancy (Rholes, Simpson, & Friedman, 2006), and anticipate parenting to be more stressful and less personally satisfying (Rholes et al., 2006). In addition, after becoming parents, Avoidant individuals report feeling more emotionally detached from their children (Rholes et al., 1995), endorse harsher methods of punishment, expect their children to be independent at earlier ages (Rholes et al., 1997), and provide less support to their children (Rholes et al., 1995) when compared to Secure individuals. Thus, prior research findings are consistent with attachment theory because they suggest that experiences of parenting, including parenting strain, are partially influenced by the parent's own history of relationships with attachment figures including both attachment experiences during childhood and attachment experiences during romantic relationships.
However, contrary to other investigations noted above, Crnic and Booth (1991) found that, although higher family support was related to fewer parenting hassles, intimate support in particular was not directly linked to parenting hassles. Similarly, Alexander, Feeney, Hohaus, and Noller (2001) failed to find a direct relationship between romantic attachment and parenting daily hassles in a sample of married women having their first child. These discrepant results could be due to the samples used in different studies; apart from Rholes and colleagues’ studies, which were conducted predominately with college students and measured expected feelings about parenting, the investigations which found one’s romantic relationship to be related to parenting strain were conducted on higher risk samples than the investigations which failed to find such associations. For example, the Webster-Stratton (1989) and Wendland and Miljkovitch (2003) studies were conducted with younger mothers, many of whom were single or in distressed marriages and with less education and lower income compared to the two studies that failed to find this association (Alexander et al., 2001; Crnic & Booth, 1991). These differences in sample make-up are only one possibility for divergent results; more research is needed in order to understand the relationship between mothers’ prior relationship experiences and parenting strain more fully.
CHAPTER 5: THE PRESENT STUDY

Previous literature provides evidence that child attachment and childhood relationship quality with one’s parents are associated with later romantic attachment and romantic relationship quality. In addition, both of these constructs have been found to have associations with maternal representations of one’s child and one’s relationship with the child. All of these results are consistent with what attachment theory would predict because they indicate that there is general continuity of relationship quality over time and across relationships (albeit with the possibility of change with important life experiences). However, few studies have been conducted with samples of pregnant women, which is a particularly important developmental period for a woman as maternal representations of the child are rapidly evolving and existing relationships are being reorganized. Furthermore, only one or two known empirical studies have examined the relationships between these constructs in high-risk pregnant women, and no existing studies have investigated maternal experiences from childhood and romantic partnerships and representations of the child together.

Furthermore, though a significant amount of research has provided evidence for the deleterious effects of high levels of self-reported parenting stress and daily hassles on family outcomes/ functioning, these constructs are seldom assessed in the same study. There is also only one known investigation which assessed the relationship between either of these constructs and maternal representations of the child (Aber et al., 1999). This investigation was conducted with a homogenous sample of married, middle- and working-class Caucasian mothers with firstborn male toddlers. Therefore, it is not clear if these results are generalizable to more diverse and higher-risk samples, as well as samples with both male and female children. It would also be
valuable for future research to examine how representations of the child during pregnancy might affect these other domains of parenting after birth, which has never been done before.

Finally, there is only one known investigation which has assessed the relationship between quality of attachment with parents and parenting strain (parenting stress and daily hassles) despite the commonly accepted “transmission of parenting,” which references the idea that parenting behaviors are stable from generation to generation. On the other hand, there have been a few investigations of the relationship between quality of romantic attachment and parenting stress. Though most results provide support that these constructs are correlated, there are some mixed findings in the field. This could be due to the demographic characteristics of the samples or may reflect the complexity with which various factors influence one’s level of parenting strain. Therefore, more research which assesses the relationship between prior relationships and parenting strain would be valuable, especially if conducted with a diverse sample.

Using attachment theory as a guide, the present study builds on previous research on attachment relationships, and more broadly relationship quality, and proposes to add to this body of research by investigating how mothers’ experiences from previous relationships (from childhood and with romantic partners) impact prenatal maternal representations of the child and how these representations, in turn, impact later experiences of parenting (parenting stress and daily hassles). In addition, the association between previous relationship experiences and parenting strain, with maternal representations of the child as a partial mediator, will be evaluated.

This investigation will address many of the previously mentioned limitations in the existing literature with the aim of better clarifying inconsistencies and understanding processes
that have not yet been examined. In addition, few studies have examined possible differences on study variables between racial groups. Since the present sample is racially and economically diverse, the opportunity to explore differences across racial groups, with and without controlling for SES, will be used for exploratory analyses.

Thus, results from this investigation will aid in the understanding of how mothers’ quality of attachment experiences evolve over time to affect parenting strain among a diverse group of women. Results will also provide critical information for the development of programs designed to provide intervention for mothers-to-be with a history of insecure attachment relationships in order to prevent detrimental levels of parenting strain, given that high levels of parenting strain have been known to have a multitude of deleterious effects on the family, including harmful parenting behaviors and less secure attachment between mother and baby.

**Hypotheses**

Overall, this study will test a model that examines how maternal relationship history influences representations of the child during pregnancy, and subsequently, later parenting strain after the birth of the child. It is expected that mothers’ quality of past relationships will be associated with various aspects of her relationship with her child, both in utero and after birth, that illustrates the ways in which relationship experiences evolve over time (see Figure 2). Specific hypotheses are as follows.

Hypothesis 1: The quality of mothers’ histories of attachment relationships with both caregivers and romantic partners will be directly related to the quality of prenatal maternal representations of the child, such that better quality of past relationships will be related to more positive and balanced maternal representations of the child.
Hypothesis 2: Prenatal maternal representations of the child and relationship with the child will be directly associated with mothers’ experiences of parenting 1 year later, such that more positive and balanced maternal representations of the child will be related to less parenting strain.

Hypothesis 3: The quality of mothers’ attachment relationships will be related to mothers’ experiences of parenting, such that better quality of past relationships will be related to less parenting strain.

Hypothesis 4: Maternal representations of the child will partially mediate the association between previous relationship quality and experiences of parenting.
Figure 2. Hypothesized Model

Note: The full hypothesized model includes one exogenous variable, History of Attachment Relationship Quality, a latent variable with 4 indicator variables (Relationship Quality with Mother, Romantic Relationship Quality, Romantic Attachment Anxiety, and Romantic Attachment Avoidance). There are two endogenous variables, Prenatal Maternal Representations of the Child, with 5 indicator variables (Acceptance, Coherence, Involvement, Openness, and Sensitivity), and Parenting Experiences (Strain), with 2 indicator variables (Parenting Hassles and Parenting Stress). Ellipses represent latent variables and rectangles represent indicator (measured) variables in the figure. Straight lines indicate a hypothesized direct effect while the absence of lines indicates no hypothesized relationship.
Methods

Participants

A community sample of 120 pregnant women was recruited as part of a larger, 5-wave longitudinal investigation of parenting over the course of pregnancy through the child’s third birthday. Data were collected during pregnancy, and at 3 months, 1 year, 2 year, and 3 years post-partum; only data from the first and third waves of the larger, ongoing investigation will be used in the present study. Participants were recruited through public postings of fliers and in-person distribution at public locations, programs, and agencies primarily serving low-income families in Washtenaw and Wayne counties. More specifically, 23% were recruited from several community-based health clinics serving low-income and/or uninsured individuals, 18% from the Women, Infants, and Children (WIC) social service program, 16% from student areas in one regional-level university and one community college, 11% from a “community baby shower” sponsored by local social service programs, 11% heard about the study through word of mouth (friend, relative, another research study, or church), 7% from Head Start and local daycare programs, 7% from subsidized and/or temporary housing facilities, 5% from second-hand, donation centers for pregnant women and young children, and 2% from a parenting class.

At the first data collection point (last trimester of pregnancy; Pregnancy Interview), participants ranged in ages from 18 to 42 ($X = 26$, $SD = 5.7$). The largest subset of the sample (47%) identified themselves as African American, followed by Caucasian (36%), Biracial (13%), and other ethnic groups (4%). The majority of participants (64%) were single (never married), 28% married, 4% separated, and 4% divorced. Thirty percent of participants were first-time mothers. Of those who had previous pregnancies, women reported an average of 2.7 previous pregnancies (range = 1 – 12).
Twenty percent of the sample reported having a high school diploma/GED or less education, 44% reported some college or trade school, and 36% reported a college degree. Approximately half (45%) of participants were currently employed. However, despite the relatively wide range of educational attainment, the present sample was economically disadvantaged, overall. The median monthly income was reported as $1,500 (range = $0 - $10,416) at study entry. A high percentage of participants received governmental support; 88% received services from WIC, 62% received food stamps, 90% received Medicaid, Mi-Child, or Medicare, and 20% received public supplemental income at that time.

At the third wave of data collection (1 year after giving birth; One Year Interview), 64% of participants were single (never married), 28% were married, 4% were separated, and 4% were divorced. Participants’ level of education was the same as the first wave of data collection. The median monthly income was again $1,500 (range = $0 - $14,167). Sixty-nine percent received services from WIC, 59% received food stamps, 72% received Medicaid, Mi-Child, or Medicare, and 16% received public supplemental income. Therefore, this sample is considered high-risk due to being mostly economically disadvantaged.

**Procedures**

Fliers asked pregnant women who were interested in participating in a research study (called the EMU Parenting Project) about experiences during pregnancy, other life experiences, and women’s health, to call the research office. When interested women called, research assistants assessed eligibility (inclusion criteria included being pregnant, over the age of 18, and having an ability to speak fluent English). Next, assistants gave potential participants a brief summary of the study, answered any questions they may have had about the study, and collected basic demographic and contact information. This included: name, date of birth, anticipated due
date, phone number/s, E-mail, mailing address/s, ethnicity, education level, and where they had heard about the study. If women were in their third trimester at the time of the call, an interview was scheduled at the participant’s convenience (Pregnancy Interview). Participants were given the option of having research assistants go to their home for the interview or to meet them at a research office on campus. If participants were not yet in their third trimester, a return call was made when they entered the third trimester so that an interview could be scheduled then.

Seventy-eight percent of the participants chose to have the first interview conducted in their homes. Research assistants were thoroughly trained by the primary investigator (A. Huth-Bocks, Ph.D.) on the correct procedures related to home visits (i.e., safety, ethical issues, appropriate behavior), as well as proper administration of all measures. All research assistants (both graduate and undergraduate students at Eastern Michigan University) met together with the primary investigator on a weekly basis to discuss questions or concerns that arose during the course of the investigation and for ongoing training. Research assistants conducted home interviews in teams of two, rotating teams to help insure correct administration and reduce drift from standardized administration protocol.

The initial interview (Pregnancy Interview) began with introductions followed by a written informed consent that was read aloud (see Appendix A), and potential participants were given the opportunity to ask questions before signing the consent form. Two identical consents were signed by both the lead research assistant and participants so that each participant and researcher could keep a copy. Following a brief demographic questionnaire and an 1-hour audio-recorded semi-structured interview with the participant about their ideas and feelings about their unborn child, all study questionnaires were administered in the same, pre-determined order for each participant. Participants were given an identical copy of the measures to follow along, but
the lead researcher read each questionnaire aloud and recorded the participant’s verbal answers in order to minimize random responding and protect against possible literacy difficulties. Each pregnancy interview lasted 2 to 3 hours and participants were compensated with a $25.00 gift card to Target.

The participants were contacted again approximately 2 weeks after the baby’s due date to confirm the baby’s birth, obtain the date of birth (to determine the scheduling of future interviews which were based on the baby’s age) and collect basic information about the baby (name and gender). The second wave of data collection occurred when target infants were approximately 3 months of age. This interview was conducted over the phone and included information regarding the birth and health of the baby, the baby’s schedule (crying, feeding, and sleeping), postnatal depression, and the participant’s views of motherhood. Each phone interview lasted approximately 45 minutes, and participants were compensated with a $10.00 gift card which was mailed to their home.

After the phone interview, participants were contacted by research assistants every 3 months (when the babies were 6 and 9 months of age), based on the recommendations by Rumptz, Sullivan, Davidson, and Basta (1991), in order to update their contact information in preparation for a third wave of data collection (One Year Interview). If participants were unable to be reached by phone (i.e., phone disconnected or no returned phone call), then a letter was sent to the participants’ homes explaining that the project staff was trying to reach them in order to update their contact information. They were given the option of either calling the project office to update their contact information or filling out a “contact form” with their updated information, which they could return in a stamped and addressed envelope that was provided to them. If the participant was still unable to be reached, phone calls were made and/or letters were
sent to each of the recontact people (names, phone numbers, and addresses were provided by the participants at the Pregnancy Interview and updated during each subsequent interaction) in an attempt to obtain updated contact information for the participant. Finally, if neither the participant nor the recontact people were able to be reached through phone calls or letters, home visits were made to both the participant and/or the recontact people until further contact information was obtained. Detailed records were kept for each tracking assignment regarding the method through which the participants were reached at each of the tracking periods, and how long it took to reach the participant. Overall, this tracking plan resulted in impressive retention of participants in the study; the retention rate at the second interview was 98% and at the third interview was 95%.

The third interview (One Year Interview) was conducted in the same manner as the initial interview (Pregnancy Interview). Again, participants were given the option of having research assistants go to their home for the interview or to meet them at a research office on campus. Ninety-three percent of the participants chose to have the interview conducted in their homes. This interview began with introductions followed by a written informed consent that was read aloud (see Appendix B), and potential participants were given the opportunity to ask questions before signing the consent form. Two identical consents were signed by both the lead research assistant and participants so that each participant and researcher could keep a copy. Following a brief demographic questionnaire (to update demographic information since the last interview) and a 12-minute videotaped mother-infant play interaction, all study questionnaires were administered in the same, pre-determined order for each participant; procedures for administration were the same as the Pregnancy Interview. Each One Year Interview lasted 2 ½ to 3 hours and after being thanked for participation, participants were given a referral list of
community resources, and were compensated with $50.00 in cash and a baby gift (worth approximately $5.00). The measures used in the present study were collected at the Pregnancy and One Year Interviews and will be described in detail next.

**Measures**

**Relationship Quality with Mother (Pregnancy Interview).**

The Mother-Father-Peer Scale (MFPS; Epstein, 1983) is a 70-item self-report questionnaire designed to assess recollection of quality of relationships with one’s own mother (30 items), father (30 items), and peers (10 items) during childhood, as well as current idealization of parents (see Appendix C). The current investigation only included the parental items due to the purpose of the larger study. All MFPS items are on a 5-point Likert scale (1 = *strongly disagree*, 2 = *somewhat disagree*, 3 = *uncertain*, 4 = *somewhat agree*, and 5 = *strongly agree*). The questionnaire measures five dimensions of relationship quality for each parent: Encouraged Independence (7 items), Overprotection (6 items), Acceptance (5 items), Rejection (5 items), and Parent Idealization (7 items). The following are examples from each category: "My mother/father encouraged me to do things for myself" (Independence), "My mother/father would often do things for me I could do for myself" (Overprotection), "My mother/father sometimes disapproved of specific things I did, but never gave me the feeling that he/she disliked me as a person" (Acceptance), "My mother/father didn’t like to have me around the house" (Rejection), and “My mother/father had not a single fault that I can think of” (Parent Idealization).

These five dimensions are used to calculate three subscales for each parent (Encouraged Independence vs. Overprotected, Accepted vs. Rejected, and Idealization). The Encouraged Independence vs. Overprotected subscale (13 items) indicates the degree to which the parent
accepted and encouraged the child’s independence, self-reliance, and the development of social and other skills (higher scores), versus the degree to which they overprotected the child, worried about the child’s health and safety, and failed to help the child learn to function independently (lower scores). The Accepted vs. Rejected subscale (10 items) indicates the degree to which the parents communicated love, acceptance, and appreciation of the child (high scores), as opposed to viewing the child as undesirable, a burden, a nuisance, and a source of unhappiness or disappointment (lower scores). The Idealization subscale (7 items) indicates the degree to which the parent is accorded possibly unrealistic virtues approaching perfection. High scores may indicate defensiveness and an inability to accept parents as fallible human beings. Finally, items are summed for each scale (Epstein, 1983), and total scores range from 60 to 300 (30 to 150 each for mother and father without idealization), with high scores indicating recollection of higher quality relationships with one’s parents. Approximately half of the items in each section are reverse scored. Alphas, demonstrating internal consistency reliability, for each subscale were reported in the original normative group of male and female adults (N = 1,048) as follows: Mother Encouraged Independence vs. Overprotected = .85, Mother Accepted vs. Rejected = .89, Mother Idealization = .90, Father Encouraged Independence vs. Overprotected = .83, Father Accepted vs. Rejected = .90, Father Idealization = .91 (Epstein, 1983).

The MFPS has also been found to have good construct and discriminant validity as demonstrated by significant correlations with measures of self-esteem and non-significant correlations with measures of personality. More specifically, more positive recollections of parental relationships have been correlated with high self-esteem; correlations between total self-esteem on the Self-Esteem Inventory (Epstein, 1983) and the MFPS subscales of Mother Encouraged Independence, Mother Accepting, Father Encouraged Independence, and Father
Accepting \((N = 293)\) were .31, .28, .27, and .29, respectively. Correlations between the Baron’s Ego Strength Inventory (total scale) and the same MFPS scales were .36, .25, .38, and .26 \((N = 285)\), indicating the MFPS is not simply a measure of pathology.

The MFPS has also been used in numerous other studies, which have also demonstrated construct validity. For example, recollection of more positive relationships has been correlated with higher self-esteem (McCormick & Kennedy, 1992) and better parental behavior (Lutz & Hock, 1995). Ricks (1985) also reported that a mother’s recollections of her childhood relationships with her parents using the MFPS predicted her present relationship with her own child, as observed by researchers, in the expected direction. Furthermore, recollections of overprotection among grandmothers were related to adult daughters’ recollections of overprotection during childhood, indicating transmission across generations (Jacobvitz, Morgan, Kretchmar, & Morgan, 1991). To date, temporal stability and factor structure have not been reported. Because young children typically spend more time with their mothers (Belsky, Rovine, & Fish, 1989; Lamb, 1987), can have different quality of attachment relationships with each of their parents (Fox, Kimberly, & Schaefer, 1991), and women making the transition to parenthood often reflect on their own parenting in the context of their relationship with their mother specifically (Fischer, 1981; Walzer, 1995), the current study will only use the total MFPS score for relationship with mother for model testing of hypotheses. The total MFPS score for relationship with the father will be used for post hoc, exploratory analyses only. The coefficient alphas for the total mother scale including Idealization in the present study are .91 and .87 without Idealization items. Alphas are .91 and .87, respectively, for the total father scale.
Romantic Relationship Quality (Pregnancy Interview).

The Marital Relationships Scale (MRS; Braiker & Kelley, 1979) is a 25-item self-report questionnaire designed to assess the quality of a relationship between romantic partners, such as perceptions of relationship functioning and satisfaction (see Appendix D). Items are rated on a 9-point Likert scale (1 = *not at all* to 9 = *very much*). The questionnaire measures four dimensions of relationship quality. Love (10 items) reflects the degree to which the person feels love and a sense of belonging with her partner, as well as the degree of interdependence. An example of a statement from this dimension is, “To what extent do you love your partner at this stage?” Conflict-Negativity (5 items) reflects the frequency and intensity of arguments, feelings of anger or resentment, and frequency of displays of anger or frustration. An example of a statement from this dimension is, “How often do you and your partner argue with one another?” Ambivalence (5 items) reflects feelings of confusion towards one’s relationship partner and uncertainty about the future of the relationship. An example of a statement from this dimension is, “How ambivalent or unsure are you about continuing in the relationship with your partner?” Maintenance (5 items) reflects the primary communication behaviors engaged in by members of a couple to reduce costs and maximize rewards from the relationship. An example of a statement from this dimension is, “How much do you tell your partner what you want or need from the relationship?” Higher scores indicate lower relationship quality on each dimension (Love items are reverse-scored). Only items from the Love, Conflict-Negativity, and Ambivalence dimensions will be totaled in the present study, as prior investigations have repeatedly reported poor psychometric properties of the Maintenance subscale (Huston & Robbins, 1982; Nollar & Gutherie, 1991). Items are averaged for a total score, thus, scores can range from 1 to 9 with
higher scores indicating lower relationship quality (Braiker & Kelly, 1979). The coefficient alpha for this total scale in the present study is .89.

The MRS has been found to have adequate subscale internal consistency reliability, ranging from .61 to .92 across various points in the transition to parenthood (Belsky, Youngblade, Rovine, & Volling, 1991). In addition, individual differences in marital quality have been found to be relatively stable from pregnancy to 3 years postpartum ($rs \geq .50$, $p < .001$; Belsky et al., 1991); trajectories can reliably be predicted based on prenatal demographic, personality and marital information (Belsky & Rovine, 1990). The MRS has been used in numerous other studies, with demonstrated construct and discriminant validity. For example, investigations of relationship quality were conducted with Caucasian university students who had recently begun dating and again 3 to 4 months later. They found that scores on the Love subscale decreased for those who were not dating at follow-up, but increased for those who continued to date at follow-up (Berg & McQuinn, 1986; Felmlee, Sprecher, & Bassin, 1990). Belsky et al. (1989) found, as predicted, that the transition to parenthood was associated with small to modest declines in overall marital quality using the MRS. More specifically, scores on the Love scale decreased, while scores on the Ambivalence and Conflict-Negativity scales increased. However, relationships that seemed to be functioning best prior to the infant’s birth were, by and large, still functioning better than other relationships 9 months after birth.

**Romantic Attachment Anxiety and Avoidance (Pregnancy Interview).**

The Experiences in Close Relationships – Revised (ECR-R; Fraley, Waller, & Brennan, 2000) is a 36-item self-report questionnaire designed to assess the attachment dimensions of anxiety (18 items which reflect the level of insecurity one has about her partner’s availability and responsiveness) and avoidance (18 items which reflect the extent to which people are
uncomfortable being close to and depending on others) in adult relationships (see Appendix E). Each item is rated on a 1 to 7 Likert scale (1 = disagree strongly, 4 = neutral/mixed, 7 = agree strongly). When revising the original measure (ECR; Brennan, Clark & Shaver, 1998), Fraley et al. (2000) used item response theory analysis to improve the psychometric properties of the original scale by selecting items (from a pool of 323 items drawn from 14 self-report inventories of attachment that were used to develop the original ECR measure) with optimal psychometric properties and increased the measurement precision by 50% to 100% without increasing the total number of items. As advised by the original authors, items are averaged for each dimension, with scores ranging from 1 to 9. The coefficient alphas for these scales in the current study are both .93.

Internal consistency has been reported to be .90 or higher for the two scales (Fairchild & Finney, 2006; Sibley & Liu, 2004). Anxiety has also been found to be correlated with self-reported levels of distress (Maunder, Lancee, Nolan, Hunter, & Tannenbaum, 2006). In addition, the ECR-R has been found to have good concurrent validity when evaluated against other measures of romantic relationship functioning. For example, Anxiety was positively correlated with loneliness and worry and negatively correlated with social support, while Avoidance was positively correlated with touch avoidance, desire for touch, and loneliness and negatively correlated with affectionate proximity, safe-haven touch, and social support (Fairchild & Finney, 2006). The short-term temporal stability of the measure was assessed over 3 and 6-week periods (changes in these constructs would not be surprising over long-term periods) by Sibley, Fisher, and Liu (2005) and Sibley and Liu (2004) using separate latent variable path analyses. They found that 84% - 86% of the variance in the latent repeated measures of the Avoidance subscale
and 85% - 86.5% in the Anxiety subscale were shared over the 3 and 6-week period indicating good stability.

**Prenatal Maternal Representations of the Child (Pregnancy Interview).**

The Working Model of the Child Interview (WMCI; Zeanah et al., 1994) is a 1 to 1½ hour semi-structured interview designed to assess maternal prenatal representations of the infant, the relationship with the infant, and the self as a mother (see Appendix F). Responses are audio-taped, transcribed, and rated by trained coders on qualitative (6 scales), content (3 scales), and affective (5 scales) dimensions along 5-point Likert scales. Coders also assign an overall classification to each narrative based on the scale profiles and global judgments (Balanced, Disengaged, or Distorted), with an emphasis on the qualitative scales. These classifications have been described in this paper previously (pages 37-40).

Studies have demonstrated the measure’s predictive and concurrent validity through associations with mother-infant attachment quality, measured via the Strange Situation (Balanced-Secure, Disengaged-Avoidant, and Distorted-Ambivalent; Benoit et al., 1997; Huth-Bocks, Levendosky, Bogat, et al., 2004; Zeanah et al., 1994). Further validity has been shown through significant correlations between Balanced classifications and more positive parenting (Dayton et al., 2010), Disengaged classifications and more controlling parenting (Dayton et al., 2010), and Distorted classification with maternal depression and more hostile parenting (Dayton et al., 2010; Korja et al., 2009). Divergent validity has been shown by overall classifications being unrelated to a host of factors such as: mother’s education, father’s education, mother’s age, father’s age, infant’s birth weight, length of gestation, and infant’s mental development (Korja et al., 2009). Consistency in representation classification (using 3 categories) has been shown to be...
80% when measured at pregnancy and 1 year (Benoit et al., 1997) and 76% when measured at 6 and 18 months (Borghinni et al., 2006).

In the present study, 5 of the 6 qualitative scales (Acceptance, Coherence, Involvement, Openness to Change, and Caregiving Sensitivity) will be used; one qualitative scale (Richness of Perceptions) will not be used because it has not been found to differentiate Balanced from Non-Balanced mothers and is highly correlated with education level. The Acceptance scale measures the degree of acceptance the mother expresses in her description of the infant and experiences of caring for the infant. Narratives receiving low scores often reflect a high degree of anger or resentment about caretaking. The mother may give the impression that she does not like the infant and describe typical comforting or other caretaking behaviors as spoiling the infant. Mothers whose narratives receive high scores do not seem to mind putting their infant’s needs over their own. There is a sense of joy in caretaking behaviors without evidence of resentment or strain in doing so. The Coherence scale reflects the overall organization and logical flow of ideas and feelings the mother expresses about the infant and relationship with the infant. Narratives receiving low scores may show contradictions from one point in the interview to another, be incoherent, confusing, bizarre, or answers may seem unrelated to prompts from the interviewer. These narratives are often vague and/ or tangential. Narratives that express a low level of believability also receive low scores on this scale. However, narratives receiving high scores are very clear and coherent. Thoughtful answers are given in response to prompts and descriptions often include a fair amount of examples which support the overall, consistent description of the infant and relationship with the infant. The Involvement scale is a measure of the mother’s psychological preoccupation with the infant and relationship with the infant. Narratives receiving low scores are often filled with indicators of preoccupation with other concerns or a simple
psychological detachment from the infant. Statements such as, “I've never thought of that before” without attempt to elaborate or answer the question, are often made. On the other hand, narratives receiving high scores convey a sense that the mother is consistently engrossed with the infant and relationship with the infant. The Openness to Change scale reflects the flexibility of the mother’s representation to accommodate new information about the infant at a time when rapid changes are expected in the infant’s development. Narratives receiving low scores reflect rigid expectations and stereotypes about the infant and his or her behaviors. Little flexibility about the infant or perception of the infant is apparent. Narratives receiving high scores reflect a high degree of openness and flexibility about the infant and his or her behaviors. New reflections about the infant and relationship with the infant may develop even during the interview itself.

Finally, the Caregiving Sensitivity scale measures the degree of recognition given to the infant’s needs and affective experiences; the infant is viewed as a separate but dependent individual. Narratives receiving low scores are often clearly focused on the mother’s needs as opposed to the infant’s. The mother may seem unaware of, indifferent to, or averse to the infant’s needs (physically or emotionally). On the other hand, narratives receiving high scores reflect consistent and believable awareness and response to the infant’s needs and cues. Infants in these narratives are described as having a wide variety of emotional states and biological needs.

Interviews were coded by the principal investigator (A. Huth-Bocks, Ph.D.) and three graduate students trained by her to the established 80% inter-rater reliability according to the coding system developed by Zeanah et al. (1994). Adequate inter-rater reliability for all subscales was established by using quadratic weighted-kappa (or corrected-kappa; Cohen, 1968; Fleiss, Cohen, & Everitt, 1969) and intra-class correlations. These were calculated based on half of the interviews (n = 58) which were double coded by the principal investigator and at least one
other graduate student. Intra-class correlation coefficients and quadratic weighted kappas for the subscales used in this study were as follows, respectively: \( Acceptance = .71 \) and \( .67 \), \( Coherence = .56 \) and \( .59 \), \( Involvement = .60 \) and \( .64 \), \( Openness = .58 \) and \( .58 \), \( Sensitivity = .71 \) and \( .71 \).

Disagreements on those that were double-coded were finalized after conferencing.

**Parenting Hassles (One Year Interview).**

The Parenting Daily Hassles (PDH; Crnic & Greenberg, 1990) is a 20-item self-report questionnaire used to assess the frequency and intensity of specific typical everyday events in parenting and parent-child interactions with young children that can be a hassle to parents (e.g., mealtimes, transporting kids, cleaning up messes, being whined at, etc.; see Appendix G). In response to each item, participants are asked to rate the frequency of occurrence on a 4-point scale (\( rarely, sometimes, a lot, constantly \)), as well as how hassled they typically feel by the event on a 5-point scale (\( 1 = low \) to \( 5 = high \)). Total scores for frequency can range from 20 to 80, and total scores for hassle intensity can range from 20 to 100; higher scores indicate more frequent and intense parenting hassles. These two scales have been found to be highly correlated (Crnic & Greenberg, 1990; Mazur, 2006). Therefore, both frequency and hassle intensity totals will be \( z \)-scored and then added together to obtain a total score for this investigation. In the current study, the coefficient alphas for the frequency and intensity scales are \( .81 \) and \( .88 \) respectively.

The PDH was originally reported to exhibit adequate internal consistency reliabilities, with coefficients of \( .81 \) for frequency and \( .89 \) for intensity (Crnic & Greenberg, 1990). Other investigations using the measure have also found adequate internal consistency, \( .81 - .82 \) for each subscale (Mazur, 2006; O’Brien, 1996). However, lower rates, albeit still adequate (\( .70 - .81 \)), have also been reported (Aber et al., 1999). The short-term temporal stability of the
The PDH has been found to have good concurrent validity when evaluated against other parenting and related measures. For example, the frequency and intensity subscales have both been found to be significantly negatively correlated with parenting satisfaction, significantly positively correlated with parenting stress, and significantly positively correlated with general psychological distress (Mazur, 2006). In addition, total scores have been found to be significantly negatively correlated with parental well-being and marital adjustment, but unrelated to parent-child relationship quality (Gerstein, Crnic, Blacher, & Baker, 2009) in a sample of parents with children diagnosed with intellectual disabilities, a group known to experience higher levels of stress than parents with children who are typically developing (Baker, McIntyre, Blacher, Crnic, Edelbrock, & Low, 2003).

**Parenting Stress (One Year Interview).**

The Parenting Stress Index – Short Form (PSI-SF; Abidin, 1995) is a 36-item self-report measure of parenting stress (see Appendix H). This measure is a brief version of the original Parenting Stress Index (Abidin, 1986), a 120-item self-report questionnaire that is widely used to measure levels of parenting stress. Items are identical to those in the original version. The short form version was developed in response to clinicians’ and researchers’ need for a shorter measure of parenting stress and was based on Castaldi’s (1990) factor analysis of the original PSI, which suggested three factors used for the short-version subscales, Parental Distress (12 items), Parent-Child Dysfunctional Interaction (12 items), and Difficult Child (12 items). The Parent Distress subscale measures parents’ unhappiness in their parenting roles. It includes items about
depression, isolation, and restriction in the parenting role. The Parent–Child Dysfunctional Interaction subscale measures parents’ perceptions of the emotional quality of their relationship with their child, in light of their expectations about the parent–child relationship. The Difficult Child subscale assesses parents’ perceptions of their child’s behavior and consistency with expectations of appropriate behavior. It also has a validity scale (5 items). Items are rated on a 5-point Likert scale from 1 (strongly agree) to 5 (strongly disagree) with 3 (not sure) as the midpoint. According to recommendations by the original authors of the measure, total scores are calculated by summing the 3 subscales. Therefore, total scores for the current investigation can range from 36 to 180, with higher scores indicating higher reported parenting stress. The coefficient alpha for this total scale in the present study is .88.

Internal consistencies have been reported to range from .80 to .90 (Abdin, 1995; Mazur, 2006). Abidin (1995) reported 6 month test–retest reliabilities of .70 to .80. The PSI-SF has been related to parent and child psychopathology and observed parent-child behaviors (Abdin, 1995) in expected ways, demonstrating good construct validity. This measure has also been found to be valid in a primarily low-income sample of predominately single African American mothers (Reitman, Currier, & Stickle, 2002).

Results

Missing Data

Overall, there were minimal missing data at both the item- and scale-level. One participant refused to answer all the maternal MFPS items without an explanation. Three participants refused to answer all the MRS items, usually adding that they did not have a partner they could refer to. Four people were missing all 5 subscales of the WMCI due to recording problems. Two participants skipped an item on the PSI-SF. One participant felt that the question
did not apply to her (question was, “When I go to a party, I usually expect not to enjoy myself”), and the second was skipped with no explanation. In addition, both parts of one question, and the second part of another on the PDH were missed by two different participants. These appear to be accidental. Furthermore, eight people were missing the entire PSI-SF and PDH measures. Of these, three were unable to be located for the One Year Interview, two withdrew from the study, one moved out of the country, and two had limited contact with the baby since birth due to adoption or foster care removal.

Values for missing individual items were pro-rated by substituting the mean value of the completed responses from the individual’s responses on the relevant subscale. In order to reduce biased estimates and error for missing subscale and scale-level data, full information maximum likelihood method (Acock, 2005; Enders & Bandalos, 2001) was used with MPlus 6.12 (Muthén & Muthén, 1998 – 2010) during data analyses. This method does not impute missing values; instead, all observed information is used to produce the maximum likelihood estimation of parameters for each participant (Acock, 2005). Thus, measurement and structural model analyses were based on data from 120 participants.

Descriptive Data

Descriptive data for study variables are provided in Table 1. Only variables used in the model testing of hypotheses are included in this table. Descriptive data for variables used only for post hoc or exploratory analyses will be provided in a separate table later in this paper. As can be seen, participants generally reported high quality relationships with their mothers and romantic partners. They generally reported low attachment anxiety and avoidance with regard to their relationships with their romantic partners. All 5 scales assessing maternal representations of the child were generally in the mid-range for the sample as a whole, indicating moderate levels
of acceptance, coherence, involvement, openness, and sensitivity towards their unborn child. Additionally, participants reported generally moderate parenting strain. All study scales were checked for significant distribution problems (e.g., severe skewness and kurtosis) and most were shown to be within normal ranges or having only slight non-normality. Most researchers consider values of skewness and kurtosis between 1.0 and 2.3 as slight to moderate non-normality, and beyond 2.3 as more considerable non-normality (Lei & Lomax, 2005). However, it is reasonable to treat these values as guidelines as opposed to steadfast cut-off rules (Gao, Mokhtarian & Johnston, 2008). Also, the implications of non-normality vary depending on the specific statistics used and considered. For example, CFI is more robust than the chi-square statistic when sample sizes are smaller (<500) and when data are non-normal (Lei & Lomax, 2005). This will be considered as models are tested below.

Table 2 is a correlation matrix, showing associations among all study variables. In general, study variables were correlated as expected, given previous literature and the hypotheses of the current investigation. Variables assessing mothers’ history of attachment relationship quality were significantly correlated, with positive experiences with parents being related to less negative and more positive experiences with romantic partners. More balanced qualities of maternal representations of the child were significantly, positively correlated with each other, and higher levels of parenting stress were positively correlated with higher levels of parenting hassles. Also, in general, better attachment relationship experiences were positively related to more balanced characteristics of maternal representations and negatively related to later parenting strain; more positive representations of the child were significantly associated with lower levels of parenting stress, in particular.
Table 1

Descriptive Data for Study Variables in Model Testing

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Possible Range</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Maternal MFPS (w/ I)</td>
<td>103.97</td>
<td>21.87</td>
<td>40</td>
<td>140</td>
<td>30 - 150</td>
<td>-2.77</td>
<td>-1.16</td>
</tr>
<tr>
<td>Total Maternal MFPS (wo/I)</td>
<td>85.27</td>
<td>16.16</td>
<td>33</td>
<td>111</td>
<td>23 - 115</td>
<td>-3.23</td>
<td>-.14</td>
</tr>
<tr>
<td>MRS Total</td>
<td>3.24</td>
<td>1.30</td>
<td>1.30</td>
<td>6.45</td>
<td>1 - 9</td>
<td>2.68</td>
<td>-1.41</td>
</tr>
<tr>
<td>ECCR-R - Anxiety</td>
<td>2.81</td>
<td>1.19</td>
<td>1</td>
<td>5.33</td>
<td>1 - 9</td>
<td>3.04</td>
<td>-.77</td>
</tr>
<tr>
<td>ECCR-R - Avoidance</td>
<td>2.79</td>
<td>1.33</td>
<td>1</td>
<td>6.61</td>
<td>1 - 9</td>
<td>1.18</td>
<td>-2.09</td>
</tr>
<tr>
<td>WMCI – Acceptance</td>
<td>2.67</td>
<td>1.11</td>
<td>1</td>
<td>5</td>
<td>1 - 5</td>
<td>1.68</td>
<td>-1.13</td>
</tr>
<tr>
<td>WMCI – Coherence</td>
<td>2.52</td>
<td>1.17</td>
<td>1</td>
<td>5</td>
<td>1 - 5</td>
<td>3.00</td>
<td>-0.73</td>
</tr>
<tr>
<td>WMCI – Involvement</td>
<td>2.79</td>
<td>1.13</td>
<td>1</td>
<td>5</td>
<td>1 - 5</td>
<td>1.59</td>
<td>-1.87</td>
</tr>
<tr>
<td>WMCI – Openness</td>
<td>2.78</td>
<td>1.11</td>
<td>1</td>
<td>5</td>
<td>1 - 5</td>
<td>1.82</td>
<td>-1.31</td>
</tr>
<tr>
<td>WMCI – Sensitivity</td>
<td>2.75</td>
<td>1.08</td>
<td>1</td>
<td>5</td>
<td>1 - 5</td>
<td>1.95</td>
<td>-0.96</td>
</tr>
<tr>
<td>PDH</td>
<td>0.00</td>
<td>1.90</td>
<td>-3.54</td>
<td>5.18</td>
<td>N/A</td>
<td>2.86</td>
<td>.58</td>
</tr>
<tr>
<td>PSI-SF</td>
<td>67.55</td>
<td>14.49</td>
<td>40</td>
<td>101</td>
<td>36 - 180</td>
<td>1.32</td>
<td>-1.40</td>
</tr>
</tbody>
</table>

Note: MFPS = Mother Father Peer Scale (n = 119), MRS = Marital Relationships Scale (n = 117), ECCR-R = Experiences in Close Relationships-Revised (N = 120), WMCI = Working Model of the Child Interview (n = 116), PDH = Parenting Daily Hassles (n = 112; z-scores), PSI-SF = Parenting Stress Index – Short Form (n = 112).
Table 2
Associations among Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>MFPS (w/I)</th>
<th>MFPS (wo/I)</th>
<th>MRS</th>
<th>ECRR-R Anx.</th>
<th>ECRR-R Avoid.</th>
<th>WMCI-A</th>
<th>WMCI-C</th>
<th>WMCI-I</th>
<th>WMCI-O</th>
<th>WMCI-S</th>
<th>PDH</th>
<th>PSI-SF</th>
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<td>MFPS (w/I)</td>
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<tr>
<td>MFPS (wo/I)</td>
<td>.97**</td>
<td>1.00</td>
<td></td>
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<tr>
<td>MRS</td>
<td></td>
<td></td>
<td>-.28**</td>
<td>-.31**</td>
<td>1.00</td>
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<td>ECRR-R – Anx.</td>
<td>-.32**</td>
<td>-.35**</td>
<td>.51**</td>
<td>1.00</td>
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<tr>
<td>ECRR-R – Avoid.</td>
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<td>-.20*</td>
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<td>.16</td>
<td>-.26**</td>
<td>-.13</td>
<td>-.20*</td>
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<td>WMCI – C</td>
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<td>.17</td>
<td>-.26**</td>
<td>-.22*</td>
<td>-.29**</td>
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<td>.17</td>
<td>-.18</td>
<td>-.06</td>
<td>-.08</td>
<td>.69**</td>
<td>.49**</td>
<td>1.00</td>
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<tr>
<td>WMCI – O</td>
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<td>.16</td>
<td>-.32**</td>
<td>-.23*</td>
<td>-.34**</td>
<td>.80**</td>
<td>.74**</td>
<td>.54**</td>
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<tr>
<td>WMCI – S</td>
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<td>.16</td>
<td>-.27**</td>
<td>.23*</td>
<td>-.28**</td>
<td>.85**</td>
<td>.80**</td>
<td>.60**</td>
<td>.81**</td>
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<tr>
<td>PDH</td>
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<td>-.23*</td>
<td>.32**</td>
<td>.30**</td>
<td>-.18</td>
<td>-.14</td>
<td>-.03</td>
<td>-.09</td>
<td>-.18</td>
<td>1.00</td>
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<tr>
<td>PSI-SF</td>
<td>-.22*</td>
<td>-.20*</td>
<td>.34**</td>
<td>.20*</td>
<td>.17</td>
<td>-.24*</td>
<td>-.24**</td>
<td>-.21*</td>
<td>-.24*</td>
<td>.52**</td>
<td>1.00</td>
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</table>

* p < .05. ** p < .01.

Note: MFPS = Mother Father Peer Scale (n = 119), MRS = Marital Relationships Scale (n = 117), ECRR-R = Experiences in Close Relationships-Revised (N = 120), WMCI = Working Model of the Child Interview (n = 116), A = Acceptance, C = Coherence, I = Involvement, O = Openness, S = Sensitivity, PDH = Parenting Daily Hassles (n = 112), PSI-SF = Parenting Stress Index – Short Form (n = 112).
Measurement Models

Before testing the overall model shown in Figure 2, confirmatory factor analyses (CFA) were conducted for each latent construct, where appropriate, in order to determine the adequacy of the measurement models. Models with only 2 indicator variables are under-identified, therefore, CFAs were only conducted for 2 of the hypothesized latent constructs (History of Attachment Relationship Quality and Prenatal Maternal Representations of the Child). In tests of the measurement models, the variance of the latent construct was fixed to 1.0 and all factor loadings were freely estimated. MPlus 6.12 (Muthén & Muthén, 1998 – 2011) was used to perform all measurement and structural model analyses. Goodness of fit was determined by: 1) a non-significant chi-square ($\chi^2$; a measurement of the difference between the sample data and predicted model with non-significance indicating a good model fit), 2) Root Mean Square Error of Approximation (RMSEA; measures the average discrepancy between the sample and predicted covariance matrix per degree of freedom with obtained values under .05 indicating a good fitting model, values between .05 and .08 indicating an adequate model fit, values between .08 to .10 indicating a mediocre model fit, and anything over .10 indicating a poor model fit), 3) Standardized Root Mean Square Residual (SRMR; measures the average distance between the predicted and observed variances and covariances in the model with values indicating good model fit being the same as those previously mentioned for RMSEA), 4) Comparative Fix Index (CFI; a test of the extent to which the tested model is superior to an alternative or null model in terms of reproducing the model, with critical values over .95 indicating an excellent model fit and values between .90 and .95 indicating an acceptable model fit), and 5) Tucker-Lewis Index (TLI; measures the degree to which the fitted model is superior to the null model, with values indicating good model fit being the same as those previously mentioned for CFI). These fit
indexes are commonly recommended and used (Hu & Bentler, 1999; Schreiber et al., 2006). However, it is important to note that fit indexes are simply guidelines and should not be interpreted as golden rules (see Saris, Satorra, & vander Veld, 2009; Schmitt, 2011; Vernon & Eysenck, 2007 for an overview of determining model fit). Modification indices were considered when needed. Residual covariances were fixed to 0 across all analyses.

The first CFA was conducted for the construct History of Attachment Relationship Quality. This factor had four indicators, which included the MFPS maternal total score, total MRS score, ECR-R Anxiety score, and ECR-R Avoidance score. The model was tested twice, with and without the Idealization subscale included in the MFPS maternal subscale score. The model which included the Idealization subscale ($\chi^2 = 4.52$, $df = 2$, $p = .10$, RMSEA = .10, SRMR = .03, CFI = .98, and TLI = .93) was virtually identical to the model which did not include the Idealization subscale ($\chi^2 = 4.44$, $df = 2$, $p = .11$, RMSEA = .10, SRMR = .03, CFI = .98, and TLI = .93). Since the original author of the scale (Epstein, 1983) intended the Idealization subscale to capture defensiveness only, not actual positive qualities of the relationship, the latter model (without the subscale) was used in the final model. All factor loadings were significant at the $p < .001$ level; see Figure 3.
Figure 3. History of Attachment Relationship Quality Measurement Model

The second CFA examined the hypothesized Prenatal Maternal Representations of the Child construct. This factor had five indicators, which included 5 of the 6 qualitative subscales of the WMCI (Acceptance, Coherence, Involvement, Openness, and Sensitivity). This model showed an adequate fit: $\chi^2 = 16.01$, $df = 6$, $p = .01$, RMSEA = .12, SRMR = .04, CFI = .98, and TLI = .97. However, modification indices recommended correlating the Acceptance and Involvement indicators, and since this made theoretical sense, a new model was run with this additional path. The subsequent model showed an excellent fit: $\chi^2 = 3.32$, $df = 4$, $p = .51$, RMSEA = .00, SRMR = .01, CFI = 1.00, and TLI = 1.00. All factor loadings were significant at the $p < .001$ level. See Figure 4.
Figure 4. Prenatal Maternal Representations of the Child Measurement Model

Chi-Square = 3.32, df = 4, p = .51, RMSEA = .00, SRMR = .01, CFI = 1.00, and TLI = 1.00
Although a CFA was not possible to examine the Parenting Experiences (Strain) measurement model (due to under-identification), the two indicator variables were highly correlated (see Table 2), therefore, it seemed reasonable to proceed with full model testing.

**Full Hypothesized Model**

The full hypothesized model was also tested using MPlus 6.12 (Muthén & Muthén, 1998–2011) using the same criteria as those used to evaluate the measurement models. Results indicated an excellent fit: $\chi^2 = 50.52$, $df = 40$, $p = .12$, RMSEA = .05, SRMR = .05, CFI = .98, and TLI = .98, with all factor loadings reaching significance at the $p < .001$ level. All paths between the latent constructs were also significant, at the $p < .01$ level, in the expected directions. Thus, results supported all 4 hypotheses. More specifically, the first hypothesis predicted that a history of better attachment relationship quality (with mother and romantic partners) would be related to more positive and balanced maternal representations of the child. The positive path between History of Attachment Relationship Quality and Prenatal Maternal Representations of the Child ($.26$, $p = .01$) supported this hypothesis. The second hypothesis predicted that, in turn, a history of better attachment relationship quality (with mother and romantic partners) would be related to lower parenting strain. The negative path between History of Attachment Relationship Quality and Parenting Experiences ($-.40$, $p = .001$) supported this hypothesis. The third hypothesis predicted that more positive and balanced maternal representations of the child would be related to lower parenting strain. Again, the negative relationship between Prenatal Maternal Representations of the Child and Parenting Experiences ($-.30$, $p = .01$) supported this hypothesis. Finally, it was hypothesized that maternal representations of the child would partially mediate the association between previous relationship quality and experiences of parenting. Examination of the direct ($-.40$, $p = .00$) and
indirect (-.08, \( p = .04 \)) effects of History of Attachment Relationship Quality on Parenting Experiences indicated that maternal representations of the child did, in fact, partially mediate the relationship between history of attachment relationship quality and parenting strain. See Figure 5 for a pictorial representation of model results.
Chi-Square = 50.52, df = 40, p = .12, RMSEA = .05, SRMR = .05, CFI = .98, and TLI = .98

Figure 5. Results of Hypothesized Model
Exploratory Analyses

In the first measurement model described above (History of Attachment Relationship Quality), results indicated that the MFPS maternal subscale score (measuring quality of relationship with mother during childhood) had a much smaller factor loading on the latent construct than the other 3 indicator variables (all measuring romantic relationship quality). Therefore, it was decided that after testing the full hypothesized model, this latent construct would be divided into 2 latent variables, Relationship Quality with Mother (with indicators being the 2 subscales which are summed to obtain this score [Encouraged Independence versus Overprotected and Accepted versus Rejected]), and Romantic Relationship Quality (with indicators being the remaining 3 indicator variables from the original model [total MRS score, ECR-R Anxiety score, and ECR-R Avoidance score]), in order to examine full models with these two constructs separately (Exploratory Model #1 and Exploratory Model #2, respectively).

Additionally, an exploratory model, identical to the original hypothesized model but with the addition of the MFPS Father subscale (a measure of the quality of the relationship with the participant’s father during childhood) was tested (Exploratory Model #3) in order to examine the influence of relationship quality with fathers on other model variables. The Idealization subscale was not included in the MFPS Father total score based on earlier results with the Mother total scales. The coefficient alpha for this total scale without the Idealization items in the present study was .87. In order to differentiate this revised latent construct from the version used in the original hypothesized model (History of Attachment Relationship Quality), the new latent construct was named EXPANDED History of Attachment Relationship Quality. This revised version had five indicators, which included the MFPS maternal and paternal subscale scores, total MRS score, ECR-R Anxiety score, and ECR-R Avoidance score. Finally, a model exploring the relationship
quality with both parents, excluding the romantic relationship variables, was tested (Exploratory Model #4). The new latent construct used in this model was called Relationship Quality with Parents and had two indicators, the MFPS maternal and paternal subscale scores.

**Additional Descriptive Data for Exploratory Analyses**

Descriptive data for study variables used only for exploratory analyses, noted above, are provided in Table 3 (variables used in the original model were provided previously in Table 1). As can be seen from Table 3, participants generally reported moderately high levels of encouragement of independence and acceptance by their mothers. In addition, they reported generally high quality relationships with their fathers. Again, all study scales were checked for significant distribution problems (e.g., severe skewness and kurtosis) and most were shown to be within normal ranges, with a couple indicating slight to moderate non-normality.

Table 3

*Descriptive Data for Variables in Post Hoc and Exploratory Analyses*

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Possible Range</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
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<tbody>
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<td>Mother Encouraged I vs O</td>
<td>45.82</td>
<td>7.97</td>
<td>23</td>
<td>62</td>
<td>13 - 65</td>
<td>-2.27</td>
<td>-.39</td>
</tr>
<tr>
<td>Mother Accepted vs Rejected</td>
<td>39.45</td>
<td>10.91</td>
<td>10</td>
<td>50</td>
<td>10 - 50</td>
<td>-3.89</td>
<td>-1.15</td>
</tr>
<tr>
<td>Total Father MFPS (wo/I)</td>
<td>86.72</td>
<td>16.04</td>
<td>41</td>
<td>109</td>
<td>23 - 115</td>
<td>-4.02</td>
<td>.50</td>
</tr>
</tbody>
</table>

*Note:* Mother encouraged I vs O = Mother Encouraged Independence versus Overprotected (subscale of MFPS, along with Mother Accepted vs Rejected subscale; n = 119), Total Father MFPS (wo/I) = Total Father scale from Mother Father Peer Scale (without Idealization subscale; n = 101).
Exploratory Measurement Models

Since the Relationship Quality with Mother latent variable (used in Exploratory Model #1) only had 2 indicator variables, a CFA was not conducted because the model was under-identified. However, the two subscales (Encouraged Independence versus Overprotected and Accepted versus Rejected) were significantly correlated, \( r = .45, p < .001 \), such that higher levels of maternal acceptance and encouragement of independence, self-reliance, and the development of social and other skills were related to higher levels of maternal communication of love, acceptance, and appreciation of the participant. The CFA conducted to determine the adequacy of the Romantic Relationship Quality construct (used in Exploratory Model #2) indicated an excellent fit: \( \chi^2 = .75, df = 1, p = .39 \), RMSEA = .00, SRMR = .05, CFI = 1.00, and TLI = 1.01. All factor loadings were significant at the \( p < .001 \) level, see Figure 6.

![Figure 6. Romantic Relationship Quality Measurement Model](image)

Chi-Square = .75, df = 1, \( p = .39 \), RMSEA = .00, SRMR = .05, CFI = 1.00, and TLI = 1.01

Figure 6. Romantic Relationship Quality Measurement Model

The CFA conducted to determine the adequacy of the EXPANDED History of Attachment Relationship Quality construct (used in Exploratory Model #3) showed a mediocre
fit ($\chi^2 = 11.45, df = 5, p = .04, \text{RMSEA} = .10, \text{SRMR} = .06, \text{CFI} = .94, \text{and TLI} = .89$). However, modification indices recommended correlating the MFPS maternal and paternal subscale scores, and since this made theoretical sense, a new model was run. The subsequent model showed a good fit: $\chi^2 = 6.02, df = 4, p = .20, \text{RMSEA} = .07, \text{SRMR} = .03, \text{CFI} = .98, \text{and TLI} = .96$. All factor loadings were significant, although the significance level of the loading for the father indicator variable was barely under .05, and this variable contributed much less to the latent variable than the other indicator variables. See Figure 7. This measurement model was used to test the full model.

![Image of the measurement model](image)

Chi-Square = 6.02, $df = 4, p = .20, \text{RMSEA} = .07, \text{SRMR} = .03, \text{CFI} = .98, \text{and TLI} = .96$

*Figure 7. EXPANDED History of Attachment Relationship Quality Measurement Model*

Since the Relationship Quality with Parents latent variable (used in Exploratory Model #4) only had 2 indicator variables, a CFA was not conducted because the model was under-
identified. However, the two subscales (MFPS maternal subscale and MFPS paternal subscale) were significantly correlated, $r = .30, p < .01$, such that a history of better relationship quality with mothers was related to a history of better relationship quality with fathers.

**Full Exploratory Models**

Results from Exploratory Model #1 (including Relationship Quality with Mother and excluding all Romantic Relationship Quality indicators) indicated an excellent fit to the data: $\chi^2 = 29.98, df = 23, p = .15$, RMSEA = .05, SRMR = .04, CFI = .99, and TLI = .98, with all factor loadings reaching significance at the $p < .01$ level. All paths between the latent constructs were significant in the expected directions, at the $p < .05$ level, with the exception of the path between the Relationship Quality with Mother latent construct and the Prenatal Maternal Representations of the Child latent construct, which did not reach significance. Thus, results indicated: a) higher quality relationships with one’s own mother was related to lower parenting strain, b) more positive and balance maternal representations of the child was related to lower parenting strain, and c) relationship quality with one’s own mother was unrelated to maternal representations of the child. See Figure 8.
Figure 8. Exploratory Model #1 Results

Chi-Square = 29.98, df = 23, p = .15, RMSEA = .05, SRMR = .04, CFI = .99, and TLI = .98
Results from Exploratory Model #2 (including all Romantic Relationship Quality indicators and excluding Relationship Quality with Mother) also indicated a good fit to the data: $\chi^2 = 43.65$, $df = 31$, $p = .07$, RMSEA = .06, SRMR = .05, CFI = .98, and TLI = .97, with all factor loadings reaching significance at the $p < .001$ level. Additionally, all paths between the latent constructs were significant, at the $p < .01$ level, in the expected directions. These results indicated: a) lower quality relationships with one’s romantic partner was related to less positive and less balanced maternal representations of the child, b) lower quality relationships with one’s romantic partner was also related to higher parenting strain, and c) more positive and balanced maternal representation of the child was related to lower parenting strain. See Figure 9.
Figure 9. Exploratory Model #2 Results

Chi-Square = 43.65, df = 31, p = .07, RMSEA = .06, SRMR = .05, CFI = .98, and TLI = .97
Results from Exploratory Model #3 (with the inclusion of Relationship Quality with Father during childhood) showed a good fit with the data: $\chi^2 = 67.78$, $df = 49$, $p = .04$, RMSEA = .06, SRMR = .05, CFI = .97, and TLI = .96, with all factor loadings reaching significance at the $p < .001$ level, with the exception of Relationship Quality with Father, which was significant at the $p < .05$ level. Additionally, all paths between the latent constructs were significant at the $p < .01$ level, in the expected directions. These results indicated: a) better quality relationships with one’s parents and romantic partner was related to more positive and balanced maternal representations of the child, b) better quality relationships with one’s parents and romantic partner was also related to lower parenting strain, and c) more positive and balanced maternal representations of the child was related to lower parenting strain. See Figure 10. However, it is important to note that this model, with the inclusion of Relationship Quality with Fathers, was not an improvement from the original hypothesized model (see page 89).
Figure 10. Exploratory Model #3 Results

Chi-Square = 67.78, df = 49, p = .04, RMSEA = .06, SRMR = .05, CFI = .97, and TLI = .96
Results from Exploratory Model #4 (with the romantic relationship indicator variables removed, leaving only the MFPS maternal and paternal indicator variables) was slightly better than Exploratory Model #1, which only included relationship quality with mothers (see page 95), \( \chi^2 = 34.54, df = 23, p = .06, \) RMSEA = .07, SRMR = .04, CFI = .98, and TLI = .97, with all factor loadings reaching significance at the \( p < .01 \) level. However, it was still not a better fit with the data than the original hypothesized model. Similar to the Exploratory Model #1, all paths between the latent constructs were significant in the expected directions, at the \( p < .05 \) level, with the exception of the relationship between Relationship Quality with Parents and Prenatal Maternal Representations of the Child, which did not reach significance. Thus, results indicated: a) higher quality relationships with one’s mother and father was related to lower parenting strain, b) more positive and balance maternal representations of the child was related to lower parenting strain, and c) relationship quality with one’s mother and father was unrelated to maternal representations of the child. See Figure 11.
Chi-Square = 34.54, df = 23, p = .06, RMSEA = .07, SRMR = .04, CFI = .98, and TLI = .96

Figure 11. Exploratory Model #4 Results
Exploratory Analyses of Racial Differences

In addition to the previous model testing, a MANOVA was conducted in order to determine if there were any significant differences in any of the variables of interest (Relationship Quality with Mother, Relationship Quality with Father, Romantic Relationship Quality, Romantic Attachment Anxiety, Romantic Attachment Avoidance, Prenatal Maternal Representations of the Child [Acceptance, Coherence, Involvement, Openness, and Sensitivity], Parenting Hassles and Parenting Stress) between racial groups. Race is a categorical variable with 3 groups in this study (African American \( n = 56 \), Caucasian \( n = 43 \), and Biracial/ Other \( n = 21 \)).

The overall MANOVA was not significant, \( F (24, 150) = 1.44, p = .10 \); Pillai’s Trace = 0.37, partial \( \eta^2 = .19 \) (Pillai’s Trace was utilized as opposed to Wilk’s Lambda because the Box’s Test indicated that the assumption of equal variances was violated, \( F [156, 4140.92] = 1.23, p = .03 \)). However, due to the exploratory nature of this analysis, main effects for each variable were individually examined, and results indicated that there were some significant differences for some variables between racial groups. See Table 4 below.
Table 4

Results from MANOVA Testing Differences in Study Variables by Race

<table>
<thead>
<tr>
<th>Variable</th>
<th>African American</th>
<th>Caucasian</th>
<th>Biracial/Other</th>
<th>F</th>
<th>$\eta^2$</th>
<th>Post hoc Comparisons</th>
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<tr>
<td>Total Maternal MFPS</td>
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<td>87.05</td>
<td>92.23</td>
<td>.65</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>$M (SD)$</td>
<td>(14.41)</td>
<td>(15.85)</td>
<td>(9.25)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Paternal MFPS</td>
<td>86.66</td>
<td>87.51</td>
<td>87.46</td>
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<td>.00</td>
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</tr>
<tr>
<td>$M (SD)$</td>
<td>(15.22)</td>
<td>(15.35)</td>
<td>(17.60)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>MRS Total</td>
<td>3.63</td>
<td>2.79</td>
<td>3.02</td>
<td>3.93*</td>
<td>.09</td>
<td>A&gt;B ($p = .02$)</td>
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<tr>
<td>$M (SD)$</td>
<td>(1.34)</td>
<td>(1.26)</td>
<td>(1.40)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ECR-R – Anxiety</td>
<td>2.85</td>
<td>2.63</td>
<td>2.41</td>
<td>.66</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>$M (SD)$</td>
<td>(1.31)</td>
<td>(1.22)</td>
<td>(1.41)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECR-R – Avoidance</td>
<td>3.09</td>
<td>2.42</td>
<td>2.60</td>
<td>3.23*</td>
<td>.07</td>
<td>A&gt;B ($p = .04$)</td>
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<td>$M (SD)$</td>
<td>(1.15)</td>
<td>(1.03)</td>
<td>(1.52)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMCI – Acceptance</td>
<td>2.21</td>
<td>3.22</td>
<td>2.77</td>
<td>9.98**</td>
<td>.19</td>
<td>A&lt;B ($p = .00$)</td>
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<tr>
<td>$M (SD)$</td>
<td>(.84)</td>
<td>(1.08)</td>
<td>(1.01)</td>
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<tr>
<td>WMCI – Coherence</td>
<td>1.97</td>
<td>3.03</td>
<td>2.62</td>
<td>9.18**</td>
<td>.18</td>
<td>A&lt;B ($p = .00$)</td>
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<tr>
<td>$M (SD)$</td>
<td>(.88)</td>
<td>(1.24)</td>
<td>(1.04)</td>
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<tr>
<td>WMCI – Involvement</td>
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<td>3.08</td>
<td>3.15</td>
<td>2.62</td>
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<tr>
<td>$M (SD)$</td>
<td>(1.11)</td>
<td>(1.16)</td>
<td>(0.99)</td>
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<tr>
<td>WMCI – Openness</td>
<td>2.39</td>
<td>3.24</td>
<td>2.69</td>
<td>6.01**</td>
<td>.12</td>
<td>A&lt;B ($p = .00$)</td>
</tr>
<tr>
<td>$M (SD)$</td>
<td>(.89)</td>
<td>(1.14)</td>
<td>(1.32)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMCI – Sensitivity</td>
<td>2.34</td>
<td>3.27</td>
<td>2.85</td>
<td>8.43**</td>
<td>.17</td>
<td>A&lt;B ($p = .00$)</td>
</tr>
<tr>
<td>$M (SD)$</td>
<td>(.88)</td>
<td>(1.04)</td>
<td>(1.07)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDH</td>
<td>.22</td>
<td>-.17</td>
<td>-.06</td>
<td>.38</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>$M (SD)$</td>
<td>(2.35)</td>
<td>(1.43)</td>
<td>(2.14)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSI-SF</td>
<td>71.16</td>
<td>63.49</td>
<td>66.54</td>
<td>2.67</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>$M (SD)$</td>
<td>(15.51)</td>
<td>(13.04)</td>
<td>(14.80)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As can be seen in Table 4, there were no significant differences between the 3 racial groups for Relationship Quality with Mother, Relationship Quality with Father, Romantic Attachment Anxiety, Prenatal Maternal Representations of the Child (Involvement), Parenting Hassles, or Parenting Stress.

However, significant differences between racial groups were found for the remaining variables (Romantic Relationship Quality, Romantic Attachment Avoidance, and Prenatal Maternal Representations of the Child [Acceptance, Coherence, Openness, and Sensitivity]). Therefore, post-hoc analyses (Least Significant Difference; LSD) were used to determine which groups differed from each other. Results indicated that participants identifying as Caucasian rated their relationships with romantic partners as significantly better than those identifying as African American, and Caucasian participants reported significantly less attachment avoidance than those identifying as African American. There were no other significant between-group differences on romantic relationship variables.

Furthermore, participants who identified as Caucasian had prenatal representations characterized by significantly higher levels of Acceptance, Coherence, Openness, and Sensitivity of their child than those who identified as African American. There were no other significant between-group differences on representations or parenting experiences.

**Exploratory Analyses of Socioeconomic Status Differences**

Next, Pearson correlations were conducted to determine if there were any significant associations between any of the variables of interest (Relationship Quality with Mother, Relationship Quality with Father, Romantic Relationship Quality, Romantic Attachment Anxiety, Romantic Attachment Avoidance, Prenatal Maternal Representations of the Child...
[Acceptance, Coherence, Involvement, Openness, and Sensitivity], Parenting Hassles and Parenting Stress) and socioeconomic status. Socioeconomic status was a continuous variable in this study defined as an income-to-needs ratio. This was calculated by dividing the total family income by the poverty threshold for the appropriate family size. The 2008 (year the majority of pregnancy interviews were conducted) U.S. Census Bureau Poverty Thresholds were used for this calculation (www.census.gov/hhes/www/poverty/data/threshld/thresh08.html).

Results revealed that there were no significant correlations between SES and Relationship Quality with Mother \( r (115) = .11, p = .23 \), Relationship Quality with Father \( r (97) = .10, p = .34 \), Parenting Hassles \( r (108) = -.10, p = .30 \), or Parenting Stress \( r (108) = -.01, p = .90 \). However, significant correlations were found between SES and other variables, such that higher SES was related to better Romantic Relationship Quality, \( r (113) = -.28, p = .00 \), lower Attachment Anxiety, \( r (116) = -.19, p = .05 \), lower Attachment Avoidance, \( r (116) = -.20, p = .03 \), and higher levels of Acceptance, \( r (112) = .31, p = 00 \), Coherence, \( r (112) = .34, p = .00 \), Involvement, \( r (112) = .32, p = .00 \), Openness, \( r (112) = .37, p = .00 \), and Sensitivity, \( r (112) = .34, p = .00 \), among prenatal representations of the child.

**Exploratory Analyses of Racial Differences after Controlling for Socioeconomic Status**

Finally, a MANCOVA was conducted to examine possible differences between racial groups after controlling for SES. Results revealed that the racial differences were no longer significant for Romantic Relationship Quality (see Table 5). The overall MANCOVA was not significant, \( F (24, 138) = 1.47, p = .09 \); Wilks’ Lambda = 0.63, partial \( \eta^2 = .20 \) (Wilks’ Lambda was utilized, in this case, because the Box’s Test indicated that the assumption of equal variances was not violated, \( F [78,15371.98] = 1.06, p = .34 \)). However, main effects for each variable were individually examined, and results indicated that there were some significant differences for
some variables between racial groups. More specifically, after controlling for SES, there was a main effect for between-group differences for Romantic Attachment Avoidance, Prenatal Maternal Representations of the Child (Acceptance, Coherence, Openness, and Sensitivity), and Parenting Stress.
Table 5
Results from MANCOVA Testing Differences in Study Variables by Race after Controlling for SES

<table>
<thead>
<tr>
<th>Variable</th>
<th>African American</th>
<th>Caucasian</th>
<th>Biracial/Other</th>
<th>$F$</th>
<th>Partial $\eta^2$</th>
<th>Post hoc Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Maternal MFPS</td>
<td>87.60</td>
<td>87.05</td>
<td>93.25</td>
<td>.92</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(14.98)</td>
<td>(15.85)</td>
<td>(8.86)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Paternal MFPS</td>
<td>86.89</td>
<td>87.51</td>
<td>88.67</td>
<td>.05</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(15.33)</td>
<td>(15.35)</td>
<td>(17.81)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRS Total</td>
<td>3.74</td>
<td>2.79</td>
<td>2.94</td>
<td>2.70</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(1.33)</td>
<td>(1.26)</td>
<td>(1.43)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECCR-R – Anxiety</td>
<td>2.97</td>
<td>2.63</td>
<td>2.32</td>
<td>.68</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(1.28)</td>
<td>(1.22)</td>
<td>(1.44)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECCR-R – Avoidance</td>
<td>3.23</td>
<td>2.42</td>
<td>2.75</td>
<td>3.50</td>
<td>.08</td>
<td>A&gt;B ($p = .02$)</td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(1.09)</td>
<td>(1.03)</td>
<td>(1.17)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMCI – Acceptance</td>
<td>2.20</td>
<td>3.22</td>
<td>2.71</td>
<td>6.49</td>
<td>.14</td>
<td>A&lt;B ($p = .00$)</td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(.87)</td>
<td>(1.08)</td>
<td>(1.08)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMCI – Coherence</td>
<td>2.00</td>
<td>3.03</td>
<td>2.58</td>
<td>4.90</td>
<td>.11</td>
<td>A&lt;B ($p = .00$)</td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(.91)</td>
<td>(1.24)</td>
<td>(1.08)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMCI – Involvement</td>
<td>2.54</td>
<td>3.08</td>
<td>3.08</td>
<td>.88</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(1.12)</td>
<td>(1.16)</td>
<td>(1.00)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMCI – Openness</td>
<td>2.37</td>
<td>3.24</td>
<td>2.58</td>
<td>3.31</td>
<td>.08</td>
<td>A&lt;B ($p = .02$)</td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(.91)</td>
<td>(1.14)</td>
<td>(1.31)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMCI – Sensitivity</td>
<td>2.34</td>
<td>3.27</td>
<td>2.75</td>
<td>4.86</td>
<td>.11</td>
<td>A&lt;B ($p = .00$)</td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(.91)</td>
<td>(1.04)</td>
<td>(1.06)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDH</td>
<td>.37</td>
<td>-.17</td>
<td>-.22</td>
<td>.59</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(2.36)</td>
<td>(1.43)</td>
<td>(2.16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSI-SF</td>
<td>72.31</td>
<td>63.49</td>
<td>66.75</td>
<td>3.73</td>
<td>.09</td>
<td>A&gt;B ($p = .01$)</td>
</tr>
<tr>
<td>$M$ ($SD$)</td>
<td>(15.07)</td>
<td>(13.04)</td>
<td>(15.44)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .01$. 
Note: African American \( n = 35 \), Caucasian \( n = 37 \), and Biracial/ Other \( n = 12 \).

Poc-hoc analyses (Least Significant Difference; LSD) were used to determine which groups differed from each other. Results indicated that participants identifying as Caucasian reported less romantic attachment avoidance than those identifying as African American. There were no other group differences on romantic relationship variables. Results also indicated that participants identifying as Caucasian also had prenatal representations characterized by more Acceptance, Coherence, Openness, and Sensitivity than those identifying as African American. Finally, Caucasian participants reported significantly less parenting stress than African American participants. No other group differences were observed after controlling for SES.
CHAPTER 6: DISCUSSION

Since Bowlby’s early writings (1969/1982, 1973, 1980), attachment theory has become widely known, extensively studied, and empirically supported. Today, it provides the basis for all investigations of attachment, and many investigations about associations between individual differences and emotional development. A major premise of this theory is that relationships formed throughout the lifespan, beginning in infancy, are carried forward through internal working models, which are mental templates about the self, others, and the world. The present investigation expands the body of literature which supports this theory.

The primary objective of this study was to integrate attachment research from both the developmental and the social/ personality fields of psychology in order to broaden the empirical understanding of the continuity of attachment quality, and more broadly relationship quality, from childhood to the transition to parenthood. More specifically, this study examined mothers’ history of relationships (with both caregivers and romantic partners) in relation to their prenatal representations of their children, as well as associations between representations and later parenting experiences. Because the accumulation of interpersonal experiences, and interpretation of these experiences, has profound effects on individuals’ relationships and overall well-being (Bowlby, 1973; Grossmann, Grossmann, & Waters, 2005; Mikulincer & Shaver, 2007), it is important to understand the development and evolution of relationship quality over time and across types of relationships.

It was hypothesized in this study that mothers’ prior experiences in relationships with both caregivers and romantic partners would predict their representations of their children during pregnancy and parenting experiences 1 year after birth. After testing and revising multiple models using Structural Equation Modeling techniques, results showed that the data had an
excellent fit with the hypothesized model; no other models were better than the original hypothesized model. Thus, because of the excellent fit and what was theoretically predicted, results from the original, hypothesized model will be interpreted and discussed in detail in the following pages. Additionally, a discussion of the strengths and limitations of this study, future directions for research, and the clinical implications of the results will follow. Attachment theory will guide the interpretation and discussion of implications of this investigation.

**Mothers’ History of Relationships in Relation to their Prenatal Representations of their Children**

The confirmatory factor analysis conducted to test the adequacy of the latent construct of relationship history indicated an excellent fit. This construct included two indicators, relationships with parents and romantic partners. This was important because, although previous literature has provided evidence that retrospective self-reports of childhood relationship quality with one’s parents is significantly correlated with currently perceived romantic attachment and romantic relationship quality (Feeney & Noller, 1990; Hazan & Shaver, 1987, 1994; Hindy & Schwartz, 1994; Rothbard & Shaver, 1994; Scharf & Mayseless, 2008), very few studies have examined the relationship between these indicators of relationship quality in high-risk pregnant women. Furthermore, no existing studies have investigated the relationship between this broader construct of relationship history and maternal representations of the child, even though the indicators (i.e., relationships with parents and relationships with romantic partners) have individually been found to have associations with maternal representations of the child and one’s relationship with the child (Ammaniti, 1991; Ammaniti et al., 1992; Atkinson et al., 2009; Barrett & Fleming, 2011; Crawford & Benoit, 2009; George & Solomon, 1996; Howes et al., 2011; Huth-Bocks, Levendosky, Bogat, et al., 2004; Huth-Bocks, Levendosky, Theran & Bogat,
Therefore, this finding provides the first known evidence that aspects of attachment usually explored by developmental psychologists (infant-parent relationships) and aspects typically explored by social/ personality psychologists (romantic relationships) can, and perhaps should, be integrated into one broader construct when investigating the continuity of attachment quality throughout the lifetime. Fraley (2002b) recommended this broader conceptualization a decade ago in his introduction to a special issue of the journal *Attachment and Human Development*.

However, although quality of relationship with mother did have a significant factor loading on the broader construct of attachment relationship history, it had a much smaller loading than the other 3 indicator variables (all measuring romantic attachment and romantic relationship quality). This may be due to the use of a self-report measure of quality of relationship with mother, in contrast to most studies in the developmental field, which explore parent-child relationships using semi-structured interviews. Thus, future investigations that integrate methods from both the developmental and the social/ personality fields of psychology are needed in order to add more clarity to these results.

Although these data give us valuable information about the continuity of attachment quality from childhood to the transition to parenthood and how quality of attachment relationships are integrated into one attachment system, further research is required in order to better understand how this happens and how future relationships are impacted. Thus, the decision to integrate relationship history with parents and romantic partners into one construct may depend on the goals of the individual investigation, and thus, may vary from one research group to another.
As hypothesized, consistent with attachment theory, model results from this investigation indicated that mothers’ history of attachment relationships (with their own mothers, as well as romantic partners) was related to prenatal maternal representations of the child. More specifically, higher quality relationships were related to more positive and balanced maternal representations of the child in utero including higher levels of acceptance, coherence, involvement, openness, and sensitivity. These results are consistent with previous literature including those which used semi-structured interviews to assess relationship history (Ammaniti, 1991; Ammaniti et al., 1992; Crawford & Benoit, 2009; George & Solomon, 1996; Slade & Cohen, 1996; Solomon & George, 1996), those that used self-report measures (Pesonen, Raikkonen, Lektikangas-Jarvinen, Strandberg, & Jarvenpaa, 2003; Priel & Besser, 2000; Rholes, Simpson, & Blakely, 1995; Rholes, Simpson, Blakely, Lanigan, & Allen, 1997; Scher & Mayseless, 1997), as well as a few which used pregnant samples (Atkinson et al., 2009; Huth-Bocks, Levendosky, Bogat, et al., 2004; Ilicali & Fisek, 2004; Malone, Levendosky, Dayton, & Bogat, 2010). For example, Huth-Bocks, Levendosky, Bogat, et al., (2004) found that mothers who recalled more negative experiences with parents during childhood had less balanced maternal representations of their own infants during pregnancy, as replicated by the present study. Similarly, Ilicali and Fisek (2004) found that mothers’ representations of romantic partners were significantly correlated with representations of their infants during pregnancy. Although the present findings are consistent with prior studies, the current results are valuable because some of the aforementioned investigations did not assess maternal representations of the child per se, but instead focused on beliefs and attitudes about children or behaviors of mothers interacting with their children.
Also, the majority of investigations that have included maternal representations of the child as one of their constructs have not assessed romantic attachment style, but instead have assessed other aspects of romantic relationships. The only known investigation which assessed the association between the quality of a mother’s romantic relationships (outside of conflict experiences) or romantic attachment style and her representations of her child and relationship with the child (Ilicali & Fisek, 2004) only used one question to assess each construct. In addition, the current investigation is the first known study in which retrospective self-reports of childhood relationship quality with one’s parents was used in conjunction with currently perceived romantic attachment and romantic relationship quality as a broader construct of maternal relationship history. The evidence that this history affects maternal representations of the child prenatally is especially important because it indicates that there is a unique opportunity for intervention, during pregnancy, when representations of the child and the relationship with the child may be modified and reorganized to be more positive and balanced, before the infant is born and possibly directly affected by maternal representations.

**Associations between Prenatal Maternal Representations and Later Parenting Experiences**

Model results also revealed a significant relationship between prenatal maternal representations of the child and parenting strain (i.e., parenting stress and daily parenting hassles) after birth. More positive and balanced prenatal representations of the child were significantly associated with less parenting strain. Again, this finding is consistent with attachment theory and what would be expected based on prior research. For example, maternal representations of the child characterized by more pleasure and coherence between the ages of 7 and 40 months (depending on the study) have been associated with more positive and less negative parental interactions with young children (Aber et al., 1999; Dollberg et al., 2010; Slade et al., 1999).
Likewise, maternal representations of the child which contain more anger have been found to be associated with more intrusive and less positive mothering behaviors (Dollberg et al., 2010; Slade et al., 1999). Similarly, mothers who have been classified as Disengaged have been found to be less sensitive, more passive, and less encouraging while interacting with their infants compared to mothers with Balanced representations (Sokolowski et al., 2007). Those classified as Distorted have been found to display more hostility, controlling, and frightening behaviors than Balanced mothers (Dayton et al., 2010; Schechter et al., 2008). Balanced mothers have also been found to demonstrate more positive parenting compared to Disengaged and Distorted mothers (Dayton et al., 2010).

Previous studies have reported consistent associations between maternal representations of the child and parenting behaviors. However, the current results are unique because this is the first time that the association between maternal representations of the child and subjective parenting stress (versus parenting behaviors) has been investigated. The only other similar investigation is one that explored the relation between maternal representations of the child at 15 and 28 months of age and parenting daily hassles at 21 and 27 months of age (Aber et al., 1999). Though similar in some ways, parenting stress and daily parenting hassles have been found to be somewhat distinct and may affect parenting in different ways (Crnic & Greenberg, 1990). In addition, the Aber et al. (1999) investigation was conducted with a homogenous sample of married, middle- and working-class Caucasian mothers with firstborn male toddlers. Therefore, it is important that their results were replicated with a more diverse and higher-risk sample, especially given the growing empirical evidence suggesting that maternal representations of the child and relationship with the child tend to remain fairly stable over time (Aber et al., 1999;
Borghini et al., 2006; Bretherton, Biringen, Ridgeway, Maslin, & Sherman, 1989; Slade et al., 1999), even from pregnancy to the postpartum period (Benoit et al., 1997; Theran et al., 2005).

In addition to the growing literature showing the stability of maternal representations of the child, there is also growing evidence that representations of the child, both prenatally and postnatally, influence mothers’ behaviors towards their children and the quality of their interactions with their children (Aber et al., 1999; Dollberg et al., 2010; Korja et al., 2010; Rosenblum, McDonough, Muzik, Miller, & Sameroff, 2002; Sayre, Pianta, Marvin, & Saft, 2001; Slade et al., 1999). Thus, combined with previous literature, the current results indicate that, not only do prenatal maternal representations predict different types of parenting strain, but possibly how young children are being parented given that parenting stress is known to affect specific parenting behaviors (Aber et al., 1999; Crnic & Greenberg, 1990; Hoffman, Sweeney, Hodge, Lopez-Wagner, & Looney, 2009; Repetti & Wood, 1997). Understanding these associations during early infancy is very important as the first year of life is a critical time when children whose families need intervention are often isolated from those who may recognize their needs; in addition, infants are not yet old enough to communicate their needs. The potential to identify families at risk for later levels of high parenting strain during the pregnancy period allows for the possibility of prevention, as opposed to later intervention (after problems have already developed and possibly affected the mother-infant relationship). Early intervention is important given findings that parenting stress has been found to be relatively stable across time (Mulslow, Caldera, Pursley, Reifman, & Huston, 2002; Nair, Schuler, Black, Kettinger, & Harrington, 2003; Östberg, Hagekull, & Hagelin, 2007) and higher levels of earlier parenting stress have been shown to increase the levels of later parenting stress (Östberg et al., 2007).
Mothers’ History of Relationships in Relation to Parenting Experiences

Finally, results from model testing revealed a significant relationship between mothers’ history of attachment relationships (with their own mothers, as well as romantic partners) and parenting strain (i.e., self-reported parenting stress and daily parenting hassles). More specifically, higher quality relationships were related to less parenting strain. These results are also consistent with prior research on the intergenerational transmission of parenting (Ammaniti, 1991; Leerkes & Crockenberg, 2006; van IJzendoorn, 1992, 1995) and with multiple investigations which have found similarities between how individuals describe their own childhood relationship experiences and how they describe their own relationships with their children (Benoit & Parker, 1994; Crawford & Benoit, 2009; Huth-Bocks, Levendosky, Bogat et al., 2004; George & Solomon, 1996; Main et al., 1985; Slade & Cohen, 1996; Sokolowski et al., 2007). However, there is only one known investigation which has examined the relationship between quality of attachment with parents and parenting strain directly. Willinger et al. (2005) found that Australian mothers who reported better relationships with their own parents reported the lowest level of parenting stress when thinking of their own children compared to mothers who reported less positive relationships with parents. The current study is, therefore, one of the few investigations of the association between quality of relationship history (including the quality of the relationship with one’s own mother) and any form of parenting strain (parenting stress or daily hassles) and the first to do so with a pregnant sample. In addition, these results confirm that the results from the previously mentioned Willinger et al. (2005) investigation can be replicated in a U.S. sample.

The current results, which demonstrated an association between maternal relationship history and later parenting strain, are also consistent with a body of literature which has found
that single mothers rate their babies as more difficult than mothers who are married or living with their partners (Webster-Stratton, 1989; Wendland & Miljkovitch, 2003). That is, in these studies, marital status (a measure of romantic partner status) was related to maternal perceptions of infants, which likely reflect parenting strain levels. Previous studies have also shown that lower marital satisfaction is correlated with higher self-reported parenting stress in parents of 12 – 60 month-old (Deater-Deckard & Scarr, 1996) and 3 – 7 year-old (Webster-Stratton, 1989) children, and greater marital satisfaction is related to less negative perceptions of toddlers (Easterbrooks & Emde, 1988).

Mediation between Mothers’ History of Attachment Relationship Quality and Parenting Strain

Finally, although mothers’ history of attachment relationship quality was directly related to parenting strain in the final model, maternal representations of the child partially mediated the relationship between the two constructs, as hypothesized. However, it is likely that there are other factors which help account for the association between mothers’ history of attachment relationship quality and parenting strain. For example, one’s history of attachment relationship quality could affect expectations about parenting (including effects on sleep and energy, time and responsibility involved, changes in relationship with one’s romantic partner, maternal satisfaction, and physical and temperamental characteristics of the baby). Prior research has shown, for example, that mothers who experience a larger discrepancy between what they were expecting before birth and their postpartum experiences typically have greater difficulty adjusting to parenthood, especially if experiences were worse than anticipated (Kach & McGhee, 1982; Kalmuss, Davidson, & Cushman, 1992; Stattin & Klackenberg-Larsson, 1991). For example, Stattin and Klackenberg-Larsson (1991) found that having a baby of the opposite sex
than what was preferred resulted in less play, more perceived problems in the child, and a more strained mother-child relationship as reported by the mother. These results suggest that certain expectations about parenting, and discrepancies between expectations and actual events, may also affect parenting strain and may be a possible mediator between mothers’ history of attachment relationship quality and parenting strain.

Mother-child attachment quality has also been shown to be influenced by maternal history of attachment relationship quality. Mother-child attachment quality, in turn, has been found to be related to parenting stress (Jarvis & Creasey, 1991; Pederson, Moran, Skitko, Campbell, Ghesquire, & Acton, 1990; Tarabulsy et al., 2008; Teti, Nakagawa, Das, & Wirth, 1991). Therefore, the quality of mothers’ attachment to their own children could be another potential mediator between mothers’ history of attachment relationship quality and parenting strain. Finally, a mother’s history of attachment relationship quality may affect certain maternal personality characteristics (Lyddon & Sherry, 2001) including the ability to cope with stressful situations, as well as the ability to seek out and accept support when needed. It is well documented in the parenting literature that maternal personality characteristics greatly impact parenting strain (Belsky, 1984; Crnic & Acevedo, 1995; Mulslow et al., 2002). Thus, maternal personality characteristics could be another potential mediator between mothers’ history of attachment relationship quality and parenting strain. Therefore, further research is needed to explore other possible mechanisms that might help explain the association between mothers’ history of attachment relationship quality and their parenting strain after the birth of the child, including the ones previously mentioned and others.
Differences in Study Variables by Race and Socioeconomic Status

Results from exploratory analyses indicated that there were significant differences between racial groups on several romantic relationship variables. More specifically, participants identifying as Caucasian rated their relationships with romantic partners as significantly better in quality and characterized by less attachment avoidance than those identifying as African American.

This is consistent with previous research which has found that African American couples reported lower relationship quality, lower levels of marital happiness, less engagement in couple activities, and more frequent disagreements relative to Caucasians and Hispanics (Broman, 1993; Harknett & McLanahan, 2004; Roebuck Bulanda & Brown, 2007; Trent & South, 2003). However, it should be noted that unmarried couples typically have less stable relationships (Capaldi & Patterson, 1991; Graefe & Lichter, 1999; Nock, 1995), with more ambivalence and conflict (Birditt & Antonucci, 2007; Nock, 1995) and lower levels of happiness (Nock, 1995), characteristics likely contributing to lower relationship quality and higher attachment avoidance. In the current investigation, there was a higher percentage of African American mothers living without a partner (68%) than Caucasian (26%) and Other mothers (33% of those who identified themselves as belonging to an ethnic group other than African American or Caucasian). The majority of Caucasian and Other mothers reported that they were married (and living with their partner) or unmarried but cohabitating. This is consistent with national norms, according to the U.S. Census Bureau (http://mchb.hrsa.gov/whusa10/pdfs/w08pc.pdf). It is possible that reported differences in romantic relationship quality and attachment avoidance in this study are due to differences in relationship quality that is influenced in part by maternal living situations. This may be particularly true for the current sample because the women were in their third trimester
of pregnancy, a time when the relationship with a romantic partner is especially important (Dunkel-Schetter, Sagrestano, Feldman, & Killingsworth, 1996). In addition, support from one’s partner, which may not be able to be given at the desired level when living independently, has been found to be related to relationship quality (Rini, Dunkel Schetter, Hobel, Glynn, & Sandman, 2006).

In a special journal issue of *Child Development* (Race, Ethnicity, and Culture on Child Development), McLoyd (2006) and others stressed the importance of including race in psychological investigations of development. However, McLoyd also stressed the importance of separating race from other confounding variables such as income, education, SES, and health status, as these variables are often confounded with race (Garcia Coll et al., 1996; LaVeist, 2005). Thus, the relationship between study variables and race was tested again, after controlling for SES. Results revealed that the racial differences were no longer significant for general romantic relationship quality. However, the racial difference between Caucasian and African American participants remained significant for attachment avoidance. This is consistent with prior research which found attachment avoidance to be higher in African Americans and Asian Americans than Caucasians (Wei, Russell, Mallinckrodt, & Zakalik, 2004) and higher in African American and Hispanic/ Latino Americans than Caucasians (Lopez, Melendez, & Rice, 2000). These previous investigations were both conducted with university students, however, and these findings were attributed by the authors to adjustment issues for African American college students in Midwestern, predominately Caucasian universities.

It is likely that the differences in partner status between groups contributed to these results, as previously discussed. Theoretically, it makes sense that women who are not married or cohabitating with a partner would feel less comfortable being close to and depending on a
romantic partner (attachment avoidance), regardless of SES. Yet, the significant difference in partner status between racial groups is of interest. Previous research has found that African Americans are less likely to marry than Caucasians at all socioeconomic levels (Cherlin 1992; Lichter et al. 1992) and receive less pressure from family and friends to do so (Wilson, 1996). In addition, theories such as Post Traumatic Slave Syndrome (P.T.S.S.) and Post Traumatic Slavery Disorder (PTSlaveryD) propose that cognitions and behaviors, initially occurring during the traumatic experience of slavery and passed down through the generations, continue to impact African American culture today and may explain some of the aforementioned racial differences.

For example, in their article on PTSlaveryD, Mims, Higginbottom, and Reid (2008) explain that during times of slavery, it was functional for African American men to distance themselves emotionally from women and children because they could be sold at any moment. This distancing behavior was passed down through the generations and may explain why African American males today are not as close to their romantic partners or children than men from other races. In addition, many individuals continue to experience racism and discrimination today and these could account for the romantic relationship differences found between racial groups in this investigation. However, further investigations which explore romantic relationship differences and romantic relationship attitudes between racial groups would be beneficial, as the majority of investigations in this area have been done with mostly Caucasian samples.

Exploratory analyses also indicated that prenatal maternal representations of the child were significantly different in quality between some racial groups. Participants who identified as Caucasian had prenatal representations characterized by significantly higher levels of acceptance, coherence, openness, and sensitivity of their child than those who identified as
African American. Future research should be conducted to further investigate this finding, as there are no known investigations of the impact of race on maternal representations of the child. However, investigations have been conducted on related variables, such as actual parenting behaviors and perceptions of children. In general, prior results have indicated that Caucasian mothers interact with their children with greater sensitivity (Fry, 1985; Huang, O’Bien Caughy, Genevro, & Miller, 2005; Klausli & Owen, 2009), more involvement (Huang, et al., 2005), less intrusiveness (Bradley, Corwyn, McAdoo, & Garcia Coll, 2001; Ispa et al., 2004; McLoyd & Smith, 2002), more warmth (Ispa et al., 2004), and higher quality and appropriateness (Huang et al., 2005) than African American mothers. In addition, some researchers (Huang et al., 2005) have found significant differences on a specific measure used to assess the quantity and quality of social, emotional, and cognitive support available to a young child within his or her home (the Home Observation for Measurement of Environment [HOME] Inventory; Bradley & Caldwell, 1984). This measure assesses emotional and verbal responsivity, acceptance of child, organization of the environment, provision of appropriate play materials, maternal involvement with child, and variety in daily stimulation, which are factors likely to be correlated with maternal representations of the child. After controlling for maternal age, education, poverty, and marital status, Huang et al. (2005) also found Caucasian mothers to have significantly higher scores on a measure of maternal knowledge of child development, something known to influence how mothers interpret the behavior of their children and how they interact with their children (Cote & Bornstein, 2001; Goodnow, 1988; Miller, 1988).

Prior investigations have also been conducted to assess racial differences in maternal perceptions of infant temperament. These investigations have had mixed results, with some finding no differences between racial groups (Cybele & Leadbeater, 1999), while others have
found African American mothers to rate their infants as more difficult temperamentally than Caucasian mothers (Sameroff, Siefer, & Elias, 1982; Vaughn, Bradley, Joffe, & Seifer, 1987). The latter investigations support the findings of the current investigation, especially given that the Sameroff et al. (1982) investigation was also conducted with a prenatal sample. However, representations are distinct from perceptions of infant temperament and actual parenting behaviors. Therefore, investigations of the impact of race on maternal representations of the child should be conducted, especially given the current and previously discussed findings and the lack of any other investigations of race and maternal representations.

After controlling for SES, there were still between-group differences for prenatal maternal representations of the child on the same scales as noted above. In addition, a main effect for parenting stress emerged, such that African American mothers reported significantly higher parenting strain than Caucasian mothers. Though these type of effects often become insignificant after controlling for demographic variables, these investigations typically use multiple, or a combination of many, demographic variables such as Bradley and Caldwell (1984) did in their investigation of the quantity and quality of mothering given to the child (they controlled for crowding in the home, SES, birth order, and sex of the child). As noted earlier, race is often confounded with SES, as well as education, marital status, maternal age, number of children in the home, quality of the neighborhood, employment, and other such factors. Thus, it is inconclusive whether the current results were actually due to racial differences or other confounding variables that were unexamined in the present study. Future investigations which assess racial differences in maternal representations of the child need to be conducted in order to verify these results.
In addition, similar to the comments mentioned earlier, some researchers have argued that current parenting behaviors and parent perceptions of children that have been observed more among African American people, including harsher disciplinary practices and more perceptions of difficult child behaviors, have origins linked back to the slavery period (Grier & Cobbs, 1992). These authors, and others, propose that harsh disciplinary practices originated historically as a survival adjustment to slavery and have now been passed on through the generations. Again, this is a possible explanation as to why racial differences were observed in levels of acceptance, coherence, openness, and sensitivity to the unborn child.

Finally, even though the measure of prenatal maternal representations of the child used in this investigation (WMCI) has been used in other diverse samples, including primarily minority samples, no other known study as examined racial differences in prenatal maternal representations of the child. Therefore, it is possible that the measure taps different constructs in different groups and account for the aforementioned differences. However, further examination is needed before any mechanisms explaining the development of these differences in representations can be concluded beyond the speculation stage.

**Strengths**

This study is the first known investigation to extend the literature on the continuity of attachment, and more broadly relationship quality, over time by examining a comprehensive, theory-driven model. Attachment theory was used to develop the model which explored the relationship between history of attachment relationships (using both parental and romantic relationships), prenatal maternal representations of the child, and parenting strain (when the child was 1 year of age). Exploring the relationship between these variables in one model is valuable because statistical error is reduced and relationships between variables that need to be accounted
for can be detected. In addition, using structural equation modeling to assess attachment processes, including continuity of relationship quality over time, is generally a more stringent method of testing associations due to the estimation of parameters after taking into account all other relationships and shared variance, and the measurement error of observed and latent variables can be estimated (Tomarken & Waller, 2005). Additionally, operationalizing parent-child and romantic relationship quality as one latent construct is a more comprehensive assessment of attachment relationship history than done previously, as both have been individually identified as contributors to thoughts about parenting and parenting behaviors. Similarly, at least one group of researchers have found parenting stress and daily hassles to be distinct with different effects on parenting (Crnic & Greenberg, 1990), thus suggesting that parenting strain is a multidimensional construct; in fact, Crnic et al. (2005) stated that a full understanding of parenting stress requires attention to all aspects of the construct (Crnic et al., 2005). Therefore, the integration of parenting stress and daily hassles into one latent construct is a more comprehensive assessment of parenting strains.

Another important strength of this study is the longitudinal design, with the first wave taking place during pregnancy before the birth of the child, assuring that the mothers’ attachment relationship history and representations of the child were not influenced by mothers’ actual experiences with their children. Thus, this design gives more information about the precursors to parenting stress, and indicates that there is a potential for preventive intervention before the child is born. Preventing parenting stress after the birth of a child may reduce negative interactions and poor attachment between mothers and their young children and reduce the maladaptive intergenerational transmission of poor parenting.
In addition, the study was conducted with a diverse (racially and educationally), high-risk (mostly economically disadvantaged), pregnant sample (including those with both male and female children). The majority of investigations which have examined similar constructs have been conducted with low-risk participants (e.g., middle to upper economic class and married). Results from these investigations are not always generalizable to high-risk samples such as the present one. Therefore, investigations, such as the current one, are important because high-risk samples are more at risk for problematic, unstable relationships and parenting difficulties (Stewart-Brown & Schrader-McMillan, 2011; Waters et al., 2000; Weinfield, Sroufe, & Egeland, 2000). Therefore, investigations with high-risk populations are integral to understanding contributors to significant parenting strains and how these contributors affect parenting more broadly, as well as the development of effective prevention and intervention programs.

This investigation also built upon and expanded the broader attachment literature by integrating ideas and measures from both the developmental and the social/ personality areas of psychology in order to better understand the continuity of attachment quality, and relationship quality more broadly, from childhood to the transition to parenthood. The current findings, which demonstrated significant associations between largely unconscious processes (maternal representations of the child) and self-report, subjective experiences (attachment relationship quality and parenting experiences) is valuable because, although theoretically related, research combining these two methods of assessing relationships often find them to be unrelated (Bartholomew & Shaver, 1998).

Researchers from the developmental field tend to build rich datasets through time- and labor-intensive semi-structured interviews and direct observations of behavior. This typically leaves them with small sample sizes in which analysis is limited by power constraints. For
example, in the previously mentioned body of literature which has revealed significant associations between maternal experiences with caregivers during childhood and representations of, and relationships with, mothers’ own children (Ammaniti, 1991; Ammaniti et al., 1992; Atkinson et al., 2009; Crawford & Benoit, 2009; George & Solomon, 1996; Huth-Bocks, Levendosky, Bogat, et al., 2004; Slade & Cohen, 1996), sample sizes were 2, 23, 47, 35, 32, 206, and 3 respectively. With the exclusion of the Huth-Bocks, Levendosky, Bogat, et al. (2004) investigation, other studies were quite limited by small sample size. In fact, in some cases, the samples were too small for any statistical analyses and were only published as case studies. On the other hand, researchers from the social/personality field tend to use self-report measures of attachment, thus greatly increasing potential sample size, but sacrificing important aspects of attachment constructs such as unconscious aspects of mental representations and interpersonal behaviors. The current investigation raises hope that these two techniques may be able to be integrated in some investigations, depending on the goals of the investigation, and broaden psychological and scientific understanding of the continuity and discontinuity of attachment and relationship quality across the lifespan. Structural equation modeling may be an ideal analysis technique to do so, as it allows for the development of latent variables and is a stringent method of testing relationships among variables.

Limitations

There are also some limitations of the current study. Although bigger than some investigations, analyses were still constrained by sample size, which imposed limits on the number of variables that could be added to the hypothesized model. There are likely many other influences impacting the latent variables that went unexamined in this study. For example, exploratory analyses indicated that variables such as race and socioeconomic status may affect
some of the variables of interest. In addition, variables such as parental education, family size, social support, general stress level, parental age, current relationship status, current living arrangement, traumatic experiences, and special needs of child or parent likely impact the variables of interest (Benoit & Coolbear, 1999; Button, Pianta, & Marvin, 2001; Huth-Bocks, Levendosky, Bogat, et al., 2004; Huth-Bocks, Levendosky, Theran, et al., 2004; Korja et al., 2009; Schechter et al., 2005; Slade & Cohen, 1996; Sokolowski et al., 2007). However, the sample size was too small to account for all these variables. Relatedly, some latent variables had only 2 indicator variables, and although correlations indicated that these variables were related, measurement models could not be conducted on these latent variables due to under-identification.

Also, although diverse, the sample consisted of mostly economically disadvantaged pregnant women recruited from a small, Mid-Western urban area using convenience sampling. Participants who volunteered to participate in an investigation advertised to be about parenting may not be reflective of other mothers in the area. For example, mothers who question the quality of their parenting may be apprehensive to participate. In addition, participants were told that they would be compensated for their time. Although the amount chosen for compensation was reasonable, without being coercive, this compensation likely influenced women’s willingness to participate and may have led to the recruitment of a specific group. These aspects of recruitment and sampling may limit the generalizability of these findings to other samples (i.e., low-risk) and communities. It is important that future research replicate these findings in other samples and other geographical locations in order to determine if results are similar for other populations of pregnant women and/ or women in general, or if they are unique to this sample.
Although self-report measures save time and effort, which allow for recruitment of a larger sample size (as seen in the personality/social area of attachment work), they can also leave unconscious thought processes undetected. Therefore, this investigation may have been limited by conscious recollections of past relationships with parents and romantic partners that the women were able and willing to admit. For example, it may be difficult for some mothers to admit their relationship with their own mother or father was not ideal, or their relationships may be something the mother has tried not to think about. Similarly, it may be difficult for mothers to report poor relationships with their romantic partners, especially if the partner is the father of her child in utero and they are still in a (possibly conflictual) relationship. Therefore, results involving maternal recollections of relationship quality should be replicated using a variety of measures.

Results should also be replicated in investigations using a variety of measures assessing multiple aspects of parenting (e.g., perceptions, attitudes, stress, behaviors) which have been found to be related to adverse outcomes for children and families. Aspects of parenting that have been found to be related to maternal representations of the child, specifically, may be important.

**Future Directions**

Although results provide valuable information about the continuity of attachment and relationship quality from childhood to the transition to parenthood, future investigations should continue to explore the continuity of attachment and relationship quality and their effects on various domains of parenting using a variety of samples and designs. For example, the current results may not replicate in different types of high-risk samples of pregnant women and mothers of children of different ages.
In addition, more longitudinal investigations, which begin before pregnancy, could provide valuable data on how prior attachment relationships affect prenatal maternal representations of the child as there are data to suggest that there is continuity of attachment (Fraley, 2002a; Scharfe, 2003; Waters et al., 2002, Waters, Hamilton, & Weinfeld, 2000; Waters et al., 2000), as well as evidence for discontinuity of attachment (Winfield et al., 2004) and reorganization of attachment relationships during pregnancy (Bibring, Dwyer, Huntington, & Valenstein, 1961) and across the lifespan. Both continuity and discontinuity of attachment are consistent with Bowlby’s theory (1988) that individual differences in attachment security can be stable across significant portions of the lifespan and yet remain open to revision in response to experience. Discontinuity is also more likely in high-risk populations; studies have found, for example, that there is more change in types of insecurity and from security to insecurity (and vice versa) over time due to unstable caregiving environments (Fraley, 2002a; Waters et al., 2000; Weinfield et al., 2004). Indeed, the relatively small (though significant) associations in the present study suggest there is considerable discontinuity in relationship quality over time for some individuals. Therefore, expanding our understanding of factors and experiences related to balanced/ secure versus problematic/ insecure, as well as stable versus unstable, attachment relationships and representations may help mental health professionals support balanced/ secure individuals to remain balanced/ secure and help those with problematic/ insecure attachments and representations to become more balanced/ secure.

Future investigations should also continue to use a variety of data analytic techniques, including structural equation modeling and hierarchical linear modeling to analyze their data as these methods tend to be more stringent than others and can reveal relationships which may go undetected using other methods of data analysis. In addition, the ability to develop latent
constructs can provide additional information about the continuity of relationship quality over time and how it eventually affects parenting strain than other analysis methods.

Finally, these results should be used in conjunction with previous findings of other studies to design better empirically-supported intervention techniques. Currently, there are a number of psychotherapy treatments aimed at improving infant-parent relationships which have been successful at various levels; some are well supported by multiple randomized controlled trails, while others lack empirical examination. Some have been designed for general child-parent relationship disturbances, while others are designed for specific situations (i.e., mothers who are incarcerated, mothers with substance abuse problems, those involved with the foster care system, infants and toddlers with disabilities, high-risk/ first time mothers, high SES families, and difficult-to-engage families). However, most of these programs can be classified into one of two categories: those which focus on modifying parenting behaviors (Interaction Guidance [McDonough, 2000; 2004], Watch Wait and Wonder [WWW; Muir, Lojkasek, & Cohen, 1999], Steps Toward Effective, Enjoyable Parenting [STEEP; Erickson, Egeland, Rose, & Simon, 2002], or Video Intervention to Promote Positive Parenting [VIPP; Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2008]), and those which focus on changing maternal representations (Infant/ Child - Parent Psychotherapy (I/ CPP [Lieberman & Van Horn, 2001; 2005; 2009], Minding the Baby [MTB; Slade, et al., 2002; 2004], Multifocal Neonatal Intervention [MNI; Bruschweiler-Stern, 2004], Circle of Security [COS; Powell, Cooper, Hoffman, & Marvin, 2009; Cooper, Hoffman, Powell, & Marvin, 2005]). Most of these programs are geared towards working with mothers after the birth of the baby. However, results from the current investigation indicate that this work can begin earlier (during pregnancy), so
that detrimental levels of parenting strain and problematic caregiving behaviors can be prevented (using an intervention which focuses on changing prenatal maternal representations of the child).

For example, in one of the most well-known and empirically supported interventions of this kind, infant/ child-parent psychotherapy (IPP/ CPP; Lieberman & Van Horn, 2001; 2005; 2009), the therapist’s empathic understanding plays a crucial part in terminating the cycle of parenting disturbances across generations; a corrective experience with the therapist gives the mother the courage to come to grips with the pain, fear, anger, and helplessness from her own childhood trauma and connect her past experiences to current feelings about the child. Thus, the primary aims are to alter women’s representations of themselves, others, and importantly, their infants and to enhance mother-child attachment security. Taking a preventative approach through use of such interventions, especially during pregnancy, is important to consider given that high levels of parenting strain have been known to have a multitude of deleterious effects on the family (Bagner et al., 2009; Crnic & Low, 2002; Deater-Deckard, 1998), including harmful parenting behaviors and less secure attachment between mother and baby (Crnic & Booth, 1991; Crnic & Greenberg, 1990; Hoffman et al., 2009; Raphael et al., 2010).

Conclusions

In conclusion, the findings of the present study expand our current understanding of the continuity of attachment and relationship quality over time by integrating attachment research from both the developmental and the social/ personality fields of psychology. Consistent with attachment theory and the hypothesized model, results from this investigation suggest that mothers’ history of higher quality relationships (with their own mothers and romantic partners) were related to more positive and balanced prenatal maternal representations of their children, and more positive and balanced maternal representations, in turn, predicted later reported
experiences of parenting strain (parenting stress and daily hassles) when the child was 1 year of age. These results suggest that preventive interventions with women at risk for problematic prenatal representations and high levels of parenting strain are possible during pregnancy, beginning with several existing models of parent-infant psychotherapy that target representations (Bruschweiler-Stern, 2004; Lieberman & Van Horn, 2001; 2005; 2009; Slade et al., 2002; 2004).

Future research is needed to continue examining the continuity, and the discontinuity, of attachment relationships throughout the lifespan, as well as how one’s history of attachment relationships affect various aspects of parenting, including maternal representations of the child and subjective parenting experiences. In addition to future research, results should be used to develop early intervention programs designed to improve prenatal maternal representations of the child in mothers-to-be with a history of low quality attachment relationships. These interventions could potentially improve the experience of parenting, as well as the relationships between mother-infant dyads for generations to come.
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Appendix A: Written Informed Consent Agreement Pregnancy Interview

The EMU Parenting Project
Investigator: Alissa Huth-Bocks, Ph.D.

WRITTEN INFORMED CONSENT AGREEMENT

Description of the Research Study:
You are being asked to participate in a research study about women’s experiences during and after pregnancy, as well as how these experiences influence mothers and babies after birth. This research will help psychologists and other health service workers better understand mothers’ and babies’ well-being during the transition to parenthood.

As part of this study, you will be asked to fill out a number of questionnaires during your last trimester of pregnancy; these questionnaires will ask you about a variety of experiences including childhood experiences, current relationships, your mental health, important life events, and social support. You will also be interviewed about your feelings about your pregnancy, motherhood, and your infant; this interview will be audio-recorded so that research assistants may better understand your responses at a later date. The entire procedure will last approximately 2 ½ to 3 hours. At the end of this interview, we will ask your permission to stay in contact with you so that we may see how you and your baby are doing around 3 months and 1 year after birth. These follow-up interviews will take approximately 30-45 minutes at 3 months and 2 ½ to 3 hours at 1 year.

Participation is Voluntary:
Your participation in this study is completely voluntary. You may refuse to answer any questions and may choose to withdraw from the study at any time with no penalty or negative consequences. You will be informed if significant new findings develop during the course of this research that may impact your willingness to continue in the study.

Confidentiality:
You will be assigned an identification number, which will be used instead of your name, on all of your questionnaires and interviews to protect your confidentiality. Your name or other identifying information will never be placed on any of your materials so that your responses will be kept completely private. All responses will be stored in a locked research office which is located in a locked hallway of our building. Similarly, audio- and video-tapes will be placed in a locked cabinet in the same locked office immediately after the interview is completed to ensure confidentiality of these data. A log of names and identification numbers will be locked in a separate cabinet in a separate office; only the principal investigator and project managers will have access to this log. Results from the study will only be reported or published about groups of participants at professional conferences or through publications in scientific journals; individual responses will never be reported. Individual audio- or video-tapes will never be disseminated.

If, during the course of the interview, project staff learns that your safety is in jeopardy, we may be required to seek outside help in order to keep you safe. If we learn that your infant’s safety is in danger, we are required to make a report to Child Protective Services. These are the only exceptions to complete confidentiality.
Risks and Benefits to Participation:
There are no known or anticipated risks from participating in this study. However, some participants may find answering certain questions uncomfortable or distressing. If you experience any distress, project staff will help direct you to appropriate referrals in the community. All women will be given a comprehensive list of referrals that are designed for mothers and young children at the end of the interview.

Your participation in this study will help researchers better understand the unique experiences that women and babies go through during and after pregnancy. Some participants will find discussing these important life events with project staff relieving and enjoyable. You will be given a $25.00 Target gift card at the end of this interview, and if you choose to participate in future interviews, you will be compensated with gifts, gift cards, or cash.

Future Questions:
If, at any time, you have questions or concerns about study procedures or your participation in the study, please contact the principal investigator, Dr. Alissa Huth-Bocks, at (734) 487-0112 or ahuthboc@emich.edu.

Human Subjects Review:
This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from 9/26/08 to 9/26/09. If you have questions about the approval process, please contact Dr. Deb de Laski-Smith (734.487.0042, Interim Dean of the Graduate School and Administrative Co-chair of UHSRC, human.subjects@emich.edu).”

CONSENT TO PARTICIPATE: I understand my rights as a research participant and I voluntarily consent to participate in this study. I understand the purpose and procedures of the study. I will receive a copy of this consent form for my future reference.

Participant Signature ___________________________ Date ________________

Participant Name ______________________________

Witness Signature ______________________________ Date ________________
Appendix B: Written Informed Consent Agreement One Year Interview

The EMU Parenting Project
Investigator: Alissa Huth-Bocks, Ph.D.

WRITTEN INFORMED CONSENT AGREEMENT
(1 year Interview)

Description of the Research Study:
Thank you for participating in the first parts of our study. As you know, you are being asked to continue participating in this research study about women’s experiences during and after pregnancy, as well as how these experiences influence mothers and babies after birth. This research will help psychologists and other health service workers better understand mothers’ and babies’ well-being during the transition to parenthood.

During this interview today, we will ask you and your baby to play together for about 12 minutes with some toys that we have brought. This part of the interview will be video-taped so that only research staff can view it at a later time. Then, you will be given a number of questionnaires about your experiences since the last interview and about your baby; many of these questionnaires will be the same ones you filled out earlier, but some of them will be new to you. This interview will take approximately 2 ½ to 3 hours. While this is the last interview we have planned for the study at this time, it is possible that we may continue the study at some point in the future. At the end of the interview, we will ask if you are willing to have us contact you in the future if the study does continue at some point.

Participation is Voluntary:
Your and your baby’s participation in this study is completely voluntary. You may refuse to complete any part of the interview and may choose to withdraw from the study at any time with no penalty or negative consequences. You will be informed if significant new findings develop during the course of this research that may impact your willingness to continue in the study.

Confidentiality:
As a reminder, your name or other identifying information will never be placed on any of your questionnaires so that your responses will be kept completely private. All responses will be stored in a locked research office which is located in a locked hallway of our building. Similarly, audio- and video-tapes will be placed in a locked cabinet in the same locked office immediately after the interview is completed to ensure confidentiality of these data. A log of names and identification numbers will be locked in a separate cabinet in a separate office; only the principal investigator and project managers will have access to this log. Results from the study will only be reported or published about groups of participants at professional conferences or through publications in scientific journals; individual responses will never be reported. Individual audio- or video-tapes will never be disseminated.

If, during the course of the interview, project staff learns that you may seriously harm yourself, we may be required to seek outside help in order to keep you safe. If we learn that your current children’s safety is in danger, we are required to make a report to Child Protective Services. These are the only exceptions to complete confidentiality. We do not report domestic abuse.
Risks and Benefits to Participation:
There are no known or anticipated risks from participating in this study. However, some participants may find answering certain questions uncomfortable or distressing. If you experience any distress, project staff will help direct you to appropriate referrals in the community. All women will be given a comprehensive list of referrals that are designed for mothers and young children at the end of the interview.

Your participation in this study will help researchers better understand the unique experiences that women and babies go through during and after pregnancy. Some participants will find discussing these important life events with project staff relieving and enjoyable. You will be given a baby gift and $50.00 at the end of this interview.

Future Questions:
If, at any time, you have questions or concerns about study procedures or your participation in the study, please contact the principal investigator, Dr. Alissa Huth-Bocks, at (734) 487-2238 or ahuthboc@emich.edu.

Human Subjects Review:
This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from 9/26/07 to 9/26/08. If you have questions about the approval process, please contact Dr. Deb de Laski-Smith (734.487.0042, Interim Dean of the Graduate School and Administrative Co-chair of UHSRC, human.subjects@emich.edu).”

CONSENT TO PARTICIPATE: I understand my rights and my baby’s rights as a research participant and I voluntarily consent for both my baby and I to participate in this study. I understand the purpose and procedures of the study. I will receive a copy of this consent form for my future reference.

Participant Signature ______________________________ Date __________________________

Participant Name ______________________________

Witness Signature ______________________________ Date __________________________
Appendix C: Mother-Father-Peer Scale

Indicate the extent to which the following statements describe your childhood relationship with the people indicated by using the following scale:

<table>
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<tr>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Uncertain</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
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When I was a child, my MOTHER (or mother substitute):

1. encouraged me to make my own decisions

2. helped me to learn to be independent

3. Felt she had to fight my battles for me when I had a disagreement with a teacher or friend

4. was close to a perfect parent

5. was overprotective of me

6. encouraged me to do things for myself

7. encouraged me to try things my way

8. had not a single fault that I can think of

9. did not let me do things that other kids my age were allowed to do

10. sometimes disapproved of specific things I did, but never gave me the impression that she disliked me as a person

11. enjoyed being with me

12. was an ideal person in every way

13. was someone I found difficult to please

14. usually supported me when I wanted to do new and exciting things

15. worried too much that I would hurt myself
16. was never angry with me
17. was often rude to me
18. rarely did things with me
19. didn’t like to have me around the house
20. and I never disagreed
21. would often do things for me that I could do myself
22. let me handle my own money
23. could always be depended upon when I really needed her help and trust
24. gave me the best upbringing anyone could ever have
25. did not want me to grow up
26. tried to make me feel better when I was unhappy
27. encouraged me to express my own opinion
28. never disappointed me
29. made me feel that I was a burden to her
30. gave me the feeling that she liked me as I was; she didn’t feel she had to make me over into someone else

When I was a child, my FATHER (or father substitute)

31. encouraged me to make my own decisions
32. helped me learn to be independent
33. felt he had to fight my battles for me when I had a disagreement with a teacher or friend
34. was close to a perfect parent
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<td>45. worried too much that I would hurt myself or get sick</td>
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<td>46. was never angry with me</td>
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<td>52. let me handle my own money</td>
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<td>54. gave me the best upbringing anyone could ever have</td>
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<td>55. did not want me to grow up</td>
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</table>
56. tried to make me feel better when I was unhappy
57. encouraged me to express my own opinion
58. never disappointed me
59. made me feel that I was a burden to him
60. gave me the feeling that he liked me as I was; he didn’t feel he had to make me over into someone else
Appendix D: Marital Relationship Scale (MRS)

Marital Relationship Scale

The following questions ask about certain aspects of your relationship with your partner. Please answer these questions for the present time in your relationship by circling the number that best characterizes your relations with your partner. Please check here if you are not currently in a relationship: __________

1. To what extent do you have a sense of "belonging" with your partner?
   1 2 3 4 5 6 7 8 9
   Not at all Very much

2. To what extent do you reveal or disclose very intimate facts about yourself to your partner?
   1 2 3 4 5 6 7 8 9
   Not at all Very much

3. How often do you and your partner argue with one another?
   1 2 3 4 5 6 7 8 9
   Very infrequently Very frequently

4. How much do you feel you "give" to the relationship?
   1 2 3 4 5 6 7 8 9
   Very little Very much

5. To what extent do you try to change things about your partner that bother you (e.g., behaviors, attitudes, etc.)?
   1 2 3 4 5 6 7 8 9
   Not at all Very much

6. How confused are you about your feelings toward your partner?
   1 2 3 4 5 6 7 8 9
   Not at all Very much

7. To what extent do you love your partner at this stage?
   1 2 3 4 5 6 7 8 9
   Not at all Very much

8. How much time do you and your partner spend discussing and trying to work out problems between you?
   1 2 3 4 5 6 7 8 9
   No time at all A great deal of time

9. How much do you think or worry about losing some of your independence by being involved with your partner?
   1 2 3 4 5 6 7 8 9
   Not at all Very much
10. To what extent do you feel that the things that happen to your partner also affect or are important to you?  
1 2 3 4 5 6 7 8 9
Not at all Very much

11. How much do you and your partner talk about the equality of your relationship (e.g., how “good” it is, how satisfying, how to improve it, etc.)?  
1 2 3 4 5 6 7 8 9
Never Very often

12. How often do you feel angry or resentful toward your partner?  
1 2 3 4 5 6 7 8 9
Never Very much

13. To what extent do you feel that your relationship is somewhat unique compared to others you’ve been in?  
1 2 3 4 5 6 7 8 9
Not at all Very much

14. To what extent do you try to change your own behavior to help solve certain problems between you and your partner?  
1 2 3 4 5 6 7 8 9
Not at all Very much

15. How ambivalent or unsure are you about continuing in the relationship with your partner?  
1 2 3 4 5 6 7 8 9
Not at all unsure Extremely unsure

16. How committed do you feel toward your partner?  
1 2 3 4 5 6 7 8 9
Not at all Extremely

17. How close do you feel toward your partner?  
1 2 3 4 5 6 7 8 9
Not at all close Extremely close

18. To what extent do you feel that your partner demands or requires too much of your time and attention?  
1 2 3 4 5 6 7 8 9
Not at all Very much

19. How much do you need your partner at this stage?  
1 2 3 4 5 6 7 8 9
Not at all Very much

20. To what extent do you feel “trapped” or pressured to continue in this relationship?  
1 2 3 4 5 6 7 8 9
Not at all Very much

21. How sexually intimate are you with your partner?  
1 2 3 4 5 6 7 8 9
Not at all Extremely
22. How much do you tell your partner what you want or need from the relationship?
1 2 3 4 5 6 7 8 9
Very little Very much

23. How attached do you feel to your partner?
1 2 3 4 5 6 7 8 9
Not at all Very much

24. When you and your partner argue, how serious are the problems or arguments?
1 2 3 4 5 6 7 8 9
Not at all serious Very serious

25. To what extent do you communicate negative feelings toward your partner (e.g., anger, dissatisfaction, frustration, etc.)?
1 2 3 4 5 6 7 8 9
Not at all Very much
Appendix E: Experiences in Close Relationships Questionnaire-Revised (ECR-R)

Experiences in Close Relationships Questionnaire-Revised

Instructions: The statements below concern how you feel in emotionally intimate relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by indicating how much you agree or disagree with it. Write the number in the space provided using the following rating scale:

<table>
<thead>
<tr>
<th>Disagree Strongly</th>
<th>Neutral/Mixed</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
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</table>

1. I’m afraid that I will lose my partner’s love.
2. I often worry that my partner will not want to stay with me.
3. I often worry that my partner doesn’t really love me.
4. I worry that romantic partners won’t care about me as much as I care about them.
5. I often wish that my partner’s feelings for me were as strong as my feelings for him/her.
6. I worry a lot about my relationships.
7. When my partner is out of sight, I worry that s/he will become interested in someone else.
8. When I show my feelings for romantic partners, I’m afraid they will not feel the same about me.
9. I rarely worry about my partner leaving me.
10. My romantic partner makes me doubt myself.
11. I do not often worry about being abandoned.
12. I find that my partner(s) don’t want to get as close as I would like.
13. Sometimes romantic partners change their feelings about me for no apparent reason.
14. My desire to be very close sometimes scares people away.
15. I’m afraid that once a romantic partner gets to know me, he or she won’t like who I really am.

16. It makes me mad that I don’t get the affection and support I need from my partner.

17. I worry that I won’t measure up to other people.

18. My partner only seems to notice me when I’m angry.

19. I prefer not to show a partner how I feel deep down.

20. I feel comfortable sharing my private thoughts and feelings with my partner.

21. I find it difficult to allow myself to depend on romantic partners.

22. I am very comfortable being close to romantic partners.

23. I don’t feel comfortable opening up to romantic partners.

24. I prefer not to be too close to romantic partners.

25. I get uncomfortable when a romantic partner wants to be very close.

26. I find it relatively easy to get close to my partner.

27. It’s not difficult for me to get close to my partner.

28. I usually discuss my problems and concerns with my partner.

29. It helps to turn to my romantic partner in times of need.

30. I tell my partner just about everything.

31. I talk things over with my partner.

32. I am nervous when partners get too close to me.

33. I feel comfortable depending on romantic partners.

34. I find it easy to depend on romantic partners.

35. It’s easy for me to be affectionate with my partner.

36. My partner really understands me and my needs.
Appendix F: Working Model of the Child Interview (WMCI)

Working Model of the Child Interview

INTERVIEWER: PLEASE TURN ON THE TAPE RECORDER. Test the tape recorder by saying “Testing 1, 2, 3” a few times. Rewind and play back the recording to make sure everything is working properly. THEN, TURN ON TAPE RECORDER--PRESS RECORD--AGAIN. WAIT 5 SECONDS. SAY YOUR NAME, DATE, and SUBJECT NUMBER INTO THE RECORDER. BEGIN INTERVIEW.

**MAKE SURE TAPE RECORDER IS TURNED ON and THAT “RECORD” IS PRESSED. CHECK FOR RED LIGHT.

We are interested in how parents think and feel about their children before they are born. This interview is a way for us to ask you about that. The interview will take us about an hour to complete.

1. Let’s start with your pregnancy. I’m interested in things like whether it was planned or unplanned, how you feel physically and emotionally, and what you are doing during the pregnancy (e.g., working). Let’s take these one at a time. [The idea is to put the participant at ease and to begin to obtain a chronological history of the pregnancy. Additional probes may be necessary to make sure that the individual is given a reasonable opportunity to convey the history of their reactions and feelings about the pregnancy and the baby (which may or may not be the same).]

1a. Was the pregnancy planned or unplanned?

1b. How much is the baby wanted or not wanted?

1c. When did the pregnancy seem real to you?

1d. How have you felt physically and emotionally throughout your pregnancy? [Interviewer: Find out the history of these throughout the pregnancy.]

1e. What are you doing, or have you been doing, during the pregnancy? (e.g., working?) [Interviewer: Find out the history of these throughout the pregnancy.]

**** MAKE SURE THE TAPE RECORDER IS TURNED ON and “RECORD” IS PRESSED.

2. What have been your impressions about the baby while you’re pregnant? What do you sense the baby might be like?
3. How do you think you will react to labor and delivery? What do you think your feelings about labor and delivery will be?

4. What do you think your first reaction will be when you see the baby?

4a. What will be your reaction if the baby is a boy? If the baby is a girl?

5. How do you think your family will react to the birth of your baby? [Interviewer: for example, husband/partner, other siblings.]

6. Do you think your baby will have any problems in the first few days after birth?

7. How long do you think the baby will have to stay in the hospital?

8. Are you going to breast-feed or bottle-feed? Why? How did you come to that decision?

9. How do you think the first few weeks at home with the baby will go? [Interviewer: Explore feelings about feeding, sleeping, crying, etc.]

10. How old do you think your baby will be when he/she sits up?

   Crawls?

   Walks?

   Smiles?

   Talks?

10a. Do you think your baby will do these things ahead, behind, or at the same time as other babies?

11. Do you have any sense yet of what your baby’s intelligence will be? Why do you think that?
12. Do you think your baby will have a regular routine? What do you think will happen if you or your baby can’t stay in the routine?

13. Will you need to be separated from your baby after he/she is born? (e.g., work)
   *If the participant says YES or NO, the interviewer asks:*
   **What do you think this will be like for you? For the baby?**

   *If the participant says “I HOPE NOT” the interviewer asks:*
   **If this did happen, what would this be like for you? For the baby?**

13a. Will there be any separations in the first year of your baby’s life that will last for more than a day? How will that be for you? For your baby?

14. What do you think your child’s personality will be like when he/she is born?
   *[Personality--the qualities/traits/features that give someone their identity, that makes someone who they are]*

14b. Pick 5 words (adjectives) that describe what your child’s personality will be like when he/she is born. *[Interviewer: Write these down on the paper for reference. It is not important that participants come up with exactly 5 adjectives.]*
   1. 
   2. 
   3. 
   4. 
   5. 
   For each one, what makes you say that?
   1. 
   2. 
   3. 
   4. 
   5.

15. Who do you think your baby will be most like?

15a. What personality traits do you think your child will inherit from you?

15b. What traits will your child inherit from the baby’s father?

15c. Do you think there are any characteristics your child will inherit from your side of the family?

15d. From the baby’s father’s side of the family?

16. Have you decided on your child’s name? How did you decide?(or How will you decide?)
16a. Does that name have special meaning in your family or the baby’s father’s family?

17. In what ways do you think your child will be unique or different from other children?

18. After your baby is born, what behavior in his/her first year of life do you think will be the most difficult for you to handle? Can you give an example?

18a. Why will this be difficult? How often do you think it will occur?

18b. What will you feel like doing when your child behaves like that? How will you feel if your child acts this way? What will you do about the behavior?

18c. Do you think your child will know you don’t like that behavior? Why do you think he/she will act like that?

18d. What do you imagine will happen to this behavior as your child grows older? Why do you think so?

19. How would you describe your relationship with your baby now, while you’re pregnant?

19a. Pick five words (adjectives) to describe your relationship. For each word, describe an incident or memory that illustrates what you mean.[Interviewer: Write these down on the paper for reference. It is not important that participants come up with exactly 5 adjectives.]

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5.

20. What pleases you most about your relationship with your baby while you’re pregnant?

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

22. How do you feel your relationship with your baby while you’re pregnant will affect your baby’s personality?
23. Has your relationship with your baby changed during the pregnancy? In what ways? What is your feeling about the change?

24. When your baby is born, what parent do you think he/she will be closest to? Why?

24a. Do you expect that to change (as the child gets older, for instance)? How do you expect it to change?

25. Do you think your baby will get upset often in his/her first 12 months? What will you do at those times? What do you think your feelings will be at those times?

26. What about when the baby becomes emotionally upset? What will you do at those times?

26a. What do you think your feelings will be at those times?

27. What about when your child becomes physically hurt a little bit (e.g., hitting his head against the crib)? What will you do at those times? What do you think your feelings will be at those times?

28. What about when your child becomes sick (e.g., he/she gets a fever)? What will you do at those times? What do you think your feelings will be at those times?

29. Tell me a favorite story about your pregnancy, perhaps one you’ve told to family or friends. I’ll give you a minute to think about this one. [Interviewer: If the participant is struggling, you may tell them that this doesn’t have to be the favorite story, only a favorite one.]

29a. What do you like about this story?

30. Can you think of any experiences you’ve had during your pregnancy that might have been a setback for your baby? [Setback=something that happened that makes things harder for your baby than for other babies.]

If person says YES, then ask: [Interviewer: Indirectly, we’re trying to determine whether the parent feels responsible in any way for the setbacks.]

***Why do you think so?

If person says NO, go to next question.

31. Knowing what you know now, if you started all over again with your pregnancy, what would you do differently?
32. Are there any experiences your baby might have during the first year of his/her life that might be a setback for him/her? If person says NO, go to question 12.
   If person says YES, then ask:
   32a. Why do you think so?
   32b. Who or what is likely to contribute to these setbacks?
   32c. Is there anything you might do to prevent these setbacks?

33. Do you ever worry about your unborn baby? What do you worry about?

34. If your child could be any age right now (unborn, 1 month, 1 year, etc.), what age would you choose? Why?

35. As you look ahead, what will be the most difficult time in your child’s development? Why do you think so?

36. What do you expect your child to be like as an adolescent? What makes you feel this way? What do you expect to be good and not so good about this period in your child’s life?

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

INTERVIEWER:
1. TURN TAPE RECORDER OFF.
2. GIVE PARTICIPANT THE INTERVIEW PACKET; GIVE HER A BREAK IF NECESSARY.
Appendix G: Parenting Daily Hassles (PDH)

Parenting Daily Hassles

The statements below describe a lot of events that routinely occur in families with young children. These events sometimes make life difficult. Please read each item and tell me how often it happens to you (rarely, sometimes, a lot, or constantly) and then tell me how much of a “hassle” you feel that it has been for you FOR THE PAST 6 MONTHS. If you have more than one child, these events can include any or all of your children.

<table>
<thead>
<tr>
<th>EVENT</th>
<th>HOW OFTEN IT HAPPENS</th>
<th>HASSLE (low to high)</th>
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<tbody>
<tr>
<td>1. Continually cleaning up messes of toys or food</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<td>2. Being nagged, whined at, complained to</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<td>3. Meal-time difficulties with picky eaters, complaining, etc</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<td>4. The kids won’t listen or do what they are asked without being nagged</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<td>5. Babysitters are hard to find</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<td>6. The kids schedules (like preschool or other activities) interfere with meeting your own household needs</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<td>7. Sibling arguments or fights require a referee</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<td>8. The kids demand that you entertain them or play with them</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<tr>
<td>9. The kids resist or struggle with you over bed-time</td>
<td>Rarely  Sometimes  A lot  Constantly</td>
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<td>EVENT</td>
<td>HOW OFTEN IT HAPPENS</td>
<td>HASSLE (low to high)</td>
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<td>10. The kids are constantly underfoot, interfering with other chores</td>
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<td>A lot</td>
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<td>Constantly</td>
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<td>11. The need to keep a constant eye on where the kids are and what</td>
<td>Rarely  Sometimes</td>
<td>A lot</td>
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<td>they’re doing</td>
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<td>12. The kids interrupt adult conversation or interactions</td>
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<td>Constantly</td>
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<td>13. Having to change your plans because of unexpected child needs</td>
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<td>Constantly</td>
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<td>14. The kids get dirty several times a day requiring changes of</td>
<td>Rarely  Sometimes</td>
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<td>clothing</td>
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<td>Constantly</td>
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<td>15. Difficulties in getting privacy (eg. In the bathroom)</td>
<td>Rarely  Sometimes</td>
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<td></td>
<td>Constantly</td>
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<td></td>
<td>1 2 3 4 5</td>
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<tr>
<td>16. The kids are hard to manage in public (eg. Grocery store)</td>
<td>Rarely  Sometimes</td>
<td>A lot</td>
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<td></td>
<td></td>
<td>Constantly</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>17. Difficulties in getting kids ready for outings and leaving on</td>
<td>Rarely  Sometimes</td>
<td>A lot</td>
</tr>
<tr>
<td>time</td>
<td></td>
<td>Constantly</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>18. Difficulties in leaving kids for a night out or at school or</td>
<td>Rarely  Sometimes</td>
<td>A lot</td>
</tr>
<tr>
<td>daycare</td>
<td></td>
<td>Constantly</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>19. The kids have difficulties with friends (fighting trouble,</td>
<td>Rarely  Sometimes</td>
<td>A lot</td>
</tr>
<tr>
<td>getting along, or no friends)</td>
<td></td>
<td>Constantly</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>20. Having to run extra errands to meet the kids’ needs</td>
<td>Rarely  Sometimes</td>
<td>A lot</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Constantly</td>
</tr>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>
Appendix H: Parenting Stress Index – Short Form (PSI-SF)

Parenting Stress Index – Short Form

The questions on the following pages ask you to tell me an answer which best describes your feelings. While you may not find an answer which exactly states your feelings, please tell me the answer which comes closest to describing how you feel. **YOUR FIRST REACTION TO EACH QUESTION SHOULD BE YOUR ANSWER.** Please mark the degree to which you agree or disagree with the following statements by **telling me** the number which best matches how you feel.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I often have the feeling that I cannot handle things very well ..........</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I find myself giving up more of my life to meet my child’s needs than I ever expected ..................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. I feel trapped by my responsibilities as a parent ................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Since having this child, I have been unable to do new and different things ................................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Since having a child, I feel that I am almost never able to do things that I like to do ..................................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I am unhappy with the last purchase of clothing I made for myself ….</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. There are quite a few things that bother me about my life ..........</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Having a child has caused more problems than I expected in my relationship with my spouse (or partner) ................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. I feel alone and without friends ............................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. When I go to a party, I usually expect not to enjoy myself ..........</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. I am not as interested in people as I used to be ................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. I don’t enjoy things as I used to ..................................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. My child rarely does things for me that make me feel good ..........</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. Sometimes I feel that my child does not like me and does not want to be close to me ..................................................</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
15. My child smiles at me much less than I expected

16. When I do things for my child, I get the feeling that my
efforts are not appreciated very much

17. When playing, my child doesn’t often giggle or laugh

18. My child doesn’t seem to learn as quickly as most children

19. My child doesn’t seem to smile as much as most children

20. My child is not able to do as much as I expected

21. It takes a long time and it is very hard for my child to get
used to new things

22. I feel that I am:

1 = not very good at being a parent/care giver
2 = a person who has some trouble being a parent/care giver
3 = an average parent/care giver
4 = a better than average parent/care giver
5 = a very good parent/care giver

23. I expected to have closer and warmer feelings for my child
than I do and this bothers me

24. Sometimes my child does things that bother me just to be mean

25. My child seems to cry or fuss more often than most children

26. My child generally wakes up in a bad mood

27. I feel that my child is very moody and easily upset

28. My child does a few things that bother me a great deal

29. My child reacts very strongly when something happens that
my child doesn’t like

30. My child gets upset easily over the smallest thing
31. My child’s sleeping or eating schedule was much harder to establish than I had expected ........................................ 1 2 3 4 5

32. I have found that getting my child to do something or stop doing something is:

   1 = much harder than I expected
   2 = somewhat harder than I expected
   3 = about as hard as I expected
   4 = somewhat easier than I expected
   5 = much easier than I expected

For the next statement, choose your response from the choices “10+” to “1-3”

33. Think carefully and count the number of things that your child does that bother you.
   For example: dawdles, refuses to listen, overactive, cries, interrupts, fights, whines, etc.
   1. 10+ things that bother me
   2. 8-9 things that bother me
   3. 6-7 things that bother me
   4. 4-5 things that bother me
   5. 1-3 things that bother me

34. There are some things my child does that really bother me a lot..... 1 2 3 4 5

35. My child turned out to be more of a problem than I had expected .... 1 2 3 4 5

36. My child makes more demands on me than most children............. 1 2 3 4 5