

**EXAMINING EARLY INTERVENTION AND INFANT
ATTACHMENT AS PREDICTORS OF CHILDREN'S
PERCEIVED ATTACHMENT SECURITY AND PARENTAL
SENSITIVITY IN MIDDLE CHILDHOOD**

by

Haley Ringenary

A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Bachelor of Science in Psychology with Distinction

Spring 2018

© 2018 Haley Ringenary
All Rights Reserved

**EXAMINING EARLY INTERVENTION AND INFANT
ATTACHMENT AS PREDICTORS OF CHILDREN'S
PERCEIVED ATTACHMENT SECURITY AND PARENTAL
SENSITIVITY IN MIDDLE CHILDHOOD**

by

Haley Ringenary

Approved: _____
Mary Dozier, Ph.D.
Professor in charge of thesis on behalf of the Advisory Committee

Approved: _____
Amanda Costello, Ph. D.
Committee member from the Department of Psychological & Brain
Sciences

Approved: _____
Laura Eisenman, Ph. D.
Committee member from the Board of Senior Thesis Readers

Approved: _____
Michael Chajes, Ph.D.
Chair of the University Committee on Student and Faculty Honors

ACKNOWLEDGMENTS

I would like to thank Dr. Mary Dozier and Lindsay Zajac for their overwhelming support and guidance throughout this process. Additionally, I would like to thank the entire team of graduate and undergraduate students in the Infant Caregiver Project for their help in data collection, coding, and never-ending support. Lastly, I would like to thank my family and friends who have been so supportive throughout my college career and specifically during this process. Without your unconditional encouragement, I would not have been able to pursue or accomplish my goals.

TABLE OF CONTENTS

LIST OF TABLES	vi
ABSTRACT	vii
1 INTRODUCTION	1
Attachment in Infancy	2
Attachment During Middle Childhood	4
Parenting	6
Attachment and Biobehavioral Catch-up	8
Present Study	10
2 METHODS	12
Participants	12
Infant Attachment Assessment	13
Attachment in Middle Childhood Assessment	14
Parental Sensitivity Assessment	15
3 RESULTS	18
Preliminary Analyses	18
Attachment in Infancy	18
Perceived Attachment Security in Middle Childhood	19
Parenting Behaviors	20
Primary Analyses	20
Infant Attachment Predicting Perceived Attachment Security in Middle Childhood	20
Intervention Differences for Attachment in Middle Childhood	22
Infant Attachment Predicting Parenting Behaviors at Age Nine	22
Intervention Differences for Parenting Behaviors at Age Nine	24
Concurrent Relations Between Parenting Behaviors and Perceived Attachment Security Ratings	24
4 DISCUSSION	25

Strengths and Limitations	28
Future Directions	29
Conclusion	30
REFERENCES	32

LIST OF TABLES

Table 1	Descriptive Statistics for Parental Behaviors based on Secure-Insecure Attachment Classifications in Infancy	23
Table 2	Descriptive Statistics for Parenting Behaviors based on Organized-Disorganized Attachment Classifications in Infancy	23
Table 3	Descriptive Statistics for Parental Behaviors based on Intervention Status	24

ABSTRACT

When infants develop disorganized attachments, they have an increased risk of later negative outcomes into middle childhood and on into adulthood. The first goal of this study was to examine attachment in infancy as a predictor of children's perceived attachment security and parenting behaviors in middle childhood. The second goal was to examine whether the Attachment and Biobehavioral Catchup (ABC), an early intervention aimed at improving parenting behaviors in infancy predicted children's perceived attachment security and parenting behaviors in middle childhood. After parents received ABC or a control intervention, children's attachment quality in infancy was assessed in the Strange Situation. Middle childhood attachment security ratings were assessed at age nine using the Kerns Security Scale, and parenting behaviors were assessed using a structured observational task. Attachment quality in infancy predicted middle childhood attachment security ratings. Specifically, children with organized attachments reported higher middle childhood attachment security ratings than disorganized children. Additionally, children who received ABC reported higher levels of perceived attachment security to their parents than children who received the control intervention. Attachment in infancy and intervention status did not predict parenting behaviors in middle childhood. Results highlight the lasting effects of an early intervention on children's perceived attachment security in middle childhood and the importance of promoting attachment relationships during infancy.

Chapter 1

INTRODUCTION

Children who experience early adversity are at increased risk for developing disorganized attachments, which are associated with problematic long-term outcomes, including poor academic achievement and psychopathology (Carlson, 1998). Maternal sensitivity has been shown to counteract early adversity and promote the development of secure and organized attachments (Bernard, Dozier, Bick, Lewis-Morrarty, Lindhiem, & Carlson, 2012). To help neglecting parents learn to respond in sensitive ways, our lab developed an early parenting intervention, Attachment and Biobehavioral Catch-up (ABC: Dozier, Peloso, Lindhiem, Gordon, Manni, Sepulveda, Levine 2006). ABC has been shown to promote organized and secure attachment outcomes among young children at risk for neglect. The current study examines whether attachment during infancy predicts parenting behaviors and child self-report of attachment security at age nine, and whether the ABC intervention is associated with child self-report of attachment security and concurrent parenting behaviors. I hypothesize that children with organized attachments will receive more nurturing and sensitive parenting behaviors at age 9 and report higher levels of attachment security at age 9 than children with disorganized attachments. Additionally, I hypothesize that parents who received ABC will respond in more sensitive and nurturing ways than parents who received the control intervention, and their children will have higher ratings of attachment security at age 9.

Attachment in Infancy

Attachment can be viewed as the specific aspect of the relationship between the child and parent in which the child uses the parent as a secure base from which to explore and, when necessary, as a haven of safety and a source of comfort (Ainsworth, Bell & Stayton, 1974). Most children will form organized attachments to their parents, which are exemplified by clear and consistent behaviors used to manage a stressful event in the parents' presence. Children develop organized attachments through early experiences with their parents and assess the responsiveness and availability of their parents. Organized attachments can be classified as secure, insecure-resistant, or insecure-avoidant. In times of distress, children with secure attachments will seek out their parent and be easily soothed. Children with an insecure attachment when distressed may be fussy and hard to soothe (resistant) or turn away from their parent (avoidant) (Ainsworth, Blehar, Waters & Wall, 1978). Secure-organized attachments predict healthy developmental outcomes, such as strong emotion regulation, a positive self-concept, and social competence (Cassidy & Shaver, 2008), whereas insecure-organized attachments during infancy predict negative outcomes, such as poor emotion regulation, negative self-concepts, and the tendency to view social situations in more negative viewpoints (Cassidy & Shaver, 2008).

Children with organized attachments demonstrate clear and consistent behaviors in their parents' presence when distressed, whereas children with disorganized attachments do not display clear strategies for dealing with stressful events in their parents' presence. Children with disorganized attachments display a

breakdown or lack of strategy when dealing with stressful events (Main & Solomon, 1990). Disorganized attachments are more likely when the parent behaves in a frightening manner to the infant, perhaps by teasing the infant or demonstrating sudden aggressive movements surrounding the infant's face and eyes, than when parents follow the child's lead and delight in the child. Disorganized attachments are also more likely to develop when parents appear frightened, such as by retreating or backing away from the infant, than when parents overcome their own issues to respond in nurturing ways when the child is in distress (Bernard et al., 2012; Main & Hesse, 1990).

Disorganized attachments are especially predictive of later problematic outcomes (Carlson, 1998), including maladaptive physiological regulation. Children with disorganized attachments demonstrate atypical levels of cortisol (i.e., a stress hormone) throughout the day. Specifically, children with disorganized attachments show more blunted slopes throughout the day than children who develop insecure or secure attachments (Hertsgaard, Gunnar, Erikson & Nachmias, 1995). Children with disorganized attachments are also more likely to struggle with emotion regulation, display hostile and aggressive behaviors, and be less academically successful than children with secure or organized attachments (Carlson, 1998). For example, Kochanska (2001) observed emotional development in children at 33 months of age and found that children with disorganized attachments showed higher levels of aggression than children with organized attachments. Additionally, Carlson (1998) found that disorganized attachment significantly predicted psychopathology ratings.

Moss and St-Laurent (2001) found that disorganized attachment was associated with the greatest risk for school underachievement and the lowest school grades and poor performance on tests of cognitive skills at age 8.

Attachment During Middle Childhood

During middle childhood, children become more independent from their parents as a secure base, and they often rely less on their parents for co-regulation than at younger ages (Abtahi & Kerns, 2017). As children reach middle childhood, parents often start to gradually reduce monitoring, which allows for children to gain more responsibility. Additionally, children at this age are better able to understand their own point of view, which promotes their emotion regulation and communication skills (Kerns & Richardson, 2005).

Attachment is a construct that has meaning throughout childhood, although it is manifested in different ways at different developmental time points. As in infancy, attachment in middle childhood is a strong predictor of developmental outcomes. Children who have secure and organized attachments in middle childhood are found to be more cooperative, have higher self-esteem, and demonstrate higher levels of self-control (Kerns, Aspelmeier, Gentzler & Grabill, 2001). It has also been theorized that securely attached children might use their parents as secure bases for exploration in the context of peer relationships. Indeed, Kerns, Klepac, and Cole (1996) found that children in middle childhood who viewed their mother-child attachment as secure were less critical and more responsive to their friends than were children who were

found to have an insecure mother-child attachment. In another study, Cassidy, Kirsh, Scolton, and Parke (1996) found that insecurely attached children in fifth grade were at increased risk for developing problematic peer relationships due to negative attributions about peer behaviors. Children with disorganized attachments have been found to shift between social withdrawal and extremely aggressive episodes with peers (Jacobvitz & Hazen, 1999).

In addition to examining the effects of middle childhood attachment on peer relationships, it is important to examine the influence of attachment security on psychosocial functioning more broadly. Many studies show that attachment between a child and their parent predict well-being, as well as externalizing and internalizing problems in school-age children and adolescents (Cassidy & Shaver, 2008). In particular, insecure attachments have been found to be associated with both internalizing and externalizing problems in middle childhood (Easterbrooks & Abeles, 2000; Granot & Mayseless, 2001; Simons, Paternite, & Shore, 2001).

Parent-child relationships that allow the child to balance attachment and exploration needs lead to strong self-efficacy and self-esteem (Bretherton, 1985; Cassidy, 1988). This leads to the development of persistence, resourcefulness, and cognitive flexibility when children are school age. Attachment classifications significantly predict teacher-reported behavior problems at the ages of 7 to 9 (Moss, Rousseau, Parent, St-Laurent, & Saintonge, 1998). Additionally, Granot and Mayseless (2001) found that securely attached children ages 9 and 10 demonstrated better adjustment to the school system as reflected by teacher reports, children's

intellectual performance, and children's social and emotional behaviors than seen among insecurely attached children. Attachment not only predicts behavior in school, but also academic success. Attachment relationships and quality of early caregiving are powerful predictors of school performance in elementary and high school (Cassidy & Shaver, 2008). Moss and St.-Laurent (2001) found that children with disorganized attachments at age 6 showed deficits in math performance 2 years later, at age 8, which was predicted by their low perceived competence, metacognitive difficulties, and dysfunctional collaborative problem-solving styles with their mothers. Taken together, these studies demonstrate that attachment during middle childhood continues to influence developmental outcomes for children.

Parenting

Parental responsiveness (i.e., high sensitivity and nurturance, and low frightening behavior) have been found to be among the strongest predictors of infant attachment (Main & Hesse, 1990). Ainsworth defines maternal sensitivity as the mother's "ability to perceive and interpret accurately her infant's signals and communications and then respond appropriately" (Ainsworth, Bell & Stayton, 1974, p. 127). The key feature of sensitivity is the parent responding in a way that is contingent on a cue from the child and is appropriate in its type, timing, and intensity to the needs and desires of the child (Wakschlag & Hans, 1999). Sensitivity is theorized to provide the child with a predictable and supportive parenting environment, which allows the child to feel safe exploring the environment and socializing (Ainsworth et al., 1978).

Parental sensitivity is a crucial factor for the formation of a secure attachment in infancy (Wolff & van Ijzendoorn, 1997). In addition to sensitivity, nurturance is also important. Nurturance refers to the quality, timeliness, and appropriateness with which a parent responds when the child is distressed (Bernard, Meade & Dozier, 2013).

When parents are non-nurturing, a child is at increased risk for using insecure strategies, such as avoidance or resistance, when they are distressed or not developing clear strategies at all (Gedaly & Leerkes, 2016). Main and Hesse (1990) have found that though a lack of nurturance increases the risk of using insecure strategies, this is not the case for disorganized strategies. Parental behavior that appears frightened or is frightening to the infant increases the infant's risk of developing a disorganized attachment. The infant now struggles to determine if he or she should approach the parent when distressed, and cannot determine if his or her parent is a safe haven or the cause of the fear (Main & Hesse, 1990). In middle childhood, parental sensitivity and two forms of parental control (i.e. psychological autonomy granting and behavioral monitoring) increase a child's secure attachment in middle childhood (Karavasilis, Doyle, Markiewicz, 2003).

Parenting has long been hypothesized to play a key role in the emergence of early regulatory skills. During infancy, successful regulation largely depends on parental support and flexible responding (Kopp, 1982). Parenting behaviors that are sensitive to the child's focus of interest and do not highly control the child's behavior predict an increase in cognitive-language and social development (Landry, Smith, Miller-Loncar, & Swank, 1997). Landry, Smith, and Swank (2006) also found that

parental responsiveness facilitates greater growth in the child's social, emotional, communication and general competence. Furthermore, responsiveness over time improves social and cognitive developments at age 5 and has been predicted to improve social and cognitive development even in middle childhood (Landry, Smith & Swank, 2006). Stams, Juffer, and Ijzendoorn (2002) later confirm Landry et. al's prediction that maternal sensitivity predicts socioemotional and cognitive development in middle childhood. As a result, parenting has been the target of many early interventions because it is the purported mediator or mechanism of intervention effects on child outcomes.

Attachment and Biobehavioral Catch-up

Attachment and Biobehavioral Catch-up (ABC) is a parenting intervention developed to decrease the risk of developing a disorganized attachment by enhancing sensitive and nurturing behavior and by decreasing frightening behavior (Bernard et al., 2012). ABC is delivered in the home over the course of ten 1-hour long sessions with the child and the parent. Sessions 1 and 2 are focused on helping the parents provide nurturance. Parent coaches help parents see the importance of providing nurturance even when children push them away. During Sessions 3 and 4, parents are taught to follow their children's lead and show delight. Sessions 5 and 6 target intrusive and frightening behaviors. Sessions 7 and 8 focus on helping parents recognize how their own experiences with parents affect their parenting behaviors. In the final sessions (9 and 10), parent coaches aim to further reinforce the three

intervention targets and celebrate the parents' hard work (Bernard et al., 2012). Every session is focused on the idea of building a secure base and predictable environment for the child (Dozier, Higley, Albus, & Nutter, 2002). To ensure ABC is effective in the home parent coaches are taught a method known as in the moment commenting. Coaches are taught to make comments during the sessions about the parent's behaviors. The sessions are then coded to see how often the coaches commented on the parent's behavior or missed an opportunity, and how relevant and appropriate the comments are (on-target/off-target). A study by Caron, Bernard and Dozier (2016) found that the frequency of on-target comments, the percentage of missed commenting opportunities, the percentage of components that were on-target, and the number of components included in comments predicted increases in sensitivity and decreases in intrusiveness.

ABC was assessed using a randomized clinical trial (RCT) approximately 10 years ago. As part of a foster care diversion program, families involved with Child Protective Services (CPS) were randomly assigned to receive either ABC or a control intervention known as Developmental Education for Families (DEF). Children who received ABC were less likely to develop a disorganized attachment than children who received the control intervention (Bernard et al., 2012). Specifically, 32% of the ABC children had disorganized attachments whereas 57% of the DEF children had disorganized attachments. Additionally, 52% of the ABC children had secure attachments, and only 33% of the DEF children developed secure attachments (Bernard et al., 2012).

ABC has also been found to be effective at normalizing diurnal patterns of the stress hormone cortisol. At pre-intervention, children assigned to ABC and DEF did not differ in regard to wake-up or bedtime cortisol levels or the wake-up to bedtime slope in cortisol production. Post-intervention, children who received ABC had higher cortisol wake-up levels and a steeper slope, showing a greater change from wake-up levels to bedtime levels than children who received DEF (Bernard, Dozier, Bick, & Gordon, 2014). When the same sample was assessed three years later, children who received ABC continued to show a normative diurnal cortisol pattern when compared to the children who received DEF (Bernard, Hostinar & Dozier, 2015).

Along with promoting attachment and physiological regulation, ABC has been shown to improve behavioral development. At 26 months of age, children who received ABC expressed lower levels of negative affect, including anger and sadness, when performing a series of challenging tasks than children who received DEF (Lind, Bernard, Ross, & Dozier, 2014). An additional study with a sample of pre-school aged children in the foster care system demonstrated that when children received the ABC intervention they had higher self-regulation capabilities for their emotions, behaviors, and physiology than children who received the control intervention (Lewis-Morrarty, Dozier, Bernard, Terracciano, Moore, 2012).

Present Study

The goal of the current study was to examine the relationships between attachment in infancy, attachment in middle childhood, and parenting behaviors at age

9 in a sample of high-risk families involved with Child-Protective Services (CPS) during infancy. I examined whether infant attachment was related to parenting and child report of attachment security at age nine. Second, I examined whether intervention status was related to child report of attachment security and concurrent parenting behaviors. I hypothesized that children with secure and organized attachments would receive more nurturing and sensitive parenting behaviors at age nine and report higher levels of attachment security at age nine than children who had insecure and disorganized attachments during infancy. Additionally, I hypothesized that parents who received ABC would respond in more sensitive and nurturing ways than parents who received the control intervention, and their children would have higher ratings of attachment security at age 9.

Chapter 2

METHODS

Participants

Participants included 100 parent-child dyads. All of the dyads were recruited when children were infants and participated in the RCT of ABC. In the high-risk sample, 44 children received ABC and 56 children received DEF during infancy. The parents of these children were referred through CPS due to concerns for maltreatment and neglect, parental substance abuse, homelessness, and domestic violence.

In the entire sample, there were 52 boys and 48 girls, and 95 female parents with only 5 male parents. Seventy-two percent ($n = 72$) of the parents were African-American, 4 percent ($n = 4$) were Biracial, 14 percent ($n = 14$) were Caucasian, 19 percent ($n = 19$) were Hispanic, and 10 percent ($n = 10$) identified as other. For parents, 34 percent ($n = 34$) did not complete high school, 10 percent ($n = 10$) received a GED, 40 percent ($n = 40$) received a high-school diploma, 13 percent ($n = 13$) had some college education, 2 percent ($n = 2$) had a 4-year college degree, and 1% ($n = 1$) had a postgraduate degree (MA, MBA, PhD, JD, MD, etc). For household income 19 percent ($n = 19$) reported a yearly income of less than \$10,000, 25 percent ($n = 25$) reported an income within the range from \$10,000 to \$19,000, 15 percent ($n = 15$) reported an income within the range from \$20,000 to \$29,000, 11 percent ($n = 11$) reported an income within the range from \$30,000 to \$39,000, 6 percent ($n = 6$)

reported an income within the range from \$40,000 to \$59,999, and 3 percent (n = 3) reported an income \$60,000 to \$99,999, and 21 percent (n = 21) did not report their annual income.

Infant Attachment Assessment

After receiving ABC or the control intervention, child attachment was assessed in the Strange Situation (Ainsworth et al., 1978). During the Strange Situation, the parent and child were introduced to a laboratory room and played freely until a lab assistant, known as the “stranger,” entered the room and engages with both the child and the parent. The parent then left the child alone with the stranger, and the stranger interacted with the child. The stranger attempted to comfort the child if he or she became distressed. The parent remained out of the room for three minutes unless the child became extremely distressed, at which point the parent returned before the three minutes was over. When the parent returned, the stranger left soon after. The parent was allowed to comfort the child. In the second separation, the parent left the child alone again for three minutes. At the end of three minutes, the “stranger” returned and was left to comfort the child for three minutes. The parent then returned and the stranger left allowing the parent to comfort the child. Child behavior during the reunion episodes between the child and parent are particularly important for coding.

The Strange Situation were double coded to determine attachment classifications. Children were classified as secure, insecure-avoidant, insecure-resistant, or disorganized based on attachment behaviors, such as proximity seeking,

contact maintenance, avoidance, and resistance. Children were classified as secure when they looked to their parent for reassurance, and the parent easily soothed the child after the task. Insecure-avoidant was classified when the child did not go to the parent for comfort, or turned away from the parent after the distressing situation. To classify insecure-resistant, the child showed a mixture of proximity seeking and resistance, along with the child being difficult to soothe when with the parent. Children were classified as disorganized when they displayed strange or unique behavior when the parent returned, such as contradictory behaviors, freezing and stilling, approaching the stranger when upset, expressing fear when the parent returns, or disoriented walking. Children who were classified as disorganized received a secondary classification of secure, avoidant, or resistant. A Cohen's Kappa was run to examine if the two coders agreed on secure-insecure classifications; there was sufficient agreement between the two coders, $\kappa = 0.75, p < .05$. Additionally, a Cohen's Kappa examined if the two coders agreed on organized-disorganized classifications; there was also sufficient agreement between the two coders, $\kappa = 0.73, p < .05$.

Attachment in Middle Childhood Assessment

At the follow-up research visit at age 9, children also completed the Kerns Security Scale (Cole, Kerns, & Klepac 1996), a self-report questionnaire that assesses how children perceive attachment to a specific parent. Children completed the survey with the help of a research assistant who read individual survey items to the

child. For example, one item read: “some kids find it easy to trust their [mom/dad] but other kids are not sure if they can trust their [mom/dad].” First, children had to select which statement was most like them and then decide whether it was “really like” them or “sort of like” them. Survey items examined the degree to which children believe a particular parent is responsive and available, children rely on the parent when distressed, and children’s ease and interest in communicating with the parent. The measure consists of 15 questions which are scored using a 4-point scale. Scores for individual questions are averaged, with children receiving a score on a continuous dimension of security. Higher scores indicate a more secure attachment. The Kerns Security Scale was found to have sufficient alpha (15 items; $\alpha = .709$).

Parental Sensitivity Assessment

When children were approximately nine years of age, they completed a research visit at the University of Delaware. As part of this visit, children and parents completed a parent-child interaction task. For the interaction task, children were asked to discuss a negative experience with their parents. Children decided on the conversation topic before the activity started with a research assistant. These interactions were videotaped and later coded by trained research assistants. Parent responsiveness was measured using an adapted version of the Qualitative Ratings of Mother-Child Interaction at 15 Months of the Three Boxes task (ORCE; NICHD ECCRN, 1996). The conversations were coded across seven scales: sensitivity, nurturance, intrusiveness, detachment, positive regard, and presence of parent

frightening/hostile behavior. For the purpose of this study we examined the scores of sensitivity, nurturance, intrusiveness, and positive attachment. All scales used a 1 to 5 coding scale (1= not at all characteristic, 2= minimally characteristic, 3= somewhat characteristic, 4= moderately characteristic, 5= highly characteristic), with half-points available.

Parents received high sensitivity scores if they responded exceptionally well during non-distress to their child's affect, if they encouraged the child's contribution and provided appropriate stimulation. The key-defining characteristic of a sensitive interaction is that the interaction is child-centered. Examples of these behaviors include repeating what the child said, letting the child pick the conversation topic, and asking questions to keep the child engaged without overwhelming the child. The inter-rater reliability for sensitivity was high ($ICC = .813$).

Parents received high nurturance scores if they were responsive to their child during distress. For example, nurturing behaviors might include validation of the child's feelings, sympathizing, and offering help to intervene. The inter-rater reliability for nurturance was found to be good ($ICC = .770$).

Intrusiveness was a measure of the parent's inability to follow the child's lead throughout the interaction. Parents received high intrusiveness scores when the parent imposed their agenda on child despite signals that a different topic, level, or pace of interaction was needed. Examples of intrusiveness include interrupting the child, talking over the child, getting in the child's personal space in a non-nurturing way,

asking too many questions at one time, or criticizing and insulting the child.

Intrusiveness also had a sufficient reliability ($ICC = .786$).

Positive Regard was assessed as the parent's positive feelings expressed toward the child during the interaction. Examples of positive regard are a warm tone, physical affection, smiling, laughing, and general enjoyment with the child. High positive regard scores were given to parents that were extremely positive, in terms of facial and vocal expressions, and behavior. Positive Regard had high inter-rater reliability ($ICC = .865$).

Chapter 3

RESULTS

Preliminary analyses examined child gender differences in relation to attachment classifications in infancy, perceived attachment security in middle childhood, and parenting behaviors at age nine. Intervention effects were also examined in relation to infant attachment classifications. Additionally, preliminary analyses examined whether parental education level and annual household income were related to attachment classifications in infancy, perceived attachment security in middle childhood, and parenting behaviors at age nine.

Primary analyses addressed intervention effects on perceived attachment security and parenting behaviors at age nine. Primary analyses also examined whether attachment classifications in infancy related to perceived attachment and parenting behaviors at age nine. Additionally, primary analyses examined whether perceived attachment in middle childhood correlated with parenting behaviors.

Preliminary Analyses

Attachment in Infancy

When using the secure-insecure forced classification, 53 children were classified as secure, and 27 children were classified as insecure. When using the

organized-disorganized forced classification, 48 children were organized, and 32 children were classified as disorganized.

Preliminary analyses examined child gender, household income, and parent's education level in relation to infant attachment. Gender was unrelated to the secure-insecure forced classifications, $\chi^2 (1, N = 80) = 2.24, p = .14$, and the organized-disorganized classifications, $\chi^2 (1, N = 80) = .033, p = .86$. Additionally, infant attachment was unrelated to household income and parents' education level.

Intervention effects were also examined in relation to infant attachment classifications. There were no significant intervention differences (ABC vs. DEF) for the secure-insecure classifications, $\chi^2 (1, N = 80) = .75, p = .39$. However, there was a marginally significant intervention difference for the organized-disorganized classifications, $\chi^2 (1, N = 80) = 3.39, p = .07$, such that children who received ABC were less likely to be classified as disorganized than children who received DEF. In the full sample of 120, children who received ABC showed significantly higher rates of secure attachments than children who received DEF, $\chi^2 (1, 120) = 4.13, p < .05$. Additionally, in the full sample, children who received ABC showed significantly lower rates of disorganized attachments than children who received DEF, $\chi^2 (1, 120) = 7.60, p < .01$ (Bernard et al., 2012)

Perceived Attachment Security in Middle Childhood

Perceived attachment security ratings in middle childhood were not significantly different for boys ($M = 3.35, SD = .42$) and girls ($M = 3.40, SD = .47$).

$t(100) = -.50, p = 0.62$. Perceived attachment ratings in middle childhood were not significantly correlated with household income, $r(79) = .14, p = .20$ or parents' educational level, $r(100) = .03, p = .80$.

Parenting Behaviors

Parents' educational level was not significantly correlated with sensitivity, $r(72) = 0.02, p = .85$, intrusiveness $r(72) = -.03, p = .82$, or nurturance $r(72) = .05, p = .69$. However, it was marginally positively related to positive regard, $r(72) = .22, p = .07$. Family income at the time of the 9-year visit was not significantly correlated with sensitivity, $r(55) = .18, p = .19$, intrusiveness $r(55) = -.03, p = .86$, nurturance $r(55) = .05, p = .70$, or positive regard $r(55) = .13, p = .36$.

Next, a MANOVA was performed to examine whether parenting behaviors differed based on child gender. No significant differences emerged for any parenting behavior based on child gender, $F(4, 59) = .15, p = .96$.

Primary Analyses

Infant Attachment Predicting Perceived Attachment Security in Middle Childhood

First, an independent-samples t -test examined differences in perceived attachment ratings based on the forced secure-insecure classifications. Children who were classified as secure in infancy ($M = 3.34, SD = .46$) did not have significantly different perceived attachment security ratings than children classified as insecure in infancy ($M = 3.38, SD = .45$) on the Kerns Security Scale, $t(80) = .37, p = .48$.

Next, an independent-samples *t*-test examined differences in perceived attachment ratings based on the forced organized-disorganized classifications. Children who were classified as organized ($M = 3.48$, $SD = .36$) had significantly higher perceived attachment security ratings than children classified as disorganized ($M = 3.17$, $SD = .53$), $t(80) = -2.90$, $p < .01$.

Given that children classified as secure or insecure might have also received a secondary classification of disorganized, other analyses were conducted. First, an independent-samples *t*-test examined if there was a significant difference in perceived attachment ratings for the secure children who were secure-organized ($n = 37$) compared to children who received a classification of insecure or disorganized (i.e., insecure, insecure-disorganized, secure-disorganized; $n = 43$). The secure-organized children ($M = 3.48$, $SD = .35$) had significantly higher perceived attachment security ratings than insecure or disorganized children ($M = 3.25$, $SD = .52$) on the Kerns Security Scale, $t(80) = 2.32$, $p < .01$.

An ANOVA compared the perceived attachment ratings among children who were classified as secure-organized ($n = 37$), insecure who did not receive a secondary classification of disorganized (i.e., avoidant or resistant; $n = 11$), and children who received a secondary classification of disorganized (i.e., secure-disorganized, avoidant-disorganized, resistant-disorganized; $n = 32$). There was a main effect for attachment, $F(2, 80) = 4.86$, $p = 0.01$. Post hoc analyses indicated that children were classified as secure ($M = 3.48$, $SD = .07$) did not significantly differ from children who were classified as insecure ($M = 3.49$, $SD = .13$). However, children who were

classified as secure ($M = 3.48$, $SD = .35$) had significantly higher perceived attachment security ratings than children who were classified as disorganized ($M = 3.17$, $SD = .53$), $p = .01$.

Intervention Differences for Attachment in Middle Childhood

An independent-samples t -test examined differences in perceived attachment ratings based on intervention group. Children who received ABC ($M = 3.49$, $SD = .38$) had significantly higher perceived attachment security ratings than children who received DEF ($M = 3.28$, $SD = .47$), $t(100) = 2.38$, $p = .02$.¹

Infant Attachment Predicting Parenting Behaviors at Age Nine

Parenting behaviors were first examined in relation to infant attachment quality. Specifically, a MANOVA examined whether parenting behaviors at age 9 differed based on the secure-insecure attachment classifications in infancy. No significant differences were found for any parenting behaviors, $F(4, 55) = .44$, $p = .78$ (Table 1). Additionally, a MANOVA examined whether parenting behaviors at age 9 differed based on the organized-disorganized attachment classification. Again, there

¹ Exploratory analyses examined whether there was an interaction between intervention group status and organized-disorganized attachment classification when predicting perceived attachment security ratings. A significant interaction did not emerge.

were no significant differences for parenting behaviors based on infant attachment,

$F(4, 55) = .61, p = .66$ (Table 2).

Table 1 Descriptive Statistics for Parental Behaviors based on Secure-Insecure Attachment Classifications in Infancy

<i>PARENTAL BEHAVIORS</i>	<i>SECURE-INSECURE ATTACHMENT CLASSIFICATION</i>	<i>N</i>	<i>M</i>	<i>SD</i>
<i>SENSITIVITY</i>	Secure	34	3.07	.77
	Insecure	21	2.76	1.11
<i>INTRUSIVENESS</i>	Secure	34	2.56	.92
	Insecure	21	2.86	1.25
<i>POSITIVE REGARD NURTURANCE</i>	Secure	34	2.85	1.30
	Insecure	21	2.48	1.12
	Secure	34	2.82	.94
	Insecure	21	2.50	1.17

Table 2 Descriptive Statistics for Parenting Behaviors based on Organized-Disorganized Attachment Classifications in Infancy

<i>PARENTAL BEHAVIORS</i>	<i>ORGANIZED-DISORGANIZED ATTACHMENT CLASSIFICATION</i>	<i>N</i>	<i>M</i>	<i>SD</i>
<i>SENSITIVITY</i>	Organized	32	3.06	.86
	Disorganized	23	2.80	1.00
<i>INTRUSIVENESS</i>	Organized	32	2.66	1.01
	Disorganized	23	2.70	1.14
<i>POSITIVE REGARD NURTURANCE</i>	Organized	32	2.73	1.27
	Disorganized	23	2.67	1.22
	Organized	32	2.73	1.00
	Disorganized	23	2.65	1.10

Intervention Differences for Parenting Behaviors at Age Nine

Next, a MANOVA examined whether parenting behaviors differed based on intervention group (i.e., ABC vs. DEF). No significant differences were found for any parenting behaviors based on intervention group, $F(4, 72) = .28, p = .89$ (Table 3).

Table 3 Descriptive Statistics for Parental Behaviors based on Intervention Status

<i>PARENTAL BEHAVIOR</i>	<i>INTERVENTION STATUS</i>	<i>N</i>	<i>MEAN</i>	<i>STANDARD DEVIATION</i>
<i>SENSITIVITY</i>	ABC	31	2.98	.82
	DEF	41	2.94	.93
<i>INTRUSIVENESS</i>	ABC	31	2.69	.97
	DEF	41	2.62	1.07
<i>POSITIVE REGARD</i>	ABC	31	2.89	1.20
	DEF	41	2.67	1.28
<i>NURTURANCE</i>	ABC	31	2.74	.91
	DEF	41	2.70	1.06

Concurrent Relations Between Parenting Behaviors and Perceived Attachment Security Ratings

Correlational analyses then examined whether parenting behaviors were concurrently related to the Kerns Security Scale scores. Perceived attachment ratings were not associated with parental sensitivity, $r(72) = .06, p = .62$, intrusiveness $r(72) = -.09, p = .44$, nurturance $r(72) = .11, p = .34$, or positive regard $r(72) = .09, p = .46$.

Chapter 4

DISCUSSION

The main goal of this study was to determine the relationships between attachment in infancy, attachment in middle childhood, and parenting at age 9 in a high-risk sample. I hypothesized that infants with secure or organized attachments would report higher perceived attachment security ratings than children with insecure or disorganized attachments. Children who had secure or organized attachments in infancy were expected to have parents that behaved in more sensitive and nurturing ways than children with insecure or disorganized attachments. Results suggest that infants with secure-organized attachments had higher middle childhood attachment ratings than disorganized infants, but attachment in infancy did not predict significant differences in parenting behaviors at age nine. The second goal was to examine whether a parenting intervention delivered during infancy affected parental sensitivity and nurturance and children's perceived middle childhood attachment security ratings at age nine. I hypothesized that children who received ABC would report higher levels of perceived attachment security and have parents who responded in more sensitive and nurturing ways than children who received a control intervention. As expected, children who received ABC reported higher levels of perceived attachment security than children who received DEF. However, no significant intervention differences emerged for the parenting behaviors.

Consistent with previous research supporting the stability of infant attachment over time (Main & Cassidy, 1988; Wartner, Grossman, Fremmer-Bombik, & Suess, 1994; Gloger-Tippelt, Gomille, Koenig, & Vetter, 2002), this study found that infant attachment was a strong predictor of perceived attachment security in middle childhood. Specifically, children with secure-organized attachments in infancy had significantly higher middle childhood attachment ratings than children with disorganized attachments in infancy. Additionally, results supported my hypothesis related to the ABC intervention effects on children's middle childhood attachment ratings. Specifically, children whose parents received ABC scored significantly higher on the Kerns Security Scale than children who received the control intervention, DEF. In other words, children who received ABC indicated that they trusted their parents, felt more supported by their parents, and were more likely to go to their parents when upset. Given that middle childhood attachment is related to self-esteem, self-control, peer relationships, and academic success (Kerns, Aspelmeier, Gentzler & Grabil, 2001; Cassidy, Kirsh, Scolton, & Parke, 1996; Moss & St. Laurent, 2001), these results highlight how a brief early intervention may promote later developmental outcomes for children. It is also important to highlight that these results were observed in a high-risk sample nearly nine years after the parents received the intervention.

The study's results did not support my hypotheses for parenting behaviors. There was no significant evidence that attachment classifications in infancy were related to parenting behavior in middle childhood. However, this result has been found in other research. For example, one study found that during a play assessment between

mothers and infants in a high-risk sample there was a lack of association between attachment security and emotionally positive, high quality mother-child social interaction at 18 months (Haltigan, Lambert, Seifer, Ekas, Bauer, & Messinger, 2012).

Additionally, intervention group in infancy was unrelated to parenting behaviors at age nine. It was surprising that parenting behaviors did not relate to the intervention received by the parent because previous studies suggest that parents who received ABC showed a greater increase in sensitivity between a pre- and post-assessment compared to parents who received DEF (Bick & Dozier, 2013). However, these lack of intervention effects in middle childhood could be due to the small sample size of the sample. Data from only 72 dyads were available. Also, intervention effects in relation to parenting behaviors may not have persisted through middle childhood due to the high-risk nature of the sample. Parents who experience substance abuse, homelessness, incarceration, or psychiatric issues may struggle to be sensitive and nurturing toward their children.

Finally, there was no significant correlation found between parenting behaviors and concurrent perceived attachment security ratings. This contrasts with a recent meta-analysis of the Kerns Security Scale which found a significant relationship between parental sensitivity and middle childhood perceived attachment ratings (Brumariu, Madigan, Giuseppone, Abtahi, Kerns, 2018).

Strengths and Limitations

One strength of the study is that it is a longitudinal study, allowing for prediction from attachment in infancy to attachment security ratings and parenting behaviors at age nine. Additionally, the study uses a randomized clinical trial which decreases selection bias, reduces issues of confounding of variables, and allows researchers to establish causation. Another major strength of the study is its assessment measures. The Strange Situation is an observational assessment with strong psychometric properties and high reliability. The parental sensitivity assessment is also a structured observational assessment with high reliability. The Kerns Security Scale is a reliable and valid measure of attachment in middle childhood and early adolescence. For example, the scale showed moderate stability and significant associations with other attachment measures, parental sensitivity, and developmental correlates of attachment (Brumariu et al., 2018).

This study also has several limitations. First, the small sample size for the parental sensitivity assessment may yielded insufficient power to detect effects. Additionally, although the Kerns Security Scale has strong psychometric properties, it is a self-report questionnaire. Self-report can cause problems if participants feel they have to respond in a particular way or if they struggle to think introspectively about their relationship.

The parental sensitivity assessment also has its own limitations. One limitation of the assessment is the variability in conversation topic. It is hard to standardize this assessment because children are allowed to discuss any topic they want. Some

children talked about topics that produced a great deal of distress while others discussed topics that barely upset them. Relatedly, even though the researcher tried to help the child identify a topic that would not cause conflict with the parent, sometimes children discussed a topic that was a source of conflict in the relationship (e.g., child becoming upset because she had to clean her room). Additionally, some dyads were able to discuss one topic for the entire eight minutes while others changed topics numerous times throughout the interaction. In sum, the variability in conversation topics gave parents different levels of opportunity to respond in nurturing or sensitive ways. If the interaction had been more standardized, it is possible that intervention effects would have been observed, and parenting behaviors might have been related to attachment in infancy and perceived attachment security ratings.

The final limitation was the inability to examine frightening behaviors in parents. Previous studies have found that frightening behaviors are more related to disorganized attachments than any other parenting behavior (Main & Hesse, 1990). However, there was too low a frequency of hostile or frightening behaviors during the parental sensitivity assessment to examine their relation to infant attachment security or middle childhood attachment security ratings.

Future Directions

This study has numerous further directions to be explored. First, completing the coding for the parental sensitivity assessment will allow for a larger sample size which could increase statistical power. It would also be interesting to look at these

variables in relation to risk by using a low risk sample of participants who do not have any involvement with Child Protective Services. In addition, it would be important to examine whether frightening behaviors during the parental sensitivity assessment show a significant relationship with infant attachment and attachment in middle childhood. Also, examining how adult state of mind relates to middle childhood attachment ratings will help us to further enhance our understanding of how parenting impacts long-term parent-child attachment relationships, as the literature shows that an unresolved state of mind increases the development of disorganized attachment in infancy (Main & Hesse, 1990; van Ijzendoorn, 1995). Finally, it would be helpful to examine how other variables (e.g., parental mental health) relate to middle childhood attachment security and parenting behaviors and whether middle childhood perceived attachment security relates to other developmental outcomes (e.g., academic success, social competence) in this high-risk sample.

Conclusion

The results of this longitudinal study indicate that among a sample of children with CPS involvement, infant attachment is related to perceived ratings of attachment security at age nine. Specifically, secure-organized children reported higher middle childhood attachment security ratings than disorganized children. Additionally, children who received ABC reported higher levels of perceived attachment security to their parents than children who received a control intervention. Attachment in infancy and intervention status did not predict parenting behaviors in middle childhood. Results highlight the lasting effects of an early intervention on

children's perceived attachment security in middle childhood and the importance of promoting attachment relationships during infancy.

REFERENCES

- Abtahi, M. M., & Kerns, K. A. (2017). Attachment and emotion regulation in middle childhood: Changes in affect and vagal tone during a social stress task. *Attachment & Human Development, 19*(3), 221-242. doi:10.1080/14616734.2017.1291696
- Ainsworth, M. D. S., Bell, S. M., & Stayton, D. F. (1974). Infant-mother attachment and social development: Socialization as a product of reciprocal responsiveness to signals. In M. P. M. Richards (Ed.), *The integration of a child into a social world* (pp. 99-135). New York, NY, US: Cambridge University Press.
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation*. Hillsdale, N.J: Erlbaum.
- Bernard, K., Dozier, M., Bick J., Lewis-Morrarty, E., Lindhiem, O., & Carlson, E. (2012). Enhancing Attachment Organization Among Maltreated Children: Results of a Randomized Clinical Trial. *Child Development, 83*, 623-626. doi: 10.1111/j.1467-8624.2011.01712.x
- Bernard, K., Meade, E., & Dozier, M. (2013). Parental synchrony and nurturance as targets in an attachment based intervention: Building upon Mary Ainsworth's insights about mother–infant interaction. *Attachment & Human Development, 15*(5-6), 507-523. doi:10.1080/14616734.2013.820920

- Bernard, K., Dozier, M., Bick, J., & Gordon, M. K. (2014). Intervening to enhance cortisol regulation among children at risk for neglect: Results of a randomized clinical trial. *Development and Psychopathology*, 27(03), 829-841. doi:10.1017/s095457941400073x
- Bernard, K., Hostinar, C. E., & Dozier, M. (2015). Intervention Effects on Diurnal Cortisol Rhythms of Child Protective Services–Referred Infants in Early Childhood. *JAMA Pediatrics*, 169(2), 112. doi:10.1001/jamapediatrics.2014.2369
- Bick, J., & Dozier, M. (2013). The Effectiveness of an Attachment-Based Intervention in Promoting Foster Mothers’ Sensitivity toward Foster Infants. *Infant Mental Health Journal*, 34(2), 95-103. doi:10.1002/imhj.21373
- Bretherton, I. (1985). Attachment Theory: Retrospect and Prospect. *Monographs of the Society for Research in Child Development*, 50(1/2), 3. doi:10.2307/3333824
- Brumariu, L. E., Madigan, S., Giuseppone, K. R., Abtahi, M. M., & Kerns, K. A. (2018). The Security Scale as a measure of attachment: Meta-analytic evidence of validity. *Attachment & Human Development*, 1-26. doi:10.1080/14616734.2018.1433217
- Caron EB, Bernard K., & Dozier M., (2016): In Vivo Feedback Predicts Parent Behavior Change in the Attachment and Biobehavioral Catch-up Intervention, *Journal of Clinical Child & Adolescent Psychology*, doi: 10.1080/15374416.2016.1141359
- Carlson, E. A. (1998). A Prospective Longitudinal Study of Attachment Disorganization/Disorientation. *Child Development*, 69(4), 1107. doi:10.2307/1132365

- Cassidy, J. (1988). Child-Mother Attachment and the Self in Six-Year-Olds. *Child Development*, 59(1), 121. doi:10.2307/1130394
- Cassidy, J., Kirsh, S. J., Scolton, K. L., & Parke, R. D. (1996). Attachment and representations of peer relationships. *Developmental Psychology*, 32(5), 892-904. doi:10.1037//0012-1649.32.5.892
- Cassidy, J., & Shaver, P. R. (2008). *Handbook of attachment: theory, research, and clinical applications* (2nd ed.)
- Dozier, M., Higley, E., Albus, K. E., & Nutter, A. (2002). Intervening with foster infants' caregivers: Targeting three critical needs. *Infant Mental Health Journal*, 23(5), 541-554. doi:10.1002/imhj.10032
- Dozier, M., Peloso, E., Lindhiem, O., Gordon, M. K., Manni, M., Sepulveda, S., . . . Levine, S. (2006). Developing Evidence-Based Interventions for Foster Children: An Example of a Randomized Clinical Trial with Infants and Toddlers. *Journal of Social Issues*, 62(4), 767-785. doi:10.1111/j.1540-4560.2006.00486.x
- Easterbrooks, M. A., & Abeles, R. (2000). Windows to the self in 8-year-olds: Bridges to attachment representation and behavioral adjustment. *Attachment & Human Development*, 2(1), 85-106. doi:10.1080/146167300361336
- Gedaly, L., Leerkes, E., (2016) The role of sociodemographic risk and maternal behavior in the prediction of infant attachment disorganization. *Attachment & Human Development*, 18:6, 554-569. doi: 10.1080/14616734.2016.1213306

- Gloger-Tippelt, G., Gomille, B., Koenig, L., & Vetter, J. (2002). Attachment representations in 6-year-old: Related longitudinally to the quality of attachment in infancy and mothers' attachment representations. *Attachment and Human Development*, 4(3), 318-339
- Granot, D., & Mayseless, O. (2001). Attachment security and adjustment to school in middle childhood. *International Journal of Behavioral Development*, 25(6), 530-541. doi:10.1080/01650250042000366
- Haltigan, J. D., Lambert, B. L., Seifer, R., Ekas, N. V., Bauer, C. R., & Messinger, D. S. (2012). Security of attachment and quality of mother–toddler social interaction in a high-risk sample. *Infant Behavior and Development*, 35(1), 83-93. doi:10.1016/j.infbeh.2011.09.002
- Hertsgaard, L., Gunnar, M., Erikson, M. F., & Nachmias, M. (1995) Incoherent Attachment Poses Risk Factor: Adrenocortical responses to the Strange Situation in infants with disorganized/disoriented attachment relationships. *PsycEXTRA Dataset*. doi:10.1037/e334362004-012
- Jacobvitz, D., & Hazen, N. (1999). Developmental pathways from infant disorganization to childhood peer relationships. In J. Solomon & C. George (Eds.), *Attachment disorganization* (pp. 127-159). New York, NY, US: Guilford Press.
- Karavasilis, L., Doyle, A. B., & Markiewicz, D. (2003). Associations between parenting style and attachment to mother in middle childhood and adolescence. *International Journal of Behavioral Development*, 27(2), 153-164. doi:10.1080/0165025024400015
- Kerns, K. A., Klepac, L., & Cole, A. (1996). Peer Relationships and Preadolescents' Perceptions of Security in the Child-Mother Relationship. *Developmental Psychology*, 32(3), 457-466

- Kerns, K., Aspelmeier, J., Gentzler, A., Grabil, C. (2001). Parent-Child Attachment and Monitoring in Middle Childhood. *Journal of Family Psychology, 15*(1), 69-81. doi: 10.1037//0893-3200.15.1.69
- Kerns, K. A., & Richardson, R. A. (2005). *Attachment in middle childhood*. New York: Guilford Press.
- Kochanska, G. (2001). Emotional Development in Children with Different Attachment Histories: The First Three Years. *Child Development, 72*(2), 474-490. doi:10.1111/1467-8624.00291
- Kopp, C. B. (1982). Antecedents of self-regulation: A developmental perspective. *Developmental Psychology, 18*(2), 199-214. doi:10.1037//0012-1649.18.2.199
- Landry, S. H., Smith, K. E., Miller-Loncar, C. L., & Swank, P. R. (1997). Predicting cognitive-language and social growth curves from early maternal behaviors in children at varying degrees of biological risk. *Developmental Psychology, 33*(6), 1040-1053. doi:10.1037//0012-1649.33.6.1040
- Landry, S. H., Smith, K. E., & Swank, P. R. (2006). Responsive parenting: Establishing early foundations for social, communication, and independent problem-solving skills. *Developmental Psychology, 42*(4), 627-642.
- Lewis-Morrarty, E., Dozier, M., Bernard, K., Terracciano, S. M., & Moore, S. V. (2012). Cognitive Flexibility and Theory of Mind Outcomes Among Foster Children: Preschool Follow-Up Results of a Randomized Clinical Trial. *Journal of Adolescent Health, 51*(2). doi:10.1016/j.jadohealth.2012.05.005

- Lind, T., Bernard, K., Ross, E., & Dozier, M. (2014). Intervention effects on negative affect of CPS-referred children: Results of a randomized clinical trial. *Child Abuse & Neglect*, 38(9), 1459-1467. doi:10.1016/j.chiabu.2014.04.004
- Lyons-Ruth, K., & Jacobvitz, D. (2008). Attachment Disorganization: Genetic Factors, Parenting Contexts, and Developmental Transformation from Infancy to Adulthood. In *Handbook of Attachment: Theory, Research, and Clinical Applications* (2nd ed., pp. 666-697). New York, NY: The Guilford Press.
- Main, M., & Cassidy, J. (1988). Categories of response to reunion with the parent at age 6: Predictable from infant attachment classification and stable over a 1-month period. *Developmental Psychology*, 24(3), 415-429
- Main, M.; Hesse, E. (1990) Parents' unresolved traumatic experiences are related to infant disorganized attachment: Is frightened and/or frightening parental behavior the linking mechanism?. In: Greenberg, M.T.; Cicchetti, D.; Cummings, E., editors. *Attachment in the preschool years: Theory, research, and intervention*. Chicago, IL: University of Chicago Press; 1990. p. 161-182
- Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *The John D. and Catherine T. MacArthur Foundation series on mental health and development. Attachment in the preschool years: Theory, research, and intervention* (pp. 121-160). Chicago, IL, US: University of Chicago Press.
- Moss, E., Rousseau, D., Parent, S., St-Laurent, D., & Saintonge, J. (1998). Correlates of Attachment at School Age: Maternal Reported Stress, Mother-Child Interaction, and Behavior Problems. *Child Development*, 69(5), 1390. doi:10.2307/1132273

- Moss, E., & St-Laurent, D. (2001). Attachment at school age and academic performance. *Developmental Psychology*, 37(6), 863-874. doi:10.1037//0012-1649.37.6.863
- Simons, K. J., Paternite, C. E., & Shore, C. (2001). Quality of Parent/Adolescent Attachment and Aggression in Young Adolescents. *The Journal of Early Adolescence*, 21(2), 182-203. doi:10.1177/0272431601021002003
- Stams, G. J., Juffer, F., & Ijzendoorn, M. H. (2002). Maternal sensitivity, infant attachment, and temperament in early childhood predict adjustment in middle childhood: The case of adopted children and their biologically unrelated parents. *Developmental Psychology*, 38(5), 806-821. doi:10.1037//0012-1649.38.5.806
- Wakschlag, L. S., & Hans, S. L. (1999). Relation of maternal responsiveness during infancy to the development of behavior problems in high-risk youths. *Developmental Psychology*, 35(2), 569-579. doi:10.1037/0012-1649.35.2.569
- Wartner, U. G., Grossman, K., Fremmer-Bombik, E., & Suess, G. (1994) Attachment patterns at age six in South Germany: Predictability from infancy and implication for preschool behavior. *Child Development*, 65, 1014-1-27
- Wolff, M. S., & Ijzendoorn, M. H. (1997). Sensitivity and Attachment: A Meta-Analysis on Parental Antecedents of Infant Attachment. *Child Development*, 68(4), 571. doi:10.2307/1132107