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The association between attachment-related trauma and adult representations of attachment and the role of maternal mental health

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The Association between Attachment-Related Trauma and Adult Representations of Attachment

and the Role of Maternal Mental Health

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ATTACHMENT-RELATED TRAUMA AND ATTACHMENT REPRESENTATIONS

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ABSTRACT

Despite longstanding theoretical associations in the attachment literature between early experiences of trauma, unresolved attachment representations, and mental health symptoms, few studies have explored associations between these variables, and findings amongst current studies are inconsistent. This study aimed to examine these relationships in a high-risk sample of mothers. It also explored relationships between aspects of trauma, such as type, severity, and age of exposure in relation to unresolved attachment representations. Possible moderating effects of mental health were also examined. Data for the study were collected as part of a larger longitudinal study on women's transition to motherhood. The present study used data from the third trimester of pregnancy (T1) and 1-year (T3), 2-years (T4), and 3-years (T5) postpartum. Participants in this study included 74 diverse, primarily low-income women between the ages of 18 – 41 years ($M = 27$, $SD = .35$). Adult representations were assessed by a relatively new measure of adult attachment, called the Adult Attachment Projective Picture System (AAP; George, West & Pettem, 1999), which has not yet been widely used in the literature but has potential as a valuable research tool in the attachment field. Attachment-related traumas conceptualized by Kobak, Cassidy, and Ziv (2004) were examined and included physical abuse, physical neglect, sexual abuse, emotional abuse, loss, and prolonged separations. Mental health symptoms of depression and posttraumatic stress disorder were also obtained. It was hypothesized that attachment-related trauma and mental health difficulties would be significantly related to unresolved representations. Unexpectedly, results revealed no significant differences between unresolved and resolved mothers on cumulative trauma or mental health (i.e., depression and PTSD symptoms). However, attachment security, as a continuous variable, was significantly related to mental health, such that higher security was related to fewer depression

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and PTSD symptoms. The results are discussed in relation to two formal definitions of

attachment trauma that have been articulated in the attachment literature. Recent theoretical

developments about attachment trauma and the need for further investigations about the

influence of childhood experiences on adulthood attachment representations are also discussed.

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INTRODUCTION

John Bowlby's attachment theory (Bowlby, 1969/1982) developed during a time when there were many different theoretical positions explaining the role of early experiences on later life. Bowlby was influenced by various fields and approaches, but his interest was especially influenced by clinical experiences and observations. Bowlby began to notice and become curious about pathological changes in emotion and behavior in children who experienced disruptions in maternal care. His curiosity and observations regarding infant behavior in the context of frightening and helpless experiences strongly influenced subsequent empirical investigations of the parent-child relationship and the representational world of a child. Through repeated interactions with caregivers, according to Bowlby, children develop internal working models (IWM) of the self, other, and the world. Children who receive consistent caregiving that meets the attachment needs of a child are likely to develop an organized, unified representational model, whereas inconsistent caregiving experience becomes more difficult to integrate into a well-organized IWM. Adaptations to caregiver inconsistencies, however, ensure the survival of the child and help maintain organization. When overwhelming or traumatic events occur in a child's life, these events are often dissociated from memory, resulting in poorly organized, problematic representations, typically called unresolved representations. However, traumatic material may be elicited when the attachment system is activated.

The attachment literature has taken a developmental approach to understanding trauma in childhood and conceptualized early traumatic events as relational events that simultaneously overwhelm the child with fear and prevent the goal of the attachment system by preventing the availability of the caregiver. This study examined the association between early attachment-related traumas and unresolved attachment representations in adulthood. The majority of studies

include only childhood physical and sexual abuse in terms of trauma; however, this study examined the cumulative effects of these types of trauma, along with additional types of traumas, on unresolved attachment representations. The development of the Adult Attachment Projective Picture System, a relatively new measure of adult attachment representations, was used in this study to assess unresolved representations in adulthood.

The literature demonstrates independent associations between both early trauma and unresolved attachment representations and psychopathology, such that rates of symptoms of various disorders are higher among groups with histories of trauma and/or unresolved representations. Many studies aim to investigate the role of trauma symptoms in adulthood; however, associations between unresolved representations and other mental health problems are also possible. Few studies have investigated the associations between attachment-related traumas, psychopathology, and unresolved representations together, despite consistent theoretical links between these variables. It is currently unclear within the attachment literature as to what makes one more or less likely to resolve childhood trauma. Methodological problems in assessment tools may contribute to difficulties in interpreting the literature.

In addition, no studies have used a longitudinal approach to examine these associations in a high risk sample. Thus, this study aims to better understand associations between early attachment-related traumas, adult attachment representations, and mental health, including the possible moderating effects of both depressive and trauma symptoms across several time points from the prenatal to postpartum periods. This study also explored the different types of traumatic events and qualities of those events that may differentially relate to unresolved representations.

In the following chapters, there will be a comprehensive review of the literature examining (a) the development of attachment theory, (b) attachment representations and

attachment-related traumas, and (c) mental health outcomes of attachment-related traumas and attachment representations. Next, the conclusions and hypotheses for the current study will be presented. The present study's methods and results are detailed, followed by a discussion of results and implications for future research on attachment representations, especially with regard to future studies using the AAP as a means of assessing representations.

CHAPTER 1: DEVELOPMENT OF ATTACHMENT THEORY

Introduction

John Bowlby's attachment theory (Bowlby, 1969/1982) was influenced early in his career by observations of disruptions in the mother-child relationship in hospital settings. He noted that when separated from their mothers, children responded in a predictable pattern of "protest and despair." These observations were extremely influential to his thinking regarding both the importance of the mother and early caregiver experiences and later child psychopathology. Several fields contributed to Bowlby's development of attachment theory: evolutionary biology, developmental psychology, psychoanalysis, ethology, and cognitive science (Bowlby, 1969/1982; Bretherton, 1991). Bowlby understood attachment to be a biological predisposition allowing infants, who are without the cognitive or physical capacity to care for and protect themselves, to have their attachment needs met by a parent or caregiver to facilitate survival. Through the process of natural selection, infants developed the capacity to display attachment behaviors (i.e., crying, vocalizing, smiling, and approaching). These behaviors increase proximity to attachment figures and subsequently ensure survival. Bowlby believed that all infants naturally form an attachment with an attachment figure if there is someone available; however, the mother has always been conceived of as having a primary role. As such, the majority of research has focused on the mother-child relationship with regard to quality of attachment and young children's emotional development.

Bowlby described the organization of attachment behaviors as being a part of the attachment behavioral system, which refers to a system that operates with the goal of maintaining both physiological and psychological homeostasis. An infant's attachment system is increasingly activated as a function of perceived external threats, such as separation from a caregiver. This activation is also accompanied by physical arousal and negative affect such as

anxiety or fear. Attachment behaviors are used to gain contact with a caregiver who is expected to respond to the infant's cues and alleviate the threat. Subsequently, the attachment system is deactivated and the infant's distress is reduced (Bowlby, 1969/1982). This process is an example of a goal-corrected system, with the set goal being proximity to an attachment figure. In this system, individual behavioral components for achieving emotional regulation may vary according to circumstance and the child's developmental level. For example, a serious threat to an infant is separation from the mother. Depending on the level of anxiety and activation of the attachment system, the baby may whimper or cry (or follow if able) as a signal for the mother to return and provide comfort. That is, the attachment behavioral system depends on the responsiveness and availability of the attachment figure as a regulatory mechanism of physiological and emotional arousal. Indeed, observational research with both animals and infants has long shown that the inherent motivation to attach to or seek out a caregiver does not depend solely on physiological needs (Harlow, 1958; Ainsworth, 1970). Instead, infants' attachment is a means for survival when they are relatively defenseless.

Internal Working Models

Repeated interactions centered on the infant's distress, and both actual and anticipated behavior of caregivers in response to that distress, are the beginnings of a developing representational world in the child. According to Bowlby, these actual attachment-related experiences, like the previous example, contribute to the construction of internal working models (IWM) or mental representations of self and others in attachment relationships (Bowlby, 1980; Craik, 1943). Following concepts of cognitive psychology and information processing theory, it is believed that IWMs are developed by the latter portion of the first year of life, when a child is beyond the sensorimotor period of development (Piaget, 1954). IWMs are largely unconscious

organizations of attachment experiences that represent information about the self, other, and relational world. An IWM is inherently complementary with the dyadic experience between parent and child (Bretherton, 1990; Bretherton & Munholland, 2008). Through repeated experiences with caregivers, a child organizes and attributes meaning to behavior and subjective experience, such that future interactions can be anticipated.

The work of Schank and Abelson (1977), Schank (1982; 1999), and Nelson (1986) on event schemas and scripts, as described by Bretherton (1987; 1990), has assisted in the understanding of mental representations or IWMs in attachment relationships. Event schemas and scripts are enduring cognitive structures that summarize common themes across a class of events (Waters & Waters, 2006). IWMs are thought to represent systems of hierarchically organized schematic information that ranges from more moment interactions (e.g., When I was scared, my mother comforted me) to broad semantic and episodic memories and experiences (e.g., I am protected because I am important) regarding the self in relation to others. These different levels of experience of self, other, and the world transact in a complex manner to make up the IWM of attachment. Consistent goal-corrected interactions with an attachment figure create confident expectations of relational patterns. These interactions contribute to the development of schematic events that are relatively unified or more aligned, creating an organized representational model. For instance, the consistent response of a caregiver leaves a child feeling protected and lovable. In this case, the child is able to develop a representation of an attachment figure as one who is willing and able to provide care. Also with repeated experiences of this nature, the child's schematic events will be relatively aligned, such that representations across self and other and across hierarchical levels are consistent. The child with this history will regularly seek proximity when the attachment system is activated, expecting

anxiety to be terminated by the caregiver. The resulting flexible representation is expected to be highly integrated and balanced, maintaining the homeostasis of the child's attachment system.

In contrast, when the child is cared for in such a way that promotes feelings of being unwanted and not worthy of care, the accompanying representation of the attachment figure is of one that is rejecting and unable to provide care. In this case, a child may use defensive maneuvers in response to his or her caregiving environment to ensure some degree of caregiver proximity and availability; adapting to a caregiver so that the caregiver is at least minimally responsive can be important to survival. For instance, an infant who experiences failures of sensitive responses from a caregiver may stop using attachment behaviors to gain proximity when distressed. Rather, he or she may suppress attachment needs or possibly attempt to self-soothe. Subsequently, these behavioral adaptations to an unresponsive or rejecting caregiver are reflected in that individual's IWMs regarding beliefs or values of the self as worthy of care and the willingness of others to attend to attachment needs (in this instance, not worthy of care). Furthermore, if painful or contradictory experiences dominate the child's world, the schematic networks are dissociated from each other, and the IWM may become more difficult to integrate across levels of the hierarchy (Bretherton, 1990; Bretherton et al., 2008; Solomon & George, 1999).

Bowlby (1980; 1987) posited that, through the process of defensive exclusion, painful attachment-related experiences and emotions are defended against so that a child can maintain cognitive organization of attachment information and some emotional connection to an attachment figure. Adaptations to the caregiving environment, such as the one described above with a rejecting caregiver, may maintain an organized representation of the attachment relationship, even if it is an insecure attachment relationship. There are some attachment

experiences, however, that are extremely painful, such as chronic threats to the attachment

system that are not met with a caregiver's response of comfort or protection. It is under these

conditions that "segregated systems" emerge. Bowlby described segregated systems as extreme

defensive processes that separate attachment information from consciousness (Solomon et al.,

1999). First conceptualized as the foundation for pathological mourning, memories of painful

attachment-related experiences are blocked by segregated systems, according to Bowlby (1980),

and result in a "failure to mourn." In contrast, when flooded by thoughts and emotions about

these events, individuals are thought to be in a "chronic mourning" state.

Bowlby thought that segregated systems were likely to develop in response to extended

separation from an attachment figure, loss, or being punished for displaying attachment

behaviors (Solomon et al., 1999). Likened to repression, the painful attachment memories are not

forgotten. Rather, they are excluded from consciousness and accessible to being evoked by

attachment-relevant cues (Bowlby, 1980). Bowlby suggested that mental health is dependent on

our ability to consciously evaluate and reorganize IWMs. Segregated systems prevent this

process and interfere with the development of integrated and balanced IWMs.

Although IWMs are updated across the lifespan, these representations organize one's

thoughts, memories, and feelings regarding attachment figures and are carried forward and used

to interpret future interactions and future relationships. According to the attachment literature,

there are several reasons why IWMs are thought to be stable throughout the lifespan. First, the

experiences that contribute to the development of IWMs are usually habitual in nature, which

contributes to the representational organization (Bowlby, 1982). A unified representation created

from repeated caregiving experiences, for instance, will not be undone by occasional caregiving

failures (Bretherton, 1990; Bretherton et al., 2008). Second, the representations are developed in

the context of the parent-child relationship, and in this relationship, it is to the benefit of the child

to adapt to the caregiver to ensure survival. If either person in the dyad attempts to change the

relational pattern, one individual may resist and maintain the previous way of relating, resulting

in difficulties (Bretherton, 1990; Bretherton et al., 2008). Finally, representations and complex

associated processes function outside of conscious awareness and often become rote experiences

and anticipatory responses that occur with little attentional effort (Bretherton, 1990; Bretherton

et al.,, 2008). For these reasons, IWMs are templates from which to understand the world that

extends beyond childhood.

Mary Ainsworth's Contribution to Attachment Theory

Bowlby developed the theoretical foundation of attachment, but Mary Ainsworth

furthered his ideas both conceptually and methodologically. Ainsworth, Blehar, Waters, and

Wall (1978) developed the Strange Situation procedure, a systematic observational technique

that allowed for an empirical delineation of the quality of the parent-child attachment

relationship. This procedure, which consists of several separations and reunions between mothers

and infants, was designed to stress the infant enough to activate the attachment system so that the

child's representations of attachment can be assessed via observation and coding of attachment

behaviors. In her work, Ainsworth noticed that children did not respond uniformly to the

presence or absence of an attachment figure and that children's responses were different

depending on whether observations were made in the home or the laboratory (Ainsworth et al.,

1978). This led her to suggest that the child's appraisal of the separation determined the response

to the mother's departure. Essentially, it is believed that the infant's behavior during this

procedure reflects the history of care in that relationship. As such, this procedure operationalized

Bowlby's concept of the IWM; the young child's attachment behaviors reflect the child's IWMs

of attachment. Ainsworth et al. (1978) studied these patterns of attachment behavior and identified three distinct patterns that describe the quality of the attachment: Secure (B), Avoidant (A), and Ambivalent (C).

In her observations, Ainsworth noted that Secure infants were able to use their mother as a "secure base from which to explore" (Ainsworth et al., 1978; p. 22). This means that infants can move away and gain proximity to an attachment figure based on the activation of the attachment system. Exploration is essential to development because it promotes learning about the environment and the social world. Yet the world can be both intriguing and frightening for infants. Secure infants are confident in their ability to explore because their experience suggests that when they are distressed, a sensitive and responsive caregiver will comfort them. There is a balance between exploration and attachment with secure infants that is negotiated flexibly and reliably. As such, secure infants develop an IWM of themselves as valued and competent and of others as supportive (Bretherton et al., 2008). In contrast, infants with insecure attachments (Avoidant and Ambivalent) have not experienced consistent and responsive care, and, subsequently, their attachment system is compromised.

Avoidant infants have not been able to reliably use their attachment figure as a secure base. Rather than receiving comfort and safety when distressed, their attachment needs have likely been rejected or ignored. Consequently, they may ignore and not approach the caregiver and suppress signs of internal distress. Instrumental care (e.g., feeding and diaper changes) may occur, but the relationship is emotionally detached and important regulatory needs are not being met. These children are often rather independent, and it may seem like they are indifferent or less distressed when their attachment system is triggered; however, they have adapted their attachment behavior to their caregiving environment in order to ensure minimal levels of

caregiving responsiveness. The corresponding IWM is one of self-devaluation and of others as rejecting and unsupportive (Bretherton et al., 2008).

Ambivalently attached infants are thought to have insensitive and alternately unavailable or interfering caregivers. Due to the erratic responsiveness, these infants have mixed emotions regarding the comfort or safety their caregivers might provide (Ainsworth et al. 1978; Weinfield, Sroufe, Egeland, & Carlson, 1999). As such, they tend to have exaggerated or heightened attachment behaviors in order to help ensure that a caregiver will respond; this strategy helps maintain proximity to an inconsistently available caregiver. Ambivalent infants possess corresponding IWMs of themselves as incompetent and of others as inconsistent and unreliable.

In careful analysis of Strange Situation tapes that were difficult to classify, a fourth category of attachment, Disorganized/Disoriented (henceforth called Disorganized), was later identified (Main & Solomon, 1986). Compared with infants whose attachment strategies are organized and consistent (secure, avoidant, ambivalent), infants identified as Disorganized lack a coherent attachment strategy when in distress, which results in a variety of bizarre and contradictory behaviors, such as stilling, fear reactions, or stereotypical movements (Main & Solomon, 1990; Main & Hesse, 1990). Disorganization is the most problematic of the attachment patterns. It has been hypothesized that thoughts and memories related to a parent's loss and trauma, triggered by the caregiving experience, can make the parent respond to the child in frightening or frightened ways (Lyons-Ruth, Bronfman, & Parsons, 1999; Main et al., 1990). Infants in this caregiving environment cannot find a solution to fearing the figure who they must approach for comfort in times of distress (Main et al., 1990). Unable to reconcile this conflict and maintain any consistent attachment strategy, these infants display contradictory, disoriented, and out-of-context behaviors.

Adult Attachment Representations

One of the main tenets of Bowlby's theory is that the attachment system is present and active throughout the lifespan. There is, however, developmental change in the expression of the attachment system over time. For children, observations of non-verbal behavior and vocalizations used to obtain protection and comfort are used to assess the quality of the attachment system and attachment organization or disorganization. In adulthood, the function and goals of the attachment system remain; however, both the attachment behaviors and quality of threats to the system of infancy have changed as a result of the advancement of physical and cognitive capacities. For instance, physical separation to a caregiver is less of a threat to an adult, but new threats to attachment appear, and the capacity of mobility and language changes the way the attachment system is expressed and, therefore, assessed.

Main, Kaplan, and Cassidy (1985) reconceptualized the organization of attachment across the lifespan by investigating how early attachment experiences, originally assessed behaviorally in infancy, "moves to the level of representation" in adulthood. As previously mentioned, IWMs are developed and organized as a result of actual experience and, specifically, through the attempts and outcomes of efforts to regulate the attachment behavioral system with an attachment figure (Main et al., 1985). In infancy, attachment behaviors are used to gain proximity to an attachment figure; however, in adulthood, representations have the capacity to supplement actual interactions with an attachment figure in meeting the individual's attachment needs. Therefore, proximity with an attachment figure may be maintained by reference to an IWM of this person. This is likely a developmental capacity that increases across the childhood and adolescent periods. George and West (2004) describe this concept as the "internalized secure base." The IWMs in adulthood are also thought to reflect early caregiving experiences; while

these may be unique to each individual, these representations are also meaningfully organized into classifications of attachment.

Adult Attachment Interview

Researchers interested in measuring attachment in adults developed the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985; 1996; Main & Goldwyn, 1998). The AAI is thought to activate the adult's attachment system by "surprising the unconscious" by requiring the subject to simultaneously access childhood memories, summarize and evaluate childhood relationships with caregivers, and maintain the boundaries of the interview process (George, Kaplan, & Main, 1985; 1996; as cited in Hesse, 2008). During the interview, the attachment system is thought to be activated through attachment-related questions (e.g., questions about illness or separations). It specifically asks about the adult's impressions of the relationship and experiences with parents and the affective meaning attributed to these events. It also asks questions regarding experiences of loss of a loved one to death, abuse by a caregiver, or other frightening or traumatic situations. By using descriptions and evaluations of these early attachment-related experiences, the AAI captures the adult's representation, or "state of mind," with regard to attachment. Thus, state of mind captures the individual's capacity to integrate and process attachment-related material and its associated thoughts and feelings (George & Solomon, 2008). The person's narrative of responses to interview questions is transcribed, and adults are classified into one of four categories largely based on the coherency, consistency, and cognitive flexibility throughout the interview process. Based on careful analysis of verbatim transcriptions (George et al., 1985; 1996; Main et al., 1985), patterns of attachment that are analogous to child attachment patterns were identified: secure/autonomous (henceforth called Secure; F), Dismissing (D), and Preoccupied (E).

As in infancy, the Secure, Dismissing, and Preoccupied patterns of attachment are organized strategies for dealing with attachment activating experiences like the AAI. These strategies are considered organized because they are relatively consistent and predictable ways of responding to the potentially threatening representational material. Secure adults are able to explore and evaluate both supportive and difficult childhood experiences; they also describe their relationships in a coherent fashion. Dismissing adults defensively distance themselves from the emotional content of the interview, providing less coherent descriptions of these relationships. They may not include supportive information for initial impressions of attachment figures, responding briefly to questions. Preoccupied adults are rather indecisive and overwhelmed by their prior relationship experiences with caregivers (Main, 1985). They are more likely to demonstrate their preoccupation with attachment figures rather than discuss experiences due to lack of awareness of their absorption (Main, 1995).

In addition to these three mutually exclusive groups, adults may also be classified as Unresolved/disorganized (U; henceforth called Unresolved) and cannot classify (CC). Adults classified as Unresolved show "lapses in the monitoring of reasoning or discourse" during discussion of loss or abuse (Hesse &Main, 2000), which suggest a breakdown of defensive processes. These discussions are thought to trigger dissociated memories or beliefs among Unresolved adults, leading to sudden shifts or alterations in consciousness or working memory during the AAI that indicate a lack of resolution with respect to attachment difficulties (Hesse & Main, 1999). As a part of the AAI coding scheme, a number of different signs of disorientation or disorganization have been observed (Main & Goldwyn, 1998). For instance, lapses of reasoning may be evidenced by a brief disbelief that a deceased person is dead or that one's thoughts caused the death of a loved one. Lapses of discourse may be evidenced by excessive

amounts of detail when describing a death or eulogistic speech. Depending on the topic of

discussion when the lapses occur, individuals are classified as "Unresolved with respect to loss"

during discussion of loss and "Unresolved with respect to abuse" during discussion of abuse.

Adults whose transcripts do not fit one of the four main classifications receive a "Cannot

Classify" (CC) coding. The measurement of adult classification status is dominated by the AAI

in attachment research, as it provides a rich, construct validated picture of adult mental

representations of attachment. As the gold-standard adult attachment measure, the developmental

literature almost exclusively uses this assessment in relevant studies (Main & Goldwyn, 1998).

Adult Attachment Projective

Relatively recently, the Adult Attachment Projective picture system (AAP; George &

West, 2001; George, West, & Pettem, 1999) was developed as a new measure of adult

attachment representations. The AAP is a set of eight pictures that, with the exception of the first

"warm-up" picture, depict scenes that have been found to activate the attachment system (i.e.,

pictures of illness, solitude, separation, and abuse; West & Sheldon-Keller, 1994). The AAP

scoring system was largely based on the AAI and it provides corresponding attachment

classifications: Secure (F), Dismissing (D), Preoccupied (E), and Unresolved (U). In addition to

coding specific content similar to the AAI for the hypothetical stories produced by the

individual, the AAP evaluates unconscious defensive processes and is based on key assumptions

of Bowlby-Ainsworth attachment constructs.

The defensive processing dimensions identify the quality of the person's defensive

exclusion evidenced in the AAP responses. In particular, Bowlby (1980) referred to three

categories of attachment defenses that help explain individual differences in mental

representations of attachment across the lifespan: (1) deactivation, (2) cognitive disconnection,

and (3) segregated systems. Each of the attachment classifications (which reflect attachment strategies) is consistent with a predominant defensive process. Secure adults are relatively undefended regarding attachment experiences; therefore, they tend to use fewer indications of defensive exclusion when responding to the AAP. The defenses present in secure responses are used to support the flexibility of the representation.

The first two defensive processes, deactivation and cognitive disconnection, are used to allow for integrated representational functioning among those in the organized insecure (Dismissing and Preoccupied) groups (George & Solomon, 1996). They serve as ways of soothing the activation of the attachment system when an attachment figure's response is not compatible with the set goal of the attachment system. Thus, these defenses prevent mental breakdown when faced with attachment stressors and protect an individual from representational and behavioral disorganization (Solomon & George, 2008). The defensive process of deactivation minimizes painful attachment experiences and is associated with the Dismissing attachment pattern (Cassidy & Kobak, 1988; Main, 1990; Solomon, George, & De Jong, 1995) and rejecting caregiving (George et al., 1996). These defenses enable an individual to stay detached and distanced from painful attachment material, preventing arousal by minimizing the importance of attachment experiences (Solomon et al., 2008). For example, on the AAP, deactivation markers in an adult's story content include focusing on social roles or rejection and indicate that the adult is using this defensive strategy to protect him- or herself from being aroused by the attachment activating stimuli. At the process level, minimization and derision are likely to be present.

In contrast, Preoccupied adults are thought to be entangled in attachment issues and relationships and tend to use cognitive disconnection as a defense against painful attachment

experiences. Cognitive disconnection is evidenced by uncertainty, ambivalence, and mental preoccupation with experiences, other adults, or feelings (George et al., 1996; George & Solomon, 1999; Solomon et al., 1995). This defense allows adults to split off negative affect from eliciting situations, for instance, by making an attachment issue positive or glossing over it completely. Preoccupied adults tend to review details of their attachment experiences in such a way that this defensive process becomes maladaptive, making it difficult to demonstrate confident efforts to act in response to their attachment activation (George et al., 2001). This is in contrast to defensive exclusion through deactivation where definitive action is often used (West & George, 2002). In response to the AAP stimuli, the Preoccupied adult may focus on details of the picture to a point where it is difficult to complete the task. Stories may have several different versions or be left incomplete (George et al., 1999).

Finally, as mentioned previously, segregated systems are extreme forms of defensive exclusion that result from extremely painful emotions related to loss through death or experiences of trauma (Ainsworth & Eichberg, 1991; Main et al.,, 1985; Solomon et al., 1999; Solomon et al., 1995). Segregated systems may be understood as a failure to use less extreme defensive processes to remain organized (that is, to maintain consistent ways of responding to attachment needs) and to exclude distressing thoughts and feelings from consciousness (George et al., 2004). Segregated systems are evidenced in AAP responses by a number of dimensions indicating dysregulation or disintegration, including helplessness, failed protection, abandonment, and dissociation in story content. When the attachment system is activated during the AAP, these "segregated system trauma markers" are present in the individual's language in the form of threatening, un-integrated, or traumatic material. Segregated system trauma markers on an AAP protocol that are not subsequently cognitively-emotionally contained ("resolved") are

associated with the Unresolved classification. Unresolved adults are helpless and dysregulated, as they lack defensive processes to organize and respond to the picture stimuli activating the attachment system (and presumably, any other event that activates the attachment system).

Stability of Attachment

The development of the AAI and the study of attachment "at the level of representation" allowed researchers to assess attachment over time within individuals. Longitudinal studies have demonstrated that attachment patterns are relatively stable over time (Fraley, 2002; Hamilton, 2000; Main, Hesse, & Kaplan, 2005; Sroufe, Egeland, Carlson & Collins, 2005; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). Comparing the AAI status of adults who were classified in the Strange Situation as young children has produced continuity rates ranging from 72-77% in two-way (secure versus insecure) analyses of samples, with adult classifications made approximately 16-26 years post-Strange Situation classification (Hamilton, 2000; Sroufe et al., 2005; Waters et al., 2000). These results suggest that early experiences of security (or lack thereof) result in enduring mental representations of attachment that are stable across developmental changes, in part because these representations serve to guide future behavior in relationships.

Experiences that occur throughout life can, however, influence later attachment (Carlson, Sroufe, & Egeland, 2004). Researchers have found that continuity between early attachment and adult states of mind with respect to attachment may be less readily observed in high-risk samples relative to low-risk samples, possibly because adults in high-risk samples encounter a number of important contextual risk experiences that can influence IWMs (Hamilton, 2000; Waters et al., 2000; Weinfield, Sroufe, & Egeland, 2000). Further, research has indicated that insecure categories are less stable than security, and insecurity is found in higher rates among high-risk

samples. Discontinuity, therefore, can be accounted for by a number of factors, but, most often, studies have related discontinuity to trauma or significant attachment-related life events that occur between attachment assessments (Main et al., 2005).

Since the advent of measures to assess adult representations or states of mind with respect to attachment, research has begun to examine factors that contribute to the quality of adult representations. While the interaction of the parent-child dyad is a clear source of representational development, attachment representations through adulthood are likely influenced by multiple factors in the individual's environment. As such, literature has examined a range of factors that may contribute to representations in adulthood and the stability of representations over time. This includes, for example, the quality of the early mother-child relationship, maternal sensitivity, and reflective functioning (Fonagy, Steele, Steele, & Moran, 1991; van IJzendoorn, 1995), individual level variables such as psychopathology (Weinfield et al., 2000), and also contextual variables such as familial stressors like financial hardship (Allen, McElhaney, Kuperminc, & Jodl, 2004; Belsky, 1996). Another factor that has been theorized to influence quality of adult representations of attachment is trauma experienced in childhood, especially in the context of attachment relationships.

CHAPTER 2: ATTACHMENT REPRESENTATIONS AND ATTACHMENT-RELATED TRAUMAS

Attachment-Related Traumas

The Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition defines a traumatic event as an experience that is (1) "a threat to life or physical integrity" and that (2) is accompanied by "intense fear, helplessness, or horror" (American Psychiatric Association [APA], 2000; p. 463). This definition was developed as a result of extensive research with adult survivors of trauma and the subsequent diagnosis of posttraumatic stress disorder (PTSD). Trauma, however, is an experience that transcends age. The current diagnostic conceptualization of PTSD fails to capture all of the possible traumatic experiences and their sequelae that a young child might experience. A conceptualization of experiences of trauma at different developmental stages, particularly in the early years of a child's life, is appropriate for understanding its relation to representations of attachment.

Threats to survival and physical integrity in early years are intimately tied to the attachment relationship and, specifically, to the availability of the caregiver. Bowlby's early work on maternal deprivation and institutionalization speaks to the traumatic nature of early experiences. He used naturalistic observations of children ranging from 18 months to 4 years who were hospitalized, with parents allowed to visit their children in the hospital for only one hour weekly (Karen, 1994). In his observations, Bowlby identified three phases of the emotional response of children separated from an attachment figure: protest, despair, and detachment (Bowlby, 1973; Heinicke & Westheimer, 1966). Initially, children would protest the separation by expressing sadness and anger, through seeking behaviors, and through the display of anticipatory behavior of the mother's return. Subsequently, this behavior diminished and the child withdrew and disengaged. According to Bowlby, this phase was similar to a deep mourning

in response to the perceived loss of the attachment figure (Bowlby, 1973). Finally, a child in the detachment phase was observed to accept care from other caretakers and respond to the mother's return in an apathetic or an alternating fearful, clinging manner (Heinicke et al., 1966). This work demonstrated that attachment disruptions such as prolonged separations affected the emotional development of infants, toddlers, and young children. Attachment theorists and researchers have since followed Bowlby's work and become increasingly interested in examining the role of very difficult attachment-related experiences, or "attachment-related traumas" (Kobak, Cassidy & Ziv, 2004). Researchers have also become interested in examining how these early experiences influence the development of IWMs.

Attachment-related traumas, like prolonged separations, disconnect the child from his or her known source of comfort and protection. Essentially, the child is without an external mechanism of physiological and emotional regulation, and the capacity to manage these experiences independently have yet to develop. Bowlby specifically cited the importance of availability and communication in the parent-child relationship (Bowlby, 1973), as both are critically important for providing comfort and protection. As noted earlier, availability of a caregiver is imperative in meeting the goal of the child's attachment system. In addition to physical accessibility, caregiver availability includes other aspects of interpersonal experience such as open and comprehensible communication and responsiveness (Bowlby, 1990). As such, availability is not just the physical presence or absence of a caregiver, but it also takes into account the quality of the caregiver-child interaction and the child's understanding about the availability of the caregiver. For instance, a parent can verbally threaten to abandon the child, which would be highly distressing to a young child who has achieved some receptive language ability. Indeed, it is the *appraisal* of threat and danger and corresponding feelings of fear that

activate the attachment system; in turn, the availability and responsiveness of the caregiver

contribute to the quality of IWMs of attachment. Communication, another aspect of availability,

has an increasing role across development, as cognitive and linguistic capacities are acquired

with age. Cognitive and linguistic capacities allow the attachment figure to become available

beyond her physical presence (i.e., in "mind"). These representational capacities alter the

appraisal of a threat, providing access to the experience of availability of a caregiver (in some

individuals at least). Consequently, events that constitute a threat to an attachment figure's

availability in infancy and adulthood are expected to vary drastically. The events that occur early

in life that are the most threatening attachment experiences for a young child have been

conceptualized as those that severely compromise physical accessibility, communication, and

responsiveness of an attachment figure (Kobak et al. 2004). These experiences are also thought

to influence the IWMs of adults in important ways.

Kobak et al. (2004) conceptualized events that compromise these aspects of availability

as attachment-related traumas and defined these experiences as "a frightening experience [that] is

accompanied by, or results from, the appraisal of loss, rejection, or abandonment by an

attachment figure" (p. 391). The co-occurrence of a threat to survival and threat to the

availability of the caregiver makes these experiences traumatic to young children (Kobak et al.,

2004). Four types of attachment-related traumas have been conceptualized in the attachment

literature. The first type is *attachment disruptions*. In the course of a child's life, there are

typically numerous experiences of separation. A mother's return to work, movement to another

room, or placement of a child in a bassinet to sleep are a few of these instances. These are the

daily separations that characterize typical parent–child relationships. In contrast, attachment

disruptions are extreme separations that differ from these more typical experiences because these

disruptions are prolonged and unexpected. Therefore, these experiences lack planning or communication regarding the caregiver's absence and are outside of the child's typical experience (Kobak, Cassidy, Lyons-Ruth, & Ziv, 2006). The second type of attachment-related trauma is the *physical or sexual abuse of a child* by an attachment figure, an especially difficult experience because the child is being harmed by the individual who is relied upon for comfort. The third type is *loss of an attachment figure through death*. The fourth is *attachment injuries,* or "wounds that arise from abandonment by a present attachment figure in a situation of urgent need"; this concept was first put forth by Johnson (2002) based on her work with adult couples (as cited by Kobak et al., 2004, p. 394). According to Johnson (2002), times of physical illness in adulthood or the birth of a child, for instance, may heighten attachment needs, and attachment injuries result from a failure by a partner to respond to such needs with accompanying feelings of abandonment or betrayal (Johnson, 2002 p. 185). For children, this type of attachment-related trauma is similar to childhood experiences of neglect. Childhood neglect can take several forms including neglect related to the physical, medical, environmental, or emotional needs of a child as well as severely inadequate supervision (DePanfilis, 2006). Failing to meet the needs of children in many of these areas can be a significant real and perceived threat to survival.

In sum, attachment-related traumas are interpersonal experiences that are inherently traumatizing to children given their developmental level and dependence on attachment figures for survival. While these traumas may be single events, they are more likely to be chronic experiences of attachment failures resulting in frightened or helpless states. Each of these events creates the dilemma of "fear without solution," where a child is placed in the impossible situation of needing comfort and protection from an unavailable, absent, or even abusive caregiver (Main et al., 1990). As previously mentioned, this dilemma has been conceptually and empirically

associated with attachment disorganization during childhood, the most problematic category of attachment that places individuals at most risk for psychopathology such as later dissociative symptoms (Carlson, 1998; Liotti, 1992).

Attachment-Related Traumas and Disorganized Infant Attachment

Frightening and overwhelming experiences, coupled with a lack of caregiver availability, contribute to the development of contradictory and incompatible systems of behavior and representations that are indicative of disorganized attachment in young children. Infant disorganization has been specifically associated with prolonged separations (Bowlby, 1973; Chisholm, 1998; Solomon et al., 1999), the early loss of a parent through death (Lyons-Ruth, Yellin, Melnick, Gwendolyn, & Atwood, 2005; Main et al., 1985), sexual abuse (Lyons-Ruth & Block, 1996), and childhood maltreatment in general (Carlson, Cicchetti, Barnett & Braunwald, 1989; Cicchetti, Rogosch, & Toth, 2006). One type of attachment disruption, for instance, is when children are removed from the care of their attachment figure(s); children removed from their biological parents have had significant difficulties adapting to this experience (Hodges, Doucette-Gates, & Liao, 1999; O'Connor, Bredenkamp, & Rutter, 1999). Some studies also suggest that children who are not placed in a permanent home by six months of age have disproportionately high rates of disorganized attachments (Chisholm, 1998; Juffer & Rosenboom, 1997; Stovall & Dozier, 2000).

Overall, the rates of disorganization are greatest among high-risk samples, with the highest rates in samples of maltreated children (Carlson et al., 1989). For example, in the Cicchetti et al. (2006) study, 90% of maltreated infants were Disorganized, compared to 43% of low-income controls. Children classified as Disorganized based on the Strange Situation are also more common in samples of depressed and substance-abusing mothers (DeMulder & Radke-

Yarrow, 1991; Lyons-Ruth, Connell, Grunebaum, & Botein, 1990; O'Connor, Sigman, & Brill, 1987; Teti, Gelfand, Messinger, & Isabella, 1995). Maternal depression has been associated with hostile and inconsistent caregiving, which are predisposing factors for parental rejections and threats of abandonment (Lyons-Ruth, Lyubchik, Wolfe, & Bronfman, 2002). As such, child disorganization is more likely in samples of mothers with severe depression that significantly impairs maternal functioning, such that the infant is left feeling very vulnerable, helpless, and fearful about the availability of his or her caregiver (Martins & Gaffan, 2000).

In fact, infants are typically able to adapt to attachment-related difficulties using organized insecure attachment strategies; however, that capacity is exceeded when the fear system is chronically activated by attachment-related trauma. In this latter context, the infant may develop multiple IWMs of the self, the attachment figure, and the relationship that are inconsistent (Liotti, 1992). For instance, a child may perceive him or herself and the caregiver as being both threatening and comforting (Liotti, 1999). Disorganized infants are not able to synthesize and integrate their memory structure, and they also lack the caregiver's comfort and protection that would diminish the activation of the attachment system. It is thought that these experiences may result, for example, in the dissociation observed in disorganized infants (Liotti 1992). The segregation of these painful attachment experiences from consciousness serves as a protective function for the young child, where integration processes would fail to terminate the chronic activation of the attachment system (Solomon et al., 1999). Segregating this unwanted information from awareness buffers a child from experiencing extreme anxiety, and therefore, segregation acts as a defense against trauma (Fonagy, Target, & Gergely, 2000; Terr, 1991; Putnam, 1995). In sum, attachment-related traumas in childhood often impair the development of

integrated IWMs of the self and others, which are crucial for the regulation of emotion, cognition, behavior, and affect across the lifespan.

Attachment-Related Traumas and Unresolved Adult Attachment

Similarly, reliance on dissociated coping strategies inhibits the integration of memories and experience into a unified IWM in adulthood (Fischer et al, 1997; Fonagy et al., 2000; Hesse et al., 1999; Main et al., 1990; Macfie, Cicchetti, & Toth, 2001). Indeed, empirical studies have found that traumatic childhood events have been associated with the mental disorganization or disorientation during discussion of loss and trauma that is indicative of Unresolved states of mind on the AAI (Main et al., 1990). Disorganized infants, or infants that are thought to have had threatening attachment experiences sufficient enough to produce segregated systems, are also more likely to be classified as Unresolved on the AAI (Sroufe et al., 2005; Main et al., 2005). This indicates some stability over time of disorganization and unintegrated working models. Unresolved states of mind regarding attachment are also found in higher rates in samples that have had adverse early experiences such as neglect, abuse, and witnessing of violence (Lyons-Ruth, Yellin, Melnick, Gwendolyn, & Atwood, 2003; Riggs & Jacobviz, 2002; Stalker & Davies, 1995).

For example, Riggs, Paulson, Tunnell, Sahl, Atkinson, and Ross (2007) collected AAI data in a sample ($N = 75$) of inpatient trauma survivors, and 80% of these adults were classified as Unresolved. Another study reported that among a sample of 40 women who were receiving services related to sexual abuse, 60% were classified as Unresolved (Stalker & Davies, 1999). Additionally, one published study has reported data regarding history of childhood trauma and adult attachment status assessed by the AAP (versus the much more commonly used AAI) in a small study of 24 women with dysthymia (West et al., 2002). Of these participants, five reported

childhood sexual abuse or loss of an attachment figure before the age of 18. A total of four of the participants were classified as Unresolved; however, the classification distribution of the participants who endorsed trauma was not reported, as this was not the aim of the study.

Although past empirical literature demonstrates the negative impact of these early frightening experiences on attachment representations across the lifespan, the developmental processes involved are not well understood. While many individuals who experience attachment-related traumas remain Unresolved with respect to their state of mind, some resolve these experiences and demonstrate organized representations of attachment relationships. According to attachment theory, individuals with a history of attachment-related traumas must revise their IWMs after the trauma(s) by integrating the trauma into their representations in order to have organized representations (Bowlby, 1982). It is through this process of integration and containment of these painful events that a person is able to achieve resolution and coherency of thought and affect regarding the trauma. The resolution of traumatic experiences, therefore, is important for understanding the range of potential outcomes related to experiencing attachment-related trauma. Specifically, identifying the conditions under which representations remain Unresolved is essential for understanding an individual's response to these experiences. An Unresolved representation, according to Hesse (1996; 2008), is indicative of an adult who is still overwhelmed by the trauma itself or the memories of the frightening experience. However, the attachment literature is unclear what factors make an individual more or less likely to resolve trauma, and it has been difficult to investigate these relationships given methodological challenges in the assessment of both attachment-related traumas and Unresolved representations.

Challenges with Assessment of Attachment-Related Traumas and Unresolved

Representations

Integrating the findings from the few studies that have empirically investigated the

relationship between attachment-related trauma and adult representations described above is

complex and leads to difficulties of interpretation. The most prominent issue is the varied

methods of assessment of attachment-related traumas and related aspects of these events (e.g.,

severity). To date, there is no published attachment-related trauma questionnaire per se.

Therefore, studies have used various methods to assess these events, including adding questions

to the AAI and developing rating scales of severity (Lyons-Ruth et al., 2003; Lyons-Ruth &

Block, 1996), using observational methods of child rearing practices (Carlson, 1998), or using

other interviews (Bailey et al., 2007) or self-report questionnaires about trauma (Riggs et al.,

2002; West et al., 2002). Each of these methods likely assesses different aspects of traumas. For

example, as a self-report measure, the Childhood Trauma Questionnaire (CTQ; Bernstein &

Fink, 1998) is a broad index of maltreatment that assesses the frequency of emotional, physical,

and sexual abuse, and emotional and physical neglect. In contrast, the AAI captures only those

experiences of physical and sexual abuse that are given in response to an open-ended interview

question. Some of the previous studies also used some combination of these methods (e.g.,

Bailey, Moran, & Pederson, 2007) and showed the utility of using various assessment methods.

Nevertheless, these varying forms of assessment can also contribute to mixed findings. For

instance, there are inconsistent findings with regard to the relationship between severity of

trauma in childhood and Unresolved status (e.g., Riggs et al., 2002; Lyons-Ruth et al., 2003).

There are, of course, other reasons for varying findings. Sample sizes are often not large due to

the nature of this research, and the prevalence of classifications in the samples being studied

varies tremendously. Also when using these methods with low-risk samples, the relative infrequency of reports of early trauma may prevent further analysis of differential effects on adult representations (e.g., Main et al., 1990; West et al., 2002).

Therefore, there is currently no systematic operationalization of experiences of childhood attachment-related trauma, despite rich theoretical descriptions of the construct. It seems important to include severity, type, and developmental period of such events (if these data are available) in order to better understand the impact of attachment-related traumas on representations. There have been a few studies that have attempted to do this. For instance, experiences of loss have been found to be less predictive of Unresolved attachment status when analyzed separate from abuse experiences (Lyons-Ruth et al., 2003). In another study, the earliest age of the loss among mothers classified as Unresolved was older (around 13 years of age) than the earliest age of loss among those that were resolved (5 years of age; Ainsworth et al., l991). In addition, when multiple methods were used in the Bailey et al. (2007) study, examination of relationships between both broad and specific traumatic events was possible. Aside from these few exceptions, limitations in most study methodologies make it difficult to investigate attachment-related traumas without including additional assessments of trauma history. Furthermore, even with the inclusion of additional measures, early attachment-related traumas may not be accessible to recall due to time of trauma or due to certain defense mechanisms or for some other reason (Kobak et al., 2004), making this a very difficult topic to investigate.

In addition to these difficulties with the measurement of childhood trauma, some researchers have also raised concerns about methodological issues regarding the assessment of Unresolved status including the inability to assess Unresolved status independently from reports

of loss and abuse on the AAI, which may be under-reported (Bailey et al., 2007; Lyons-Ruth et al., 2003). Recall that an Unresolved representation is indicative of an adult who is still overwhelmed by the trauma itself or the memories of the frightening experience when the attachment system is activated (Hesse, 1996). On the AAI, the resolution of trauma or loss is defined by a person's ability to stay oriented to the present when traumatic memories and frightening material are elicited and discussed. As a function of this particular assessment methodology, adults must engage in discussion about these events so that lapses in monitoring or discourse can be coded, as these characteristics are not coded on other portions of the interview. During the AAI, minor lapses in monitoring traumatic material do not automatically yield an Unresolved classification. Rather, lapses need to meet at least 5 of 9 on a scale of Unresolved loss or abuse to be considered Unresolved. Furthermore, if no death or experience of abuse is revealed by the participant, then his or her state of mind cannot be coded Unresolved. This methodology is problematic because of the known possible underreporting of these difficult early life events (Widom & Morris, 1997). In fact, one longitudinal study found that only 26% of those who reported childhood abuse during the first AAI reported it again during a second AAI administered 2 years later (Crowell, Treboux, & Waters, 2002). In another study, the AAI elicited more reports of physical abuse when compared with an independent trauma interview, which elicited more reports of sexual abuse from the same individuals (Bailey et al., 2007). Therefore, it appears that multiple measures of attachment-related traumas are necessary to capture the extent of these experiences, along with additional ways of assessing Unresolved status that is separate from reporting one's own trauma experiences explicitly.

Importantly, the AAP, as a projective measure of adult attachment, circumvents these significant methodological concerns in three ways. First, this method does not ask any direct

questions regarding participants' history of trauma or loss. Second, it is not necessary for the

individual to discuss personal experiences of trauma or loss to be identified as Unresolved with

respect to attachment. Rather, the assessment method requests *hypothetical* stories using scenes

that pull for possible attachment-related trauma (i.e., abuse or loss). Third, the AAP identifies

Unresolved status using a range of indicators of segregated systems, consistent with Bowlby's

original theoretical propositions, and is not limited to specific types of trauma like abuse or loss

(as is the case for the AAI). Determining Unresolved attachment using the AAP, instead, is based

on the various dimensions mentioned earlier (e.g., stories with failed protection and

abandonment). In coding *each* hypothetical story on the AAP, the judge identifies segregated

system content and process and trauma markers and determines if the threatening material is

Resolved or Unresolved. According to this coding scheme, resolution is indicative of an adult

who demonstrates containment or integration of segregated system markers. Adults who are

identified as having resolved representations are identified as one of the three other categories of

attachment (i.e., Secure, Dismissing, or Preoccupied).

Despite these methodological differences, the AAP has demonstrated strong convergent

validity with the AAI (George et al., 2001). Therefore, one would expect that Unresolved adult

representations assessed using the AAP would be associated with higher rates of attachment-

related traumas; however, no known study has sought to empirically examine this. As previously

noted, there is one published study using the AAP that also reported the participant's history of

childhood trauma; however, this study did not report the rates of childhood trauma in those

identified as Unresolved. Therefore, future investigations, such as the present study, would

provide a major contribution to the theoretical and empirical literature on attachment-related

traumas and adult representations of attachment.

CHAPTER 3: MENTAL HEALTH OUTCOMES OF ATTACHMENT-RELATED TRAUMA
AND ADULT ATTACHMENT REPRESENTATIONS

Introduction

Bowlby (1973) described "branching railway lines" as a metaphor for the development of

psychopathology as it related to early attachment experiences, and Sroufe (1997) stated that early

experiences in attachment relationships start infants out on different branching pathways. These

early relationships with caregivers occur during sensitive periods of neurological development

that is largely experience-dependent (Kagan & Baird, 2004; Schore, 2001; van der Kolk, 2003).

In addition to significant difficulties in representational integration, the experiences of

unmanageably frightening interpersonal events in early childhood have a profound impact on a

number of different areas of functioning including emotional regulation, behavior, and

interpersonal functioning (van der Kolk, Roth, Pelcovitz, Sunday & Spinazzola, 2005). In turn,

when impaired, these aspects of functioning can have important effects on mental health.

Attachment-Related Trauma and Later Psychopathology

Attachment-related trauma has been associated with a number of different manifestations

of psychopathology in adulthood. Childhood physical and sexual abuse, for example, are related

to increased risk of PTSD (Higgins & McCabe, 2003; Rodriguez, Vande Kemp, & Foy, 1998;

Widom, 1999), dissociative symptoms (Irwin, 1994), depression and anxiety symptoms

(Andrews, 1995; Briere, 1988; Kendler, Bulik, Silberg, Hettema, Myers, & Prescott 2000;

Kessler, Davis, & Kendler, 1997; Levitan, Rector, Sheldon, & Goering, 2003), personality

disorders (Bierer et al., 2003; Clarkin & Sanderson, 2000; Gladstone, Parker, Wilhelm, Mitchell,

& Austin, 1999; Herman, Perry, & Van der Kolk, 1989; Johnson, Cohen, Brown, Smailes, &

Bernstein, 1999), and substance abuse (Epstein, Saunders, Kilpatrick, & Resnick, 1998; Min,

Farkas, Minnes, & Singer, 2007). The associations between loss experienced in childhood and

later psychopathology may be more complex. Loss, in contrast to abuse, is more common and is not typically associated with long-term negative outcomes, but there may be particular experiences of loss that are especially traumatic (e.g., loss due to violence, death of a primary attachment figure; Kaltman & Bonnano, 2003). Studies have found, for example, a relation between the death of a parent in early childhood and risk for later depression (Harris, Brown, & Bifulco, 1990; Kivela, Luukinen, Koski, Viramo & Pahkala, 1998). This association is particularly consistent when the child's subsequent experiences with caregivers are inadequate (Harris et al., 1986; Kendler, Sheth, Gardner, & Prescott, 2002; Brown, Joyce, Wells, Bushnell, & Hornblow, 1995).

Sexual abuse has also been associated with a number of impairments in mental health functioning, including increased nervousness and anxiety, helplessness and powerlessness, low self-esteem, fearfulness, guilt and shame, depression, cognitive distortion including dissociation, and problems in regulating affective arousal (e.g., Bailey et al., 2007; Brand, Warner, & Alexander, 1997; Meyers & Battistoni, 2003). It is important to note that some attachment-related traumas like childhood sexual abuse have also been found to occur in the context of other childhood stressors (Liem & Boudewyn, 1999), increasing the likelihood of co-occurring traumas.

Different types of trauma symptoms have also been found to be associated with exposure to traumatic experiences during childhood. Children who experience chronic, interpersonal traumas, in particular, have later reported pervasive trauma-related symptoms in adulthood that describe a constellation of disorders, namely complex PTSD and disorders of extreme stress not otherwise specified (DESNOS; Herman, 1992). The concepts of complex PTSD and DESNOS were, in fact, developed to describe the trauma sequelae of survivors of prolonged and repeated

trauma, which include symptom clusters such as dissociative symptoms, affect regulation and impulse control problems, disturbance in self-perception and the perception of others, and chronic relationship problems (Briere, 2002; Courtois, 2004; Herman, 1992; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997; Terr, 1991).

Complex Trauma describes this multi-symptom presentation of multiple and/or chronic and prolonged traumas (van der Kolk et al., 2005). In regard to multiple experiences of trauma, child abuse has specifically been found to increase the likelihood of later trauma exposure (Classen, Palesh, & Aggarwal, 2005). The Adverse Childhood Experiences (ACE) study by Kaiser Permanente and the Center for Disease Control examined adverse childhood experiences, including childhood abuse, neglect, and family dysfunction in over 17,000 adult HMO members (Felitti et al., 1998). Of the seven categories of childhood experiences, 52% of the participants were exposed to at least one category of adverse childhood events, and 6.2% reported four or more exposures to different types. These authors found these childhood experiences to be associated with multiple behavioral, mental, and physical health symptoms in adulthood.

Briere, Kaltman, and Green (2008) examined the relationship between cumulative childhood trauma and symptom complexity in adulthood in 2,453 female university students. Symptom complexity was defined by simultaneously elevated scales on the Traumatic Symptom Inventory (Briere, 1995) such as depression, defensive avoidance, and intrusive experiences. Fifty-six percent of their sample reported at least one of the 12 types of childhood abuse in their study, and 15%, 7.5%, and 2.5 % reported two, three, and four to eight types, respectively. As expected, this study found a linear relationship between cumulative trauma and symptom complexity. Childhood rape and physical abuse were also unique predictors of symptom complexity. Cloitre et al. (2009) sought to replicate these findings in a clinical sample ($N = 582$)

of women. In this study, childhood trauma included sexual abuse, physical abuse, neglect, emotional abuse, and impairment or absence/abandonment of the mother, and symptom complexity was defined as the number of symptoms a person experienced above specific cut-off scores (Cloitre et al., 2009). Replicating the previous findings, these researchers also found a significant linear relationship between cumulative trauma from childhood and symptom complexity in adulthood.

These studies, among others, reflect how important it is to assess a range of traumatic childhood experiences that extend beyond experiences of physical and sexual abuse. In addition, it is important to look at multiple domains of mental health difficulties. Many of the studies have examined the relationships between childhood trauma and subsequent symptomology using cross-sectional methodology. It would be important to begin to examine this complex symptom presentation in longitudinal studies to have an understanding of how symptoms in adulthood manifest over time. It would also seem reasonable that specific events in an adult's lifetime might make childhood experiences particularly salient with regard to mental health functioning. For example, the transition to motherhood is thought of as a time of increased salience regarding a mother's own caregiving experience (Theran, Levendosky, Bogat, & Huth-Bocks, 2005). Therefore, this may be an important time to assess adult mental health symptoms in the context of traumatic childhood experiences.

Attachment Representations and Psychopathology

Previous literature demonstrates that early experiences of trauma contribute to representations of attachment and to mental health in later life. While these experiences are most related to Disorganized attachment in childhood and adult Unresolved states of mind, as previously mentioned, individuals may resolve these early experiences and develop Secure or

organized insecure (Dismissing or Preoccupied) representations in adulthood. Certain types of attachment representations are not disorders per se; however, attachment insecurity puts individuals at risk for certain pathological trajectories (Ainsworth et al., 1978; Bowlby, 1969/1982; Greenberg, 1999; Kobak et al., 2006; Sroufe et al., 2005).

There are few reliable relations between specific clinical diagnoses and specific types of attachment representations; however, research findings have consistently demonstrated that individuals with insecure states of mind are found at disproportionately higher rates in clinical and at-risk samples (Bakermans-Kranenburg & van IJzendoorn, 1993; van IJzendoorn & Bakermans-Kranenburg, 2008), particularly the Unresolved states of mind. Empirically, the relationship between insecurity and clinical status has been found to have a large effect size ($d =$ 1.03; van IJzendoorn, 1995), with approximately 73% of clinical adults (with a variety of diagnoses) being classified as insecure based on the AAI (van IJzendoorn et al., 2008).

Other studies have found that Dismissing attachment status has been associated with various Axis I disorders in adults, including unipolar depression and conduct disorders co-morbid with depression (Rosenstein & Horowitz, 1996), dysthymic disorder (Patrick, Hobson, Castle, & Howard, 1994), bipolar disorder (Tyrell & Dozier, 1997), and mixed affective disorder (Fonagy et al., 1996). This classification has also been associated with schizophrenia and eating disorders (Tyrell & Dozier, 1997; Fonagy et al., 1996; Ramacciotti et al., 2000). One study with a sample of 35 patients with diagnoses of a somatoform disorder with and without a co-morbid disorder found that almost half of the sample ($n = 17$; 49%) were judged to be Dismissing (Waller, Scheidt, & Hartmann, 2004). In regard to Preoccupied attachment, Simonelli and Vizziello (2002) examined attachment representations in a sample of 28 mothers with drug addiction, and more than half were considered Preoccupied with their past attachment

experiences, and in 39% of the cases, the addicted women were classified as Unresolved.

Preoccupied attachment is also highly associated with unipolar depression (Rosenstein et al.,

1996), dysthymia (Patrick et al., 1994), mixed affective disorder, anxiety disorders, eating

disorders (Fonagy et al. 1996), and eating disorders comorbid with depression (Cole-Detke &

Kobak, 1996; Fonagy et al., 1996).

As noted earlier, the Unresolved classification has been conceived of as being associated

with loss and trauma. Therefore, it is not surprising that Unresolved representations have also

been linked to PTSD (Fearon & Mansell, 2001). In fact, the lapses in monitoring of discourse

and reason characteristic of AAI Unresolved status and symptoms of PTSD share three features:

a failure to integrate memories of traumatic experiences, avoidance of painful emotions

associated with traumatic memories, and increased stress reactivity (Kobak et al., 2004). For

instance, in a clinic-referred sample, Stovall-McClough and Cloitre (2006) examined Unresolved

states of mind, PTSD, and dissociation in 60 female childhood abuse survivors. Results revealed

that 57% of the sample was identified as Unresolved based on the AAI, as compared with Secure

(22%), Dismissing (13%), and Preoccupied (8%). Of Unresolved participants, far more were

identified as Unresolved with respect to trauma ($n = 22$) compared to those related to Unresolved

with respect to loss ($n = 7$). Five additional participants were Unresolved for both trauma and

loss. Results demonstrated that adults identified as Unresolved with respect to trauma were

significantly more likely to be diagnosed with PTSD than Dismissing and Secure participants,

but not more than Preoccupied participants. Meta-analytic studies have shown that the majority

of Unresolved adults on the AAI are secondarily classified as Preoccupied (van IJzendoorn,

1995). Therefore, this finding is not unprecedented. In this sample, Unresolved status appeared

to contribute significantly to a PTSD diagnosis, as 71% of participants classified as Unresolved

in addition to a secondary classification of Preoccupied also had PTSD, while just 43% of Preoccupied participants had PTSD. Unresolved status with respect to loss did not predict PTSD or dissociative symptoms.

There have been associations between other disorders and Unresolved states of mind (or unresolved trauma), including unipolar depression (Cole-Detke et al., 1996; Tyrell et al., 1997) and anxiety and substance abuse disorders (Fonagy et al., 1996). Other studies have also found relations with bipolar disorder (Fonagy et al., 1996; Tyrell et al., 1997) and schizophrenia (Tyrell et al., 1997). In regard to Axis II disorders, Unresolved loss or trauma, as measured by the AAI, is also common in patients with borderline personality disorder, related particularly to lack of resolution of physical and sexual abuse (Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004; Fonagy et al., 2000). A small study has also found higher rates of Unresolved status in adults with antisocial personality disorder (Fonagy et al., 1996). Finally, a previously mentioned study by Riggs et al. (2007) found that Unresolved trauma in their sample of psychiatric inpatients was uniquely associated with dissociation and PTSD, whereas Unresolved status with respect to both trauma and loss was related to schizotypal and borderline personality disorder symptoms. In contrast, research with non-clinical samples has not revealed any consistent relationships between Unresolved status and psychopathology (Pianta, Egeland, & Adam, 1996); this could be due to possible exacerbating factors that are present for those in high-risk environments or low base rates of psychopathology in low-risk samples.

Associations between Attachment-Related Trauma, Unresolved Representations, and Psychopathology

As previously mentioned, painful early attachment experiences are thought to contribute to the development of segregated systems or poorly integrated representations of attachment.

These poorly integrated representations are thought to be a function of dissociated states. Manifestations of segregated material present itself in different ways via individuals' responses to adult attachment measures (AAI and AAP). Therefore, both theory and existing research suggest that there are associations between attachment-related traumas, Unresolved states of mind, and psychopathology; however, there are inconsistencies in existing research findings.

There have been a few studies that have examined Unresolved representations using the AAI, childhood maltreatment using a separate assessment of trauma, and mental health symptoms. Bailey et al. (2007) investigated these relationships in 62 low-income, predominantly single mothers. Thirty-seven percent ($n = 23$) of their sample was classified as Unresolved with the delineation between trauma and loss being 48% and 30%, respectively. Seventeen percent were designated Unresolved for both trauma and loss. This study used an abbreviated version of the Childhood Trauma Interview (CTI; Fink, 1995) to assess for physical and sexual abuse and assessed a broad index of maltreatment using the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1998). Results demonstrated a link between presence of a severe abuse history (as coded on the CTI) and Unresolved status, with 71% of participants who reported sexual abuse and 55% of participants who reported physical abuse classified as Unresolved. General maltreatment history (assessed using a total of all types of abuse from the CTQ) was also related to Unresolved status and uniquely predicted Unresolved status when compared to childhood physical and sexual abuse, suggesting that a broader range of events beyond physical and sexual abuse are relevant to the study of traumatic events. Furthermore, sexual abuse history was associated with higher levels of complex PTSD symptoms, including dissociation, identity confusion, identity problems, affective instability, and relationship difficulties. Unresolved states of mind with respect to both trauma and loss were also associated with higher dissociative

symptoms, relationship problems, and identity confusion. Both types of trauma history (abuse and loss) also predicted the traditional PTSD symptoms of intrusive experiences and defensive avoidance; however, Unresolved status did not predict these types of symptoms. These findings suggest that Unresolved status is more related to the development of complex PTSD symptoms; however, more studies need to be conducted in this area. Furthermore, results demonstrated that Unresolved state of mind with respect to trauma and loss (combined type) mediated the relationship between sexual abuse history and relationship problems (one of the study's complex PTSD symptoms). Overall, findings generally suggest that Unresolved states of mind due to trauma are more strongly related to psychopathology compared to Unresolved states of mind due to loss alone, although all types of Unresolved states are more predictive of psychopathology compared to other organized states of mind (Secure and Dismissing in particular).

Zajac and Kobak (2009) also examined Unresolved AAI status, attachment-related traumas, and psychopathology, although their aims were to investigate how these factors influenced offspring (child) outcomes. In this study, a lifetime trauma interview consisting of AAI responses and additional probes of the Traumatic Stress Schedule (TSS; Norris, 1990) was used to assess traumatic loss and childhood abuse in a sample of 124 primary caregivers. The results relevant to the current study revealed that 28% of their non-clinical sample was classified as Unresolved. Unresolved trauma was positively associated with caregiver childhood abuse exposure and both depressive and dissociative symptoms. Unresolved loss was unrelated to both psychopathology variables. In regression analyses, exposure to abuse, rather than Unresolved trauma or loss, uniquely predicted depression and dissociative symptoms. These findings further support the use of independent measures of a history of loss and trauma and the importance of assessing many different types of trauma. Consistent with previous literature, this study found

that individuals identified as Unresolved with respect to trauma (in contrast to loss) were at increased risk for psychopathology, including depressive and dissociative symptoms; however, rates of exposure were more predictive of these outcomes than attachment status. This suggests that additional assessments may more clearly explain the impact of exposure to these events on outcomes that have yet to be fully explained using the AAI Unresolved status alone.

Another study examined the relationships between childhood sexual abuse, AAI Unresolved status, and perceived stress and cortisol response in a sample of abused ($n = 27$) and non-abused ($n = 17$) women (Pierrehumbert, Torrisi, Glatz, Dimitorva, Heinrichs, & Halfon, 2009). They also assessed for various symptoms, including depression, PTSD, dissociation, and global functioning. An index of childhood sexual trauma severity developed from the Early Trauma Inventory was used to assess for sexual abuse (ETI: Bremner, Vermetten, & Mazure, 2000). Of the abused and control group participants, 65% and 12% were identified as Unresolved, respectively, with a significant difference in the presence of Unresolved status between groups. Also, regarding mental health symptoms, the only significant difference found between the abused and control groups was on global assessment of functioning, with abused participants reporting lower levels of functioning. As expected, the Unresolved women in the abused group expressed the highest perceived stress and the most suppressed endocrine reactions (a biological indicator of stress) when compared to the control group. This study did not separate the Unresolved group with respect to trauma or loss in analyses; however, they reported that approximately 89% of Unresolved women in the abused group had higher scores on the scale, which would denote Unresolved status with respect to trauma rather than loss. Despite a focus on biological indicators of stress, this study further demonstrates that childhood experiences of sexual abuse are related to Unresolved status in adulthood. It is important to note that, while

participants were specifically identified for their sexual abuse experiences, little is known about the influence of other childhood trauma exposures among this sample. Additionally, this study found that sexual abuse was not associated with common correlates such as depression, PTSD, and dissociation, as seen in other studies; however, it demonstrated that these experiences can affect biological changes into adulthood, which also affect global functioning in a number of ways.

In sum, there have been very few studies examining the associations between attachment-related trauma, representations of attachment, and mental health functioning together. There is limited empirical evidence regarding the influence of additional measures of childhood trauma in studies that use the AAI, but there are a few studies that suggest this would be important. First, exposure to childhood trauma has been found to have significant effects on mental health in adulthood, above and beyond Unresolved status on the AAI. Second, it seems that Unresolved trauma and loss may have differential effects on outcome measures. Third, more studies need to be conducted in this area to clarify these relationships across a broad range of childhood trauma experiences. Finally, early trauma has been theorized to be associated with later trauma symptoms; however, the negative effects of these experiences might also be broad and may include other symptoms such as interpersonal difficulties and depression.

CHAPTER 4: THE PRESENT STUDY

Summary and Conclusions

There is a rich theoretical background regarding the associations between early experiences of trauma, adult attachment representations, and mental health. The previous literature, however, can benefit from additional empirical investigations in understanding these relationships. First, although individual researchers have investigated the negative effects of prolonged separations, loss, childhood abuse/neglect, and other difficult or frightening developmental experiences, conceptualizing this group of events as "attachment-related traumas" is relatively new. Furthermore, no studies have investigated multiple types of attachment-related traumas in relation to adult attachment representations. This may be because researchers have not established a consistent way to asses and/or classify attachment-related traumas per se. Studies that have investigated multiple types of trauma have demonstrated differential relationships with Unresolved status and psychopathology. In addition, adults with histories of childhood trauma are likely to have experienced more than one type.

One major aim of this study was to examine the relationships between childhood attachment-related traumas, Unresolved representations, and mental health symptoms among a sample of high-risk mothers. This study used a measure of cumulative experiences of childhood trauma that is theoretically consistent with the four attachment-related traumas described by Kobak et al. (2004). This approach at measuring childhood trauma included events that are seldom studied in relation to adult representations, such as prolonged separations (Attachment Disruptions) and physical and emotional neglect (Attachment Injuries), as well as those that are more commonly studied, such as loss of parent by death (Loss), and physical and sexual abuse. Each of these interpersonal experiences is conceptualized as inherently traumatizing to children given their developmental level and dependence on attachment figures for survival. They are

likely to be chronic experiences of attachment failures resulting in frightened or helpless states that are not adequately assuaged. The research has found that outcomes are related to childhood trauma experienced at varying age ranges, as it appears that childhood trauma is most commonly studied as an event that occurs before the age of 18; however, less is known about the influence of age on the resolution of these experiences.

Previous research examining relationships between exposure to childhood trauma and Unresolved adult attachment status has been limited by methodological challenges. Only recently have researchers begun to assess trauma exposure with measures independent from the AAI. The literature supports this as a valuable addition, as studies using the AAI alone prevent researchers from being able to identify Unresolved states of mind apart from reports of trauma on this measure. Until relatively recently, there were no other attachment measures from the developmental approach to assess adult representations of attachment; however, the development of the AAP and its empirical validation has extended the assessment of adult representations using a projective, narrative method. Only a few studies to date have examined relationships between childhood trauma and representations using the AAP. Therefore, this study used the AAP to assess adult representations in relation to cumulative childhood attachment-related trauma and mental health. The AAP is designed to identify Unresolved representations by coding for segregated material present in hypothetical stories across a wide range of theoretically consistent scenes that trigger the attachment system (i.e., loss, separation, illness). Consequently, it allows an adult to be identified as Unresolved independent of whether they have reported loss or abuse based on indicators of defensive processes involved in the attachment system.

Next, this study examined how maternal mental health symptoms may or may not affect associations between childhood trauma and Unresolved attachment status. A few studies have

shown preliminary relationships between various mental health symptoms, adult states of mind with respect to attachment, and childhood trauma; however, very few studies exist that examine all three of these domains at once. PTSD symptoms have been the focus of much of this research, while some studies suggest that additional symptoms may also be important, such as depression. As a result, this study will assess both symptoms of PTSD and depression over several time points.

Finally, all of the previously mentioned studies looking at the variables of interest have used cross-sectional designs. Longitudinal data allow for the consideration of the complexity of intrapersonal and interpersonal experiences that may influence the effects of childhood trauma on later life. For example, experiences such as mental health may fluctuate over time in meaningful ways that help to explain relationships between variables. In addition, relatively few studies have examined these variables in high-risk community samples. Elevated rates of Unresolved status have been found in low socioeconomic status (SES) samples when compared to higher SES samples (van IJzendoorn & Bakermans-Kranenburg, 1996). Thus, studies should extend investigations into low SES samples. The current study used a unique high-risk sample unlike the vast majority of studies and also used a longitudinal research design (that extended from pregnancy to 3 years post-partum) to better assess the role of mental health symptoms over time (given that mental health symptoms are known to wax and wane over time). No existing studies have examined these relationships across this important time period, despite the fact that the transition to parenthood is a critical time in a mother's life when she is particularly likely to reflect on her childhood experiences of being cared for. Furthermore, the transition to parenthood is an important time for assessment and possible intervention for significant difficulties that might interfere with maternal functioning, and subsequently, caregiving behaviors. Therefore,

research in this area can identify mothers most at risk for negative outcomes and can identify

salient periods for prevention and intervention efforts.

Hypotheses

Hypothesis 1: Attachment-related trauma will be significantly related to Unresolved

representations. More specifically, it is hypothesized that mothers with an Unresolved

classification will have experienced a greater number of childhood attachment-related traumas

using a composite measure (cumulative trauma) compared to mothers with one of the other

classifications (Resolved; Secure, Dismissing, or Preoccupied). In a more exploratory manner,

this study also investigates whether different aspects of attachment-related trauma (i.e., type, age

of exposure, and severity) will be differentially related to Unresolved status.

Hypothesis 2: Mental health difficulties (using depression and PTSD from pregnancy to 3 years

post-partum) will be related to Unresolved status. More specifically, it is hypothesized that

Unresolved mothers will have more total mental health difficulties over time than mothers with a

Resolved classification. More exploratory analyses examine differences between Unresolved and

Resolved (Secure, Dismissing, or Preoccupied) mothers on depression and PTSD symptoms

separately, as there is some preliminary evidence to suggest that PTSD may better distinguish

Unresolved versus Resolved individuals as compared to depression.

Hypothesis 3: Mental health difficulties (using a composite of both depression and PTSD

symptoms) will moderate the relationship between total childhood attachment-related trauma and

Unresolved representations, such that the relationship between number of attachment-related

traumas and Unresolved status will be stronger under the condition of greater mental health

symptoms and will be weaker under the condition of fewer mental health symptoms (See Figure

1).
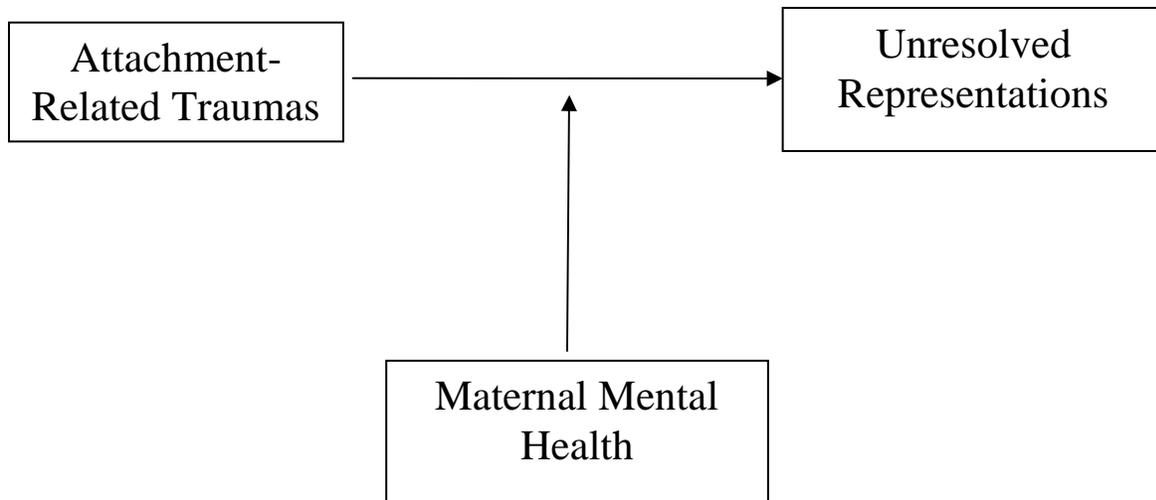
Figure 1. The Hypothesized Moderation Model

CHAPTER 5: RESEARCH DESIGN AND METHODS

Participants

Participants in this study were from a larger sample of 120 primarily low-income women who were participating in a 5-wave longitudinal study on parenting over the course of pregnancy through the child's third birthday. Only data from the first, third, fourth, and fifth waves of the larger longitudinal study were used in the present study. The first wave of data was collected when the participants were in their third trimester of pregnancy; the second wave of data was collected when the participants' infants turned 3 months old, on average; the third wave of data was collected when infants turned 1 year old; and the fourth wave of data was collected when the infants turned 2 years old. The fifth wave of data was collected when children turned 2½ to 3 years old. Only participants who had attachment representation data ($n = 74$), which was assessed in the fifth wave of data collection, were included in analyses in this study.

Participants were recruited from the Washtenaw and Wayne County communities via fliers advertising a study about parenting. Fliers were placed at areas primarily serving low-income or high-risk pregnant populations. This strategic distribution of fliers allowed for the specific recruitment of economically-disadvantaged, pregnant women, which was a specific focus of the overall study goals. Specifically, 23% of participants were recruited from several community-based health clinics serving low-income and/or uninsured individuals, 18% from the 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 secondhand donation centers for pregnant women and young children, and 2% from a parenting class.

At study entry (pregnancy), all participants were between the ages of 18 and 42 ($M = 26$, $SD = 5.7$), and 47% self-identified as African American, 36% as Caucasian, 13% as Biracial, and 4% as belonging to other ethnic groups. Sixty-four percent of participants were single (never married), 28% were married, 4% were separated, and 4% were divorced, and 30% were first-time mothers. Furthermore, 20% percent of participants reported having a high school diploma/GED or less education, 44% reported having some college or trade school, and 36% reported having a college degree. The median monthly family income for participants at study entry was $1,500 (range = $0 - $10,416). Eighty-eight percent received services from Women, Infants, and Children program (WIC), 62% received food stamps, 90% received Medicaid, Mi-Child, or Medicare, and 20% received public supplemental income at study entry.

At the fifth wave of data collection when attachment representations were assessed (3 years after giving birth), 41% self-identified as African American, 41% as Caucasian, 14% as Biracial, and 4% as belonging to other ethnic groups. Fifty-eight percent of participants were single (never married), 35% were married, 4% were separated, and 3% were divorced. The median monthly family income for participants at the fifth wave of data collection was $2,660 (range = $138 - $16,000). Forty-six percent received services from WIC, 66% received food stamps, 68% received Medicaid, Mi-Child, or Medicare, and 11% received public supplemental income.

Procedures

Fliers requested that pregnant women interested in the study should contact the research office. Upon contacting this office, research assistants read a scripted description of the study to interested women. This description informed interested women of the intended purpose of the study, the logistics of the first interview (i.e., amount of time, location, types of questionnaires,

confidentiality, and compensation), the interest to stay in contact with them for several additional interviews after the birth of their child for which they would receive compensation, and their rights as research participants. After the study description was read, women were asked if they were still interested in participating, and if so, they were asked for verbal consent to continue gathering basic information from them to determine if they met eligibility criteria for the study. There were two inclusion criteria: interested participants needed to be pregnant and fluent English speakers. Additionally, any infants later born with known birth defects or significant health conditions would be excluded from the study; however, no infants have needed to be excluded for these reasons to date. After determining eligibility, research assistants collected contact and demographic information from the interested participants. Interested participants who were currently in their third trimester of pregnancy when they contacted the research office were immediately scheduled for the first interview. Interested participants who were not currently in their third trimester of pregnancy when they contacted the research office were placed in a binder of potential participants. Upon reaching their third trimester, they were contacted by research assistants to schedule the first interview if they were still interested in participating. This process was continued until the required number of participants had been interviewed for the first panel of the study.

The first interview was conducted in either the participant's home (78%) or at a research office on campus (22%), based on participant preference. Interviews lasted approximately 2½ to 3 hours and were conducted in rotated teams of two. One interviewer would lead the interview and the second would provide child care for other children in the family and/or observe and assist the lead interviewer. Prior to interviewing, all research assistants were thoroughly trained on study procedures and protocol by the principal investigator (A. Huth-Bocks, Ph.D.). Training

involved reviewing the details of each study procedure and protocol as a research team, on a weekly basis, until every study procedure and protocol had been learned by all research team members. Then, advanced research assistants (i.e., graduate students) were observed leading interviews by the primary investigator. Next, only the advanced research assistants led the interviews while less advanced research assistants observed. Less advanced research assistants were able to lead interviews, with an advanced research assistant observing them, after they were deemed ready. All research assistants met weekly as a team, with the principal investigator, to discuss all completed interviews and to discuss any questions or concerns that arose.

The pregnancy interview began with the research assistant reading the informed consent (see Appendix A) aloud. Then both the researcher and participant signed two copies of the informed consent, allowing the participant to keep a copy. Next, a brief demographic questionnaire was administered (see Appendix B), and then a semi-structured, 1 hour, audio-recorded interview regarding the participant's perceptions of her unborn baby was conducted. The remaining questionnaires were then administered in the same pre-determined order for every participant. This pre-determined order of the questionnaires was determined strategically by the principal investigator, for example, to allow for rapport building with the participant prior to reaching sensitive questionnaires in order to increase the participant's comfort and likelihood of giving honest answers.

Research assistants read all questionnaires aloud to the participant and recorded the participant's verbal answers, in order to address variable levels of literacy and to help control for random responding. Participants were given a questionnaire packet with which to follow along for their convenience. At the end of the interview, the research assistant asked the participant's permission to stay in contact with her every 3 months until the next follow-up interview. Those

agreeing to participate in follow-up interviews were asked to provide contact information for up to three people who could provide information on the location of the study participant in case she could not be reached at the next contact interval; these additional individuals were called "recontact people." Last, participants were thanked, given a long referral list of community resources, and were compensated with a $25.00 Target gift card.

Prior to the second interview, each participant was contacted by a research assistant approximately 2 weeks after the anticipated due date of her baby to confirm the baby's date of birth, sex, and name. The participant's contact information was also updated, and permission for future contact was again obtained. The second interview was typically conducted over the phone, but occasionally (less than 5%) at the participant's home, when the participant's infant was approximately 3 months old. If participants could not be contacted directly, they were typically contacted through one of the recontact people they had listed at the first interview or, less frequently, through home visits.

This second interview lasted approximately 30 to 45 minutes. It was shorter than the first interview because the main purpose was to obtain information about the mothers' and infants' health and well-being during and shortly after birth as well as during the infants' first 3 months of life. To begin the interview, the research assistant read aloud an informed consent to the participant, who then consented to the interview. Next, participants were asked a series of questions that were in the same pre-determined order for each participant, for the same reasons noted above. After questionnaires were presented, participants were asked to update their contact information and to update the contact information of their recontact people. Finally, participants were thanked and sent a shortened referral list of community resources and a $10.00 Meijer gift

card in the mail. One-hundred nineteen (119) mothers completed this interview, yielding a

retention rate of 99%.

The third interview was conducted in either the participant's home (93%) or at a research

office on campus (7%) and lasted approximately 3 hours. Mothers were informed ahead of time

that the target infant needed to be at this interview. The 1-year interview began with the research

assistant reading the informed consent aloud (see Appendix C). Then both the researcher and

participant signed two copies of the informed consent, allowing the participant to keep a copy.

Next, a brief demographic questionnaire and a standardized assessment of infant emotion

recognition were administered. Mothers were then asked to engage in a 10-minutute free-play

and 2-minute clean-up interaction with their 1-year-old infants using some toys that the

researchers had brought to the interview. This interaction was video-recorded. Subsequently, the

remaining questionnaires were then administered in the same pre-determined order for every

participant, for the same reasons noted above for the first interview during pregnancy.

As before, the research assistants read all questionnaires aloud to the participant and

recorded the participant's verbal answers. Participants were given a questionnaire packet with

which to follow along for convenience. At the end of the interview, the research assistant asked

the participant's permission to stay in contact with her until her baby turned 2 years old.

Information on the recontact people was also updated at this time. Last, participants were

thanked, given a long referral list of community resources, and were compensated with $50 in

cash and a baby gift. One-hundred fourteen (114) mothers completed the 1-year interview,

yielding a retention rate of 95%.

The fourth interview was conducted in either the participant's home (95%) or at a

research office on campus (2%) and lasted approximately 3 hours. Phone interviews (3%) lasted

approximately 2 hours, due to not having the ability to administer some measures. Mothers were

informed ahead of time that the target infant needed to be at this interview. The 2-year interview

began with the research assistant reading the informed consent aloud (see Appendix D). Then

both the researcher and participant signed two copies of the informed consent, allowing the

participant to keep a copy. Next, a brief demographic questionnaire was administered, followed

by a semi-structured, 1-hour, audio-recorded interview regarding the participant's perceptions of

her toddler and her relationship with her toddler. A questionnaire about parenting followed, and

then mothers were asked to engage in a 10-minutute free-play and 2-minute clean-up interaction

with their toddler using some toys that the researchers had brought to the interview. This

interaction was video-recorded. Subsequently, the remaining questionnaires were administered in

the same pre-determined order for every participant, for the same reasons noted above.

As before, the research assistants read all questionnaires aloud to the participant and

recorded the participant's verbal answers. Participants were given a questionnaire packet with

which to follow along for convenience. At the end of the interview, the research assistant asked

the participant's permission to stay in contact with her until her baby turned 2½ to 3 years old,

which would be the final follow-up interview of the study. Information on the recontact people

was also updated at this time. Last, participants were thanked, given a long referral list of

community resources, and were compensated with $50 in cash and a baby gift. Ninety-nine (99)

mothers completed the 2-year interview, yielding a retention rate of 83%.

Finally, similar to other waves of data collection, the 2½- to 3-year-old interviews took

place in participants' homes whenever possible. If a woman refused to allow researchers to visit

the home, alternate arrangements were made for the woman and her toddler to come to a

research office. Eighty-eight percent of interviews were conducted in the home, and 4% were

conducted in the research office during the fifth wave of data collection. A small number of

phone interviews (8%) were also conducted as some mothers had moved out of state. This

interview was substantially briefer than previous interviews, lasting about 1 hour. The 3-year

interview began with the research assistant reading the informed consent aloud (see Appendix

E). Then both the researcher and participant sign two copies of the informed consent, allowing

the participant to keep a copy. Next, a brief demographic questionnaire was administered (see

Appendix F), followed by the narrative measure used to assess maternal representations of

attachment (the AAP, see description below), while another research assistant administered a

language assessment with the toddler in the study. The remaining questionnaires were then

administered in the same pre-determined order for similar reasons noted above. As in previous

interviews, research assistants read all questionnaires aloud to the participant and recorded the

participant's verbal answers. Mothers were given a questionnaire packet with which to follow

along for convenience. Mothers were then asked to engage in a 10-minutute free-play and 2-

minute clean-up interaction with their 3-year-old using some toys that the researchers brought to

the interview. This interaction was video-recorded. At the end of the interview, the research

assistant asked the participant's permission to stay in contact with her if the study were to

continue at some point. Information on the recontact people was also updated at this time. The

participants were thanked, given a long referral list of community resources, and were

compensated with a $10 Target gift card and a baby gift. Finally, participants were read a

consent form asking them to decide (in writing) whether or not project staff may use part of their

individual data for educational/training purposes only (see Appendix G). They were informed

that their decision would not impact their relationship with the project.

Although 99 participants completed the wave 4 interview, research assistants attempted to contact all participants who had not withdrawn from the study at wave 5. Subsequently, 82 interviews were completed at wave 5. Four participants who were unable to be located at wave 4 were found and participated in the wave 5 data collection. Five participants withdrew from the study at wave 5, and as previously mentioned, seven interviews were conducted over the telephone (without the AAP). Participants who withdrew from the study reported being too busy to participate or explained they were no longer interested in continuing with the project. The remaining participants were unable to be located or aged out of the study prior to being located (i.e., the children were older than 3.5 years of age when found). Therefore, 75 women completed the wave 5 interview with attachment representation data.

Women who were included in the present study ($n = 75$) were significantly older ($M = 27.02$; $SD = 5.81$) than the participants from the larger study who didn't complete the attachment representation measure ($n = 45$; $M = 24.89$; $SD = 5.33$), $t(118) = 1.99$, $p = .05$. There were no differences between included and excluded participants on marital status at study entry [$\chi^2 (1, N = 120) = 2.56$, ns]. The women included in the present study did not differ from excluded participants on income level at study entry ($M = 2266.38$; $SD = 2065.39.33$ and $M = 1941.46$; $SD = 2184.06$, respectively), $t(118) = .80$, ns. Finally, there were no significant differences between the two groups of participants on education level at study entry [$\chi^2 (1, N = 120) = 6.53$, ns].

Tracking Procedures

In between each wave of data collection, extensive tracking procedures were in place in order to ensure better retention of participants overtime. A large team of research assistants was trained extensively on tracking procedures and protocol, and each research assistant has been assigned approximately one "tracking" assignment to contact each week. Based on the

recommendations of Rumptz, Sullivan, Davidson, and Basta (1991), participants were contacted

by phone every 3 months between interviews in order to determine if their contact information

was the same and to remind the participants that they would be contacted in the future for

another research 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 were 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 phone numbers, address,

and recontact people's 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 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 allowed for impressive retention of participants in the

study; the retention rate at the second interview was 98%, third interview was 95%, fourth

interview was 83%, and the fifth interview was 68%.

<div align="center">**Measures**</div>

Adult Attachment Representations

    The Adult Attachment Projective Picture System (AAP; George et al., 1999 [see

Appendix H]). The AAP is composed of eight black and white line drawn pictures, consisting of

one neutral warm-up scene and seven attachment-related drawings. Facial expressions and other

details are omitted or drawn ambiguously. The scenes in the AAP projective set were selected to

activate the attachment system and capture both the availability of the attachment figure and the

participant's life-span view of attachment, via representations, as defined by Bowlby

(1969/1982). As such, these drawings depict events that, according to attachment theory, should

activate the attachment system (e.g., illness, separation, solitude, death, and abuse). In addition,

the drawings portray different compositions of individuals and relationships by depicting adult-

adult dyads, adult-child dyads, adults alone, and children alone. Characters in the pictures also

capture a range of different ages across the life span. AAP stimuli are administered in an order

that is designed to gradually increase distress about attachment relationships, which is described

in narrative form through story-telling that is presumed to reflect underlying attachment

representations. The seven attachment scenes are as follows:

> *Child at Window* – a girl looks out a picture window; *Departure* – an adult man and
> woman with suitcases stand facing each other; *Bench* – a youth sits alone on a bench; *Bed*
> – a child and woman sit facing each other at opposite ends of the child's bed; *Ambulance*
> – an older woman and a child watch as a stretcher is being loaded into an ambulance;
> *Cemetery* – a man stands at a gravesite; and *Child in Corner* – a child stands askance in a
> corner with one arm extended outward. (George & West, 2004; p. 435)

During administration, the participant is asked to describe what happened in the scene, what led

up to it, what the characters are thinking or feeling, and what might happen next for each picture.

Standard probes provided in the manual may be used if the participant does not include all of

these story elements. The task is audio-recorded and later transcribed verbatim. The verbatim

transcription of each of the participant's stories is then evaluated and coded for three different

dimensions, which reflect important elements of attachment representations: 1) defensive

processes, 2) discourse, and 3) content. The defensive processes include deactivation, cognitive

disconnection, and segregated systems, which were described in detail earlier. Defensive

processing is coded as present or absent on each hypothetical story (indicated as Ds =

Deactivation, E = Cognitive Disconnection and U = Unresolved and R = Resolved). There is no

dimensional scoring for defensive processing. Table 1 provides a summary of the discourse and

content dimensions coded for each story. Personal Experience is coded for all pictures, whereas

the picture stimuli that include dyads or individuals alone are coded for different dimensions.

The scaling represents the forms of expression of each dimension (lowest or not present to

highest).

After all stories are coded for the elements described above, the final representational

status is determined using a number of steps. First, stories are examined for evidence of failed

resolution of segregated systems, which are indicative of Unresolved status. That is, if any one

story has unresolved segregated systems, the final classification is Unresolved. Second, if all

stories have resolved segregated systems markers or none present at all, the stories are evaluated

to determine the organized classification. In this step, the judge examines content codes and

patterns of defensive processing markers for all of the attachment stories. Patterns of responding

across content domains are analyzed for distinguishing features that would differentiate between

groups. Evidence contrary to a Secure representation (e.g., low or nonexistent agency,

connectedness and/or synchrony) is specifically evaluated. In a decision tree fashion, if the

individual's pattern of responses reflects an organized insecure representation, the judge would

then evaluate the presence of defenses. For this evaluation, if there are three or more deactivation

markers across the set of stories, the individual is classified as Dismissing. Otherwise, if any

cognitive disconnection markers are present, then the individual is identified as Preoccupied.

In addition to overall classification to test study hypotheses, the present study also used three continuous measures of attachment security in exploratory analyses. First, a rank ordered security-rating scale based on the four traditional classifications of attachment (Secure = 4, Dismissing = 3, Preoccupied = 2, and Unresolved = 1) was used. The second continuous variable is a variation of this security-rating scale, with an additional group of individuals with elevated segregated system trauma markers (i.e., markers of failure to contain or integrate segregated systems). As previously mentioned, segregated system trauma markers on the AAP are evidenced by dysregulation in attachment representation. For this scale, Secure = 5, Dismissing = 4, Preoccupied = 3, Unresolved = 2, and those with elevated segregated system trauma markers (four or more) across all stories get a score of 1. The latter scale was based on very recent findings (George et al., 2013; personal communication March 5, 2013) in a community sample of women, where those with elevated segregated system trauma markers reported higher mental health symptoms than those without elevated segregated system trauma markers. Finally, the agency subscale was used in this study as an additional proxy for attachment security. Agency of self is a content dimension on the AAP and is measured by considering evidence of internalized secure base, haven of safety, and capacity to act (George et al., 2004). Briefly, internalized secure base is the character's willingness to engage in self-reflection when alone, haven of safety is the capacity for a sensitive and responsive attachment-caregiving relationship, and capacity to act is a character's ability to take action in an efficacious way (George & West, 2012).

The early empirical validation of the AAP was demonstrated in 75 individuals across three samples (George et al., 2004). Twenty-five of these participants were mothers (both risk and control groups) drawn randomly from an ongoing study of infant risk conducted by Dr. Diane Benoit at the University of Toronto. Dr. Benoit collected AAIs and AAPs from this

sample, while blind to all information about the mother. The AAP transcripts were coded by the

authors of the measure, and Dr. Benoit coded the AAIs. This sample was predominantly white

with a mean age of 26 years ($SD = 6.3$). The next sample was a subset of women ($n = 23$) from a

larger study of depression (West, Rose, Spreng, Verhoef, & Bergman, 1999). The average age of

this sample was 45.4 years ($SD = 9.2$). The first author of the AAP did blind AAI classifications.

The second and third authors of the AAP coded the AAPs in this study. The final sample

included 48 individuals from a large validity study for the AAP (42 women, 6 men) from

community, university, and clinical settings. The results, using a combined sample from all three

studies, suggested that coders could obtain strong inter-rater reliability for the AAP; AAP inter-

rater reliability for secure versus insecure classifications was .97 (kappa = .68, $p < 000$) and .92

(kappa = .86, $p < 000$) for the four major attachment groups. AAP classifications were also

significantly related to AAI classifications; convergence between AAP and AAI for secure

versus insecure classification was .96 (kappa = .76, $p < 000$) and was .94 (kappa = .86, $p < 000$)

for the four major attachment groups.

Since these early studies, a larger validation study has been completed. This study by

George and West (2012) consisted of a sample of 144 participants that included two subsamples

of individuals. One subsample was recruited from Calgary, Alberta ($n = 73$). The other was

recruited from northern California ($n = 71$). Participants included females ($n = 100$) and males (n

$= 44$), ages 18 - 65 (mean age female = 36.2 yrs; mean age male = 26.4 years). This study using

the combined sample examined AAP concordance with the AAI, inter-rater reliability, test-retest

reliability (retest after 3 months) and discriminant validity. Coders were blind to AAI and AAP

classification and other information regarding the participants. The results were consistent with

previous findings, supporting the reliability and validity of the AAP as a measure of adult

attachment representations.

Convergence between AAP and AAI for secure versus insecure classification was .97

(kappa = .88, $p < 000$) and .90 (kappa = .84, $p < 000$) for the four attachment classifications.

AAP inter-rater reliability was calculated between a primary judge and two independent judges.

For two-way classifications (secure vs. insecure), Judge 1 demonstrated 99% (kappa = .66, $p =$

.000) and 92% (kappa = .82, $p = .000$) agreement with Judges 2 and 3, respectively. Judge 1

demonstrated 90% (kappa = .85, $p = .000$) and 85% (kappa = .79, $p = .000$) with Judges 2 and 3,

respectively, for four-way classifications. Test-retest reliability was calculated based on 69

participants (48% of sample, 39 females and 30 males) who completed the AAP 3 months

following the original AAP administration. Fifty-eight (84%) were classified in the same

attachment group over time (kappa = .78, p = .000; 82% stability for secure, 96% stability for

dismissing, 62% for preoccupied; 80% for unresolved). The AAP has also been found to have

good discriminant validity, as results demonstrated non-significant relations between the AAP

and Verbal intelligence (WAIS Vocabulary and Similarities subtests) and social desirability

(Bindra Inventory of Desirable Responding). Thus, in sum, findings from prior studies have

demonstrated strong psychometric properties for the AAP and indicate that it is a good measure

of adult attachment representations and a very viable alternative to the AAI.

In the present study, the AAP was administered during the 3-year-old interview (fifth

wave of data collection). Training to administer and code the AAP consists of an 8-day intensive

workshop and certification as a coder can be obtained by completing reliability with at least an

80% match rate on a standardized set of AAP transcripts. Although this investigator completed

the intensive training workshop, the transcripts for this study were coded by the first author of

the measure (Carol George, Ph.D.), a certified expert in the coding system. Since an expert in the coding system scored the AAP transcripts, inter-rater reliability determinations were not applicable. The AAP coder for this study had no contact with the participants and was blind to all other participant data.

Childhood Attachment-Related Trauma

As mentioned earlier, there is not an established measure of attachment-related trauma per se; researchers use a variety of available measures to investigate specific types of traumas. This study drew from a number of different existing measures to asses this construct; some measures were used to form a composite measure of total attachment-related trauma, while other measures were used to assess different aspects of attachment-related trauma such as age and severity of past trauma. Table 2 shows the timing of administration for each of the measures that were used in the current study for this and other constructs.

The *Childhood Trauma Questionnaire* (CTQ; Bernstein et al., 1998 [see Appendix I]) was administered during the pregnancy interview to assess for a history of childhood maltreatment. The CTQ is a 28-item self-report inventory designed to assess five types of childhood maltreatment: emotional, physical, and sexual abuse, and emotional and physical neglect. These five types of childhood maltreatment make up the scales of the CTQ, with five items for each scale. Items on the five maltreatment scales are scored on a 5-point Likert-type scale based on frequency (1 = *never true*, 2 = *rarely true*, 3 = *sometimes true*, 4 = *often true*, 5 = *very often true*). Seven items are reverse scored. Scores can range from 5 to 25 for each scale, and higher scores indicate greater severity of childhood maltreatment. Three additional items rated along the same 5-point Likert-type scale make up a minimization/denial subscale; however, 1 point is given for each item endorsed as *very often true* and 0 points are given for all other

frequency endorsements. A score of 1 to 3 on this scale suggests possible underreporting of maltreatment; however, the authors warn against using this subscale to exclude participants.

Bernstein et al. (1998) reported on the psychometric properties of the CTQ based on data from seven diverse samples of clinical and non-clinical individuals, such as adult substance abusers, college students, and adolescent psychiatric inpatients. Median internal consistency reliability coefficients for each of the CTQ scales were satisfactory (emotional abuse α = .89, physical abuse α = .82, sexual abuse α = .92, emotional neglect α = .89, physical neglect α =.66). A total internal consistency reliability coefficient for the CTQ can be calculated, as a total sum can be computed, but this has not been reported. Scores on the CTQ were stable over a 1 to 6-month period (total r = .86, emotional abuse r = .80, physical abuse r = .80, sexual abuse r = .81, emotional neglect r = .81, physical neglect r = .79). Furthermore, Bernstein et al. (1998) found that the CTQ scales were significantly and strongly correlated (r = .42 to .75) with corresponding scales on three trauma measures (i.e., the Childhood Trauma Interview, the Childhood Maltreatment Interview, and the Evaluation of Lifetime Stressors), as well as therapists' best-estimate maltreatment ratings of clients. Scales were less strongly correlated (r = .06 to .60) with non-corresponding scales on the same measures. Last, confirmatory factor analyses found that the five-factor model of the CTQ provided a good fit for the data (Bernstein et al., 1998).

In the current study, four subscales were used to assess several types of attachment-related trauma according to Kobak et al.'s (2004) conceptualization. The physical abuse subscale (α = .90; e.g., "I got hit so hard by someone in my family that I had to see a doctor or go to the hospital") and the sexual abuse subscale (α = .96; e.g., "Someone tried to make me do sexual things or watch sexual things") were used to measure physical and sexual abuse (one of the four

types of attachment-related traumas). The emotional abuse subscale (α = .91; e.g., "I thought that

my parents wished I had never been born") and the physical neglect subscale (α = .84; e.g.,

"There was someone to take me to the doctor if I needed it") was used to measure attachment

injuries (another form of attachment-related trauma). For the composite scale of attachment-

related trauma (see more details below), each of these four subscales was assigned a

dichotomous code for the presence (1) or absence (0) of that type of childhood maltreatment. An

individual was assigned a (1) for the presence of that type of trauma if any of the 5 items on that

subscale are endorsed at least "Rarely True." Exploratory analyses in the present study included

the continuous severity scores from these four subscales to investigate how the severity of

different types of attachment-related traumas might be related to Unresolved representations.

Prolonged Separation: Prolonged separation, another type of attachment-related trauma,

was assessed in the current study by a single question, "Have you ever had any unexpected or

very long separations from a parent/caregiver?" (see Appendix J). In addition, this question was

followed by a question asking for the relationship of the person from whom the respondent was

separated and the age of separation. A dichotomous code was assigned for the presence (1) or

absence (0) of a prolonged separation that occurred before the age of 18; this code was used to

help form the composite measure of attachment-related trauma (see below). This question was

administered during the 3-year-old interview (fifth wave of data collection) at the end of another

measure regarding significant life events.

Loss: Loss, another type of attachment-related trauma, was assessed in the current study

by a single question, "Have you ever lost a parent/caregiver through death?" (see Appendix J).

In addition, this question was followed by a question asking for the relationship of the person to

the respondent, the age of death for both the respondent and deceased caregiver, and if the

respondent witnessed the event or was told about what happened. A dichotomous code was

assigned for the presence (1) or absence (0) of loss of parent by death before the age of 18; this

code was used to help form the composite of attachment-related trauma (see below). This

question was administered during the 3-year-old interview (fifth wave of data collection) at the

end of another measure regarding significant life events.

In sum, the cumulative attachment-related trauma composite was developed from four

subscales on the CTQ (physical abuse, sexual abuse, physical neglect, and emotional abuse) and

two questions regarding prolonged separations and loss before the age of 18, resulting in six

possible attachment-related traumas. The included subscales for this composite measure were

chosen based on the attachment-related traumas conceptualized by Kobak et al. (2004):

Attachment Disruptions (prolonged separation before 18 years of age; individual question), Loss

(death of parent or caregiver before 18 years of age; single question), Abuse (CTQ physical

abuse and sexual abuse subscales), and Attachment Injuries (CTQ physical neglect and

emotional abuse subscales). In the current study, a dichotomous code was assigned for the

presence (1) or absence (0) of each of the six types of attachment-related traumas. Presence was

defined by at least the minimal endorsement of "Rarely True" on any CTQ items included in

each subscale. Scores on the composite measure, therefore, ranged from 0 to 6, with higher

scores representing more exposure to different types of attachment-related traumas in childhood.

As mentioned earlier, exploratory analyses used the continuous CTQ subscales (range

from 5 to 25) to explore the relationship between severity of certain types of attachment-related

trauma and Unresolved representations. Additionally, the ages associated with prolonged

separation and loss were also used in age-related exploratory analyses. In those analyses, the age

of first exposure was used as a continuous variable for the occurrence of prolonged separation

and loss of parent by death.

The *Trauma History Questionnaire-Revised* (THQ-R; Green, 1996 [see Appendix K]) is

a 28-item self-report questionnaire administered during the pregnancy interview that is designed

to assess a lifetime history of exposure to traumatic events including crime, sexual assault, abuse,

war, tragic death, and disaster. The THQ-R consists of 20 items from the THQ (Green, 1996) and

8 additional items. Consistent with the THQ, respondents on the THQ-R endorse the presence

(*Yes* or *No*) of each event, the number of times the event was experienced, and age at the first

and last time of events. The THQ-R, however, also asks whether respondents meet the DSM–IV

PTSD Criterion A2 (participant experienced "fear, helplessness, or horror," p. 428) using a rating

on a 5-point Likert-type scale (0 = *none*, 1 = *a little* bit, 2 = *some*, 3 = *a lot*, 4 = *quite a lot*, 5 =

extreme amount). A test-retest pilot study using 25 college-age female subjects was conducted

using a 2-3 month interval (Green, 1996). All of the correlations between the endorsements of

events by item were significant over time.

The items on the THQ that were included in the THQ-R were the following events:

mugging, robbery, break-in with respondent present, break-in when respondent absent, serious

accident, natural disaster with respondent or loved ones in danger, man-made disaster (e.g., train

crash, fire) with respondent or loved ones in danger, see someone seriously injured or killed, see

or handle dead human bodies, death of a spouse/romantic partner/child (include abortion or

miscarriage), serious life-threatening illness, received news of a serious injury/illness/unexpected

death of someone close, military combat or threat to life in the military, forced intercourse,

unwanted sexual touching under force or threat, any other unwanted sexual contact, attacked

with weapon, attacked without weapon and seriously injured, injury resulting from being

beaten/"spanked"/burned/pushed by family member, and any other extraordinary stressful

situations or events for the respondent or loved ones that are not covered. The 8 additional items

on the THQ-R ask about the following events: emotional abuse by a family member or

significant other, direct terrorist act, war events, divorce of parents, unwanted sexual contact

with family member, serious neglect, incarcerated/held captive/ tortured/ kidnapped, and an

additional question about any other situation in which a respondent feared he or she might be

killed or seriously injured. Details are requested on 13 of the 28 items. On 8 questions that

include several possible events, the measure includes a request to specify which particular event

they experienced. For instance, one question is "*Have you ever received news of a serious injury,

life-threatening illness, or unexpected death of someone close to you?*" In this case, the

participant would typically specify the event(s) she experienced from this list. It is also possible

that a participant elaborated further; in that case, additional notes are recorded. Additional

specifics on 5 questions are requested regarding the relationship of the perpetrator to the

respondent. This is generally indicated by "*Please specify persons' relationship to you*";

however, on one question it is written "*Please state who emotionally abused you*." The original

THQ questions that were not used in the THQ-R were related to chemicals/toxins, serious injury,

fear that someone else was killed/injured, and friend/family member killed. There is no standard

way of scoring the THQ or THQ-R; instead, researchers tend to use the THQ-R in various ways

depending on the specific purpose of the study.

In the current study, the earliest ages at which certain events were experienced were used

in exploratory analyses to investigate the relationship between earliest age of attachment-related

trauma exposure and Unresolved representations; ages for physical abuse (1 question), sexual

abuse (4 questions), emotional abuse (1 question), and physical neglect (1 question) were examined. For these analyses, age was used as a continuous variable.

Maternal Psychopathology

The *Edinburgh Postpartum Depression Scale* (EPDS; Cox, Holden & Sagovsky, 1987 [see Appendix L]) is a 10-item questionnaire assessing for perinatal depression in mothers; items are rated on a 4-point Likert-type scale ranging from 0 to 3. The EPDS was administered during the pregnancy interview. Seven items are reverse-scored; all items are then summed for a total score, with higher scores indicating more depressive symptoms over the past 7 days. The maximum score on the scale is 30, with a score of 10 or greater indicating possible clinical depression.

The split-half reliability of the EPDS was reported to be .88 in a sample of 84 postnatal women who were taking part in an ongoing study of health visitor counseling (Cox et al., 1987), and the reported standardized alpha coefficient in the same norming sample was .87. In the validity study, this measure was administered in the home setting. The sensitivity to change in severity of depression over time was established by comparing EPDS scores obtained at two interviews separated by a 3-month interval. Results showed that the EPDS can be used to detect changes in the level of depression over this period of time when compared to diagnostic criteria, such that significant differences were found to occur on the EPDS only when those of the diagnostic criteria shifted significantly between assessments. Beck and Gable (2001) compared measures of depression in a sample 150 women in preparation for childbirth classes and found that the EPDS and the Beck Depression Inventory-Second Edition were significantly correlated at .82. In the current study, the alpha for the EPDS was .76.

Beck Depression Inventory-Second Edition (BDI-II; Beck, Steer, & Brown, 1996 [see

Appendix M]). The BDI-II is a 21-item self-report instrument designed to assess the severity of

depressive symptoms in adults and adolescents aged 13 years and older; it was administered

during the 1-year (third wave of data collection), 2-year (fourth wave of data collection), and 3-

year-old interviews (fifth wave of data collection). The symptoms assessed on the BDI-II

correspond to the criteria for diagnosing depressive disorders listed in the DSM-IV. Each item is

rated on a 4-point Likert-type scale, ranging from 0 to 3 in terms of severity. The scale indicates

how the mother has felt in the past 2 weeks. The BDI-II is scored by summing the ratings for the

items, and scores can range from 0 to 63. There are no reverse-scored items.

Beck et al. (1996) determined cut-off scores for the assessment of clinical depression,

using a sample ($N = 127$) of patients with a clinical diagnosis of major depressive disorder. Based

on their study, they recommended that the optimal cut-off scores for patients diagnosed with

major depression are the following: 0 to13 minimal depression, 14 to 19 mild depression, 20 to

28 moderate depression, 29 to 63 severe depression.

The psychometric properties of the BDI-II are also based on data from four different

psychiatric outpatient clinics ($N = 500$) and one college student group ($N = 120$). The coefficient

alpha of the BDI-II for the outpatients was .92 and .93 for the college students. Test-retest

reliability was examined using the responses of 26 outpatients who were tested at their first and

second therapy sessions 1 week apart. There was a correlation of .93, which was significant at *p*

< .001. The convergent validity of the BDI-II was assessed by administration of the BDI-1A and

the BDI-II to two sub-samples of outpatients ($N = 191$); results yielded a correlation of .93 (*p* <

.001). The BDI-II has also been found to have good construct and discriminant validity as

demonstrated by significant correlations with measures of hopelessness and suicidal ideation

(Beck et al., 1996) and non-significant correlations with personality measures of autonomy

(Steer & Clark, 1997). In the current study, the total scale was used; the alpha was .90, .92, and

.91 for the third, fourth, and fifth waves of data collection, respectively.

The Posttraumatic Stress Disorder Checklist - Civilian Version (PCL-C; Weathers, Litz,

Huska, & Keane, 1994 [see Appendix N]) is a 17-item self-report measure that assesses the level

of distress related to PTSD symptoms that meet DSM-IV criteria. The PCL-C was administered

during the third trimester of pregnancy (first wave of data collection), 1-year (third wave of data

collection), 2-year (fourth wave of data collection), and 3-year-old interviews (fifth wave of data

collection). A 5-point, Likert-type scale (1 = *not at all*, 2 = *a little bit*, 3 = *moderately*, 4 = *quite a*

bit, and 5 = *extremely*) is used to indicate how much the respondent has been bothered by that

particular symptom over the past month. The PCL is scored by summing the responses to obtain

a total severity score, which can range from 17 to 85. There are no clear guidelines regarding

cut-off scores, but several studies have reported suggested cut-off scores to make the diagnosis

of PTSD in various populations ranging from 30 to 50 (Lang, Laffaye, Satz, Dresselhaus, &

Stein, 2003; Terhakopian, Sinaii, Engel, Schnurr & Hoge, 2008; Walker, Newman, Dobie,

Ciechanowski, & Katon, 2002). Subscales can also be calculated to estimate the DSM-IV PTSD

clusters including rexperiencing symptoms, hyperarousal, emotional numbing, and avoidance

symptoms (Asmundson, Frombach, McQuaid, Pedrelli, Lenox & Stein, 2000; King, Leskin,

King, & Weathers; 1998). Ruggiero, Ben, Scotti, and Rabalais (2003) conducted analyses using

only three subscales in a sample of college students and reported Cronbach alphas of .85 (re-

experiencing), .85(avoidance), and .87 (hyperarousal). The internal consistency of the total score

has ranged from .94 to .97 in a variety of samples, including veterans, victims of motor vehicle

accidents, and sexual assault survivors (Blanchard et al., 1996; Lang et al., 2008; Weathers et al., 1993).

Several studies have explored the validity of the PCL and found differences between groups in the expected directions. In a sample of combat veterans, those with a diagnosis of PTSD obtained a mean of 63.58 *(SD* = 14.14), and those without a diagnosis of PTSD obtained a mean of 34.40 *(SD* = 14.09; Weathers et al., 1993). Individuals with motor vehicle accident related PTSD scored 60.0 *(SD* = 9.4), and those without PTSD scored 26.6 *(SD* = 4.6). Sexual assault victims diagnosed with PTSD scored 55 *(SD* = 16.7) versus 22.8 *(SD* = 11.8) for the no-PTSD assault group (Blanchard et al., 1996). In addition, the measure has demonstrated convergent validity through significant correlations with other reliable PTSD measures (Weathers et al., 1993). In the present study, the total score was used at each time period; the alpha was .87, .91, .95, and .93 for the first, third, fourth, and fifth waves of data collection, respectively.

CHAPTER 6: RESULTS

Missing Data

There was a small amount of missing data (<5%) in the current study. Missing data were closely examined and estimated according to recommendations by McCartney, Bub, and Burchinal (2006); imputation techniques suitable for the level of missing data were used. Item-level and scale-level missing data were addressed with different approaches. In the case of item-level missing data, responses were pro-rated by substituting the mean value of the completed responses from that participant's relevant subscale. During pregnancy one participant refused to answer an item on the CTQ. On the THQ-R, two participants refused to answer their age at time of sexual abuse for at least one of the four sexual abuse questions. In these two cases, the youngest age reported for the other sexual abuse questions was used, as a mean substitution method would not make sense for determining earliest age of abuse experiences. Two participants also had item-level missing data on maternal psychopathology variables (PTSD checklist at age 1 and BDI-II at age 3). These item-level missing data were estimated by mean substitution.

Expectation Maximization (EM, also known as single imputation) was used to impute missing subscale and scale totals using SPSS 17.0. This algorithm is a two-step iterative procedure that produces a single data set with non-missing values for all observations on all variables from the original data set. The first, expectation, step uses predicted values derived from a series of regression equations across variables to serve as estimates of missing data points (Little & Rubin, 2002). During the second step, maximization, random variability is added to the imputed values so that the data reflect the uncertainty in relations among variables present in the non-missing values (McCartney, Bub, & Burchinal, 2006). There was a small amount of scale-level missing data in the current study. During pregnancy one participant refused to answer all

sexual abuse items on the CTQ. In addition, four participants were unable to be located at age 2.

Thus, these participants were missing the maternal psychopathology data (depression and PTSD

symptoms) collected at the wave 4 interviews. Total scores for the five participants on these

measures were imputed at the scale level.

Descriptive Statistics

Descriptive statistics for continuous variables are presented in Table 3. Variables with

skew and kurtosis values exceeding absolute values of 4.0 were transformed in an attempt to

reduce distribution problems. As can be seen in the table, all childhood maltreatment severity

scores, the depression scores for waves 3-5 (i.e., age 1, age 2, and age 3 interviews) and PTSD

scores for waves 3-5 revealed problematic skew and kurtosis values. Skew and kurtosis were

corrected using the winsorizing technique, where data considered outliers are replaced with the

value of the 5th or 95th percentile, depending on whether the outlier is at the lower or the upper

end of the distribution (Huber, 2002). This procedure was effective at reducing skew and kurtosis

for these variables, although total scores for physical neglect, sexual abuse, and total childhood

maltreatment severity continued to have slightly high absolute skew values (up to 4.50).

However, these variables were retained in analyses. All depression variables were subsequently

transformed into z-scores due to their different scoring metrics to allow for comparisons across

time points in the repeated analyses. Of the 74 mothers in this sample, 38 (51%) reported

experiencing physical abuse, 38 (51%) reported physical neglect, 51 (69%) reported emotional

abuse, 28 (38%) reported sexual abuse, 10 (14%) reported loss of a caregiver, and 29 (39%)

reported a significant separation from a caregiver before the age of 18. Therefore, attachment-

related trauma occurred at high rates in this sample.

Distribution of Attachment Classifications

Of the 74 mothers in this sample, 4 (5%) were classified Secure, 31 (42%) were

Dismissing, 17 (23%) were Preoccupied, and 22 (30%) were Unresolved. Therefore, fifty-two

mothers (70%) were classified as Resolved. Because age and education level are often analyzed

as covariates in research on adult attachment representations, these demographic variables were

examined in relation to Unresolved status. Results revealed that there was no significant

difference in the age between Unresolved ($M = 25.81$; $SD = 5.11$) and Resolved ($M = 27.53$; SD

$= 6.10$) mothers, $t(72) = - 1.16$, $p = ns$. In addition, Unresolved and Resolved mothers did not

differ on educational level [$\chi^2 (1, N = 74) = 8.43$, ns]. Thus, age and education were not entered

as covariates in the analyses used to test hypotheses.

Correlations between Study Variables

Correlation coefficients for continuous variables are presented in Table 4. The

demographic variables, maternal age and maternal education, were significantly positively

correlated. Maternal age was also significantly negatively associated with depression at T3, T4,

and T5 and PTSD scores at all time periods. Similarly, maternal education was significantly

negatively correlated with childhood physical abuse severity, as well as T3 and T5 depression

and PTSD scores at all time periods.

Childhood maltreatment severity of physical abuse, physical neglect, emotional abuse,

and sexual abuse were all significantly positively associated. Regarding associations between

childhood maltreatment severity and mental health variables, physical abuse was significantly

positively correlated with depression at T3 and PTSD symptoms at T1 and T4. The severity of

physical neglect was not associated with depression at any time point; however, it was

significantly positively associated with T4 PTSD symptoms. The severity of emotional abuse

was significantly positively correlated with depression at all time points and PTSD symptoms at T1 and T4. The severity of sexual abuse was not related to any time point of depression scores and only significantly positively correlated with T4 PTSD symptoms. The total childhood maltreatment score was significantly positively correlated with depression symptoms at all time points and PTSD symptoms at T1 and T4. Thus, correlations demonstrated many significant associations between different types of childhood maltreatment and mental health symptoms, as would be expected.

Regarding associations between childhood maltreatment severity and earliest age of trauma exposure, physical abuse severity was significantly positively related to the earliest age of exposure to loss. The severity of physical neglect was significantly positively associated with the age of physical neglect and significantly negatively associated with the age of onset for emotional and sexual abuse. The severity of emotional abuse was significantly negatively correlated with the age of exposure to emotional abuse, sexual abuse, and loss. The severity of sexual abuse was significantly negatively correlated with earliest age of exposure to this type of abuse. Thus, with a few exceptions, significant associations between childhood maltreatment severity and earliest age of childhood trauma types were negative, indicating that younger age of onset was associated with greater severity levels.

Cumulative trauma, measured by the total number of different types of attachment-related traumas experienced before the age of 18 years, was significantly positively associated with the age of onset of loss of caregiver. Cumulative trauma was also significantly positively correlated with T1, T3, and T4 depression scores, as well as PTSD scores at T1 and T4. Regarding age at which childhood trauma occurred, age of physical abuse onset was significantly positively associated with the age of onset of emotional abuse and PTSD symptoms at T1. Physical neglect

age of onset was significantly positively associated with depression symptoms at T4. Age of

onset of emotional abuse was significantly positively associated with PTSD symptoms at T1 and

T3. Age of onset of sexual abuse was not significantly associated with depression or PTSD

symptoms. Age at loss of a parent or caregiver during childhood was significantly positively

associated with T1 depression and PTSD at T1 and T3. Age of separation was not significantly

correlated with depression or PTSD symptoms. Thus, overall, all significant associations

between earliest age of childhood trauma types and mental health symptoms were positive,

indicating that older age of onset was associated with greater symptom levels, although it is

important to note that correlations with age of onset were based on very small groups of

participants.

Finally, as expected, depression scores were significantly positively correlated across all

time points. Similarly, posttraumatic stress scores were also significantly positively correlated

across all time points. Furthermore, levels of depression and posttraumatic stress were

significantly positively correlated across all time points; associations between depression and

posttraumatic stress symptoms were particularly large at the same time point.

Hypothesis 1

Hypothesis 1 stated that Unresolved mothers would have experienced a greater number of

childhood attachment-related traumas compared to Resolved (Secure, Dismissing, or

Preoccupied) mothers. The majority of mothers (23%) in this study experienced two types of

traumas before the age of 18. Seven mothers (9%) reported no history of any childhood trauma,

while 13 (18%) reported experiencing one type, 16 (22%) reported experiencing three types, 9

(12%) reported experiencing four types, 9 (12%) reported experiencing five types, and 3 (4%)

mothers reported experiencing all six types of traumas. To test Hypothesis 1, an independent t-

test was conducted. There was no significant difference between Unresolved (M = 2.73; SD = 1.55) and Resolved (M = 2.58; SD = 1.67) mothers on Cumulative Trauma, $t(72)$ = .36, p = ns. Thus, Hypothesis 1 was not supported.

Next, in a more exploratory manner, this study investigated whether different aspects of attachment traumas (i.e., type, age of experience, and severity) were differentially related to Unresolved status. In these analyses, for continuous dependent variables, t-tests were used, and Chi-Square analyses were used for dichotomous dependent variables.

First, presence or absence of type of attachment-related trauma (e.g., physical abuse or loss) and its relationship to Unresolved status was examined. Results indicated that Unresolved and Resolved mothers did not differ on exposure to physical abuse [$\chi^2(1, N = 74)$ = 3.55, ns], physical neglect [$\chi^2(1, N = 74)$ = .13, ns], emotional abuse [$\chi^2(1, N = 74)$ = .01, ns], sexual abuse [$\chi^2(1, N = 74)$ = .13, ns], loss [$\chi^2(1, N = 74)$ = 2.15, ns], or separation [$\chi^2(1, N = 74)$ = .11, ns].

Next, using the subscale totals of the CTQ, this study examined possible differences between Unresolved and Resolved mothers on total severity of each type of child abuse or neglect (sexual abuse, physical abuse, emotional abuse, and physical neglect). T-tests indicated that there were no differences between Unresolved and Resolved women on severity of physical abuse [M = 6.86, SD = 1.91 and M = 6.40, SD = 1.95, respectively, $t(72)$ = .93, ns], physical neglect [M = 6.68, SD = 2.46 and M = 6.84, SD = 2.62, respectively, $t(72)$ = -.25, ns], emotional abuse [M = 9.77, SD = 5.56 and M = 9.67, SD = 5.28, respectively, $t(72)$ = .07. ns], sexual abuse [M = 5.95, SD = 1.70 and M = 5.96, SD = 1.62, respectively, $t(72)$ = -.02, ns], or total severity of childhood maltreatment [M = 32.18, SD = 13.91 and M = 30.67, SD = 12.84, respectively, $t(72)$ = .45, ns].

In addition, the earliest age at which mothers experienced each attachment-related trauma in relation to Unresolved status was explored. The study variables that allowed for age-related analyses were prolonged separation, loss of parent or caregiver by death (as measured by single items), and physical abuse, sexual abuse, emotional abuse, and emotional neglect (as measured by the THQ-R). For these analyses, age of earliest exposure was used as a continuous variable to explore whether individuals identified as Unresolved were more likely to have experienced a trauma at different ages than those identified as Resolved. *T*-tests indicated that Unresolved and Resolved women did not differ on age of exposure to physical abuse [$M = 4.00$, $SD = 2.65$ and $M = 7.00$, $SD = 6.16$, respectively, $t(5) = .78$, *ns*], physical neglect [$M = 5.50$, $SD = 0.70$ and $M = 4.80$, $SD = 4.49$, respectively, $t(5) = .21$, *ns*], emotional abuse [$M = 7.92$, $SD = 4.29$ and $M = 6.17$, $SD = 4.16$, respectively, $t(28) = 1.11$, *ns*], sexual abuse [$M = 10.63$, $SD = 5.48$ and $M = 10.33$, $SD = 4.79$, respectively, $t(24) = .14$, *ns*], loss [$M = 12.00$ and $M = 8.94$ $SD = 4.94$, respectively, $t(8) = .58$, *ns*] (there was only one Unresolved participant who reported loss), or prolonged separation [$M = 8.75$, $SD = 3.81$ and $M = 8.06$, $SD = 4.70$, respectively, $t(27) = .37$, *ns*]. Therefore, no significant associations were found between Unresolved status and type, earliest age, or severity of childhood attachment traumas.

Hypothesis 2

Hypothesis 2 stated that Unresolved mothers would have more mental health difficulties over time than mothers with a Resolved classification. To test Hypothesis 2, depression and PTSD scores were combined into a composite mental health variable at each time point (after *z*-scoring total scores) due to their high correlations; however, a separate repeated measures analysis of variance (ANOVA) was also conducted for Unresolved vs. Resolved groups on

depression symptoms over time (T1, T3, T4, T5) and then PTSD symptoms over time (T1, T3, T4, T5).

The repeated-measures ANOVA using the mental health composite variable across time revealed no significant main effect of group [$F(1, 72 = .15, ns$], time [$F(3, 216) = .35, ns$], or interaction between group and time [$F(3, 216) = 2.10, ns$]. The repeated-measures ANOVA with depression only at all time points revealed no significant main effect of group [$F(1, 72) = .02$, ns], time [$F(3, 216) = .16, ns$], or interaction between group and time [$F(3, 216) = 1.00, ns$]. The repeated-measures ANOVA with PTSD at all time points also revealed no significant main effect of group [$F(1, 72) = .12, ns$] or time [$F(3, 216) = .41, ns$], or interaction between group and time [$F(3, 216) = 2.51, ns$]. Thus, overall, Hypothesis 2 was not supported.

Hypothesis 3

Hypothesis 3 stated that mental health difficulties (using a composite of both depression and PTSD symptoms) would moderate the relationship between total childhood attachment-related trauma (independent variable) and Unresolved status (dependent variable), such that the relationship between number of attachment-related traumas and Unresolved status would be stronger under the condition of greater mental health symptoms and would be weaker under the condition of fewer mental health symptoms. To examine this hypothesis, logistic regression analyses were conducted, as recommended by Baron and Kenny (1986) and Holmbeck (1997; 2002). Logistic regression is used when analyses include a dichotomous outcome variable such as in this case (Unresolved vs. Resolved status). In regard to the moderating variable, a mental health composite was created by combining depression and PTSD scores across *all* time points (after *z*-scoring totals at each time point). In addition, separate composites for depression symptoms (summed across all time points) and PTSD symptoms (summed across all time points)

were also examined as possible moderators in logistic regression analyses. For the projected

sample size in this study, the use of regression techniques, as opposed to Structural Equation

Modeling (SEM), is recommended due to power considerations (Holmbeck, 1997; 2002).

The steps used to conduct these analyses were consistent with the recommendations of

Aiken and West (1991), Holmbeck (2002), and Baron and Kenny (1984). First, the independent

and moderator variables used in analyses were centered by subtracting the mean of each variable

from the individual's value on that variable in order to reduce multi-collinearity. Second, a new

interaction term was created using the centered independent variable and the centered moderator.

Third, a multiple regression analysis was conducted by entering the centered independent

variable, moderator, and interaction term sequentially as predictors of Unresolved vs. Resolved

groups. A significant interaction term would indicate that there is moderation and that the two

regression lines (slopes) are significantly different from one another.

Logistic Regression Analyses testing the mental health composite as a moderator of the

relationship between cumulative trauma and Unresolved vs. Resolved groups. In this analysis,

the main effects of cumulative trauma and the composite mental health score were examined in

relation to attachment classification (see Table 5). The first two steps indicated that cumulative

trauma and total mental health symptoms were not significant predictors of Unresolved status.

Furthermore, the interaction term was not statistically significant. Thus, moderation was not

supported.

Logistic Regression Analyses testing depression symptoms as a moderator of cumulative

trauma and Unresolved vs. Resolved groups. The main effects of cumulative trauma and the

composite depression score were examined in relation to attachment classification (see Table 6).

The first two steps indicated that cumulative trauma and total depression symptoms were not

significant predictors of Unresolved status. Furthermore, the interaction term was not statistically significant. Thus, moderation was not supported.

Logistic Regression Analyses testing PTSD symptoms as a moderator of cumulative trauma and Unresolved vs. Resolved groups. The main effects of cumulative trauma and the composite PTSD score were examined in relation to attachment classification (see Table 7). The first two steps indicated that cumulative trauma and total PTSD symptoms were not significant predictors of Unresolved status. Furthermore, the interaction term was not statistically significant. Thus, moderation was not supported

Additional Exploratory Analyses

In addition to the hypothesis testing described above, additional exploratory analyses were conducted in order to examine other possible associations between maternal representations and other study variables. Of particular interest in these analyses were other attachment representation variables (e.g., attachment security) and alternative variables for moderation analyses.

It would be consistent with existing empirical literature to examine differences between Secure and Insecure (i.e., Dismissing, Preoccupied, and Unresolved) groups; however, this was not possible in this study because there were too few Secure mothers in the sample ($n = 4$). Based on personal communication with Carol George, one of the developers of the AAP, several continuous measures of attachment security using the AAP were considered. The first continuous variable, as described earlier in the Measures section, is a rank order rating of the four classifications with Secure = 4, Dismissing = 3, Preoccupied = 2, and Unresolved = 1.

The second continuous variable is a variation of this rank ordered security-rating scale, with additional consideration given to segregated system trauma marker frequency across all

AAP stories. For this scale, Secure = 5, Dismissing = 4, Preoccupied = 3, and Unresolved = 2, and those with elevated segregated system trauma markers (four or more) across all stories get a score of 1. Finally, the third continuous variable explored in this study was the total agency subscale from the AAP. Recall that the agency subscale on the AAP designates the degree to which the story character is portrayed as integrated and capable of action. Thus, this subscale has been considered an indicator of security (Benoit et al., 2010).

 Descriptive statistics and correlations of exploratory attachment variables. Descriptive statistics for the three continuous attachment security variables are presented in Table 8. Correlation analyses indicated that the 4-point security rating was significantly, positively associated with maternal education, such that more secure mothers had more education (see Table 9), but was unrelated to maltreatment severity for all types and cumulative attachment-related trauma. The 4-point security rating was also significantly negatively associated with PTSD at T3 and T5, indicating that higher security was related to lower PTSD symptoms at these time points (see Table 10). The 4-point security score was unrelated to age of onset for all attachment traumas (see Table 11). The 5-point security rating was significantly negatively associated with PTSD symptoms at T3 and T5 but was unrelated to age, education, maltreatment severity for all types, cumulative attachment-related trauma, and age of onset of attachment traumas.

 The agency subscale was significantly associated with depression and PTSD symptoms at T5, such that higher agency was related to lower levels of depression and trauma symptoms. The agency subscale was also significantly negatively associated with the age of onset of sexual abuse, such that higher agency was related to earlier onset of sexual abuse. Agency was not

related to maternal age, education, maltreatment severity, or cumulative attachment-related trauma.

In sum, although both 4- and 5-point security ratings were related to depression and PTSD symptoms at T3 and T5, and agency was related to depression and PTSD symptoms at T5, almost all correlations between the three continuous attachment ratings and other study variables were not significant. These results are consistent with the lack of group differences between Unresolved and Resolved mothers on study variables, as described earlier.

Logistic Regression Analyses of mental health composite as a moderator of childhood maltreatment severity and Unresolved vs. Resolved groups. As another way to examine how childhood trauma may be related to Unresolved status, total childhood maltreatment severity (from the CTQ) was used as the independent variable to examine total mental health as a moderator of the association between childhood maltreatment and attachment status. The first two steps indicated that childhood maltreatment severity and total mental health symptoms were not significant predictors of Unresolved status (see Table 12). Furthermore, the interaction term was not statistically significant. Thus, moderation was not supported.

Logistic Regression Analyses of depression as a moderator of childhood maltreatment severity and Unresolved vs. Resolved groups. The main effects of total childhood maltreatment severity and the composite depression score were examined next in relation to attachment classification (see Table 13). The first two steps indicated that total childhood maltreatment severity and total depression symptoms were not significant predictors of Unresolved status. Furthermore, the interaction term was not statistically significant. Thus, moderation was not supported.

Logistic Regression Analyses of PTSD symptoms as a moderator of childhood

maltreatment severity and Unresolved vs. Resolved groups. The main effects of total childhood maltreatment severity and the composite PTSD score were examined in relation to attachment classification (see Table 14). The first two steps indicated that total childhood maltreatment severity and total PTSD symptoms were not significant predictors of Unresolved status. Furthermore, the interaction term was not statistically significant. Thus, moderation was not supported.

CHAPTER 7: DISCUSSION

Introduction

This study aimed to examine the associations between attachment-related traumas in childhood, Unresolved attachment representations, and mental health symptoms in a high-risk sample of mothers. This investigation was intended to help further understand how attachment-related traumas, described by Kobak et al. (2004), contribute to Unresolved attachment in adulthood as measured by the Adult Attachment Projective (AAP) Picture System. Earlier research using the Adult Attachment Interview (AAI) provided a foundation for identifying and understanding lapses in monitoring or reasoning during the discussion of trauma or loss as an indication of Unresolved attachment with respect to these events among many types of individuals (Hesse & Main, 2000; Main & Goldwyn, 1998). This research has been extremely helpful in furthering our understanding of the intergenerational transmission of attachment, particularly disorganized forms of attachment, and has moved attachment research forward in considering how such representations are developed and maintained.

In contrast to most of the previous research, the present study used the AAP to assess adult attachment representations. As previously mentioned, the AAP has been found to have convergent validity with the AAI classifications despite several important dissimilarities in the approach of these assessments (George & West, 2001; George et al., 2004). More specifically, the AAP uses hypothetical stories rather than biographical information and includes codes of defenses and segregated systems expressed in the content of the stories. Thus, a person does not have to reveal his or her own experience of trauma or loss to be classified as Unresolved. Instead, the AAP assesses defensive processes and the capacity (or lack thereof) to integrate or contain dysregulating content, presumably by using existing internal working models of attachment (George & West, 2012). The development and validation of the AAP has indicated

that the essential aspect of measuring adult attachment representation quality is assessing the

person's response to the activation of the attachment system rather than the description of

experienced trauma per se. The activation of the attachment system is accomplished through

discussion of personal traumatic events on the AAI and through the projective use of visual

stimuli on the AAP. As previously mentioned, the approach used for the AAP yields a

methodological benefit due to documented underreporting of trauma on the AAI (Bailey et al.,

2007; Crowell et al., 2002). Thus, defining Unresolved attachment is influenced by the particular

lens of the assessment procedure (whether interview based or projective), but this additional way

(i.e., the AAP) of assessing adult attachment appears to further our thinking about possible

etiologies and measurement of Unresolved attachment classification.

     Most of the available attachment literature has sought to cover two broad foci of

understanding attachment. The first focus has been on what contributes to maladaptive

attachment patterns, and the second focus has been on how attachment patterns or classifications

are part of developmental pathways to maladaptive outcomes. For example, research on

attachment patterns in infancy has furthered our understanding of the etiology of disorganized

attachment and the intergenerational transmission that occurs within the caregiver-infant

relationship (Lyons-Ruth, Bronfman, & Parsons, 1999; Main & Solomon, 1990). Early studies

on concordance and continuity, and subsequent studies on the "transmission gap" (van

IJzendoorn, 1995) between maternal and child attachment classification, led to the understanding

that some attachment figures continue to respond to traumatic, unconscious material from the

past, resulting in maladaptive caregiving and their own infants' disorganization (Lyons-Ruth,

Bronfman, & Parsons, 1999; Schuengel, Bakermans-Kranenburg, & van IJzendoorn, 1999).

Researchers studying people with Unresolved (disorganized) representations have proposed that

the psychic pain associated with certain early attachment experiences is so overwhelming that the memories and feelings associated with those experiences are encoded in a separate representational model, or segregated system, that is kept inaccessible to consciousness (George, West & Pettem, 1999). In fact, Bowlby (1982) himself noted that segregated systems resulting from frightening experiences interfere with one's ability to process or integrate representations into a unified system. As such, trauma is theoretically at the forefront of Unresolved attachment representations; however, empirical associations between childhood trauma and Unresolved adult attachment have been surprisingly inconsistent. The following sections in this paper will focus on the present study's research questions and results. Next, a broader discussion regarding the operationalization and assessment of attachment-related trauma will follow. Finally, strengths and limitations of this study and future directions for research in this area will be discussed.

Characteristics of the Sample and Bivariate Associations between Attachment-Related Trauma and Mental Health Sequelae

Results from the current study revealed several associations between aspects of individuals' trauma history and mental health symptoms during the pregnancy and postpartum period. Overall, attachment-related traumas occurred at high rates in this sample, with over half of mothers reporting childhood physical and emotional abuse and/or neglect. Childhood emotional abuse was reported as the most severe form of maltreatment, on average. Some of the participants in the current study were also highly distressed; however, in general, the participants demonstrated mild depressive symptoms and low-level PTSD symptoms, and both types of mental health symptoms were relatively stable over time.

There was a surprisingly low prevalence (even for a high-risk sample) of women with Secure representations (5%) among the mothers in the current study. This prevalence rate is

lower than rates reported in other studies using the AAP. In George and West's (2012) validation

sample ($N = 144$) of men and women in community and college settings, 17% of participants

were classified as Secure. The current study also had a higher prevalence of the Dismissing

classification (42% compared to 26%), and a lower rate of the Unresolved classification (30%

compared to 36%) than the AAP validation sample. The prevalence of the Preoccupied group in

the current study (23%) was quite similar with the validation sample (21%). The current sample

also had a low rate of Secure attachment when compared to a recent study of 60 adolescents with

childhood maltreatment histories referred for treatment at a mental health clinic (Joubert et al.,

2012). In this study, 17% of the sample was classified as Secure. In comparison to Joubert et al.,

the current study had a higher prevalence of the Dismissing classification (35% compared to

25%) and a slightly lower rate of Unresolved classifications (30% compared to 35%). The

prevalence of the Preoccupied group in the current study (23%) was also similar with the Joubert

et al. study (25%).

Rates of security in the current sample, however, were similar to rates found in a small

sample ($N = 24$) of dysthymic women (West & George, 2002). Eight percent of women in their

sample were classified as Secure. Again, higher rates of Dismissing classification were found in

the current study (42%) than in West and George's sample (17%). In contrast, higher rates of

Unresolved classifications (30% compared to 17%) and lower rates of Preoccupied

classifications (23% compared to 58%) were found in the current sample when compared to

West and George (2002).

Generally, the distribution of attachment classifications in the current sample revealed a

lower prevalence of Secure and a higher prevalence of Dismissing women than other samples.

The present sample consisted of a diverse group of predominantly single, economically

disadvantaged women with young children. The low rate of security in this sample is rarely seen in community samples and more commensurate with rates found in clinical samples. The rates, therefore, are somewhat surprising given the relatively mild mental health symptoms the participants reported. In addition, almost half of the women in the current study were classified as Dismissing. A higher prevalence of Dismissing classifications has been found in mothers of low socioeconomic status in a meta-analysis using the AAI (van IJzendoorn & Bakermans-Kranenburg, 1996). The primary defensive strategy used by individuals classified as Dismissing is deactivation. Deactivation serves to devalue the attachment experience and to prevent distress regarding attachment relationships from being conscious (George & West, 1999; 2012). Because a higher prevalence of Dismissing classification has been found in low socioeconomic status mothers, it may be that an individual's adverse economic conditions and other related life stressors take priority over attachment distress (van IJzendoorn & Bakermans-Kranenburg, 1996).

Regarding mental health symptomology and attachment-related trauma, this study found that exposure to more types of attachment-related trauma in childhood was associated with more depression and PTSD symptoms during pregnancy and postpartum. In addition, the severity of different types of childhood maltreatment was associated with greater mental health difficulties at particular time periods of assessment. The severity of emotional abuse and total childhood maltreatment were consistently related to depression symptoms, while the severity of physical neglect, sexual abuse, and depression were approaching significance in the current study. These results are generally consistent with other studies indicating that neglect (Spertus, Yehuda, Wong, Halligan & Seremetis, 2003) and sexual abuse in childhood have been associated with depression in adulthood (Brown, Craig, Harris, Handley, & Harvey, 2007; Chapman et al., 2004;

Wiersma et al., 2009) and particularly depression symptoms during and after pregnancy

(Kendler, Kuhn, & Prescott, 2004; Kendler, Thornton, & Gardner, 2000).

In addition, severity of physical abuse, emotional abuse, and total childhood maltreatment

were associated with greater PTSD symptoms during pregnancy and 2 years after birth. Other

studies have also shown associations between childhood maltreatment and PTSD in childbearing

women (Lang, Rogers, & Leebeck, 2006; Lang et al., 2008). Thus, this study supports the

previous literature that suggests that the assessment of trauma history in expecting and post-

partum mothers is important, as resulting early mental health difficulties can increase risk for

later mental health symptoms (Seng et al., 2009) and because maternal mental health problems

can significantly compromise maternal caregiving (Field, 2010).

The age of onset of exposure to different types of trauma in this study was also distinctly

associated with severity of maltreatment. In the current study, although not true in all cases,

younger age of exposure to an attachment-related trauma was generally associated with more

severe childhood maltreatment. Regarding the earliest age of exposure and severity of exposure

for a particular type of trauma, several associations were found. Older age of onset of physical

neglect was associated with greater severity of physical neglect; however, notably, the average

age of onset for physical neglect was 5 years old. In contrast, younger age of onset of emotional

abuse was associated with greater severity of emotional abuse. Similarly, the younger a mother

was when she experienced sexual abuse, the more severe this type of abuse was for her. These

associations between age of onset and severity of specific types of trauma suggest that the

appraisal of early life experiences may relate to age related factors, as particular traumas may be

more likely to occur at particular ages within childhood and have differential effects on

subsequent maltreatment severity. Childhood sexual abuse, for example, may be more likely to

occur in children under 12 years old, and differential recall may exist, depending upon the nature and significance of the events (i.e., abuse versus neglect; Dong, Anda, Dube, Giles, & Filitti, 2003). The average age of exposure of sexual abuse in the current sample was 10 years of age. The relationship between age of exposure and subsequent appraisals of severity of childhood maltreatment should be examined further in future studies.

Additional results revealed that all significant associations between earliest age of onset of attachment-related trauma and mental health symptoms were positive, indicating that older age of onset was associated with greater symptom levels. These results are somewhat inconsistent with other studies. For instance, one study of participants diagnosed with PTSD (N = 60) found that age of exposure to sexual abuse was differentially related to psychiatric outcomes, such that older age of exposure (after 12 years old) was associated with higher PTSD symptoms, and younger age of exposure (before 12 years old) was associated with higher depression symptoms (Schoedl et al., 2010). Unlike Schoedl et al., age in the current study was used along a continuum, rather than used categorically. Furthermore, the findings in this study regarding age of onset for attachment-related trauma were based on very few participants. Interestingly, however, across all attachment-related traumas, the average ages of onset were under 11 years.

In contrast to the present study, a prior longitudinal study with a large community sample (N = 1,995) found that participants who experienced their most distressing trauma during childhood (as defined by 3-12 years of age) had higher PTSD symptoms than those who experienced their most distressing trauma during young and middle adulthood (Ogle, Rubin, & Siegler, 2013). Unlike the present study, these findings suggest that earlier age of onset is related to greater mental health problems; however, it is important to note that the traumatic events

examined in the Ogel et al. study were not just interpersonal, attachment-related events. Thus, one possible explanation of the different findings between studies is the differences in operationalization of trauma experiences. It may be useful in future studies to take into account the amount of distress a particular trauma may have caused, in addition to age at which it happened, when assessing the impact of attachment-related traumas on the individual.

<div align="center">**Unresolved Attachment and Attachment-Related Traumas**</div>

In contrast to study hypotheses, results from this study did not reveal that Unresolved mothers experienced more types of attachment-related traumas in childhood than Resolved mothers. Stated another way, the group of mothers who demonstrated a lack of integration or containment of segregated system markers when their attachment system was activated during the AAP did not report more attachment-related traumas in childhood. Although these results were unexpected based on attachment theory and limited existing studies, this is the first known study to examine the relationship between cumulative exposure to attachment-related trauma and adult attachment classifications using the AAP. One possible explanation for these non-significant results may be that there were not enough participants in groups to detect statistical significance (i.e., analyses were under-powered). Further, Unresolved status has generally been found at higher rates in samples of trauma survivors (Riggs et al., 2007), and many of the samples finding associations between trauma history and Unresolved classification (using the AAI) are with clinical samples (Riggs et al., 2007; Stalker & Davies, 1999). While clinical samples may have higher rates of trauma than community samples, it is unknown whether clinical samples have experienced more types of trauma, as many of these studies aim to study only a particular type of trauma (e.g., Schoedl et al., 2010; Stalker & Davies, 1999). Findings related to trauma history and Unresolved status in non-clinical samples have been less consistent

(e.g., Bailey et al., 2007). Thus, future studies should examine the effects of cumulative

attachment-related trauma across clinical and non-clinical samples, and future studies should

examine possible differences in patterns of results using the AAI versus the AAP for assessing

representations.

In addition to a lack of group differences on cumulative attachment-related traumas (as

operationalized by Kobak et al., 2004), results also revealed no differences between Unresolved

and Resolved groups on other aspects of attachment trauma such as the type, age of exposure, or

level of severity. As previously mentioned, associations between these variables and Unresolved

status have been inconsistent across studies using the AAI. For example, Bailey et al. (2007)

found that the severity of childhood physical abuse, sexual abuse, and general maltreatment were

associated with Unresolved status overall; however, physical abuse was unrelated to Unresolved

trauma when analyzed independently. The sample characteristics between the current study and

Bailey et al. (2007) were somewhat similar, with the exception of a few important differences.

For example, their participants had given birth during adolescence (under 20 years old) and were,

therefore, younger than the women in the current sample. The level of mental health symptoms

also differed between samples, as more than 85% of the participants in their study had elevated

scores on a measure of borderline personality disorder features; in comparison, women's

symptoms in this study were relatively mild on depression and PTSD scales. Therefore,

differences in results across studies may have been due to some of these sample and

methodological differences.

Notably, the current study was quite similar to a study by Riggs and Jacobvitz (2002),

who found that Unresolved classification (based on the AAI) was associated with childhood

abuse (physical or sexual abuse) in a sample of couples in their third trimester of pregnancy ($N =$

233), as 52% of participants with a history of childhood abuse were classified as Unresolved. However, 48% of these individuals obtained a Resolved (albeit insecure) attachment classification. Thus, while it remains unclear why associations between Unresolved status and childhood attachment-related trauma were non-significant in the present study, there is apparently a relatively large group of individuals who have experienced abuse who are not classified as Unresolved. Less is known about what differentiates individuals who exhibit some resiliency in the context of abuse (those who are Resolved) versus those that develop Unresolved attachment representations following attachment-related traumas; this is an important area for future research.

Consistent with the present study, Lyons-Ruth et al. (2003) failed to find a relation between loss of a parent or caregiver and severity of abuse in childhood and Unresolved status according to the AAI. Additionally, Zajac and Kobak (2009) did not find an association between Unresolved status and exposure to traumatic loss and suggested that "objectively coded features of the loss do not account for lack of resolution [of that loss]" (p. 183), suggesting that there are other features of loss that are important to assess in addition to presence or absence of a loss. For example, studies have found that subsequent experiences with surviving caregivers may be essential to understanding the effects of a parental loss (Harris et al., 1986; Kendler et al., 2002). It is also important to note that a very small number of mothers in the current study reported experiencing the loss of a caregiver in childhood. Thus, caution should be used when interpreting these particular results.

Overall, it is notable that varying methods between studies have been used to assess trauma type and severity, making comparisons across studies challenging. Much of the literature links trauma history with Unresolved status by demonstrating a greater prevalence of individuals

identified as Unresolved in groups with abuse histories (e.g., Pierrehumbert et al., 2009). These

prevalence rates only point to abuse as an associated factor rather than a cause of Unresolved

attachment representations. Further, there appear to be important differences in studies based on

attachment representation measure and specifics of trauma experiences. Thus, a major challenge

in this area continues to be the articulation and examination of *if* and *how* attachment-related

traumas may be a causal influence on later Unresolved attachment representations. More

discussion about this is found in the upcoming section detailing the complex task of

operationalizing attachment-related trauma and how that may be related to the present findings.

Unresolved Attachment and Mental Health

Contrary to expectations, Unresolved mothers in this study did not have more mental

health difficulties (depression or PTSD symptoms) over time than Resolved mothers. There were

also no differences in the trajectories of different attachment groups with regard to symptoms of

depression or PTSD. These results are somewhat inconsistent with several other studies, which

have found Unresolved attachment status (usually assessed with the AAI) to be associated with

trauma-related symptoms such as PTSD and dissociation, as well as depression symptoms

(Fonagy et al., 1996; Ogawa, Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). However,

in general, the associations between Unresolved attachment and psychopathology have largely

been shown in studies that have identified a greater prevalence of individuals as Unresolved in

clinical samples and persons with diagnosed, psychiatric disorders (Dozier et al., 1999; Fonagy

et al., 1996; van Izendoorn & Bakermans-Kranenburg, 1996). While consistent associations have

not been found between attachment status and *specific* psychiatric disorders, the literature on

Unresolved classification suggests that Unresolved individuals have a higher risk for

psychopathology (Cassidy & Shaver, 2008).

A very recent study using the AAP ($N = 60$) also found that adolescents with a history of maltreatment who were classified as Unresolved had higher levels of self-reported trauma symptoms than maltreated adolescents who were classified as Resolved (Joubert, Webster, & Hackett, 2012). Furthermore, this study found that Unresolved adolescents demonstrated working memory impairment when compared to adolescents in organized (Resolved) attachment groups. In addition to the age difference between their sample and the sample in this study, Joubert et al.'s sample consisted of adolescents who had been removed from the custody of their caregiver. Therefore, it may be that the close proximity in time between maltreatment and attachment and mental health assessment led to stronger associations, or the additional trauma of being removed from the home may have influenced their results.

In contrast to prior studies but consistent with the present investigation, another study using the AAP to assess adult attachment in a small sample of women identified as having dysthymia ($N = 24$) found no relationship between Unresolved attachment and severity of mental health symptoms (West & George, 2002). Further, using a different sample of men and women ($N = 144$), these researchers (George & West, 2012) recently reported that, contrary to their hypotheses, there were no differences between Unresolved and Resolved groups classified by the AAP on overall indices of distress measured by a general mental health symptom checklist. Also, Zajac and Kobak (2009) found that exposure to abuse, rather than Unresolved status on the AAI, was related to mental health symptoms. Therefore, findings regarding the association between Unresolved attachment and mental health symptoms have been mixed; studies using the AAP have been less likely to find significant associations, like the present study, than studies using the AAI. This may be a result of the different approaches to assessing Unresolved status as mentioned earlier; more discussion on this issue can be found below.

Moderation of Attachment-Related Traumas and Unresolved Attachment

Finally, unexpectedly, mental health symptoms did not moderate the relationship between cumulative trauma and attachment status, nor did they moderate the relationship between childhood maltreatment severity and attachment status. Drawing from the broader theoretical literature proposing a potential link between abuse history and representational dysregulation associated with Unresolved attachment, it was thought that the association between exposure to childhood attachment-related trauma and Unresolved status would be stronger under the condition of greater mental health symptoms; however, this was not supported by the data. Thus, the ways these variables interact are still somewhat unclear. One prior study of adolescents found that suicidal and non-suicidal adolescents experienced similar rates of exposure to attachment-related trauma; however, suicidal adolescents (arguably more distressed individuals) were more likely to be classified as Unresolved, suggesting that higher levels of distress may make Unresolved status more likely in the context of attachment trauma exposure (Adam, Sheldon-Keller, & West, 1996). Other studies examining these variables have also found that childhood trauma can have significant effects on mental health in adulthood, above and beyond Unresolved status on the AAI (Zajac & Kobak, 2009). Thus, it is still unclear how attachment traumas, mental health, and Unresolved status in adulthood may interact with each other based on the sparse literature thus far. The lack of significant findings in the current study may be due to any of the reasons articulated above, or there may, in fact, be no associations between these variables in some samples; the latter point will be explored further in the section about the operationalization and assessment of attachment-related trauma.

Associations between Indices of Attachment Security and Other Study Variables

Three indices of attachment security were explored in relationship to mental health and attachment-related traumas. In addition to a 4-point rating based on the traditional attachment classifications, participants with elevated trauma markers on the AAP were identified and considered to form a 5-point security rating. This 5-point rating has not been used in any published studies; however, this scale was shown to be significantly related to higher mental health symptoms, with greater security related to fewer symptoms (George et al., 2013). A measure of representational agency was also used as an index of attachment security (George, C., personal communication March 5, 2013). A similar scale was previously used by Benoit et al. (2010); however, the rating scale used in that study was also based on the coherence subscale, a subscale that is no longer used on the AAP.

Results indicated that both the 4- and 5-point attachment security ratings were significantly related to postpartum PTSD symptoms, such that greater security was related to fewer symptoms. The same pattern was also found for total agency; however, agency was also negatively associated with depression three years postpartum. Similarly, Benoit et al. (2010) also found, in a small sample of individuals ($N = 36$), that attachment security (using agency and coherence on the AAP) was associated with fewer PTSD symptoms 12 weeks after trauma exposure. Thus, these preliminary findings suggest that continuous indices of security at the representational level assessed by the AAP may prove to be promising in some samples such as the present one.

This may be because the AAP coding scheme was developed such that the patterns of subscale scores differentiate among attachment groups (e.g., higher agency is associated with

Secure classification). Also, there are three different forms of agency coded on the AAP (internalized secure base, haven of safety, and capacity to act), and more integrative rather than functional capacities of agency are associated with a Secure classification, whereas a lack of agency is more likely to be associated with individuals classified as Unresolved. In addition, continuous variables are generally a more powerful approach to analyzing relationships between variables because they allow for more individual differences within and between groups, and these continuous scales may better reflect the construct of attachment itself. Indeed, several researchers have questioned whether attachment behaviors are better characterized along a continuum of security, rather than by the three and four-group taxonomy that has been used for over 30 years (Cummings, 1990; Richters, Waters, & Vaughn, 1988; Waters & Deane, 1985).

In sum, there are several possible explanations for the lack of findings in the current study with regard to the *a priori* hypotheses. As previously mentioned, comparisons across studies are challenging due to various assessment methods of trauma across studies, methodological concerns related to the assessment of attachment, and other issues such as sample size and power to detect differences between groups. Due to the reported inconsistencies in the literature regarding attachment-related trauma and Unresolved attachment, the need for additional research in this area was noted more than 10 years ago (Lyons et al., 2003); however, few studies have examined these associations empirically since that time. In fact, some of the most relevant studies by other researchers in this area have been published since the present study began. Differences in methods may help explain the unexpected findings in this study; however, the etiological model purporting to explain the relationship between attachment-related trauma and Unresolved status remains more difficult to empirically examine than once thought. This difficulty requires significant consideration and some theoretical discussion regarding the

role of attachment-related trauma in the development of Unresolved attachment, as well as the association between Unresolved status and mental health sequelae.

Defining and Assessing Attachment-Related Trauma

To start to move our understanding forward in this area, it is important to first address what constitutes "attachment trauma." To date, there have been two formal definitions of attachment trauma in the attachment literature. First, the definition provided by Kobak et al. (2004) referred to attachment-*related* traumas, defined as "a frightening experience [that] is accompanied by, or results from, the appraisal of loss, rejection, or abandonment by an attachment figure" (p. 391). He described threats to survival and physical integrity in early years as being intimately tied to the attachment relationship, as they interfere with the availability of the caregiver. As such, physical abuse, sexual abuse, neglect, loss, and prolonged separations by an attachment figure are thought to be traumatic early in life due to the severely compromised physical accessibility, communication, and responsiveness of an attachment figure (Kobak et al., 2004). The current study used this conceptualization of attachment-related traumas and was guided by Kobak's theoretical work and related empirical studies.

Although other researchers have not necessarily conceptualized attachment trauma this way, they have included variables of abuse and loss experiences that could be considered attachment-related traumas from this perspective. It is, however, much less likely for other researchers to include neglect and prolonged separation as attachment-related traumas. Also, like this study, researchers typically use many self-report or interview methods to assess for trauma, but not necessarily for the purpose of assessing attachment-related trauma per se. Some of these measures have broad directions, such as the CTQ, which asks for responses on "experiences growing up as a child and a teenager"; some questions mention parents, others refer to family

members, and some refer to no one in particular. Therefore, when using these measures, researchers may not be measuring the attachment component of these trauma experiences with enough precision and may erroneously assume some connection with an early attachment experience. It seems important to verify the attachment figure as the perpetrator of abuse or neglect and to clearly understand the loss and separation experiences with the intent of operationalizing attachment-related traumas as closely as possible to experience.

A second definition of attachment trauma has recently been provided by George and West (2012), who define attachment trauma as "…experience and later representation, [that] is characterized by dysregulating fear that is associated with attachment figure abdication and caregiving helplessness" (p. 198). Specifically, these events have more recently been described in an unpublished manuscript of Keeling and George (2012) as "experiences that threaten to rupture the protective attachment-caregiving relationship or threaten the integrity of self." This second conceptualization of attachment trauma is inherently broader than Kobak et al.'s (2004) conceptualization and includes experiences beyond the events generally considered as traumas. Further, their notion of loss incorporates not just literal loss (i.e., through death or prolonged separation), but perceived loss of availability that results in fear for the child. This can occur when caregiving is severely compromised such as when a caregiver has serious psychopathology or when the caregiver experiences overwhelming helplessness that causes him or her to withdraw; these are just a few examples.

For their conceptualization of attachment trauma, George and West (2012) expound on relevant theoretical underpinnings using Bowlby's conceptualization of loss and persistent dysregulated fear resulting from the incomplete mourning of these experiences (see George & West, 2012, for a full review). According to Bowlby, mourning is the process of updating

representational models of self and attachment figure after an attachment trauma and does not

necessarily refer to the typical notion of mourning in the context of only loss or grief, although

observations of loss and grief influenced his conceptualization of these processes (Bowlby, 1980;

as cited in George and West, 2012). As such, mourning provides reintegration of "experiences

that threaten to rupture the protective attachment-caregiving relationship or threaten the integrity

of self" (Keeling & George, 2012). George (2013) described several life experiences that need to

be mourned including loss through death, abandonment, abuse, and terrorizing experiences such

as violence between caregivers or in the community. The critical result of all of these

experiences is the feeling of an overwhelming state of helplessness and fear in the child that is

associated with the perception of caregiver abdication (i.e., the physical and or psychological

absence of the caregiver).

As previously mentioned, segregated systems are thought to interfere with the process of

mourning (or reintegration) after such experiences, resulting in a "failure to mourn," as these

painful experiences are kept inaccessible to consciousness. In contrast, "chronic mourning" is a

state where an individual is flooded by thoughts and emotions about traumatic attachment events.

Pathological mourning in attachment, in the form of the absence of grieving or the intensity of

emotional flooding, is likely in Unresolved individuals but may also be seen in Resolved (but

Insecure) individuals.

George and West (2012) also propose that the containment of segregated systems occurs

on a continuum. Their conceptualization links segregated systems to attachment dyregulation and

subsequent risk for mental health problems and broadens the focus to individuals who may have

organized (Resolved) attachment patterns. Preliminary empirical evidence suggests that the

segregated systems markers on the AAP may be useful in understanding increased risk for

mental health problems outside of Unresolved attachment per se (George & West, 2012; C. George, personal communication March 5, 2013). Additional empirical evidence supporting this theory is needed, but a more specific understanding of attachment patterns (and variations within patterns) could further our theoretical understanding of the etiology of attachment and help explain inconsistent associations with attachment patterns, trauma history, and psychopathology. At present, Unresolved attachment is thought to be the (later) developmental equivalent to Disorganized attachment in infancy. The inclusion of both pathological mourning groups appears to maintain the complexity of adult representations rather than the more simplistic "equivalency model" that associates Disorganization with Unresolved attachment alone (George &West, 2012).

Overall, the definition of attachment-related trauma is a critical first step to understanding associations with Unresolved attachment and risk for psychopathology. Like the AAI, the AAP is presumed to assess the sequela of experiences of attachment trauma; however, using the conceptualization of George and West (2012), it becomes easier to understand why Unresolved attachment on the AAP may not be consistently associated with experiences of traumatic events that are limited to physical and sexual abuse, neglect, loss, and separations as were assessed in the present study. The AAP assesses attachment representations using defensive structures (i.e., deactivation, cognitive disconnection) and segregated system markers that, as previously mentioned, can include helplessness, failed protection, abandonment, and dissociation in story content. George and West (2012) focus less on the actual childhood event per se and more on the individual's perception of experiences of helpless caregivers and failed protection. This way of defining attachment-related trauma creates a broader range of experiences than those assessed in this study and those that are discussed from the perspective of Kobak et al. (2004), although

Kobak et al.'s notion of Attachment Injuries may include a wider variety of attachment traumas than their other groups. Notably, George and West's (2012) conceptualization of attachment-related trauma was not articulated when this study began, and at that time the concept of attachment-related trauma was limited to Kobak et al.'s (2004) work.

The definition of attachment trauma by George and West (2012) appears consistent with the attachment literature regarding infant disorganization and may be an important alternative to prior conceptualizations of attachment trauma. Research has demonstrated that a broad array of parent behaviors is associated with infant disorganization, including a number of nuanced frightened/frightening, unpredictable, and bizarre behaviors (Lyons-Ruth et al., 1999), rather than an exclusive set of experiences that are more obvious trauma experiences such as those referenced in the DSM-IV PTSD diagnosis. In infancy, these associations can be more readily assessed using observational methods of parent-child interactions; however, when assessing the experience of earlier attachment trauma in adulthood, individuals are recalling and reflecting on experience. The complex relationships between life events and attachment in adulthood have yet to be fully understood. Nevertheless, using a broader focus to define attachment traumas allows researchers to examine a wider range of experiences that may be associated with psychopathology and Unresolved attachment in adulthood. In order to assess a broader range of experiences that reflect attachment trauma, researchers will also have to go beyond existing childhood trauma measures.

In fact, it is quite possible that this study may not have adequately assessed important attachment-related trauma experiences that are presumed to contribute to dysregulated Unresolved representations, and this may be why associations between these variables were not found. Indeed, assessing actual experiences of attachment-related trauma in adulthood seems

quite daunting. Despite this challenge, Keeling and George (2012) recently developed the

Attachment Trauma Life Events Questionnaire, a 63-item measure of life events defined as

experiences *associated* with risk for attachment trauma as conceptualized by George and West

(2012). According to the authors, this measure asks about "… life events identified as related to

quality of attachment and caregiving, and child and mother developmental outcome in studies of

attachment and loss" (Keeling & George, 2012). This measure asks respondents to indicate how

distressed, vulnerable, or helpless they felt in response to many life events from childhood and

adulthood. These events include but are not limited to abuse by a parent, separations, loss,

parental rages, parental alcohol or drug use, romantic relationship quality, and abuse by a partner

during adulthood. It remains a question as to whether experiences of attachment traumas can be

comprehensively assessed in adulthood. Adult attachment measures such as the AAI and AAP

assess current mental representations of attachment, which are complicated by experiences over

time. We have the assessment capacity to identify that attachment trauma occurred, but we may

always lack the capacity to identify the event that is causally related to Unresolved attachment or

other risk groups.

In sum, decades of research have contributed to a wealth of understanding about

attachment representations; however, many questions remain. Despite a strong theoretical

connection between early experience and Unresolved representations, the attachment literature

has yet to establish consistent empirical associations between these variables. In fact, in this

study there was little evidence that Unresolved mothers were distinct from Resolved mothers in

terms of trauma history or mental health symptoms. Several factors may have contributed to the

lack of findings, including methodological limitations; however, addressing what constitutes

attachment-related trauma is critical for empirical examinations in the future. Kobak et al. (2004)

and George and West (2012) have introduced similar but distinct definitions of attachment

trauma. Both definitions call for considerations regarding the assessment of these events in an

effort to understand how these events are related to different types of adult attachment groups.

Recently, researchers have become more interested in understanding the nuances of adult

attachment groups and finding additional groups, characterized by important individual

differences in dimensions related to attachment security, that may be at risk for increased

psychopathology.

Strengths of the Present Study

One of the major strengths of this study is that it used a longitudinal examination of

mental health across the perinatal period in a sample of at-risk mothers. This is important

because increased understanding of significant difficulties across the perinatal period will

identify risk factors that may interfere with maternal functioning and, subsequently, caregiving

behaviors. In addition, women during this period are difficult to recruit and retain for

longitudinal studies, and thus they are less frequently represented in the adult attachment

literature. As such, less is known about attachment representations during this sensitive period.

Another strength of the current study was the multi-method design, including the use of a

relatively new measure of adult attachment. This measure is an important alternative to the AAI

as it doesn't rely on biographical information for understanding representational quality of

attachment. An expert in coding and the developer of the measure also completed the coding of

the measure in this study, increasing the confidence of having accurate classifications from

which to investigate these relationships. Another major strength of this study was that it included

attachment-related traumas that are less well studied in the literature. Few studies, for example,

examine psychological abuse and prolonged separations; however, Kobak et al. (2004) and also

Geroge and West (2012) provide a conceptual framework for why these may be important experiences that threaten the attachment relationship and contribute to dysregulated attachment, even though there was no significant association with Unresolved classification in this study.

Limitations of the Present Study

There were also some limitations in the current study that are important to consider. The Childhood Trauma Questionnaire (CTQ) is a measure often used in the attachment literature to assess severity of maltreatment; however, it is possible that this measure did not adequately capture attachment-related traumas as defined by Kobak et al. (2004) or George and West (2012). As previously mentioned, the CTQ and similar trauma measures were developed with other purposes in mind and therefore lack the specificity of event characteristics needed to assess the full range of attachment-related traumas.

In addition, physical abuse, physical neglect, emotional abuse, sexual abuse, loss, and separations (i.e., the attachment traumas) were assessed from retrospective parental report. This is an inherent limitation in examining childhood experiences in adulthood and is a common limitation in this type of research. While some of these events may be verified using child protective records or other informant reports, for example, the individual appraisal of severity or felt helplessness cannot be verified in this way. Nevertheless, longitudinal follow-up of adults who suffered well-documented childhood abuse has shown that their retrospective reports are likely to underestimate actual occurrence (Della Femina, Yeager, & Lewis, 1990; Williams, 1995). Few mothers in this study, for instance, reported experiencing loss of a parent in childhood, and it is important to be cautious in interpreting related results.

The new measure of attachment trauma life events created by Keeling and George (2012) appears to cover a wider range of experiences that may influence attachment representations and

may be an important tool in future research, even though it also uses retrospective self-report. Thus, there are likely a number of other experiences that may be related to Unresolved representations that were not assessed in this study. As a result, future studies should continue to examine a broader range of factors that are thought to contribute to Unresolved representations such as the wide range of events that could cause abdication of care, child fear, and helplessness. The sample used in the current study was also not representative of the general population because it was composed primarily of low-income single women during the transition to parenthood. However, the sample's diversity along with these other characteristics are valuable for understanding the experiences of at-risk mothers. Future research will require the inclusion of a wide range of samples.

Conclusions

Since its early theoretical and empirical inception, the attachment literature has been consistently evolving, furthering our understanding about the legacy of early relationships. Theoretical directions in the attachment literature have progressed with the relatively recent development of a new, promising measure of adult attachment representations (the AAP). Prior theoretical understanding about Unresolved adult attachment (both precursors of and sequelae to Unresolved representations) has been primarily understood in the context of the AAI due to longstanding research using this measure. The AAP aligns with the AAI in many important ways, including concordant assessment of attachment classifications; however, its projective approach to assessing attachment representations extends, and in some ways challenges, our ideas regarding the complexity of associations between early experience and Unresolved attachment representations.

Since the present study began, researchers have made efforts to expand our understanding of the assessment of dysregulation in adult attachment representations and early experiences that may contribute to poorly integrated representations. Initial efforts have been made to examine the use of the AAP to study defensive processes associated with pathological mourning as initially articulated by Bowlby (1980) and, more recently, further developed by George and colleagues (Georges & West, 2012). Currently, the recently developed AAP appears to have a broader definition of the etiology of Unresolved attachment representations than the more often used AAI. In addition to methodological differences in terms of how these measures assess processes underlying Unresolved attachment, there are notable conceptual differences between the approaches regarding what *is* Unresolved attachment and how it is expressed via representational narratives. Future studies should strive to make sense of the similarities and differences between these two measures and their theoretical foundations.

It is surprising that the well-known and widely used concept of "attachment trauma" has only relatively recently been formally defined, despite these experiences being such a critical concept to understand in relation to early life and attachment quality. As a result of Kobak et al.'s (2004) and George and West's (2012) well articulated definitions of "attachment trauma," researchers can better identify and assess who may develop negative outcomes in relation to Unresolved attachment and how to best intervene. Because this study was guided by Kobak et al.'s (2004) conceptualization of attachment-related trauma, which was the primary formulation of attachment trauma at the time, it is possible that future studies may formulate hypotheses and use study methods differently based on George and West's (2012) recent formulation of attachment traumas, including the broader array of events that could give rise to Unresolved attachment via caregiving abdication.

Finally, it appears that experts in attachment theory are currently bringing Bowlby's early theory of mourning to the forefront of understanding attachment trauma. Although the application of his theory of mourning to the current understanding about defensive processes and Unresolved attachment are currently in progress, this is an exciting development for researchers interested in attachment trauma and developmental psychopathology. The aim of the current study was to further understand Unresolved representations of attachment due to the increased risk for severe outcomes for individuals in this classification group; however, theory regarding pathological mourning of attachment experiences has suggested that other groups may be at risk for elevated mental health symptoms. Additional empirical investigations would be valuable in further understanding the effects of attachment trauma on pathological mourning. Studies conducted in clinical and non-clinical samples are important in finding unique factors associated with context or other sample characteristics. The current study and other similar studies highlight the importance of considering childhood experiences in relation to risk factors for adult psychopathology in mothers during the transition to parenthood. Empirically informed prevention programs and clinical interventions in this population are needed early on so that attachment trauma is not transmitted to the next generation.

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Appendix A

Informed Consent for Pregnancy Interview

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 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.

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) 487-2238 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 9/26/08 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

Demographic Questionnaire from Pregnancy Interview

1.   Your date of birth: _ _ / _ _ / _ _
                                        (mo) (dy) (yr)

2.   Your age in years: _____

3.   Your baby's due date: _ _ / _ _ / _ _
                                        (mo) (dy) (yr)

4.   Have you been pregnant before? (Circle one)
            1 = YES   2 = NO (If NO, go to Question 8)

   If YES, to Question 5:

      5. How many times? _____

      6. Have you had any miscarriages, still births, or abortions? (Circle one)
            1 = YES
            2 = NO

      7. How many biological children do you currently have? _____

8.   How many people, including yourself, live in your household? _____

9.   Please list these: (Write in specific relationship to mother. Be specific--is the person (for
      ex.) a husband, stepfather, biological child, foster child, or partner's child?)

      ____self_____ _____ _____

      _____ _____ _____ _____

      _____ _____ _____ _____

10.   Choose the one that best describes your current marital/relationship status (choose only one):
- (a)   single, never married (see below)
- (b)   married   For how long? _____ (in months)
- (c)   separated   For how long? _____ (in months)
- (d)   divorced   For how long? _____ (in months)
- (e)   widowed   For how long? _____ (in months)

   If (a) is circled: Are you currently in a relationship?   YES   NO
      If YES, go to Question 11.
      If NO, were you in a relationship that lasted at least
         6 weeks during your current pregnancy?   YES   NO

11.   First name of your current partner **or** the partner you were with for at least 6 weeks during your pregnancy: _____

12.   Are you currently living with your partner/spouse? (Circle one)
   1 = YES   2 = NO

13.   If yes to Question 12, how long have you been doing so? (Circle one)
   1 = less than 1 year
   2 = 1-3 years
   3 = 4-6 years
   4 = 7-9 years
   5 = 10-12 years
   6 = 13-15 years
   7 = 16 - 18 years
   8 = 19 - 21 years
   9 = 22 - 24 years
   10 = 25 or more years

14.   Prior to your current romantic relationship, specified in Question #10
   (a) were you ever married?   1 = YES   2 = NO
   (b) did you ever live with a partner?   1 = YES   2 = NO
   (c) were you ever separated?   1 = YES   2 = NO
   (d) were you ever divorced?   1 = YES   2 = NO
   (e) were you ever widowed?   1 = YES   2 = NO

15. What is the current age of the baby's father? _____

16.   What is your current relationship with the father of your baby? (Circle one)
            1 = spouse
            2 = ex-spouse
            3 = partner
            4 = ex-partner
            5 = friend
            6 = acquaintance
            7 = stranger
            8 = other   Please specify: _____

17.   What is your racial or racial group? (Circle one)
            1 = Native American
            2 = Asian American/Pacific Islander
            3 = Black, African American
            4 = Latina, Hispanic
            5 = Arab American
            6 = Biracial (mixed): Specify_____
            7 = Caucasian, White
            8 = Other: _____

18.   What is the baby's father's racial or racial group? (Circle one)
            1 = Native American
            2 = Asian American/Pacific Islander
            3 = Black, African American
            4 = Latino, Hispanic, Chicano
            5 = Arab American
            6 = Biracial (mixed): Specify_____
            7 = Caucasian, White
            8 = Other: _____

19.   What is the highest level of education you have completed? (Circle one)
            1 = Did not complete high school
            2 = High school diploma or GED
            3 = Some college
            4 = Associate's degree or completion of trade school after high school (e.g.,
            Beauty School, nursing school)
            5 = Bachelors Degree
            6 = Some graduate school
            7 = Graduate degree
            8 = Other; Specify _____

20. Do you currently work outside the home?   YES   NO

        21. **If YES**, how many hours a week do you work? _____
        22. **If NO**, did you work outside the home <u>during the last year</u>?   YES   NO
                How many hours a week during the last year? _____

23. If YES to either part of Question 20, what is/was your occupation?_____

>*Please be specific. For example, bookkeeper, cashier, computer programmer.*
>*If there were two jobs/occupations, have participant choose the one that she feels*
>*best represents her occupation.*

24. What is the highest level of education your partner/spouse has completed? (Circle one)
   1 = Did not complete high school
   2 = High school diploma or GED
   3 = Some college
   4 = Associate's degree or completion of trade school after high school (e.g., Beauty School, nursing school)
   5 = Bachelors Degree
   6 = Some graduate school
   7 = Graduate degree
   8 = Other; Specify _____

25. Does s/he work outside the home? (Circle one)
   1 = YES
   2 = NO
   If YES, how many hours a week? _____

26. If yes to Question 25, what is his/her occupation? _____
(Please be specific)

27. What is your total family income per month (estimate)? _____

28. Do you currently receive services from . . . ?
   a. WIC or Women, Infants & Children   **YES   NO**
   b. Protective Services   **YES   NO**
   c. Food Stamps   **YES   NO**
   d. Medicaid, Mi-Child, or Medicare   **YES   NO**
   e. SSI (or Disability)   **YES   NO**
   f. Public cash assistance/grant (DHS)   **YES   NO**
   g. Unemployment compensation   **YES   NO**
   h. Any infant related programs (e.g., 0-3; Mother-Infant Program; Head Start)?
      YES   NO
   i. Mental Health treatment   **YES   NO**
   j. Psychiatric treatment (medicine)   **YES   NO**
   k. Other social service or health program   **YES   NO**

Appendix C

Informed Consent for 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 D

Informed Consent for 2-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 a number of questions about your child and we will ask you and your child to play together for about 12 minutes with some toys that we have brought. These parts of the interview will be audio- and/or video-taped so that only research staff can view them at a later time. Then, you will be given a number of questionnaires about your experiences since the last interview and about your child; 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 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 child'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 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 young children 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, $40 cash, and a $10 Target gift card 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) 487-0112 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 12/16/10 to 12/15/11. 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 child's rights as a research participant and I voluntarily consent for both my child 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 E

Informed Consent for 3-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 children's well-being during the transition to parenthood.

During this interview today, we will ask you to describe some drawings of people either alone or with others in everyday situations. This part of the interview will be audio-taped so that only research staff can transcribe them at a later time. Audio-tapes will be destroyed after all study analyses are over. Then, you will be given a number of questionnaires about your experiences since the last interview about you and your child; many of these questionnaires will be the same ones you filled out earlier, but some of them will be new to you. As in prior interviews, we will ask you and your child to play together for about 12 minutes with some toys that we have brought. This time we will also be showing your child in the study some pictures of common, everyday objects and asking him/her to name them or point to them if possible; these tasks are designed to measure language development. This interview will take approximately 1 hour total. 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:
You and your child'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. You will be given $10.00 at the end of this interview as compensation for participating.

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-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 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.

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 children's safety is currently 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 between adult partners.

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. Your child may or may not be interested in the language assessments, and s/he is free to refuse to participate without any penalty. 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 young children go through during and after pregnancy. Individual participants may not personally benefit from participating, although some may find discussing these important life events with project staff relieving and enjoyable. Participating children usually enjoy playing with research assistants and the toys that we bring along, as well as looking at the books of pictures used in the language assessments.

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 11/22/2010 to 11/21/2011. 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 child's rights as a research participant and I voluntarily consent for both my child 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 F

Demographic Questionnaire from 3-year Interview

1. Since we last interviewed you when _____ (**name of child, get from T4 interview packet ahead of time**) was about 2 years old, have you given birth to another child?
   YES   NO

2. Since we last interviewed you when _____ (**name of child**) was about 2 year old, have you had any miscarriages? (a)_____, stillbirths? (b)_____, or abortions? (c)_____ (write in number of each in appropriate places)

   When did these take place?   M (d)_____, S (e)_____, A (f)_____

3. Are you currently pregnant? **YES   NO**

4. How many children have you given birth to in total, including the child in this study (**NOT** including stillbirths)?   _____

5. How many people, including yourself, live in your household? _____

   (_____ children and _____ adults)

6. Please list these: (Write in specific relationship to mother. Be specific--is the person (for ex.) a husband, stepfather, biological child, foster child, or partner's child?). NO NAMES ARE NECESSARY.

   ___self_____   _____   _____   _____

   _____   _____   _____   _____

   A. If the child doesn't live with you, who does the child live with? _____
   (relationship of person to mother)

7. How many times have you moved since our last interview, when your child was about 2 years old? _____

8. Choose the one that best describes your current marital/relationship status (choose only one):
   1. Single, never married, NOT living with a partner, NOT in current relationship
   2. Single, never married, NOT living with a partner, IN a current relationship
   3. Single, never married, living WITH a partner
   4. Married
   5. Separated
   6. Divorced
   7. Widowed

9. Are you currently in a relationship? **YES NO**
   <u>If yes</u>:
   A. How long have you been with this partner? _____ (in months)
   B. How long have you been LIVING with this partner? _____ (in months)

10. What is the age of your current partner/ spouse? _____

11. What is the highest level of education your partner/spouse has completed? (Circle one)
    1 = Did not complete high school
    2 = High school diploma or GED
    3 = Some college
    4 = Associate's degree or completion of trade school after high school (e.g.,
    Beauty School, nursing school)
    5 = Bachelors Degree
    6 = Some graduate school
    7 = Graduate degree
    8 = Other; Specify _____

12. Does s/he work outside the home?   **YES   NO**
    If YES: A. how many hours a week? _____
        B. What is his/her occupation? _____
                         (Please be specific)

13. Is this the father of the child in this study?   **YES   NO**

14. Is the child's father involved with the child?   **YES   NO**

15. Does the child's father live with the child?   **YES   NO**

16. What is your current relationship with the father of your child (in the study)? (Circle one)
    1 = spouse
    2 = ex-spouse
    3 = partner/fiancé
    4 = ex-partner
    5 = friend
    6 = acquaintance
    7 = stranger
    8 = other   Please specify: _____

17.   If you were in a relationship, what has happened to the relationship when we interviewed you when your child was about 2 years old? (Read all choices and circle one)
 (Read all choices and circle one)

          (a)   I am still in a relationship with him.
          (b)   We have been together off and on since the interview, and we are currently together.
          (c)   We have been together off and on since the interview, and we are currently not together.
          (d)   I have not had a relationship with him since the interview.

18.   How many romantic relationships have you been in since your pregnancy with **(name of child)**, including _____ **[name of T1 partner]**?
       _____ relationships

19.   Do you currently work outside the home?   **YES   NO**

    20. **If YES**, how many hours a week do you work? _____
    21. **If NO**, did you work outside the home <u>during the last year</u>?   **YES   NO**
        24. How many hours a week during the last year? _____

22.   Do you currently work at home (e.g., daycare provider or home office)?   **YES   NO**
    23. **If YES**, how many hours a week do you work? _____

24.   [*If YES to either part of Questions 19 thru 22*]: What is/was your occupation?
_____
Please be specific. For example, bookkeeper, cashier, computer programmer.
If there were two jobs/occupations, have participant choose the one that she feels best represents
    her occupation.

25.   Does your child receive childcare from anyone other than you? **YES   NO**
    Check all that apply:
    A. ____ daycare center   B.____ #of hours/week
    C.____ in-home care by private provider   D.____ #of hours/week
    E. ____ in-home care by family member   F.____ #of hours/week
    G. ____ other (describe: _____)   H.____ #of hours/week

26.   Have you received services from the following programs in the last year?

    a. WIC or Women, Infants & Children   **YES   NO**
    b. Child Protective Services   **YES   NO**
    c. Legal Personal Protection/PPO   **YES   NO**
    d. Food Stamps   **YES   NO**
    e. Medicaid, Mi-Child, or Medicare   **YES   NO**
    f. SSI (or Disability)   **YES   NO**
    g. Public cash assistance/grant (DHS)   **YES   NO**

     h. Unemployment compensation   **YES   NO**

     i. Any infant related programs (e.g., 0-3; Mother-Infant Program; Head Start)?
                                                             YES NO
     j. Mental Health treatment   **YES NO**
     k. Substance Use treatment   **YES NO**
     l. Psychiatric treatment (medicine)   **YES NO**
     m. Incarceration   **YES NO**
     n. Subsidized housing   **YES NO**
     o. Other social service or health program   **YES NO**

27. Considering all sources of income, approximately what is your family income per month (estimate): _____

Appendix G

Written Informed Consent for Use of Individual Data for Training & Educational Purposes Only

Thank you again for participating in the Parenting Project. We greatly appreciate your willingness to participate and share your story so that we can better understand women's experiences during and after pregnancy, as well as how these experiences influence mothers and young children after birth. As you know, questionnaires, tape-recorded interviews, and videotapes are used in this study to better understand these experiences. Occasionally, project researchers are asked to help educate and train other psychologists and health service professionals working with women and young children. At times, it can be very valuable to share individuals' stories and provide examples from interviews and/or videos for training purposes. We are asking for your permission to use part of your individual information **for training/educational purposes only**. **You will never be identified by name.** This permission is completely up to you, and your decision will in no way impact your relationship with the project. Please check the appropriate box and sign below to indicate your decision.

As a reminder, 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. This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from   to . 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)."
****

☐   I do not give permission for Parenting Project staff to use my data for training/educational purposes

_____   _____
Participant Signature   Date

_____
Participant Name

_____   _____
Witness Signature   Date

☐   I do give permission for Parenting Project staff to use my data for training/educational purposes

_____   _____
Participant Signature   Date

_____
Participant Name

_____   _____
Witness Signature   Date

Appendix H

AAP Administration Sheet

Follow the script and probes

Make sure you checked that the cards are in order

INTERVIEWER: Make sure the administration in taking place in a quiet area. **To record**, switch the "hold" button down so the recorder turns on. Press the Red button to record. **To pause,** hit the Red button again and switch the "hold" button up. You can continue to record the same file by switching the "hold" back and pressing the Red button again. **To end** the administration press the Red button and "stop" then switch the "hold button up to turn the recorder off.

MAKE SURE YOU ARE RECORDING

To begin: **I will be showing you a set of pictures, one at a time, and I'll give you some time to think about each one. Then, I'll ask you to tell me a story about what is going on in the picture. There are no right or wrong answers. Just make up a story about what's going on in the picture, what led up to the scene, what the characters are thinking or feeling, and what might happen next.**

Then: **Let's start with the first picture.** *(Hand participant first picture to look at and hold)*

If trying to get out of task i.e. saying "I don't like this one", "I don't have experience with this" or "Do I have to do this one?": **It's your story, what do you think is happening in this picture?**

If no response or questions how to proceed: **What is going on in the picture, what led up to the scene, what are the characters thinking or feeling, and what might happen next.**

After each picture: take the picture back and give the participant the next picture to hold by saying: **Here is the next picture**. *Do not say, this is the last one.*

PROBES- at least 2 for each story

Complete Story: **What do you think might happen next?** *followed by* **Anything else?**
Omitted what <u>led up</u> to the scene: **What do you think led up to the scene?**
Omitted <u>describing</u> characters feelings: **What are they thinking or feeling?**
Omitted what <u>followed</u>: **What do you think might happen next?**
Too <u>vague or general</u>: **How do you mean?**

Appendix I

Childhood Trauma Questionnaire

Instructions. These questions ask about some of your experiences growing up as a child and a teenager. Although these questions are of a personal nature, please try to answer as honestly as you can. For each question, tell me the response that best describes how you feel. If you wish to change your response, please tell me and I will circle your new choice.

When I was growing up…	Never True	Rarely True	Sometimes True	Often True	Very Often True
1. I didn't have enough to eat.	.	.	.	.	.
2. I know that there was someone to take care of me and protect me.	.	.	.	.	.
3. People in my family called me things like "stupid," "lazy," and "ugly."	.	.	.	.	.
4. My parents were too drunk or high to take care of the family.	.	.	.	.	.
5. There was someone in my family who helped me feel that I was important or special.	.	.	.	.	.
6. I had to wear dirty clothes.	.	.	.	.	.
7. I felt loved.	.	.	.	.	.
8. I thought that my parents wished I had never been born.	.	.	.	.	.
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.	.	.	.	.	.
10. There was nothing I wanted to change about my family.	.	.	.	.	.
11. People in my family hit me so hard that it left me with bruises or marks.	.	.	.	.	.
12. I was punished with a belt, a board, a cord, or some other hard object.	.	.	.	.	.
13. People in my family looked out for each other.	.	.	.	.	.
14. People in my family said hurtful or insulting things to me.	.	.	.	.	.
15. I believe that I was physically abused.	.	.	.	.	.
16. I had the perfect childhood.	.	.	.	.	.
17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor.	.	.	.	.	.
18. I felt that someone in my family hated me.	.	.	.	.	.
19. People in my family felt close to each other.	.	.	.	.	.
20. Someone tried to touch me in a sexual way,	.	.	.	.	.

or tried to make me touch them.					
When I was growing up…	Never True	Rarely True	Sometimes True	Often True	Very Often True
21. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.	.	.	.	.	.
22. I had the best family in the world.	.	.	.	.	.
23. Someone tried to make me do sexual things or watch sexual things.	.	.	.	.	.
24. Someone molested me.	.	.	.	.	.
25. I believe that I was emotionally abused.	.	.	.	.	.
26. There was someone to take me to the doctor if I needed it.	.	.	.	.	.
27. I believe that I was sexually abused.	.	.	.	.	.
28. My family was a source of strength and support.	.	.	.	.	.

Appendix J

Questions for Prolonged Separation and Loss

Here are a few other questions about events that may have occurred in your life.
Note: a participant may answer some questions for both parents, answer each question for each parent identified

1. Have you ever had any unexpected or very long separations from a parent/caregiver? (i.e. jail, foster care, moved away) *If asked how long is very long, let the participant decide. You can just say "it's up to you" or something similar*

   Circle one: (Yes) Relationship of parent/caregiver: Mother   Father   Both

   Reason (mother)_____

   Reason (father)_____

   (No)

   If yes: Age of separation (mother) _____

   Age of separation (father) _____

2. ....Have you ever lost a parent/caregiver through death?

   Circle one: (Yes) Relationship of parent/caregiver: Mother   Father   Both
   (No)

   If yes: Please answer the following questions:

   Cause of death (mother) _____

   Cause of death (father) _____

   Which statement describes your experience:
   *Note: If a participant has lost both parents, answer each question for each**

   Circle: (I witnessed this event): Mother   Father   Both

   (I was told about what happened) Mother   Father   Both

   How old were you at the time of this event:

   Mother: _____

   Father: _____

   How old was your parent/caregiver:

Mother: _____

Father: _____

Appendix K

Trauma History Questionnaire - Revised

Instructions: Below is a list of stressful events that you may have experienced. For each event, please indicate whether it has ever happened to you in your life. For each type of event that happened to you, please indicate:

    (a) Approximately HOW MANY TIMES it happened to you.
    (b) Your approximate age (in years) when it FIRST happened to you.
    (c) Your approximate age (in years) when it LAST happened to you.
    (d) The MAXIMUM amount of fear, helplessness, or horror that you felt AT THE TIME OF THE EVENT(S) using the following scale:

0 = none   1 = a little bit   2 = some   3 = a lot   4 = quite a lot   5 = extreme amount

**Note: Cross reference CTQ and CTS-2 if necessary

Did any of these events happen to you?	Yes or No	If YES:
1. Has anyone ever tried to take something directly from you by using force or threat of deadly force, such as a stick-up or mugging?	☐ Yes ☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
2. Has anyone ever actually robbed you (i.e., stolen your personal belongings)?	☐ Yes ☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
3. Has anyone ever succeeded in breaking into your home when you were not there?	☐ Yes ☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
4. Has anyone succeeded in breaking into your home while you were there?	☐ Yes ☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
5. Have you ever had a serious accident (at work, in a car, or somewhere else) in which you believed you could be killed or seriously harmed? Please specify: _____	☐ Yes ☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
6. Have you ever experienced a natural disaster such as a tornado, hurricane, flood, major earthquake, etc., where you felt you or your loved ones were in danger of death or serious injury? Please specify: _____	☐ Yes ☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
7. Have you ever experienced a "man-made" disaster such as a train crash, building collapse, fire, etc., where you felt you or your loved ones were in danger of death or serious injury?	☐ Yes ☐ No	# of Times: _____ Age FIRST: _____

Please specify: _____			Age LAST: _____ Maximum Rating: _____
8. **Have you ever been emotionally abused (e.g., belittled, humiliated, cursed at, threatened verbally) by a family member or significant other? Please state who emotionally abused you: _____ _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
9. Have you ever *directly* experienced a terrorist act, such as a bomb, stabbing, kidnapping? Please specify: _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
10. Have you ever directly experienced war events, such as shelling, firefights, missile, or artillery alarm?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
11. Have you ever experienced the divorce of your parents or parent figures?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
12. Have you ever seen someone seriously injured (i.e., life-threatening injury) or killed?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
13. Have you ever seen dead human bodies (other than at a funeral) or had to handle dead human bodies (other than at a funeral) for any reason?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
14. Have you ever had a spouse, romantic partner, or child die (include abortion or miscarriage)?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
15. Have you ever had a serious life-threatening illness?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
16. Have you ever received news of a serious injury, life-threatening illness, or unexpected death or someone close to you? Please specify: _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
17. Have you ever had to engage in military combat (or something like it) or have you been in a situation that involved a threat to your life while in the military (or reserve) service? Please specify: _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
18. **Has anyone ever made you have intercourse, oral, or anal sex against your will?	☐	☐	# of Times: _____ Age FIRST: _____

	Yes	No	Age LAST: _____ Maximum Rating: _____
19. **Has anyone ever touched private parts of your body or made you touch theirs in a sexual way under force or threat?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
20. **Has anyone *in your family* ever had unwanted sexual contact with you? Please specify persons' relationship to you: _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
21. **Other than the incidents mentioned in Questions 18, 19, & 20, have there been any other situations in which another person tried to force you to have unwanted sexual contact?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
22. **Has anyone, including family members or friends, ever attacked you *with* a gun, knife, or some other weapon? Please specify persons' relationship to you: _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
23. **Has anyone, including family members or friends, ever attacked you *without* a weapon and seriously injured you? Please specify persons' relationship to you: _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
24. **Has anyone in your family ever beaten, "spanked", burned, or pushed you hard enough to cause an injury? Please specify persons' relationship to you: _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
25. **Were you ever seriously neglected (i.e., left without appropriate supervision, help, and/or resources at a time when you were too young or too sick to take care of yourself)?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
26. Were you ever incarcerated (jailed), held captive, tortured, or kidnapped?	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
27. Other than those mentioned above, have you ever been in any other situation in which you feared you might be killed or seriously injured? Please briefly specify: _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____
28. Have you experienced any other extraordinary stressful situation(s) or event(s) (i.e., serious threat to you or a loved one) that is/are not covered above? Please specify: _____ _____ _____	☐ Yes	☐ No	# of Times: _____ Age FIRST: _____ Age LAST: _____ Maximum Rating: _____

Appendix L

Edinburgh Postpartum Depression Scale

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please tell me the answer that comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

1. I have been able to laugh and see the funny side of things
   ☐ As much as I always could
   ☐ Not so much now
   ☐ Definitely not so much now
   ☐ Not at all

2. I have looked forward with enjoyment to things
   ☐ As much as I ever did
   ☐ Rather less than I used to
   ☐ Definitely less than I used to
   ☐ Hardly at all

3. I have blamed myself unnecessarily when things went wrong
   ☐ Yes, most of the time
   ☐ Yes, some of the time
   ☐ Not very often
   ☐ No, never

4. I have been anxious or worried for no good reason
   ☐ No, not at all
   ☐ Hardly ever
   ☐ Yes, sometimes
   ☐ Yes, very often

5. I have felt scared or panicky for no very good reason
   ☐ Yes, quite a lot
   ☐ Yes, sometimes
   ☐ No, not much
   ☐ No, not at all

6. Things have been getting on top of me
   ☐ Yes, most of the time I haven't been able to cope at all
   ☐ Yes, sometimes I haven't been coping as well as usual
   ☐ No, most of the time I have coped quite well
   ☐ No, I have been coping as well as ever

7. I have been so unhappy that I have had difficulty sleeping
   - ☐ Yes, most of the time
   - ☐ Yes, sometimes
   - ☐ Not very often
   - ☐ No, not at all

8. I have felt sad or miserable
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Not very often
   - ☐ No, not at all

9. I have been so unhappy that I have been crying
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Only occasionally
   - ☐ No, never

10. The thought of harming myself has occurred to me
    - ☐ Yes, quite often
    - ☐ Sometimes
    - ☐ Hardly ever
    - ☐ Never

Appendix M

Beck Depression Inventory - II

INSTRUCTIONS: This questionnaire consists of 21 statements. After you read each one, please tell me the one statement in each group that best describes the way you've been feeling during the _**past 2 weeks**_, including today. *(Note: If 2 statements apply equally well, circle the highest number for that group).*

1.

       0   I do not feel sad.
       1   I feel sad much of the time.
       2   I am sad all of the time.
       3   I am so sad or unhappy that I can't stand it.

2.

       0   I am not discouraged about my future.
       1   I feel more discouraged about my future than I used to be.
       2   I do not expect things to work out for me.
       3   I feel my future is hopeless and will only get worse.

3.

       0   I do not feel like a failure.
       1   I have failed more than I should have.
       2   As I look back, I see a lot of failures.
       3   I feel I am a total failure as a person.

4.

       0   I get as much pleasure as I ever did from the things I enjoy.
       1   I don't enjoy things as much as I used to.
       2   I get very little pleasure from the things I used to enjoy.
       3   I can't get any pleasure from the things I used to enjoy.

5.

       0   I don't feel particularly guilty.
       1   I feel guilty over many things I have done or should have done.
       2   I feel quite guilty most of the time.
       3   I feel guilty all of the time.

6.

       0   I don't feel I am being punished.
       1   I feel I may be punished.
       2   I expect to be punished.
       3   I feel I am being punished.

7.

0	I feel the same about myself as ever.
1	I have lost confidence in myself.
2	I am disappointed in myself.
3	I dislike myself.

8.

0	I don't criticize or blame myself more than usual.
1	I am more critical of myself than I used to be.
2	I criticize myself for all of my faults.
3	I blame myself for everything bad that happens.

9.

0	I don't have any thoughts of killing myself.
1	I have thoughts of killing myself, but I would not carry them out.
2	I would like to kill myself.
3	I would kill myself if I had the chance.

10.

0	I don't cry anymore than I used to.
1	I cry more than I used to.
2	I cry over every little thing.
3	I feel like crying, but I can't.

11.

0	I am no more restless or wound up than usual.
1	I feel more restless or wound up than usual.
2	I am so restless or agitated that it's hard to stay still.
3	I am so restless or agitated that I have to keep moving or doing something.

12.

0	I have not lost interest in other people or activities.
1	I am less interested in other people or things than before.
2	I have lost most of my interest in other people or things.
3	It's hard to get interested in anything.

13.

0	I make decisions about as well as ever.
1	I find it more difficult to make decisions than usual.
2	I have much greater difficulty in making decisions than I used to.
3	I have trouble making any decisions.

14.

0	I do not feel I am worthless.
1	I don't consider myself as worthwhile and useful as I used to.

2   I feel more worthless as compared to other people.
3   I feel utterly worthless.

15.

0   I have as much energy as ever.
1   I have less energy than I used to have.
2   I don't have enough energy to do very much.
3   I don't have enough energy to do anything.

16.

0   I have not experienced any change in my
sleeping pattern.

1a	I sleep somewhat more than usual.
1b	I sleep somewhat less than usual.
2a	I sleep a lot more than usual.
2b	I sleep a lot less than usual.
3a	I sleep most of the day.
3b	I wake up 1-2 hours early and can't get back to sleep.

17.

0   I am no more irritable than usual.
1   I am more irritable than usual.
2   I am much more irritable than usual.
3   I am irritable all the time.

18.

0   I have not experienced any change in my
appetite.

1a	My appetite is somewhat less than usual.
1b	My appetite is somewhat greater than usual.
2a	My appetite is much less than before.
2b	My appetite is much greater than usual.
3a	I have no appetite at all.
3b	I crave food all the time.

19.

0   I can concentrate as well as ever.
1   I can't concentrate as well as usual.
2   It's hard to keep my mind on anything for very long.
3   I find I can't concentrate on anything.

20.

0   I am no more tired or fatigued than usual.
1   I get more tired or fatigued more easily than usual.
2   I am too tired or fatigued to do a lot of the things I used to do.
3   I am too tired or fatigued to do most of the things I used to do.

21.   I have not noticed any recent change in my interest in sex.
0   I have not noticed any recent change in my interest in sex.
1   I am less interested in sex than I used to be.
2   I am much less interested in sex now.
3   I have lost interest in sex completely.

Appendix N

The Posttraumatic Stress Disorder Checklist - Civilian Version

INSTRUCTIONS: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month using the following scale:

1 = Not at all   2 = A little bit   3 = Moderately   4 = Quite a bit   5 = Extremely

1. Repeated disturbing memories, thoughts, or images of a stressful experience from the past?

2. Repeated disturbing dreams of a stressful experience from the past?

3. Suddenly acting, or feeling as if, a stressful experience were happening again?

4. Feeling very upset when something reminded you of a stressful experience from the past?

5. Having physical reactions when something reminded you of a stressful experience from the past?

6. Avoiding thinking about or talking about a stressful experience from the past, or avoiding having feelings related to it?

7. Avoiding situations because they remind you of a stressful experience from the past?

8. Trouble remembering important parts of a stressful experience from the past?

9. Loss of interest in activities you used to enjoy?

10. Feeling distant or cut off from other people?

11. Feeling emotionally numb or being unable to have loving feelings for those close to you?

12. Feeling as if your future will somehow be cut short?

13. Trouble falling or staying asleep?

14. Feeling irritable or having angry outbursts?

15. Having difficulty concentrating?

16. Being "super alert" or watchful or on guard?

17. Feeling jumpy or easily startled?

TABLES

Table 1

AAP Discourse and Content Dimensions

Discourse Dimensions	Picture Stimuli Coded	Definition	Scaling
Personal Experience	All	A particular form of relation violation, in which the response includes reference to one's own life experience.	(0 -1); 1, Presence or 0, Absence
Content Dimensions			
Agency of Self	Alone	Designates degree to which story character is portrayed as integrated and capable of action.	(0-2); 0, no agency is portrayed; 1, capacity to act; 2, internalized secure base or haven of safety.
Connectedness	Alone	Refers to expression of desire to interact with others.	(1-3); 1, own activity; 2, not connected; 3, connectedness is present.

Note. Adapted from George et al. (2004).

Table 2

Measures and Waves of Data Collection

Measure	Pregnancy	1 year follow-up	2 year follow-up	3 year follow-up
Demographics				
Demographics Q.	X	X	X	X
Attachment-Related Trauma				
Childhood Trauma Questionnaire	X			
Prolonged Separation				X
Loss of parent/caregiver by death				X
Trauma History Questionnaire-Revised	X			
Adult Representations				
Adult Attachment Projective Picture System (AAP)				X
Maternal Mental Health				
Edinburgh Postpartum Depression Scale	X			
Beck Depression Inventory-II		X	X	X
PTSD Checklist	X	X	X	X

Table 3

Descriptive Statistics for Continuous Variables

Variable	N	M	SD	Range Possible	Range Actual	Skew	Kurtosis
Maternal age	74	27.02	5.81	18-41	18-41	1.25	-1.29
Maternal education	74	3.70	1.47	1-7	1-7	2.65	.00
CTQ Physical Abuse	74	7.70	4.66	5-25	5-10	7.92 (3.43)	8.03 (-1.16)
CTQ Physical Neglect	74	7.22	3.72	5-25	5-21	7.82 (4.50)	8.03 (.00)
CTQ Emotional Abuse	74	9.79	5.56	5-25	5-22	4.37 (3.89)	1.10 (.18)
CTQ Sexual Abuse	74	7.44	5.31	5-25	5-9	8.60 (4.47)	8.82 (-.57)
CTQ Total Severity	74	32.17	16.02	20-100	20-96	6.46 (4.07)	5.79 (-.32)
Cumulative Trauma	74	2.62	1.63	0-6	0-6	.89	-1.31
THQ-R Physical Abuse - Age	7	5.71	4.88	0-17	0-15	1.37	1.10
THQ-R Physical Neglect - Age	7	5.00	3.69	0-17	0-11	.20	.05
THQ-R Emotional Abuse - Age	30	6.86	4.23	0-17	0-16	1.40	.53
THQ-R Sexual Abuse - Age	26	10.42	4.90	0-17	0-17	-1.04	.81
Age at Loss	10	9.25	4.75	0-17	1.50-17	-.02	-.52
Age at Separation	29	8.25	4.41	0-17	0-16	-.09	-1.00
T1 EPDS	74	12.95 (0.00)	3.64 (1.00)	0-30	7-22 (-1.63-2.48)	1.43	-.67
T3 BDI-II	74	10.91 (0.00)	8.98 (1.00)	0-63	0-51 (-1.54-2.12)	7.40 (2.34)	10.73 (-0.52)
T4 BDI-II	74	10.66 (0.00)	10.16 (1.00)	0-63	0-57 (-1.18-2.63)	7.15 (3.96)	10.16 (1.06)
T5 BDI-II	74	11.02 (0.00)	9.15 (1.00)	0-63	0-39 (-1.26-2.13)	3.62 (2.53)	.87 (-1.19)
T1 PCL-C	74	29.48 (0.00)	9.18 (1.00)	17-85	17-59 (1.36-3.21)	3.63	1.50
T3 PCL-C	74	27.59 (0.00)	9.92 (1.00)	17-85	17-63 (-1.22-2.21)	5.92 (3.45)	5.12 (.15)
T4 PCL-C	74	27.90 (0.00)	13.24 (1.00)	17-85	17-77 (-1.03-2.09)	6.87 (3.97)	5.89 (.12)

T5 PCL-C	74	29.68	12.79	17-85	17-65	4.48	1.19
		(0.00)	(1.00)		(-1.04-2.17)	(3.76)	(-.08)

Note. Values in the first row represent raw data after estimation procedures for missing data. Values in parentheses represent winsorized and *z*-scored values. CTQ = Childhood Trauma Questionnaire; Cumulative Trauma = composite measure of cumulative type of trauma exposure; THQ-R = Trauma History Questionnaire Revised Version; EPDS = Edinburgh Postpartum Depression Scale; BDI-II = Beck Depression Inventory–II; PCL-C = Posttraumatic Stress Disorder Checklist Civilian Version.

Table 4

Correlation Table for Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Maternal age	1	.40**	-.23†	.13	-.02	.15	-.02	-.13	-.72†	.25	-.11	-.14	.12	.22	-.22†	-.23*	-.25*	-.24*	-.32**	-.31**	-.26*	-.23*
2. Maternal education		1	-.31**	-.01	-.07	-.13	-.14	-.10	-.31	-.37	.00	.23	-.11	.15	-.16	-.28*	-.23	-.25*	-.24*	-.26*	-.24*	-.29*
3. CTQ Physical Abuse			1	.47**	.65**	.36**	.71**	.68**	-.12	.60	-.27	-.14	.78**	-.13	.22†	.33**	.20†	.12	.28*	.21†	.34**	.18
4. CTQ Physical Neglect				1	.78**	.48**	.81**	.69**	-.59	.80*	-.56**	-.51**	.22	.19	.16	.14	.19	.22†	.20†	.01	.28*	.44
5. CTQ Emotional Abuse					1	.53**	.94**	.79**	-.70†	.54	-.51**	-.45*	.68*	.04	.36**	.31**	.31**	.26*	.35**	.17	.37**	.22
6. CTQ Sexual Abuse						1	.67**	.55**	.03	-.13	-.02	-.77**	.43	-.06	.15	.15	.20†	.22†	.23†	.08	.30**	.14
7. CTQ Total Severity							1	.79**	-.67†	.54	-.50**	-.61**	.60†	.01	.27*	.27*	.26*	.23*	.31**	.15	.37**	.19
8. Cumulative Trauma								1	.11	.38	-.26	-.34†	.73*	-.14	.28*	.30**	.25*	.21†	.40**	.22†	.37**	.16
9. THQ-R Physical Abuse Age									1	.90	.98**	.43	.19	-.46	.57	.49	.54	.44	.77*	.22	.28	.29
10. THQ-R Physical Neglect Age										1	.44	.77	C	.69	-.36	.67	.76*	-.02	-.12	.19	.72†	.44
11. THQ-R Emotional Abuse Age											1	.41	.18	.04	.30	.22	.16	.03	.38*	.45*	.17	.16

	12	13	14	15	16	17	18	19	20	21	22
12. THQ-R Sexual Abuse Age	1	.56	-.11	.01	.26	.16	-.02	.04	.09	.03	.04
13. Age at Loss		1	.62	.79**	.55	.39	.07	.65*	.65*	.40	.46
14. Age at Separation			1	-.20	-.18	-.08	-.13	-.26	-.13	-.10	-.13
15. T1 EPDS				1	.36**	.39**	.37**	.66**	.39**	.39**	.38**
16. T3 BDI-II					1	.58**	.46**	.34**	.69**	.49**	.43**
17. T4 BDI-II						1	.66**	.55**	.63**	.83**	.71**
18. T5 BDI-II							1	.43**	.47**	.60**	.75**
19. T1 PCL-C								1	.51**	.61**	.49**
20. T3 PCL-C									1	.65**	.64**
21. T4 PCL-C										1	.68**
22. T5 PCL-C											1

Note. All variables presented in this table are those included in study analyses (including some that have been transformed as described earlier). CTQ = Childhood Trauma Questionnaire; THQ-R = Trauma History Questionnaire Revised Version; EPDS = Edinburgh Postpartum Depression Scale; BDI-II = Beck Depression Inventory–II; PCL-C = Posttraumatic Stress Disorder Checklist Civilian Version.

c = could not be computed

$^{†}p < .10.$ $^{*}p < .05.$ $^{**}p < .01.$

Table 5

Logistic Regression Analyses of Mental Health Composite as Moderator of Cumulative Trauma and Maternal Attachment Classification

Model	B	S.E.	Wald	Exp(B)	χ^2 Step	Nagelkerke R^2	χ^2 Model
Step 1							
Cumulative Trauma	-.06	.16	.13	.94	.13	.00	
Step 2							
Cumulative Trauma	-.04	.17	.06	.96			
Mental Health Composite	-.07	.27	.08	.93	.08	.00	
Step 3							
Cumulative Trauma	-.04	.17	.06	.96			
Mental Health Composite	-.07	.27	.08	.93			
Cumulative Trauma X Mental Health Composite	.01	.17	.01	1.01	.01	.00	.22

Table 6

Logistic Regression Analyses of Depression as Moderator of Cumulative Trauma and Maternal Attachment Classification

Model	B	S.E.	Wald	Exp(B)	χ^2 Step	Nagelkerke R^2	χ^2 Model
Step 1							
Cumulative Trauma	-.06	.16	.13	.94	.13	.00	
Step 2							
Cumulative Trauma	-.07	.17	.20	.93			
Depression	.03	.09	.09	1.03	.09	.00	
Step 3							
Cumulative Trauma	-.08	.17	.20	.93			
Depression	.02	.09	.08	1.02			
Cumulative Trauma X Depression	.02	.05	.12	1.02	.12	.01	.34

Table 7

Logistic Regression Analyses of PTSD as Moderator of Cumulative Trauma and Maternal Attachment Classification

Model	B	S.E.	Wald	Exp(B)	χ^2 Step	Nagelkerke R^2	χ^2 Model
Step 1							
Cumulative Trauma	-.06	.16	.13	.94	.13	.00	
Step 2							
Cumulative Trauma	-.02	.17	.01	.98			
PTSD	-.01	.01	.58	.99	.00	.01	
Step 3							
Cumulative Trauma	-.01	.17	.01	.99			
PTSD	-.01	.01	.57	.99			
Cumulative Trauma X PTSD	.00	.01	.00	1.00	.12	.01	.71

Table 8

Descriptive Statistics for Additional Continuous Variables

Variable	N	M	SD	Range		Skew	Kurtosis
				Possible	Actual		
Four Point Security Rating	74	2.22	.94	1-4	1-4	-.29	-2.25
Five Point Security Rating	74	2.32	1.41	1-5	1-5	1.54	-2.53
Agency Subscale	74	2.88	1.30	0-8	0-6	1.51	.30

Note. The higher the number the more secure on all scales.

Table 9

Correlation Table for Continuous Attachment Variables, Demographic Variables, Childhood Maltreatment and Cumulative Trauma

	Four Point Rating	Five Point Rating	Total Agency	Maternal Age	Maternal Education	CTQ Physical Abuse	CTQ Physical Neglect	CTQ Emotional Abuse	CTQ Sexual Abuse	CTQ Total	Cumulative Trauma
Four Point Security Rating	1	.57**	.41**	.22†	.33**	-.13	.06	-.04	.02	-.07	-.02
Five Point Security Rating		1	.15	.13	-.22	-.12	.01	-.05	-.05	-.09	-.08
Total Agency			1	.07	.14	.14	.13	.10	.10	.13	.13

Note. CTQ = Childhood Trauma Questionnaire.
† $p < .10$. * $p < .05$. ** $p < .01$.

Table 10

Correlation Table for Continuous Attachment Variables and Mental Health Variables

	Four Point Rating	Five Point Rating	Total Agency	T1 EPDS	T3 BDI-II	T4 BDI-II	T5 BDI-II	T1 PCL-C	T3 PCL-C	T4 PCL-C	T5 PCL-C
Four Point Security Rating	1	.57**	.41**	-.06	-.21†	-.11	-.11	-.05	-.31**	-.19†	-.25*
Five Point Security Rating		1	.15	-.08	-.21†	-.08	-.04	-.10	-.28*	-.15	-.25*
Total Agency			1	-.13	-.10	-.12	-.27*	.02	-.06	-.19	-.28*

Note. EPDS = Edinburgh Postpartum Depression Scale. BDI-II = Beck Depression Inventory–II. PCL-C = Posttraumatic Stress Disorder Checklist Civilian Version.
† $p < .10$. * $p < .05$. ** $p < .01$.

Table 11

Correlation Table for Continuous Attachment Variables and Age of Onset of Attachment Trauma Variables

	Four Point Rating	Five Point Rating	Total Agency	THQ Physical Abuse	THQ Physical Neglect	THQ Emotional Abuse	THQ Sexual Abuse	Loss	Separation
Four Point Security Rating	1	.57**	.41**	.03	-.38	-.27	-.11	.05	-.14
Five Point Security Rating		1	.15	-.04	-.27	-.33†	.13	-.12	-.34†
Total Agency			1	-.26	-.43	.01	-.50**	.18	-.16

Note. THQ-R = Trauma History Questionnaire Revised Version.
† *p* < .10. * *p* < .05. ** *p* < .01.

Table 12

Logistic Regression Analyses of Mental Health Composite as Moderator of Childhood
Maltreatment Severity and Maternal Attachment Classification

Model	B	S.E.	Wald	Exp(B)	χ^2 Step	Nagelkerke R^2	χ^2 Model
Step 1							
Total Childhood Maltreatment Severity	-.01	.02	.21	.99	.21	.00	
Step 2							
Total Childhood Maltreatment Severity	-.01	.02	.12	.99			
Mental Health Composite	-.01	.04	.06	.99	.06	.01	
Step 3							
Total Childhood Maltreatment Severity	-.02	.02	.59	.98			
Mental Health Composite	-.01	.04	.07	.99			
Total Childhood Maltreatment Severity X Mental Health Composite	.01	.00	2.37	1.01	2.62	.05	2.89

Table 13

Logistic Regression Analyses of Depression as Moderator of Childhood Maltreatment Severity and Maternal Attachment Classification

Model	B	S.E.	Wald	Exp(B)	χ^2 Step	Nagelkerke R^2	χ^2 Model
Step 1							
Total Childhood Maltreatment Severity	-.01	.02	.21	.99	.21	.00	
Step 2							
Total Childhood Maltreatment Severity	-.01	.02	.29	.99			
Depression	.03	.09	.11	1.03	.10	.01	
Step 3							
Total Childhood Maltreatment Severity	-.02	.02	.61	.98			
Depression	.02	.09	.04	1.02			
Total Childhood Maltreatment Severity X Depression	.01	.01	1.95	1.01	2.12	.05	2.44

Table 14

Logistic Regression Analyses of PTSD as Moderator of Childhood Maltreatment Severity and Maternal Attachment Classification

Model	B	S.E.	Wald	Exp(B)	χ^2 Step	Nagelkerke R^2	χ^2 Model
Step 1							
Total Childhood Maltreatment Severity	-.01	.02	.21	.99	.21	.00	
Step 2							
Total Childhood Maltreatment Severity	-.00	.02	.05	1.00			
PTSD	-.01	.01	.55	.99	.54	.01	
Step 3							
Total Childhood Maltreatment Severity	-.14	.09	2.66	.87			
PTSD	-.01	.01	.49	.99			
Total Childhood Maltreatment Severity X PTSD	.00	.00	2.55	1.00	2.85	.07	3.60