

ATTACHMENT AND PARENTING BEHAVIOR IN  
MOTHERS OF YOUNG CHILDREN: A MIXED-  
METHODS APPROACH

By

JENS ERIK JESPERSEN

Bachelor of Science in Psychology  
Brigham Young University  
Provo, Utah  
2016

Master of Science in Human Development and Family  
Science  
Oklahoma State University  
Stillwater, Oklahoma  
2019

Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
in partial fulfillment of  
the requirements for  
the Degree of  
DOCTOR OF PHILOSOPHY  
July, 2022

ATTACHMENT AND PARENTING BEHAVIOR IN MOTHERS OF YOUNG  
CHILDREN: A MIXED-METHODS APPROACH

Dissertation Approved:

Dr. Amanda Sheffield Morris

---

Dissertation Adviser

Dr. Lana O. Beasley

---

Dr. Isaac J. Washburn

---

Dr. Lucia Ciciolla

---

Dr. Tessa Chesher

---

## ACKNOWLEDGEMENTS

There are many people who I would like to thank for the role that they played in this journey. First, words cannot express my gratitude to my mentor and committee chair, Dr. Amanda Morris. She supported me, encouraged me, and consistently placed me in positions to grow and succeed. She was all I could ask for and more in a graduate advisor. Next, I would like to express my most sincere thanks to my committee members. Thank you to Dr. Lana Beasley for being my biggest supporter and advocate and helping me believe in myself; to Dr. Tessa Cheshier and Dr. Lucia Ciciolla for generously providing knowledge and expertise on attachment and parenting that inspired me to keep pushing further; and to Dr. Isaac Washburn for spending many hours with me developing my analytical plan, running analyses, and generally being my statistics lifeline. I could not have accomplished this work without each of these incredible individuals who together made an extraordinary team.

Next, I would like to express my gratitude to the Oklahoma State Graduate College for selecting me as a recipient of the Robberson Summer Dissertation Fellowship and funding a large portion of my dissertation efforts; to Dr. Efrat Sher-Censor for training me in the FMSS-Coherence coding protocols and providing meaningful feedback; and to my colleague Mallory Schmidt for being my longstanding lab-mate, coding partner, and friend.

Finally, I would like to thank my family – this was for them. To my parents Jene and Connie Jespersen for teaching me to love learning, work hard, and reach for the stars. To my wise eldest son Lincoln for being my best buddy and enjoying sports with me when I needed to decompress; to my joyful eldest daughter McKinley for being my sunshine and the spark to brighten every day; to my peaceful youngest daughter Madison for being kindhearted and loving and helping me stay positive; and to my warm youngest son Henry for being optimistic and encouraging no matter the circumstances. Each of you are my inspiration. Most of all, thank you to my dear wife Hilary for being my light, my rock, and my joy. You deserve the world.

Acknowledgements reflect the views of the author and are not endorsed by committee members or Oklahoma State University.

Name: JENS ERIK JESPERSEN

Date of Degree: JULY, 2022

Title of Study: ATTACHMENT AND PARENTING BEHAVIOR IN MOTHERS OF YOUNG CHILDREN: A MIXED-METHODS APPROACH

Major Field: HUMAN SCIENCES

Abstract: Attachment representations and attachment styles have each been identified as two of the possible mechanisms involved in predicting parenting behavior. These attachment constructs and their associated outcomes, however, are almost exclusively examined in isolation. As such, attachment styles and attachment representations have not been utilized in the examination of observed parenting behavior simultaneously. The present study contributes to our understanding of adult attachment styles and attachment representations, their influence on one another, and their potential for predicting observed parenting behavior. Considering main study conclusions, it was found that a latent profile analysis of the FMSS-Coherence coding method revealed that mothers can be categorized into four meaningful groups based on attachment coherence. Second, these categories of attachment coherence were found to predict some aspects of self-reported adult attachment, although results were mixed. Third, the four classifications of attachment coherence were found to significantly predict observed parenting behaviors, while self-reported adult attachment styles did not. Fourth, considering attachment representations and attachment styles together produced results that were mixed and largely exploratory, indicating that these relationships are complex and may require further examination. This is the first study to examine the FMSS-Coherence coding method categorically, as it is traditionally used to identify parental attachment representations as either coherent or incoherent. This study showed that by utilizing mixture modeling techniques, applications of attachment coherence could be taken further as indicated by the production of four meaningful groups, including Incoherent, Coherent-Adequate, Coherent-Clear, and Coherent-Comprehensive. Findings from this study suggest that maternal attachment coherence is strongly predictive of observed parenting behavior, which carries implications for the development of coherence-based interventions and parenting programs for mothers of young children.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
Research Questions.....	3
II. REVIEW OF LITERATURE.....	4
Attachment Theory .....	4
Secure Attachment Style.....	6
Insecure Anxious Attachment Style.....	7
Insecure Avoidant Attachment Style .....	8
Disorganized Attachment Style .....	8
Internal Working Models of Attachment.....	9
Attachment and Parenting.....	12
Methods of Examining Attachment .....	16
Examining Adult Attachment Styles .....	16
Examining Internal Working Models of Attachment .....	19
Considerations of Attachment Research.....	23
Criticisms and Limitations of Attachment Theory .....	25
Summary, Research Goals, and Hypotheses.....	26
III. METHODOLOGY .....	29
Participants.....	29
Procedure .....	30
Measures .....	30
Parent Attachment Representations – Interview.....	30
Parent Adult Attachment Style – Self-Reported.....	32
Parenting Behavior – Observed .....	33
Analytical Plan.....	34

Chapter	Page
IV. FINDINGS.....	38
Preliminary Results.....	38
Research Question 1 .....	38
Research Question 2 .....	40
Research Question 3 .....	42
Research Question 4 .....	45
V. CONCLUSION.....	47
Implications.....	63
Limitations .....	66
Future Directions .....	67
REFERENCES .....	70
APPENDICES .....	88
FMSS-Coherence Coding Example – Incoherent.....	100
FMSS-Coherence Coding Example – Coherent .....	102
IRB Letter .....	104

## LIST OF TABLES

Table	Page
1. Correlations for Study Variables .....	89
2. Demographics for Treatment and Comparison Groups .....	90
3. Model Fit Statistics by Latent Class Model .....	91
4. Mean FMSS-Coherence Subdomain Scores by Latent Class for Class Model 4 ....	92
5. Probability Comparisons Between Latent Classes of Attachment Representations on Adult Attachment Styles by Demographic Control Variable .....	93
6. Intercept Comparisons Between Latent Classes of Attachment Coherence on Observed Parenting Behavior by Demographic Control Variable .....	94
7. Regressions of Adult Attachment Styles on Observed Parenting Behavior .....	95
8. Regressions of Adult Attachment Styles on Observed Parenting Behavior Moderated by Latent Classes of Attachment Coherence .....	96

## LIST OF FIGURES

Figure	Page
1. Mixture Model for 3 Latent Profiles of Attachment Coherence.....	97
2. Mixture Model for 4 Latent Profiles of Attachment Coherence.....	98
3. Mixture Model for 5 Latent Profiles of Attachment Coherence.....	99



## CHAPTER I

### INTRODUCTION

Parenting relationships and experiences in early childhood lay the foundation for a child's development, while also establishing physical, cognitive, social, and emotional developmental trajectories for the child across the lifespan (Vandell et al., 2010). One of the key developmental areas that parenting has been found to influence is attachment, or the capacity for individuals to form and maintain social and emotional relationships across the lifespan (Ainsworth et al., 1978). While a number of variables have been acknowledged for contributing to the development of one's attachment and internal working models of attachment, parenting is believed to be one of the most dependable (George & Solomon, 1996). For example, it has been argued that parental sensitivity and responsiveness are among the most consistent predictors of a child's attachment security (Ainsworth et al., 1978; De Wolff & van IJzendoorn, 1997). Moreover, it has been well-established in the parenting and attachment literature that in many ways, parenting lays the foundation for attachment development, but at the same time attachment sets the stage for future parenting (Howe, 2011). This foundational understanding was established early on in attachment research when van IJzendoorn (1995) found that a mother's attachment security with her child was significantly correlated with measures of her warm and responsive parenting, which was

then correlated with the security of her child's attachment. From such early studies it became clear that attachment styles and internal working models of attachment can be intergenerationally transmitted from caregiver to child, in large part through parenting behavior (De Wolff & van IJzendoorn, 1997; van IJzendoorn, 1995).

Since becoming a foundational area of developmental science, various methods of examination have emerged for attachment and attachment representations. For example, there was the groundbreaking work of Mary Ainsworth with the observation-based Strange Situation Procedure for examining attachment in early childhood (Ainsworth et al., 1978); the development of the Adult Attachment Interview by Main and colleagues (1985) which contributed to our understanding of adult attachment representations as inferred from the linguistic properties (i.e., coherence) of descriptions of early attachment experiences (Jones, Cassidy, & Shaver, 2015a); and a number of self-report attachment measures including the Adult Attachment Questionnaire (Simpson, Rholes, & Phillips, 1996), the Adult Attachment Scale (Collins & Read, 1990), and the Attachment Q-Sort (Waters, 1995), three of the more prominently used measures for gathering self-reported attachment data. Although each of these methods has been established as benchmarks for attachment research, less is known regarding how different examination methods (i.e. observational, interview, self-report) can be paired and utilized in the context of predicting and evaluating parenting behavior (Adam, Gunnar, & Tanaka, 2004; Ravitz et al., 2010). While the field has identified a number of specific parenting domains that parental attachment contributes to (e.g., secure attachment and parental warmth and sensitivity; dismissive parenting and punitive parenting and neglect; Howe, 2011), less is known regarding how parental attachment styles and attachment representations (e.g., informed by attachment coherence) contribute to specific observed parenting behaviors such as

responsiveness, affection, encouragement, and teaching (Adam, Gunnar, & Tanaka, 2004; Simpson & Rholes, 2015). This study seeks to understand how adult attachment influences attachment representations and related parenting behaviors. Although attachment has been examined in the context of parenthood to an extent, there are surprisingly few studies that have been designed to examine how adult attachment influences parenting behavior, despite the key theoretical role that parenting plays in the development of attachment theory (Adam, Gunnar, & Tanaka, 2004; Jones, Cassidy, & Shaver, 2015a). In particular, very few studies have examined parenting behavior as informed by multiple modes of attachment evaluation (i.e., self-report, interview, observation). The goal of this study is to evaluate whether parental attachment (both attachment to the child and adult attachment) – as informed by self-report and interview – relate to various observed cognitive, emotional, and behavioral domains of parenting.

This study has four primary research questions:

1. Will mothers' attachment coherence assessed via coded dialogue be categorized into distinct classifications of attachment representations?
2. Will the categories identified in research question 1 (i.e., mothers' classified attachment representation) predict her corresponding self-reported adult attachment style?
3. Will interview-based attachment representations and self-reported adult attachment styles independently predict observed parenting behavior domains?
4. Do interview-based attachment representations influence the relationship between self-reported adult attachment style and observed parenting behavior when introduced as a moderator?

## CHAPTER II

### REVIEW OF LITERATURE

#### **Attachment Theory**

Attachment research has been widely conducted and replicated since the late 1950's, after John Bowlby first conceptualized the term/theory and began demonstrating its existence in living relationships across the decades that followed (Bowlby, 1958; 1973; 1977a; 1977b; 1988). In his early work, Bowlby (1958) posited that attachment relationships are critically important for both the physical and psychological growth and development of children. To put in terms of health, attachment scientists have described the essential nature of attachment relationships as “the psychological version of the immune system, designed to combat and reduce stress and fearful arousal just as the biological system combats physical disease” (Schmidt et al., 2007, p. 250). To illustrate the existence of these unique relationships, Bowlby noted that in times of distress or discomfort, children will show a distinguishable preference for one primary caregiver, or attachment figure, despite the same level of support being available from another caregiver or individual. Bowlby further described physical manifestations of attachment (e.g., clinging, following, crying, sucking, etc.) as being largely instinctual, and carried out as a means of evoking reciprocal parental responses to meet the child's physical, social, and emotional needs

(Bowlby, 1958; Gustman, 2015). While being informed by these instinctual, biological aspects, attachment theory also heavily emphasizes the role of the child's experiences and perceptions in informing attachment-based behavior. Additionally, attachment theory varies from other traditional theories in that it was not designed to examine individuals alone, but rather individuals within the context of relationships. Attachment theory uniquely accounts for the foundational necessity for infants to form relationships with familiar and relatively consistent caregivers, referred to as attachment figures. As a conclusion to his early work, Bowlby theorized that children who do not have opportunities to develop reciprocal bonds with consistent attachment figures may experience psychological disruptions in their developmental progress (Bowlby, 1958).

While early attachment research focused primarily on the developmental needs of the child, later work by Bowlby and Mary Ainsworth put more of an emphasis on the reciprocal nature of attachment relationships, specifically in the context of parenting. They asserted that the primary goals of attachment behavior were "obtaining protection" and the primary goals of parenting behavior were "giving protection" (Bowlby, 1984, p. 14). Further, Bowlby (1984) and Ainsworth (1979) illustrated the critical importance of parenting behavior in attachment development by asserting that parents who are consistent and responsive to the physical, social, and emotional needs of their child will have children with healthier attachment profiles. These early relationships and experiences shape the child's social and emotional development, and thereby the relationships, feelings, thoughts, and behaviors across the lifespan. Through this perspective, developmental psychopathology can be identified as stemming from early attachment and relationship difficulties or deficiencies.

To further develop Bowlby's theory of attachment, Ainsworth and colleagues (1978) conducted empirical studies of infants and their mothers designed to examine the observable manifestations of attachment believed to be present in the first year of a child's life. These attachment styles were identified using the Strange Situation Procedure (SSP), one of the hallmark attachment assessment methods utilized to this day (Ainsworth et al., 1978). This parent-child interaction task examines child behavior at three key points, parent-child separation, a stranger attempting to interact with the child in the mother's absence, and parent-child reunion. From observing child behavior variations in these interactions, Ainsworth constructed the three primary attachment classifications: *secure*, *anxious*, and *avoidant*. The authors argued that these various attachment patterns represented excessive (anxious), moderate (secure), and diminished (avoidant) stress-response activations when put in a situation where comfort is needed. How a child responded during each of these three interaction points determined which attachment style would be identified. From later work by Main and colleagues (Main & Hesse, 1990; Main & Solomon, 1990) a fourth classification was added, termed *disorganized* attachment. To a large extent, these identified attachment patterns tend to remain relatively stable across the lifespan (Zeanah & Smyke, 2009). It should be noted, however, that securely or insecurely attached children will not necessarily become secure or insecure adults. Ecological and social contexts can contribute to adjustments in personality make-up over time as individuals respond to varying circumstances of life (Howe, 2011).

### *Secure Attachment Style*

Ainsworth noted that infants with a secure attachment style would use their mother as a "secure base" from which they would venture off to explore while their mother was still in the room. When securely attached infants were briefly separated from their mother, they showed

visible distress and ceased exploratory behaviors. Upon reunion, these infants would seek proximity, contact, and interaction with their mother (Ainsworth, 1979). Long-term outcomes associated with secure attachment styles include better quality relationships, healthier lifestyles, better management of stress and emotions, high reflective functioning, and a tendency to face challenges with more confidence and optimism (Howe, 2011). Secure attachment in adulthood is characterized by a capability of realistically reflecting on and evaluating one's emotional experiences and relationships in a relatively objective manner (Bakermans-Kranenburg & van Ijzendoorn, 2009).

### *Insecure Anxious Attachment Style*

For this subgroup of infants, Ainsworth noted that many of them showed signs of anxiety or trepidation even before mother-child separation. During the brief separation period, these infants were reported as being “intensely distressed” (p. 932). Upon reunion, these infants displayed ambivalence toward the mother, seeking proximity, but at the same time resisting contact or interaction (Ainsworth, 1979). Individuals with this attachment style tend to be more anxious and preoccupied with life- and relationship-based stressors. These hyperactive attachment strategies can contribute to intensified distress that is compounded given these individuals' notable difficulty regulating emotional arousal (Dallos & Vetere, 2009). As such, distressed states of arousal can have lingering effects and be more difficult to navigate. Moreover, individuals with anxious or resistant attachment patterns have been found to possess poorer reflection and processing skills in contexts of relationships and life experiences (Howe, 2011). In adults, anxious attachment typically manifests as strong desires for closeness in relationships coupled with notable fear of rejection or abandonment (Shaver & Mikulincer, 2002).

### *Insecure Avoidant Attachment Style*

In stark contrast to the previous two attachment styles, infants with avoidant attachment styles would not be visibly distressed when their mother left the room. Upon reunion, it was noted that these infants tended to avoid their mother, showed a mix of proximity-seeking and avoidant behaviors, or ignored the mother's presence altogether (Ainsworth, 1979). Despite showing little outward emotional display, it has been found that avoidant children still experience physiological arousal (Kim, 2006). As such, although avoidant individuals are more likely to suppress emotional expression, their bodies remain stressed. This defensive strategy has been found to contribute to hypertension and cardiovascular disease (Kim, 2006), and poorer lifestyle choices (e.g., smoking, drug and alcohol use; Howe, 2011), while also being more vulnerable to the negative effects of toxic stress and internal pressures due to poorer regulation skills and support-seeking behaviors (Diamond & Hicks, 2004). In adulthood, avoidant attachment styles are characterized by a general discomfort with intimacy, an avoidance of dependency in relationships, and hesitancy with emotional disclosure (Jones, Cassidy, & Shaver, 2015a).

### *Disorganized Attachment Style*

Twelve years after the initial 3 attachment styles were identified, Main and colleagues (Main & Hesse, 1990; Main & Solomon, 1990) identified the disorganized attachment style. This pattern of attachment is characterized by unpredictable behaviors and inconsistent strategies for attachment seeking that involve combinations of secure, anxious, and avoidant attachment behaviors, such as freezing or hiding from caregivers. It has been documented that children do not tend to develop this extreme attachment style without suffering early forms of abuse, neglect, or trauma (Carr et al., 2009). These early and often prolonged adverse experiences contribute to



stress systems that are hypersensitive and considerably reactive, resulting in individuals who are easily stressed, overly aroused, and overwhelmed (Howe, 2011). Consequently, this attachment style is the pattern that has been found to be most indicative of concurrent and predictive of subsequent psychopathology in later childhood and beyond (Green & Goldwyn, 2002). While less frequently documented, adults with disorganized attachment styles have been found to possess disoriented attachment behaviors which have been credited to past losses, painful memories, or traumatic experiences (George, West, & Pettem, 1999). Moreover, these recollections “can irrationally motivate behavior in the present” (Crittenden, 2008, p. 35).

From the work of Ainsworth, we have become familiar with the existence of these varying styles and qualities of attachment relationships developed between young children and their primary caregivers, even to the point where we can readily observe them (Ainsworth, 1979). Bowlby, however, asserted that these observable manifestations of attachment could be further identified by processes that were below the surface. In an attempt to better convey the various attachment styles that children possess with their parents, Bowlby sought to understand the internal processes that informed and guided these behaviors, or what he referred to as internal working models (Bowlby, 1984).

### **Internal Working Models of Attachment**

One of the primary arguments of attachment theory is that experiences had in earlier relationships will influence how people will behave or function in later relationships (Howe, 2011). This process plays out through the development of cognitive models based on previous experiences, which are believed to inform one’s sense for future experiences. Internal working models are thought to be the blueprints from which relationships are built or established. Throughout this paper I will use the terms internal working models (IWM) and attachment

representations interchangeably. Main and colleagues (1985) defined IWM as the “representations of the self in relation to attachment” (p. 67). The foundational principle of IWM is that over time the brain works to construct cognitive representations, or models, of one’s environment. These models aid individuals in anticipating, managing, and negotiating their world. As such, it is understood that we approach new situations and experiences with various preconceptions, biases, and interpretive tendencies (Howe, 2011). While it is posited that established internal working models tend to be relatively stable across time, Bowlby (1984) termed them “working” models because he recognized that they can be modified and adjusted over time, especially in close relationships.

It is understood that the first working model developed in early infancy is a representation of one’s relationship with their primary caregiver, or primary attachment figure (Bowlby, 1984). For example, when an infant is in frequent contact with a primary attachment figure who is sensitive and responsive to their needs, the child will develop a sense of confidence that this individual will meet their needs. Moreover, when infants are able to develop expectations of their primary attachment figures that are consistent and predictable, they will be better suited to focus their attention on other physical, social, and emotional processes of development. Conversely, infants whose first experiences with a primary attachment figure are unpredictable or inconsistent will be more likely to develop attachment representations of their attachment figures being unresponsive or unavailable (Ainsworth, 1979). From these early caregiving relationships infants construct their internal representations of what relationships will look like with their caregivers, and eventually others.

Although the majority of early literature on internal working models was developed considering the perspective of the child, it has been established that both the parent and the child

possess individual internal working models of their dyadic relationship (Zeanah et al., 1987; Zeanah et al., 1996). Working models are developed of the self, of other people, and of the relationship between the self and others (Ainsworth et al., 1978). As such, over time caregivers will develop an IWM of themselves, of their child, and of themselves in relation to being their child's caregiver. Parents' own IWM as caregivers is believed to stem from their own experiences being parented during their childhood (George & Solomon, 1996). While a child will develop attachment representations of their caregiver, and parents develop attachment representations of their child, IWM of parenting are unique in that they are more of a metacognitive framework, not established from the direct relationship, but rather built from parents' attachment-based feelings, thoughts, and behaviors that arise in parenting their child (George & Solomon, 1996; Main et al., 1985; Mayseless, 2006). Further, some posit that while individual-based attachment representations developed in infancy can only be altered through experience (Main et al., 1985), internal working models of parenting can be altered both through novel parenting experiences and through the metacognitive process of thinking about and reflecting on one's caregiving role and developing cognitive schemas about their relationship with their child (Collins & Read, 1994; McBride & Atkinson, 2009).

While internal working models are inherently more difficult to evaluate due to their cognitive nature, a number of theoretical approaches have been developed to aid in our understanding of them. These approaches include social cognitive theory, social information processing theory, and the transactional model. First, social cognitive theory (SCT) considers the process by which individuals acquire and maintain behavior within their unique environment (Bandura, 2005). SCT considers past experiences and how they influence both the expectations of the individual as well as subsequent behavior. Moreover, SCT aids in our understanding of

how early experiences and interactions influence core beliefs and thoughts (i.e., internal working models) that are acquired and eventually manifested behaviorally (Bandura, 2005). Next, principles of social information processing theory (SIP) inform our understanding of how individuals perceive, interpret, and make decisions about social information that will either increase or decrease their likelihood to engage in a given behavior (Dodge & Crick, 1990). In the context of IWM, children who have positive early attachment experiences and develop secure attachment representations of their caregivers will be more likely to perceive and interpret social interactions in a positive manner, or possess a more positive relationship schema. Similarly, individuals whose early experiences contribute to insecure attachment representations will be more likely to develop negatively-biased relationship schemas (Dykas & Cassidy, 2011). Finally, the transactional model focuses on the dyadic influence that both child and caregiver have on each other (Sameroff & Fiese, 2000). As such, individual characteristics of either the child or the caregiver can modify the manner in which each member of the dyad responds to or engages the other. With this in mind, this model accounts for variations in child temperament and developmental aspects, as well as the social, emotional, and health characteristics of the parent, illustrating how IWMs are not only built from relationship-based factors, but interaction and environmental factors as well. Taken together, these theoretical approaches suggest that relationship-based schemas that are developed early on in a child's life will become relatively stable over time, and contribute to individuals interacting with others in manners that are consistent with their attachment representations, particularly in the context of their relationships with their own children (Zeanah & Anders, 1987).

### **Attachment and Parenting**

When individuals reach the stage of parenthood, the underlying character of their caregiving is highly informed by their internal working model of attachment (George, 1996). As such, parents' attachment representations will guide the manner in which they will experience, perceive, and interact with their child. This, however, does not guarantee that an individual with a secure attachment representation will automatically become a securely attached parent of securely attached children, nor will the opposite guarantee insecure parents will raise anxious or avoidant children. As previously discussed, although internal working models are relatively stable, they are open to shifts, particularly during major changes to close relationships within one's social environment (Zeanah & Smyke, 2009). Despite this, it is largely understood that to a significant extent, attachment representations developed in infancy and early childhood will remain relatively stable from infancy into adulthood (Howe, 2011). This understanding has contributed to a generally predictable pattern for how parents with various attachment styles tend to approach parenting, as well as an understanding of how internal working models of attachment can be passed from caregiver to child.

Parents and caregivers who were able to develop secure attachment patterns are more likely to pass on similar attachment patterns to their children as they tend to be able to cooperate with their child to achieve family goals in an emotionally healthy manner (Howe, 2011). Secure parents have been found to describe both themselves as caregivers and their children in a manner that is largely realistic – capable of acknowledging both strengths and weaknesses with an overall lean towards the positive (Goldberg, 2000). Parents with secure attachment representations have been found to be more likely to encourage their child's independence, offer healthy support, feel less anxiety toward childrearing, and tend to be more confident in their parenting role (Hock et al., 2001). Moreover, parents with secure attachment are more likely to

establish close, interpersonal relationships with their children characterized by enhanced levels of affection, responsiveness, and involvement (De Wolff & Van Ijzendoorn, 1997). In a study by Michiels and colleagues (2010), it was found that secure attachment patterns in both mothers and fathers uniquely predicted various child outcomes, including secure maternal attachment contributing to increased prosocial behavior in their daughters and reduced conduct problems in their sons, while secure paternal attachment significantly predicted positive emotion regulation in their daughters.

It has been posited that anxiously attached individuals may look forward to parenting in hopes that they will be able to develop a consistent, reciprocal relationship that they may have been lacking with their own caregivers (Simpson & Rholes, 2004). As Crittenden (1992) put it, “after a history of failed relationships, they will find hope in the birth of children” (p. 590). However, because raising a newborn often contributes to heightened stress and conflict in the home, individuals with anxious attachment representations can be taken back to the memories and feelings of the deficient caregiving they received in their own childhood, contributing to similar working models being more likely to be activated (Simpson & Rholes, 2004). Solomon and George (1996) have described the parenting style of anxious caregivers as “uncertain.” For example, when describing their child these parents may go from using positive, complimentary descriptions only to follow them with negative or ambiguous attributions. Additionally, anxiously attached parents have been found to possess heightened awareness of emotions, but struggle to clarify or interpret them (Stevens, 2014). It has also been found that anxiously attached caregivers are less likely to encourage autonomy in their children, more likely to attempt to control their child’s behavior, and are more likely to threaten walking out, withholding love, or abandoning their children, thus contributing to enhanced relationship anxiety in their

own children (Howe, 2011). Moreover, children of anxiously attached parents have been found to exhibit hyper-activating strategies which may present as excessive emotionality or externalizing behavior (Stevens, 2014). It has been hypothesized that increased prevalence in these behavior patterns may be indicative of efforts to receive parental attention (Mikulincer, Shaver, & Pereg, 2003).

In the case of parents with avoidant attachment representations, parenting can be a time of notable internal conflict. Mental representations of the self as being independent and others as being rejecting or hostile can be at-odds with the emotional and proximity-seeking behavior of their child (Main, 1995). These behaviors and the dependency of the child can thus contribute to heightened anxiety in these caregivers, which can in-turn elicit a defensive response to back off, withdraw from, or control the source of this emotional arousal (DeOliveira et al., 2005). This “deactivation” of the attachment system and withdrawal of emotional availability contributes to these caregivers experiencing increased difficulty recognizing and responding to their child’s emotional needs (Jones, Cassidy, & Shaver, 2015a). Moreover, parents who use this emotionally punitive behavior of dismissing or warding off attachment behavior contribute to decreased proximity-seeking and increased attachment anxiety in their child (Mikulincer, Shaver, & Pereg, 2003). As such, in response to their caregiver’s behavior and in an attempt to decrease their own overt attachment behavior, children may deactivate their attachment systems by containing their needs, downplaying distress, and avoiding dependence on their caregiver (Howe, 2011). Despite the apparently avoidant appearance of these practices, these behaviors have actually been found to represent the child trying to appease the parent’s aversion to attachment behaviors in order to gain proximity with their caregiver (Simpson et al., 1996). Finally, George (1996) found that parents with avoidant attachment representations were more likely to report low confidence in

parenting and describe their parenting style as strict, impatient, or demanding, “but don’t know how else to do it” (p. 418). Furthermore, parents with avoidant attachments are more likely to focus on externally oriented thinking, resulting in deficits in understanding their own feelings and the feelings of others (Stevens, 2014).

While disorganized attachment styles have been identified, less is known regarding how they manifest themselves in the context of caregiving. It has been established, however, that disorganized caregiving is typically characterized by parents who feel helpless or hostile, while also desperate and confused in their attempts to meet their child’s needs (Lyons-Ruth & Spielman, 2004). Behind the scenes, parents with disorganized attachment representations deal with extreme arousal that is triggered by the emotional and behavioral demands of their child (Howe, 2011). This elevated state of arousal can serve as an unconscious reminder of traumas experienced previously in life, which can contribute to feelings of dysregulation. This dysregulation is most often dealt with in a manner that is defensive, similar to a fight-or-flight response (George, West, & Pettem, 1999). In cases where extreme conflict or violence is present in the home, parental sensitivity can be drastically reduced, increasing the likelihood that children will develop disorganized attachment representations (Finger et al., 2009) and psychopathology (Gross & Munoz, 1995).

## **Methods of Examining Attachment**

### *Examining Adult Attachment Styles*

Over its relatively short history as a target area in research, attachment has been examined using a number of methods, including observation, interview, and self-report (Jones, Cassidy, & Shaver, 2015b). While Ainsworth’s Strange Situation Procedure is regarded by many as the gold standard for assessing attachment observationally, this procedure is limited to



assessing attachment in early childhood (Ainsworth et al., 1978). Measurement of attachment in adulthood, however, was first widely examined using the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1984; Hesse, 2008). Originally the AAI was developed as a tool for predicting attachment patterns in infants based on experiences with their caregivers. This 45-90 minute semi-structured interview is designed to examine adult attachment by targeting individual responses related to early parent-child interactions, parental appraisal, perceived outcomes of their early parent-child relationship, and self-perceptions of future parenting. The coding method for the AAI is built around identifying predictive themes in the interview, such as narrative coherence or idealization of the caregiver. Coding of the AAI produces three major attachment categories, including (a) secure/autonomous, (b) avoidant/dismissing, (c) anxious/preoccupied, and an “unclassifiable” category (Hesse, 2008).

Following the development of the AAI, additional efforts to further assess attachment in adulthood have been made, resulting in the development of a number of interview and survey methods with broad variations in attachment relationship focus, constructs of attachment, target dimensions and attachment categories, training length, administration methods, and scoring techniques (Ravitz et al., 2010). Self-report measures of attachment are primarily utilized to assess one’s conscious attitudes or behaviors in experiences with loss, separation, dependence, trust, and intimacy (Mikulincer & Shaver, 2007). Some of the more prominently used self-report techniques include the Adult Attachment Questionnaire (AAQ; Simpson, Rholes, & Phillips, 1996), Adult Attachment Scale (AAS; Collins & Read, 1990), and in more recent years, the Adult Attachment Style Questionnaire (ASQ; Van Oudenhoven, Hofstra, & Bakker, 2003).

Each of these self-reported attachment tools vary somewhat in their conceptualizations of attachment or attachment behavior, however, each has shown to be reliable when compared to

other measures designed to capture similar constructs (Ravitz et al., 2010). For example, the AAQ has been used primarily for examining attachment styles in romantic relationships, producing factor dimensions of secure, avoidant, and anxious. Moreover, these dimensions have been found to be associated with other factors including support giving, support seeking, and depression (Rholes, Simpson, & Friedman, 2006; Simpson et al., 2002). The AAS yields three subscales, including comfort with emotional closeness, comfort with depending on or trusting in others, and anxious concern about being abandoned or unloved which have been found to contribute to both anxious and avoidance dimensions (Brennen et al., 1998). These dimensions have also been correlated to measures of self-esteem, expressiveness, openness, and relationship satisfaction (Collins, 1996; Collins & Read, 1990). Finally, the ASQ, utilized in the current study, features four subdimensions including secure, fearful, preoccupied, and dismissing, with each possessing reasonable construct validity (Hofstra, 2009). Furthermore, the secure subdimension has been positively associated with measures of self-esteem and trust in others (Hofstra, 2009); the fearful subdimension has been associated with measures of trust, indicating lower trust in others (Bartholomew & Horowitz, 1991); the preoccupied subdimension has been associated with low scores on measures designed to examine emotional stability, autonomy, and extraversion (Nofle & Shaver, 2006); and dismissing has been associated with measures indicating a negative image of others (Onishi, Gjerde, & Block, 2001).

While these and other self-reported attachment measures have been found to possess excellent statistical reliability and sound psychometrics, self-report attachment measures have received criticisms for being passive (i.e. they cannot detect “attachment phenomena that need to be *activated* to be manifested”; Ravitz et al., 2010, p. 420), and for their inherent reliance on self-evaluation (Mikulincer & Shaver, 2007). Despite these criticisms, recent reviews of the

attachment literature have called for increased use of self-report techniques in examining parent attachment, as the field has leaned heavily on interview-based assessments, as indicated by the exhaustive reliance on the AAI (Jones, Cassidy, & Shaver, 2015b; Mikulincer & Shaver, 2007). It has been posited that increased use of self-reported attachment measures can encourage cross-tradition collaboration among researchers from various psychological backgrounds (Jones, Cassidy, & Shaver, 2015a). Finally, to date, there has been limited effort in examining how self-report attachment measures relate to and predict parenting behavior (Simpson & Rholes, 2015).

#### *Examining Internal Working Models of Attachment*

Parallel to the established methods that have been utilized for examining attachment styles, other methods have been developed for the assessment of internal working models. While these IWM instruments vary in their administration characteristics, a common theme has been noted between such measures in that they tend to rely on, coherence and consistency of relationship descriptions or narratives, as the foundational basis from which attachment representations are ascribed. Relationship coherence as an indicator of attachment representations has been theorized and studied for a number of years, with Main (1991) and Fonagy (1995) being some of the first to conduct research in the area. They described relationship coherence as a “form of metacognitive monitoring or reflective self-understanding” that individuals utilize to assess, evaluate, and make meaning of relationships (Aber et al., 1999, p. 1045). As such, relationship coherence in the parent-child context explains how parents reflect on and make meaning of their experiences as an individual, their child’s experiences, and their experiences as caregivers within the parent-child relationship. It is posited that parents who have coherent attachment representations see themselves as caregivers, their child, and the parent-child relationship in a realistic fashion – seeing both the positive and negative aspects but with a

generally optimistic perspective. In contrast, parents with incoherent attachment representations tend to find it more difficult to effectively reflect on and make meaning of their parent-child interactions and longer term aspects of relationship development with their child, resulting in a perspective that tends to be less optimistic (Aber et al., 1999; Goldberg, 2000; Sher-Censor, 2015). In summary, Main and Fonagy theorized that the relationship coherence is one lens through which attachment representations can be viewed, and that these coherent or incoherent representations affect how an individual will appraise and internalize their experiences within the parent-child relationship (Aber et al., 1999; Fonagy et al., 1995; Main, 1991;2006).

Some of the more commonly used methods for examining attachment representations include the AAI (George, Kaplan, & Main, 1984), the Working Model of the Child Interview (Zeanah et al., 1996), the Insightful Assessment (Oppenheim & Koren-Karie, 2002), and the Five Minute Speech Sample (Gottschalk et al., 1969). While also commonly used in research and clinical work related to determining attachment styles, the AAI is also frequently used as the gold standard for assessing internal working models of attachment (George, Kaplan, & Main, 1984). In this context, however, the semi-structured AAI is typically used to capture one's coherence of mind as they present discourses of their early caregiving experiences. Higher coherence of mind scores on the AAI are characterized by descriptions that are internally consistent, plausible, detailed, and not emotionally overwrought (Hesse, 2016; Waters et al., 2018). Moreover, an individual's coherence of mind as assessed by the AAI is ultimately indicative of the organization of one's attachment representation, with higher coherence of mind scores suggesting a secure attachment representation. Furthermore, coherence of mind scores have been found to be associated with maternal sensitivity (Steele et al., 2014), romantic relationship functioning (Holland & Roisman, 2010), and parenting quality in adulthood (van

IJzendoorn, 1995). In addition to traditional coherence-based coding, the AAI has also been coded for secure base script knowledge, another method for assessing attachment security through analyzing individual communication related to caregiver availability, responsiveness, parental comforting, and autobiographical memories (Waters et al., 2017).

Another frequently utilized method for assessing internal working models of relationships is the Working Model of the Child Interview (WMCI; Zeanah et al., 1996). The WMCI is a 45-90 minute open-ended and semi-structured interview designed to quantify and categorize internal working models of the caregiving relationship that parents have with their young children. Differing from the AAI, the WMCI results in relationship information that is specific to a parent-child dyad, rather than providing a global internal working model classification for the caregiver (Gustman, 2015). Coming from an attachment perspective, it is argued that the internal working models captured by the WMCI amount to half of the information needed to gain an adequate representation of the parent-child attachment relationship, with the other half being informed by parent and child behaviors that are readily observable (Zeanah et al., 1997). The WMCI coding method produces classifications for internal working models for the parent-child dyad, including *balanced*, indicative of parental investment in the parent-child relationship, an understanding of the child as a developing individual, and richness of detail; *distorted*, characterized by inconsistencies in the narrative, evidences of the caregiver feeling overwhelmed as a child, and not viewing the child as an individual; and *disengaged*, a classification associated with a lack of personal involvement with the child or relationship, a lack of flexibility in accommodating change, and incoherence in the narrative (Zeanah et al., 1996).

One method for measuring parent-child dynamics that has become increasingly widespread in recent years is the Five Minute Speech Sample (FMSS; Gottschalk et al., 1969),

which was utilized in the current study. In administering the FMSS, the participant is asked to speak for five minutes regarding their thoughts, feelings, and relationship with the subject (i.e., child, parent, partner) and how they get along together (Weston, Hawes, & Pasalich, 2016). The interviewer does not provide additional prompts or responses, requiring the participant to provide narratives on their own. During the interview, the speech sample is audio-taped, after which it is transcribed and coded. Gottschalk and colleagues (1969) argued that while the FMSS procedure is brief, it is capable of capturing both the projection and expression of internal psychological states, response sets, and attitudes. Moreover, the brevity, lack of interviewer/respondent fatigue, and low training and implementation costs have contributed to the growing appeal of this method in the presence of other more time- and cost-intensive methods (Weston, Hawes, & Pasalich, 2017; Sher-Censor, 2019).

In the context of parental attachment representations, an FMSS coding method called FMSS-Coherence (FMSS-C) was recently developed by Sher-Censor (2019) to assess the coherence of parents' narratives regarding their child as a means for examining dyad-based attachment representations. Furthermore, the FMSS-C coding method utilizes some of the foundational emphases of both the AAI and WMCI. Regarding theoretical similarities to the AAI, the FMSS-C was designed as a means for coherence-based assessment informed by theory around internal working models of attachment suggesting that the coherence of parents' narratives is indicative of their internal attachment representations (i.e., expectations, feelings, attributions) of their child (Main, 1991; Sher-Censor, 2019). Considering similarities to the WMCI, the FMSS-C also uses a dyadic approach as it is intended to produce attachment representation information that is specific to the parent and one individual child. In the FMSS-Coherence coding method, the coherence of parents' narratives is derived from six subscales,

including focus, elaboration, separateness, concern, acceptance/rejection, and complexity. While research examining the utility of the FMSS-Coherence is still in its infancy, early studies have found parents' coherent narratives to be associated with more sensitive caregiving, elevated emotional ability, and less intrusiveness, or characteristics associated with secure attachment representations (Sher-Censor et al., 2017). Moreover, mothers of preschool-aged children who provided incoherent narratives were more likely to display negative depictions in their parent-child play interactions, or characteristics associated with insecure attachment representations (Sher-Censor, Grey, & Yates, 2013). Yet to be determined, however, is whether parental coherence as informed by FMSS-Coherence coding can be categorized into distinct classifications of attachment representation, as well as whether those classifications are capable of predicting parenting behavior – two research goals of the present study.

#### *Considerations of Attachment Research*

Studies designed to assess attachment tend to designate individuals in one of two ways, dimensionally or categorically. Dimensional models of attachment tend to produce at least two dimensions of attachment: secure or insecure, foundationally characterized by either a positive sense of self and others, or a negative sense of self and others (Brennan, Clark, & Shaver, 1998; Ravitz et al., 2010). Specifically, in the adult attachment literature, dimensional attachment measures tend to focus on the insecure dimension, with individuals manifesting as either anxious, characterized by a hyperactivation of the attachment system, or avoidant, characterized as by a deactivation of the attachment system (Bartholomew & Horowitz, 1991; Shaver & Mikulincer, 2002). In dimensional cases such as this, high attachment security is characterized by low levels of anxious or avoidant dimensions (Simpson & Rholes, 2015). As noted, these dimensional assessments tend to rely more on identifying the characteristics of one's attachment,

rather than assigning a particular attachment type. Because of this, dimensional attachment assessments have received some criticism for lacking specificity or being unable to identify specific attachment styles in clinical cases (Maunder & Hunter, 2009). If standard cutoff points between and within attachment behavior are defined, categories can be derived from dimension-based scales (Ravitz et al., 2010). These distinct categories can be helpful for assigning specific attachment styles, however, they have received criticism for neglecting smaller individual differences among individuals within a given category (Mikulincer & Shaver, 2007b). Because dimensional and categorical attachment measurements possess these notable differences, they are not typically employed simultaneously in research. This underutilization has contributed to a limited understanding of how dimensional or categorical attachment measures predict attachment-based behavior, such as parenting (Simpson & Rholes, 2015), a primary goal of the present dissertation.

Traditionally, attachment assessments have been utilized by two distinct researcher camps: social psychologists, who lean more heavily on the development and use of self-report measures to assess attachment in current relationships; and developmental psychologists, who have shown a preference for tests that do not depend on conscious self-evaluation, but instead tend to favor measures designed to gather information related to the antecedents of attachment (e.g., early attachment experiences; Jones, Cassidy, & Shaver, 2015a; Mikulincer & Shaver, 2007). Each of these methods serves a unique purpose in assessing attachment due to the different attachment phenomena they tend to examine (Ravitz et al., 2010). Although interview and self-report measures of adult attachment are built from the same theoretical tradition, they have been found to differ in a number of ways, resulting in relatively low correlations between them (Roisman et al., 2007). Researchers have posited that this may be the case because



interview-based attachment assessments tend to rely on the coherence of one's attachment discourse (e.g., AAI, FMSS-Coherence), while self-report measures are designed to assess a person's attachment relationships and experiences more directly (Brennan et al., 1998; Simpson & Rholes, 2015). Despite the weak correlation typically found between these types of measures, each has been found to be similarly associated with a number of attachment-based constructs, including emotion regulation (Mikulincer & Shaver, 2007), social information processing (Dykas & Cassidy, 2011), and romantic relationship functioning (Simpson, et al., 2002). While these distinct attachment assessment methods may not typically correlate, based on these findings one could argue that they could simultaneously relate to or predict other attachment-based constructs such as parenting behavior; an approach that has yet to be utilized prior to the present dissertation (Simpson & Rholes, 2015).

### **Criticisms and Limitations of Attachment Theory**

While attachment theory has proven foundational for a wealth of developmental and clinical work, there are two important considerations to keep in mind when applying attachment representations in research and clinical settings. First, the four attachment classifications should be approached and implemented as risk and/or protective factors for psychopathology, rather than being utilized as diagnostic tools themselves (Zeanah & Smyke, 2009). Second, when taken alone, attachment classifications have limited long-term predictive power. As such, coupling with other associated variables is essential for longitudinal considerations (Sroufe, 2005). Additionally, one of the major criticisms of attachment theory, and particularly working models of attachment, is their measurement (Zeanah & Anders, 1987). The inherent ambiguity of measuring an "internal" construct, often retrospectively, has not gone without questioning.

Despite these cautions, attachment research has consistently revealed attachment styles and representations to be valid and replicable constructs in the field of developmental science.

### **Summary, Research Goals, and Hypotheses**

Despite the foundational role that parenting played in the development of attachment theory, there are surprisingly few studies that have been designed to examine how attachment styles and attachment representations influence specific domains of parenting behavior (Adam, Gunnar, & Takana, 2004; Simpson & Rholes, 2015). In particular, very few studies have examined parenting behavior as informed by multiple modes of attachment evaluation (i.e., self-report, interview, observation; Jones, Cassidy, & Shaver, 2015b; Ravitz et al., 2010). Moreover, there is limited knowledge regarding how adult attachment styles and attachment representations independently predict parenting behavior (Simpson & Rholes, 2015). While previous research has examined either attachment styles or attachment representations, there is limited evidence of each being utilized simultaneously (Simpson & Rholes, 2015).

In the attachment literature, relationship coherence has been used as one of the primary methods for examining attachment representations (George, Kaplan, & Main, 1984; Hesse, 2008; Waters et al., 2018; Sher-Censor, 2015). Considering previous studies examining how relationship coherence informs attachment representations, to this point researchers have primarily utilized a dimensional approach, classifying parents as either coherent or incoherent (George & Solomon, 2008; Oppenheim, Goldsmith, & Koren-Karie, 2004; Oppenheim, 2006; Sher-Censor, Khafi, & Yates, 2016; Sher-Censor, Shulman, & Cohen, 2018; Sher-Censor & Yates, 2015). While a dimensional approach is appropriate in many cases for developmental research, to date there is a notable absence of literature where relationship coherence has been examined categorically, or where individual coherence scores are distributed in various manners

beyond high and low. It may be possible and even helpful to create categories derived from dimensional attachment scales (Ravitz et al., 2010), and taking such steps could prove useful for assigning specific attachment representation levels that would allow for between- and within-group comparisons and thereby better capture nuanced individual differences that can be lost in larger dimensional comparisons (Mikulincer & Shaver, 2007b).

Finally, previous studies designed to examine attachment representations in caregivers as informed by relationship coherence have traditionally been conducted with parents of children in middle childhood (Sher-Censor 2015; Sher-Censor et al., 2013). Validation across other age groups is necessary, especially considering that attachment studies have been well documented beginning as early as infancy (Ainsworth et al., 1978; George & Solomon, 2008).

The driving purpose of this study is to use a mixed-methods approach to evaluate whether parental attachment – as informed by self-report and interview – relates to and predicts various observed behavioral domains of parenting during infancy. This study seeks to answer the following questions, as informed by their associated hypotheses:

1. Will mothers' attachment coherence assessed via coded dialogue be categorized into distinct classifications of attachment representations?
  - a. It is hypothesized that attachment coherence will be categorized into at least two attachment representation classifications, including coherent and incoherent.
2. Will the categories identified in research question 1 (i.e., mothers' classified attachment representation) predict her corresponding self-reported adult attachment style?

- a. It is hypothesized that classified attachment representations (from FMSS-Coherence coding) will significantly predict corresponding adult attachment styles.
3. Will interview-based attachment representations and self-reported adult attachment styles independently predict observed parenting behavior domains?
  - a. It is hypothesized that both interview-based attachment representations and self-reported adult attachment styles will independently predict various observed parenting behavior domains, including affection, responsiveness, encouragement, and teaching.
4. Do interview-based attachment representations influence the relationship between self-reported adult attachment style and observed parenting behavior when introduced as a moderator?
  - a. Because attachment representations inform parenting relationships with each individual child, it is hypothesized that interview-based attachment representations will influence (moderate) the relationship between self-reported adult attachment styles and observed parenting behavior, such that secure attachment styles will predict positive parenting behaviors with greater strength for mothers possessing coherent attachment representations and insecure attachment styles will predict diminished parenting behaviors with greater strength for mothers possessing incoherent attachment representations.

## CHAPTER III

### METHODOLOGY

Data for the present study came from assessments of mothers enrolled in a program evaluation of the Legacy for Children™ (*Legacy*) curriculum. *Legacy* is a longitudinal group-based parenting program for mothers of infants and young children who have experienced poverty (Perou et al., 2012). The evaluation study took place from 2015 through 2019, with data location sites located in Tulsa and Stillwater, Oklahoma. In this project, data were collected at five to seven time points across the child's first 3 years of life. For the purpose of this study, data were utilized from the data collection point that took place when the child was between 12 and 14 months of age. All recruitment and data collection procedures were approved by the two collaborating university institutional research boards.

#### **Participants**

The sample for this study includes 76 mothers of young children between the ages of 12 and 14 months ( $M = 13.4$ ,  $SD = 1.42$ ). Ten of the mothers in the sample were enrolled in the Tulsa *Legacy for Children* treatment group, 30 participated in the control group, and 36 were enrolled in a separate Oklahoma Baby Study, collected in Stillwater, OK using the same measures and longitudinal design. Mother ages ranged from 20 to 43 ( $M = 29.5$ ,  $SD = 5.06$ ), and 25% reported being single at the beginning of the study. The racial makeup of the sample was

73.7% White, 18.4% Black, and 7.9% American Indian, with 5% reporting as ethnically Hispanic. Considering education, 6.6% did not receive a degree, 19.4% received a High School degree or General Education Diploma, 21.2% attended some college, 22.4% received an Associates or Vocational degree, 23.8% received a Bachelor's Degree, and 6.6% received a Graduate or Professional degree. The average annual family income for participants was \$34,845 (Median = \$27,000).

### **Procedure**

Participants were recruited through information sessions and flyers made available at various health and family organizations located throughout the region. Women eligible for the intervention study were: (1) aged at least 18 years at the time of recruitment; (2) within four months post-partum; (3) the biological mother of the infant included in the study; (4) able to read and speak English; (5) eligible for Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); and (6) planning on staying in the area for the next three years. As part of their regular assessments (typically every 6 months), participants completed a Five Minute Speech Sample, a ten-minute video-recorded parent-child interaction task, a demographic survey, and self-report questionnaires assessing parenting behavior and attitudes. Assessments lasted 1.5 hours to 2 hours, and each participant received \$40 for her time at each data collection point.

### **Measures**

For all measures, composite scores were created by averaging items and reverse-coding items when appropriate such that higher scores indicate higher levels of the construct. The bivariate correlations among variables used in the present study are shown in Table 1.

*Parent Attachment Representations – Interview*

Parents participated in the Five Minute Speech Sample procedure (FMSS; Gottschalk & Gleser, 1969). Following the transcription of participant speech samples, each FMSS transcript was coded using the Five Minute Speech Sample – Coherence coding method developed by Sher-Censor and Yates (2012). This coding method is designed to capture parents’ relationship coherence from their narratives in describing their child and their relationship with them. This coding method assesses parents’ discourse in terms of focus, elaboration, separateness, concern, acceptance/rejection, and complexity. From the initial coding of each of these subdomains, a score is assigned for each, ranging from 1 to 7. For these scores, a score of 1 represents “no description of the toddler or relationship provided”; 3 represents “the mother provides a meager, emotionally disengaged narrative, a one-sided narrative that is overly positive or overly negative, and/or a narrative that includes contradictory statements”; 5 represents “the narrative is credible, the mother provides a multidimensional portrayal of the child and the relationship and her statements are well-supported. However, a small portion of the narrative lacks coherence” and 7 represents “the mother constructs a consistent, elaborated and complex portrayal of the child and the relationship.” Scores of 2, 4, and 6 represent steps in-between these major score descriptors (Sher-Censor et al., 2018, p. 133). From integrating the scores of each of the subdomains, a total relationship coherence score is determined, where caregivers who receive a score of 1-4 are considered Incoherent, and caregivers who receive a score of 5 to 7 are considered Coherent. The final coherence score is an integration of the previous subdomains, and “relates to the degree to which the FMSS is focused on the child, and conveys a consistent, elaborated, complex, and believable picture of the child without overwhelming concern or substantial problems in separateness” (Sher-Censor, 2012, p. 17). Prior to coding, team members (including the author of this dissertation) established interrater reliability with the FMSS-Coherence author (Sher-

Censor), after which twenty-four percent of all study transcripts were double-coded by team members to establish and evaluate inter-coder reliability. In previous studies, this coding method has produced very good to excellent interrater reliability, with Intraclass Correlation Coefficients (ICC) ranging from .86 to .95 (Sher-Censor, Grey, & Yates, 2013; Sher-Censor, Shulman, & Cohen, 2018). In the present study, inter-coder reliability among coding team members was found to be very good, with an ICC of 0.85. For examples of FMSS-Coherence coding transcripts, see Appendix.

#### *Parent Adult Attachment Style – Self-Reported*

Adult attachment styles for mothers were collected using the 24-item Adult Attachment Style Questionnaire (ASQ; Van Oudenhoven, Hofstra, & Bakker, 2003). This self-report measure features four attachment subscales including secure, preoccupied, dismissing, and fearful. Participants responded to statements designed to reflect their beliefs about themselves and their relationships using a 5-point Likert scale, where 1 = *Strongly Agree* and 5 = *Strongly Disagree*. The secure subscale featured statements such as “I feel at ease in intimate relationships” and “I trust that others will be there for me when I need them.” The preoccupied subscale included items such as “I find it important to know whether other people like me” and “I fear to be left alone.” The dismissing subscale featured statements such as “It is important to me to be independent” and “I feel comfortable without having close relationships with other people.” The fearful subscale included items such as “I would like to be open to others, but I feel I can’t trust other people” and “I am wary to get engaged in close relationships because I am afraid to get hurt.” Subscales were averaged to create a mean score for each of the four subscales, or attachment styles, with the highest score indicating which of the four attachment style’s would be ascribed to the individual. Cronbach’s alpha for each subscale in the ASQ has



been found to be fair for dismissing ( $\alpha = .58$ ) and acceptable for secure ( $\alpha = .72$ ), preoccupied ( $\alpha = .83$ ), and fearful ( $\alpha = .70$ ; Van Oudenhoven, Hofstra, & Bakker, 2003). In the present study, Cronbach's alpha for each subscale was found to be very good for fearful ( $\alpha = .89$ ) and secure ( $\alpha = .86$ ) attachment subscales, and acceptable for preoccupied ( $\alpha = .77$ ) and dismissing ( $\alpha = .74$ ) subscales.

### *Parenting Behavior – Observed*

Observed dimensions of parenting were identified using the Parenting Interactions with Children: Checklist of Observations Linked to Outcomes (PICCOLO) observational coding method (Roggman et al., 2013b). The PICCOLO is a strength-based coding system developed to measure developmentally supportive parenting behaviors, including responsiveness, affection, encouragement, teaching, and positive parenting. Responsiveness is characterized by a parents responsiveness to their child's cues, emotions, words, interests, and behaviors. Affection includes behaviors of warmth, physical closeness, and positive expressions toward the child. Encouragement is characterized by the active support of exploration, effort, initiative, skills, and creativity. Teaching behavior is indicated by shared conversation and play, cognitive stimulation, questions, and explanations. Each of these dimensions features 6 or 7 subdimensions scored as 0 (absent; no behavior observed), 1 (barely; brief, minor, or emerging behavior), or 2 (clearly; definite, strong, or frequent behavior). From these subdimensions, composite scores were created for each of the major parenting dimensions. Additionally, a composite Positive Parenting score was calculated by summing the scores of each of the affection, responsiveness, encouragement, and teaching scores. Observational coding was conducted by a team of three trained coders who achieved reliability. Furthermore, twenty-six percent of all observational recordings were double-coded in order to track and sustain coding reliability. In previous studies, inter-coder

reliability among coders for the PICCOLO has been found to be good (0.77; Roggman et al., 2013a). In the present study, the inter-coder reliability for the coding team was found to be very good, with an ICC of 0.89.

### **Analytical Plan**

Prior to major analyses, preliminary descriptive analyses were conducted to ensure that data were properly prepared and normally distributed. Additionally, to account for potential differences between each of the three study groups, including Legacy treatment ( $n = 10$ ), Legacy control ( $n = 30$ ), and Oklahoma Baby Study ( $n = 36$ ), preliminary analyses ( $t$ -test or Chi Square, according to variable nature) were conducted to assess potential demographic group differences between group participants.

Research Question 1: Will mothers' attachment coherence be categorized into distinct classifications of attachment representations? Latent Profile Analysis (LPA) was performed using robust maximum likelihood estimation with *Mplus* version 8.1 (Muthén & Muthén, 1998-2017). This model-based, person-centered approach was conducted to identify homogenous latent profiles of participants based on the seven attachment representation variables (i.e., focus, elaboration, separateness, concern, approval, complexity, coherence). The best-fitting classification model was selected by consideration of model fit indices, size of profiles, parsimony, and interpretability of resulting classes (Nylund et al., 2007). Considering model fit indices, the smallest log-likelihood (LL), smallest Akaike Information Criterion (AIC), smallest Bayesian Information Criterion (BIC), a significant Lo-Mendell-Rubin Likelihood Ratio Test (VLR), and a significant Bootstrap Likelihood Ratio Test (BLRT) are each factors to consider in determining the best-fitting classification model (Morgan, 2015; Nylund et al., 2007; Vaillancourt-Morel, 2022). A non-significant VLR and non-significant BLRT indicate that

enhancements in model fit obtained through adding an additional profile should be rejected. In other words, one should consider selecting the more parsimonious model, or the model with one fewer class profile. As additional class profiles are added to an LPA, model fit tends to naturally improve (Nylund et al., 2007). As such, a general consideration in model selection is to determine which class model features the smallest number of possible profiles, achieves acceptable model fit, includes a significant number of participants in each class (each profile should include more than 5% of the sample), and produces theoretically interpretable profiles (Vaillancourt-Morel, 2022). Finally, the precision of the classification of individuals into distinct profiles was assessed using an Entropy value ranging from 0 to 1, with higher entropy suggesting clearer class distinction. Or, the closer the Entropy value is to 1, the less likely it is that individuals will belong to more than one latent class (.80 is considered satisfactory classification). It was anticipated that this analysis would result in two or more latent class profiles categorizing parents into varying levels of attachment coherence. The previously outlined model-fit criteria were then used to determine the best-fitting model from those generated (i.e., 2, 3, 4, and 5 classifications).

Research Question 2: Will mothers' classified attachment representations predict her corresponding self-reported adult attachment style? After determining whether latent class profiles could be successfully classified for the sample, the predictive potential of latent class membership on adult attachment styles (i.e., secure, preoccupied, dismissive, fearful) was tested utilizing the 3-step method of mixture modeling (Nylund-Gibson et al., 2014). This method ensures that measurement parameters of the mixture model are uninfluenced by auxiliary variables, which allows for multiple latent class variables within a model to be specified without being influenced by other parts of the model. This method is particularly useful in mixture

modeling when one is seeking to examine specific portions of a mixture model in isolation, for example, examining how one of multiple latent classes might interact with particular variables independently from the other latent classes. In essence, this 3-step method freezes the model for extended evaluation. Continuing, instead of assigning individuals to the attachment style where their class membership was the highest, this method accounted for the probability of attachment style membership in all classes (Asparouhov & Muthén, 2007). Due to the smaller sample size restricting model capacity, each model was examined using one of five demographic control variables at a time (i.e., income, maternal age, partner status, education, and study group designation) resulting in five separate models from which general trends would be evaluated. In summary, this method was used to determine whether latent class profiles of attachment representations were predictive of adult attachment styles as determined by the Attachment Styles Questionnaire (Van Oudenhoven, Hofstra, & Bakker, 2003) and controlling for the previously designated demographic variables.

Research Question 3: Will interview-based attachment representations and self-reported adult attachment styles independently predict observed parenting behavior domains? This research question had two parts, Part A and Part B. For Part A, and using the same 3-step method utilized in Research Question 2, the probabilities of the previously described parenting behaviors were predicted by the attachment representation-based latent class profiles. Additionally, post-hoc difference tests allowed for identifying where significant differentiation occurred between latent classes on each of the parenting behaviors. For Part B, a series of multilinear regressions utilizing a dummy coding system were conducted to examine whether one's adult attachment style predicted the observed parenting behavior domains of affection, responsiveness, encouragement, teaching, and positive parenting. In summary, the goal of Research Question 3

was to determine whether adult attachment styles or the attachment representation-based latent profiles better predicted observed parenting behaviors.

Research Question 4: Do interview-based attachment representations influence the relationship between self-reported adult attachment style and observed parenting behavior when introduced as a moderator? Using a similar setup to RQ3 Part B, a series of multilinear regressions utilizing a dummy coding system were conducted to examine whether mothers' adult attachment style predicted the previously described observed parenting behaviors. For this research question, however, an additional step was added, where the 4 latent class profiles were added to these regressions as a potential moderator. The goal of this research question therefore, was to determine whether attachment representations were capable of influencing the circumstances under which adult attachment styles predicted observed parenting behaviors.

## CHAPTER IV

### FINDINGS

#### **Preliminary Results**

Prior to major analysis, preliminary analyses were run to assess descriptive statistics and correlations between study items (see Table 1). It was noted that a number of demographic variables were found to be significantly correlated with study items, and were therefore included in each of the following study analyses as appropriate. Additionally, given that this sample was collected from both treatment and control groups for the *Legacy for Children* program as well as from the Oklahoma Baby Study, results from an analysis of group differences can be seen in Table 2. As shown, significant group differences were detected for the demographic variables of maternal age, race, partner status, educational attainment, income, and child age.

#### **Research Question 1 - Will mothers' attachment coherence assessed via coded dialogue be categorized into distinct classifications of attachment representations?**

Latent profile models containing 2, 3, 4, and 5 classes were fit to the data. Model fit indices for each LPA can be found in Table 3. Loglikelihood (LL), Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC) and sample size-adjusted Bayesian Information Criteria (SBIC) improved (i.e., decreased) across each of the four class models, and Bootstrap Likelihood Ratio Test (BLRT)  $p$ -values remained consistently significant for each ( $p < .000$ ).

Lo-Mendell-Rubin Likelihood Ratio Test (VLR)  $p$ -values were not found to be significant for any of the four class models, indicating that each model was not significantly different from the others in terms of class-based fit. Entropy scores increased from class model 2 to 3 (.81 to .96) and from class model 3 to 4 (.96 to 1.0), but then decreased from class model 4 to class model 5 (1.0 to .98). It should be noted that these are exceptionally high entropy scores, with class model 4 obtaining a score indicative of perfect participant classification (i.e., all participants were clearly separated into distinct groups without overlap). Considering interpretability, it was determined that class models 3, 4, and 5 best represented the sample in terms of unique profiles of adequate size. Class model 3 introduced three class profiles characterized by high (45.7%), moderate (27.3%), and low (27%) relationship coherence (see Figure 1). Class model 4 consisted of four distinct profiles characterized by very high (7.9%), high (38.2%), moderate (26.3%), and low (27.6%) relationship coherence (see Figure 2). Class model five consisted of five relationship coherence classes characterized by very high (7.9%), high (38.2%), moderate (26.3%), and two very closely scoring low groups (9.2%; 18.4%; see Figure 3).

Despite the consistent improvement in AIC, BIC, and SBIC fit indices with each additional class model, I selected Class model 4 as the superior model for the purposes of this study. Following a subjective assessment of model parsimony and interpretability, I confirmed this decision due to: 1) trajectories in fit indices being qualitatively similar with each additional class model; 2) class model 4 introduced a very-high scoring group that was not present in class model 3 and continued to be present in Class model 5; class model 5 presented two small low-coherence class groups that were very similar in global coherence and lacked distinctiveness that was theoretically meaningful; 3) class model 4 produced an entropy score of 1.0, suggesting that

this model provided the clearest group classification among each of the four class models examined. Figure 2 illustrates the latent class profile plot for the class model 4.

Class model 4 consisted of four distinct classes characterized by very high ( $n = 6$ ), high ( $n = 29$ ), moderate ( $n = 20$ ), and low ( $n = 22$ ) relationship coherence. According to the FMSS-Coherence scoring scale, a score of 4 or lower on the global coherence factor is considered “incoherent”, while a score of 5 indicates “adequate coherence”, a score of 6 reflects “clear coherence”, and a score of 7 is indicative of “comprehensive coherence” (Sher-Censor & Yates, 2012). Because global coherence scores are largely informed by each of the FMSS-Coherence factors (i.e., focus, elaboration, separateness, concern, acceptance, complexity), it can be understood that individuals with high coherence scores received high scores on each factor, while individuals with lower coherence scores scored lower on a number of factors. Upon evaluating coherence scores for each of the 4 classes, it was determined that the low class included participants with “incoherent” relationship coherence, while the very-high, high, and moderate classes scored in the “coherent” range (see Table 4). As such, I have named the four distinct coherence classes as follows, from low to high attachment relationship coherence: Incoherent ( $n = 22$ ), Coherent-Adequate ( $n = 20$ ), Coherent-Clear ( $n = 29$ ), and Coherent-Comprehensive ( $n = 6$ ). For ease of use, I will refer these latent classes as Incoherent, Adequate, Clear, and Comprehensive throughout this dissertation.

**Research Question 2 - Will the categories identified in research question 1 (i.e., mothers’ classified attachment representation) predict her corresponding self-reported adult attachment style?**

Following the development and selection of Class Model 4, a series of linear regressions were run to examine whether the attachment representation-based latent class profiles were



predictive of adult attachment style. This process was run using the 3-step method (Nylund-Gibson et al., 2014) for estimating the effects of auxiliary variables in mixture modeling. Furthermore, probabilities of secure, preoccupied, dismissing, and fearful adult attachment styles were examined across each of the attachment representation-based latent profiles (i.e., Incoherent, Adequate, Clear, Comprehensive) by control variable. Due to the limited power available with the smaller sample size, this pathway was examined using one demographic control variable at a time (i.e., income, maternal age, partner status, and education, and group designation) for a total of five regressions.

Considering the results across each regression, a mixture of both expected and unexpected outcomes were found, with some notable patterns emerging (see Table 5). First, when controlling for income, it was determined that Comprehensive and Clear attachment representations were not predictive of any adult attachment style. It was found however, that those classified as Adequate or Incoherent both had low but significant probabilities of being classified as having Preoccupied or Fearful attachment styles. When controlling for age, a similar pattern emerged as Comprehensive and Clear attachment representations did not significantly predict inclusion of any adult attachment style, while those classified as Adequate and Incoherent possessed low probabilities of having Preoccupied and Fearful attachment styles. Controlling for partner status, it was found that being classified as Comprehensive significantly predicted high probabilities of having a Dismissing attachment style; Clear was significantly predictive of high probabilities of having a Secure attachment style; Adequate was significantly related to moderate probabilities of having a Secure, Dismissing, or Fearful attachment style; and Incoherent was significantly predictive of moderate probabilities of having a Secure, Preoccupied, Dismissing attachment style. When controlling for education, it was found that those classified as having

Comprehensive or Clear attachment representations were significantly likely to possess a Secure attachment style; Adequate classifications were significantly predictive of having a Secure or Dismissing attachment style; and Incoherent classifications were likely to possess significant probabilities of having a Dismissing or Fearful attachment style. Finally, considering group assignment (i.e. Legacy treatment, Legacy control, OK Baby Study), it was found that being classified as Comprehensive significantly predicted high probabilities of having a Dismissing attachment style; Clear was significantly predictive of high probabilities of having a Fearful attachment style; Adequate was significantly related to moderate probabilities of having a Secure or Fearful attachment style; and Incoherent was significantly predictive of moderate probabilities of having a Secure, Dismissing, or Fearful attachment style.

**Research Question 3 - Will interview-based attachment representations and self-reported adult attachment styles independently predict observed parenting behavior domains?**

Research Question 3 consisted of two parts: Part A examined to what extent the 4 latent class profiles of attachment representations predicted observed parenting behavior, and Part B examined whether adult attachment styles predicted observed parenting behavior.

***Part A***

Using the 3-step method for mixture modeling in order to examine each part of the mixture model separately, linear regression was used to examine mean differences among the 4 attachment representation-based latent classes (i.e., Incoherent, Adequate, Clear, Comprehensive) on each of the five parenting behavior domains (i.e., affection, responsiveness, encouragement, teaching, positive parenting score; see Table 6). Similar to Research Question 2 and due to the necessity of a conservative approach, each regression was run five times with a unique demographic control introduced in each regression (i.e. income, maternal age, partner

status, education, group designation). Considering trends across the five regressions, it was found that Affection scores increased going from class to class (i.e., 1 to 2 to 3 to 4) for 3 out of the 5 regressions. Moreover, Class 1 (Incoherent) had the lowest Affection scores in 80% of regressions, while Class 4 (Comprehensive) had the highest affection scores in 80% of the regressions. Next, it was found that Responsiveness scores increased sequentially by class for 2 out of the 5 regressions. Additionally, Incoherent individuals had the lowest Responsiveness scores for 100% of the regressions, while Comprehensive individuals had the highest scores in 60% of the regressions. Third, it was found that Encouragement scores increased sequentially by class for 4 out of the 5 regressions. Furthermore, Incoherent participants had the lowest Encouragement scores for 100% of the regressions, while Comprehensive individuals had the highest scores in 100% of the regressions. Next, it was found that Teaching scores increased sequentially by class for 2 out of the 5 regressions. Moreover, Incoherent individuals had the lowest Teaching scores in 80% of the regressions, while Comprehensive individuals had the highest scores in 60% of the regressions. Finally, it was found that the Positive Parenting score increased sequentially by class for 3 out of the 5 regressions. Additionally, Incoherent individuals had the lowest Positive Parenting scores for 100% of the regressions, while Comprehensive individuals had the highest scores in 80% of the regressions. For statistical outcomes of each regression, see Table 6.

Considering post-hoc analysis to identify significant inter-class differentiation across all five regressions, Class 4 (Comprehensive) was found to be significantly differentiated from Class 3 (Clear) 36% of the time, from Class 2 (Adequate) 36% of the time, and from Class 1 (Incoherent) 68% of the time. Clear was found to be significantly differentiated from Adequate

20% of the time, and from Incoherent 52% of the time. Finally, Adequate was significantly differentiated from Incoherent for 16% of the regressions.

### ***Part B***

A series of multilinear regressions with a dummy coding system were utilized to examine differences among the 4 adult attachment styles (i.e., secure, preoccupied, dismissing, fearful) on each of the five parenting behavior domains (i.e., affection, responsiveness, encouragement, teaching, positive parenting score). Each regression was run with the Secure attachment style serving as the reference group. The decision to select the Secure style as the reference group was due to the nature of the parenting behavior variables each measuring “positive” behaviors, where higher scores are indicative of enhanced parenting behavior. With the Secure attachment style being considered the most optimal of the attachment styles, this allowed for easier interpretation as regression coefficients are be in comparison to the most positive group. As such, any attachment style showing a positive regression coefficient for a given parenting behavior indicates that attachment style scoring higher than securely attached individuals, which would be both notable and unexpected.

From his process, the unstandardized regression coefficients for the models predicting observed parenting behavior revealed that adult attachment styles were not able to significantly predict any of the observed parenting behaviors, as no significant regression coefficients were found across all attachment styles and parenting behaviors (see Table 7). Notably, the Fearful attachment style was the only attachment style that predicted parenting behaviors in expected directions, as fearfully attached individuals were found to score lower on each of the parenting behaviors than securely attached individuals with the exception of Affection, where they scored higher ( $B = .54, SE = .64, p = .40$ ). Unexpectedly, though non-significant, the Preoccupied

attachment style predicted higher parenting behavior scores than Securely attached individuals in all parenting behaviors, and Dismissing attachment style predicted higher parenting behavior scores than Securely attached individuals in all parenting behaviors with the exception of Encouragement, where they scored lower ( $B = -.31$ ,  $SE = .76$ ,  $p = .68$ ).

**Research Question 4 - Do interview-based attachment representations influence the relationship between self-reported adult attachment style and observed parenting behavior when introduced as a moderator?**

Similar to Research Question 3 Part B, Research Question 4 also looked at whether self-reported attachment styles were capable of predicting observed parenting outcomes, however, in this research question the 4 latent class profiles of attachment representations were introduced to examine how attachment representations might alter, or moderate, this previously outlined (lack of) relationship. The setup process was similar to RQ3B in that a series of multilinear regressions with a dummy coding system were utilized to examine differences among the 4 adult attachment styles (i.e., secure, preoccupied, dismissing, fearful) on each of the five parenting behavior domains (i.e., affection, responsiveness, encouragement, teaching, positive parenting score) with the 4 attachment representation-based latent class profiles introduced as a moderator. The introduction of these latent class profiles allowed for within-class examination between attachment styles, a capability not present in RQ3B. Again, each regression was run with the Secure attachment style serving as the reference group. For these results, a number of significant relationships were found to be consistent across the majority of parenting behaviors. First, within the Incoherent latent class, individuals with a Fearful attachment style were found to possess significantly lower scores in Responsiveness, Encouragement, Teaching, and Positive Parenting scores than those within the Incoherent latent class who had a Secure attachment style.

Significant inter-class differentiation between each parenting outcome was found to be present across 47% of other classes, suggesting potential moderation. Next, those with an Adequate classification who had a Preoccupied attachment style possessed significantly higher Affection, Responsiveness, Encouragement, Teaching, and Positive Parenting scores than those with an Adequate classification who had a Secure attachment style. Significant inter-class differentiation between each parenting outcome was found to be present across 93% of other classes, suggesting a moderation effect. Finally, those with a Comprehensive classification who had a Dismissing attachment style were found to possess significantly higher Responsiveness, Encouragement, Teaching, and Positive Parenting scores than those with a Comprehensive classification who had a Secure attachment style. Significant inter-class differentiation between each parenting outcome was found to be present across 30% of other classes, suggesting potential moderation. While these specific relationships mentioned are those that remained significant across the majority of parenting behaviors, some inconsistent significant relationships were found, and can be observed in Table 8.

## CHAPTER V

### CONCLUSION

The findings in this study include both expected and unexpected results that can contribute to our understanding of attachment representations, attachment styles, and each of their individual influences on parenting behavior in the present sample. Considering main study findings from each of the outlined research goals, first, it was found that a latent profile analysis of the FMSS-Coherence coding method revealed that mothers can be categorized into four meaningful groups based on attachment coherence. Second, these categories were found to predict some aspects of self-reported adult attachment, although results were mixed. Third, the four classifications of attachment coherence were found to significantly predict observed parenting behaviors, while self-reported adult attachment styles did not. Fourth, considering attachment representations and attachment styles together produced results that were mixed and largely exploratory, indicating that these relationships are complex and may require a larger sample size for further analysis. A discussion of each research question is presented in sequential order, followed by implications of this dissertation, study strengths and limitations, and future directions of research and application.

The goal for Research Question 1 was to determine whether mothers could be organized into meaningful categories based on attachment representations. Findings from the associated analyses provide support for the possibility of categorizing individuals into distinct classifications based on relationship coherence. Moreover, the findings from the LPA suggest that the various factors that contribute to relationship coherence can be evaluated and combined to contribute to multiple meaningful and distinct profiles indicative of incoherent attachment representations as well as varying degrees of coherence in attachment representations. As hypothesized, attachment representations were organized into at least two groups, including incoherent and coherent, but further, groups representing very-high relationship coherence (Coherent-Comprehensive), high relationship coherence (Coherent-Clear), and moderate relationship coherence (Coherent-Adequate) were also classified.

Although latent profile analyses rely heavily on fit indices and resulting profile sizes for acceptability, their validity also depends upon subjective analysis on the basis of model parsimony and theoretical interpretability (Nylund et al., 2007). While these subjective analyses leave room for various arguments for selecting class models, 3,4, or 5, I feel that my justification for selecting class model 4 is sound even beyond the found fit indices. In addition to the reasoning outlined in Chapter IV, class model 4 offered nearly identical class size distributions for the moderate and low coherence groups, but introduced a new very high coherence group broken out of the high coherence group originally found in class model 3. While the sample size for this new very high coherence group was small, this clear separation introduced a group of highest-coherence that continued to be distinguished in class model 5, and met the criteria for being included as a distinct profile (i.e., greater than 5% of the sample) as it included 7.9% of sample participants. Class model 5 was nearly identical to class model 4 for each of the very



high, high, and moderate groups, but introduced an additional low-coherence group of participants who had very similar coherence scores to the low coherence group that had previously been found in class models 3 and 4. Upon further evaluation, it was noted that these groups were differentiated based on one group scoring higher on factors of focus, elaboration, and complexity, but lower than the other low group on factors of separateness, concern, acceptance, and coherence. Despite class model 5 adding a more dynamic look at the lowest group, it is difficult to interpret. When it comes to latent profile analyses, parsimony tends to contribute to interpretability more than complexity does. Due to the inconsistent nature and smaller sample sizes of these two lowest groups ( $n = 7$ ;  $n = 18$ ) four in class model 5, I determined that they did not offer useful interpretability as distinct groups, and therefore selected Class model 4 where they were classified as one “Incoherent” profile. Ultimately, whether class model 4 was a good model selection depended on whether the classes were able to be meaningfully differentiated from one another in the following analyses, which it did in a number of ways to be outlined further.

The possibility of categorizing relationship coherence beyond the traditional manner of coherent versus incoherent introduces additional possibilities for meaningful between- and within-group analyses, as conducted in this dissertation (Sher-Censor, 2015). While previous studies have exclusively utilized a dimensional coherence approach for predicting a number of parent and child outcomes (e.g. child behavior, school adjustment, parenting stress; George & Solomon, 2008; Sher-Censor et al., 2016; Sher-Censor et al., 2018) these pathways may have been limited in their capacity to examine some of the finer within-groups characteristics that could have potentially been present in their samples. Additionally, although we do not know whether attachment representations are ultimately best represented dimensionally or

categorically, it has been noted statistically that when a categorical construct is measured dimensionally, a part of the observed variance is spurious (Ravitz et al., 2010). Findings from this research question suggest that attachment representations identified using the FMSS-Coherence measure can be categorized meaningfully, and should therefore be considered beyond this study alone.

An additional finding from the latent profile analysis was that the four-profile model proved to be the most useful and interpretable, similar to previous categorizations of other attachment representation-based constructs that resulted in four meaningful classifications (George, Kaplan, & Main, 1984; Hesse, 2008; Ravitz et al., 2010; Zeanah et al., 1996). A primary difference, however, is that the classifications distinguished in the present study lean more on relationship coherence, while previous studies have aimed to replicate the attachment styles in the form of attachment representations. While it remains to be seen whether the four classes of coherence-based attachment representation groups found in this study would be related to other attachment groupings, they were not related to the four attachment styles as measured by the ASQ in the present study, as will be discussed in the section to follow.

Before assessing general utility, it is important to consider how or even why classifying individuals would be considered helpful. We have seen in previous literature that research instruments designed to categorize individuals based on similarities and differences can be useful for a number of reasons, including identifying potential risk factors (Panter-Brick, 2004; Räikkönen, Matthews, & Salomon, 2003), assessing clinical thresholds for pathology (Ravitz et al., 2010) and as a determining factor behind needs-based assessments (Council on Children With Disabilities, 2006). In this line of research however, it is important to reflect on whether categorizing individuals is necessary, helpful, or even exclusionary (Lei & Rhodes, 2021).

Ultimately, while it may be interesting, classifying for the sake of classifying is not inherently helpful. Researchers must consider theory, necessity, and ethics in determining whether a classification method or tool is worth pursuing (Jaccard & Jacoby, 2019). I would argue that the findings from this latent profile analysis are useful because they extend the traditional dimensions of coherent and incoherent to additional categories that are meaningful, as observed in the additional analyses. The analyses performed in each of the additional research questions aided in contributing to the face validity of each category, and the fact that these categories appear to differentiate individuals based on parenting behavior contributes to their usefulness, and warrants examination in other constructs, such as child behavior and other caregiver characteristics or behaviors that can contribute to child wellbeing (George & Solomon, 2008).

The goal for Research Question 2 was to determine whether attachment representations informed by relationship coherence would be significantly predict the four attachment styles as determined by the ASQ (i.e., secure, preoccupied, dismissing, fearful). Considering trends across each of the five regressions run for this research question, these results show a relative lack of clarity in terms of the predictive validity for the 4 attachment representation-based latent profiles in terms of adult attachment style gathered by the ASQ measure. While some patterns did emerge, profile predictions of attachment styles were often unexpected and inconsistent. The Adequate and Incoherent classifications, however, did differentiate adult attachment styles more often and in a more expected manner than the Comprehensive and Clear classifications. Specifically, the Comprehensive classification was found to be significantly differentiated from the other classes in predicting a secure attachment style, but only when controlling for education. Unexpectedly, the Comprehensive class ended up being one of the strongest predictors of a dismissing attachment style when controlling for partner status and group designation.

Considering the Clear classification, it was found to significantly differentiate from other classes for secure attachment, but only when controlling for partner status or education. Alternatively, the Clear class was also found to be significantly predictive of a fearful attachment style when controlling for age or group designation. Next, the Adequate classification was found to be significantly predictive of each of the four attachment styles across the five regressions, and with moderate levels of differentiation. The most consistent predictor was the Incoherent class, which significantly predicted each of the four attachment styles, but did so particularly well for the classes that would be considered suboptimal (i.e., preoccupied, dismissing, fearful) with the highest levels of differentiation compared to each of the other three classes.

Based on previous literature regarding attachment representations and their predictive validity for adult attachment styles (Roisman et al, 2007; Simpson & Rholes, 2015), it was hypothesized that this relationship would be significant. Despite the fact that interview and self-report measures for attachment constructs are traditionally informed by the same theoretical foundation, studies have shown that correlations between the two tend to be mixed. For example, Roisman and colleagues (2007) conducted a meta-analysis of 10 studies published on the empirical overlap of the attachment coherence-based AAI (George, Kaplan, & Main, 1984), and eight different measures of self-reported attachment style. What the authors reported was that the correlations found between the two were weak to trivial (Roisman et al., 2007) despite shared theoretical frameworks.

While results were rather unclear in the present study, there was still a notable trend for the lower attachment coherence classes (i.e., Adequate, Incoherent) predicting insecure attachment styles. This finding is the inverse of a study that examined a similar relationship. In an attempt to examine the convergent validity of the coherence-based AAI (George, Kaplan, &

Main, 1984) and the self-reported Parental Bonding Instrument (PBI; Parker, Tupling, & Brown), Mannasis and colleagues (1999) found the AAI to be moderately predictive of the PBI, but only for positive parenting behavior from individuals with optimal attachment histories. As such, the positive constructs of the AAI were found capable of predicting the positive constructs of the PBI, but the negative constructs were not found to be associated, as was found in the present study. Findings between this study and those of Mannasis and colleagues could potentially illustrate the presence of floor and ceiling effects in these measures, as those with the most and least optimal attachment styles tended to be grouped together within each respective study. Moreover, as the attachment measures utilized in this study were designed to measure either adult attachment or attachment representations for a specific child, there is certainly potential for a lack in construct overlap. While both have been designed to measure the construct of attachment, the contextual differences between the two may have contribute to greater differences than hypothesized.

Despite the limited expected trends that were found, a number of findings from this analysis were unexpected. Although lower attachment coherence classes did moderately predict insecure attachment styles, they were also found to predict secure attachment styles. Additionally, as previously noted, Coherence and Clear classes were found to predict insecure attachment styles with greater strength than they were secure attachment styles. These results are therefore difficult to interpret and apply generally. Although this does not come as a surprise given common findings in the literature, it is never-the-less perplexing that these constructs are consistently found to be poorly related. Considering this, one additional potential explanation for the poor and unexpected relationships between these measures is that they were designed to assess different aspects of attachment that may not be inherently correlated, despite theoretical

foundation (Simpson & Rholes, 2015). For example, it has been documented that self-report measures of attachment are typically developed on the assumption that despite the psychological processes by which individuals operate not always being consciously accessible, these processes still contribute to the conscious, and reportable, beliefs and attributions that individuals develop about themselves and their relationships (Crowell, Fraley, & Shaver, 1999). On the other hand, coding systems such as the AAI or FMSS-C tend to focus on whether individuals are able to produce coherent narratives about their experiences in close relationships as a whole. Because narrative-based attachment measures emphasize coherence of mind instead of personal evaluations and self-report measures emphasize conscious appraisals, it has been argued that these measures are fundamentally different, contributing to weak correlations (Roisman et al., 2007).

Moving forward, despite correlations historically being mixed when comparing self-report and interview-based measures of adult attachment, the convergent validity between these two types of instruments should theoretically still be observable in their ability to predict similar outcomes (Roisman et al., 2007; Shaver & Mikulincer, 2002). Outcomes for the following research questions were designed for that purpose, to determine whether attachment representations and attachment styles would be capable of predicting parenting behavior in a similar manner, despite being statistically unrelated.

Research Question 3 consisted of two parts, with Part A examining how interview-based attachment representations predicted observed parenting behavior, and Part B examining how self-reported attachment styles predicted observed parenting behavior. Although determined to be unrelated, in various other studies these constructs were found to independently predict a number of attachment-influenced constructs, including emotion regulation (Mikulincer &

Shaver, 2007), social information processing (Dykas & Cassidy, 2011), and romantic relationship functioning (Simpson et al., 2002). While these results are notable, parenting behavior is one construct that has yet to be examined in this manner despite it being a foundational aspect of attachment's theoretical development (Adam, Gunnar, & Tanaka, 2004; Simpson & Rholes, 2015). Moreover, little is known about how these interview and self-report attachment constructs might predict observational parenting behavior in the form of affection, responsiveness, encouragement, and teaching. Based on these previous findings, I hypothesized that both attachment representations and attachment styles would significantly predict parenting behavior, indicating convergent validity between the two.

Similar to Research Question 2, and in an effort to be conservative due to model limits of sample size, each relationship was observed while controlling for one of the five demographic variables (i.e., income, maternal age, partner status, education, group designation) at a time, for a total of five regression. First considering trends across each of the five regression for Part A, it was found that each of the attachment representation classes predicted parenting behavior in expected manners. Across all parenting behaviors, individuals classified as Incoherent were most likely to possess the lowest affection, responsiveness, encouragement, teaching, and positive parenting scores. Conversely, individuals classified as Comprehensive were most likely to possess the highest affection, responsiveness, encouragement, teaching, and positive parenting scores. Moreover, parenting behavior scores were found to increase by attachment representation class going from Incoherent, to Adequate, to Clear, to Comprehensive for the majority of parenting outcomes. Upon further evaluation, it was found that if Comprehensive was not the highest scoring class on a given parenting behavior, it was almost always the Clear class that scored highest (Adequate was the highest scoring group in teaching when controlling for income,

though not significantly higher). If Incoherent was not the lowest scoring, it was nearly exclusively the Adequate class that scored the lowest (Clear was the lowest scoring group in affection when controlling for partner status). These findings clearly suggest lower levels of attachment coherence to be predictive of lower levels of parenting behavior, and higher levels of attachment coherence to be predictive of elevated levels parenting behavior, as examined in previous studies (Sher-Censor et al., 2017; 2018). While Part A of Research Question 3 was designed to examine the predictive nature of attachment representations on parenting behavior, this analysis also lent to the face validity of the 4 class model given the manner in which they predicted parenting behavior in a consistent and predictable manner (George & Solomon, 2008).

Considering post-hoc analyses for determining differentiation by latent class across all parenting behaviors and demographic controls, the Comprehensive class was found to be significantly differentiated from Clear in thirty-six percent of the parenting behaviors across the five regressions, Adequate thirty six percent, and Incoherent sixty-eight percent. Next, the Clear class was found to be significantly differentiated from Adequate twenty percent of the time, and Incoherent in fifty-two percent of the parenting behaviors across the five regressions. Finally, Adequate was only found to significantly differentiate from Incoherent sixteen percent of the time. From these findings, it can be noted that classes that are close to each other in order are more difficult to differentiate, while classes that are more than one class away tend to be significantly differentiated more consistently, especially the further apart the classes are (e.g., Incoherent vs. Comprehensive). As such, these findings suggest that Comprehensive and Incoherent individuals are significantly different from one another for the majority of parenting behaviors.



Based on these findings, one might argue that these classes are essentially showing the results that would be expected for a dimensional coherence model, that is, incoherent predicting low parenting scores and coherence predicting high parenting behavior scores. It must be noted, however, that although the Adequate class was rarely differentiated from the Incoherent class in terms of parenting behavior, those in the Adequate class received scores that would technically classify them as coherent on the dimensional coherence scale (Sher-Censor & Yates, 2012). Finding that the Incoherent (dimensionally incoherent) and Adequate (dimensionally coherent) groups are the least differentiated among all classes introduces the notion that the dimensional approach may not be as clearly defined as previously understood, and lends to the proposition that a categorical approach may be more informative in analyzing outcomes related to attachment coherence (Simpson & Rholes, 2015). Furthermore, one might argue that the Comprehensive and Clear classes are not significantly differentiated enough to warrant a 4 class model. While they were only significantly differentiated 36% of the time, the Comprehensive group still scored significantly higher than the Clear class far more often than it did not. Additionally, when considering classes in a stepwise fashion, (i.e., 1 to 2, 2 to 3, 3 to 4) the Comprehensive class was differentiated from the Clear class more often (36%) than the Clear class was differentiated from the Adequate class (20%), and the Adequate class from the Incoherent class (16%). These findings indicate that, at least in the context of observed parenting behavior, the 4 class model of attachment coherence categories provides unique findings beyond those presented in other studies relating dimensional attachment coherence to attachment-based outcomes (Oppenheim, 2006; Sher-Censor et al., 2017; Simpson et al., 2002).

Turning to Part B, it was found that mothers' self-reported attachment styles were unable to significantly predict any differences in the parenting behaviors. Additionally, though non-

significant, mothers' attachment styles were found to predict parenting behavior in unexpected directions, as the fearful attachment style was the only insecure attachment style that was predicted to have lower parenting behavior scores than those of securely attached mothers, for example. These nonsignificant findings were contrary to the associated hypothesis informed by previous research examining the convergent validity of attachment coherence measures and attachment styles measures that had previously been found to independently predict a number of attachment-based outcomes in similar ways (Dykas & Cassidy, 2011; Mikulincer & Shaver, 2007; Simpson et al., 2002).

Considering how attachment styles as informed by the Attachment Styles Questionnaire (Van Oudenhover, Hofstra, & Bakker, 2003) were not found to be significantly correlated with the overwhelming majority of the FMSS-Coherence subdomains or PICCOLO parenting behaviors (see Table 1), the attachment representation-based classes as described in Research Question 2, nor the parenting behaviors examined in Research Question 3 Part B, there is a possibility that this attachment styles measure may not be the most suitable for pairing in parenting relationship contexts despite being based on the theoretical model of Bowlby (1978) and attachment style organizations of Bartholomew and Horowitz (1991). Upon further evaluation of this measure and in reference to the top five most-cited studies that have used it to date, I found that these studies primarily focused on attachment styles in the context of cultural adaptation and adjustment (Bakker, Van Oudenhover, & Van Der Zee, 2004; Van Oudenhover & Hofstra, 2006; Hofstra, Van Oudenhover, & Buunk, 2005). Moreover, of these studies that utilized the ASQ measure in non-cultural contexts, the authors of one study examined how attachment style mediated the pathway between parenting styles and self-regulation (Zeinali et al., 2011), and how emotion regulation mediated the pathway between attachment style and well-

being (Karreman & Vingerhoets, 2012). Furthermore, in the study by Zeinali and colleagues (2011), the authors combined each of the three insecure attachment styles into one insecure attachment domain in order for meaningful results to emerge, while another study found a 3-factor version of the ASQ to fit their model best (preoccupied and fearful styles were combined; Bakker et al., 2004). Additionally, each of these studies featured relatively large sample sizes, ranging from 450 to over 800. One additional explanation for poor convergent validity of the ASQ and FMSS-C in the present study could be the fact that to this point, the ASQ has not been validated in studies with a sample size as small as that used for this dissertation ( $n = 76$ ). Despite the inconsistencies of the ASQ to this point, however, it is not uncommon for attachment styles to be poor predictors of theoretically related outcomes. For example, in a meta-analysis of 60 studies that utilized self-reported measures of attachment styles, Jones and colleagues (2015) found attachment styles to be relatively inconsistent in predicting related outcomes, particularly for the insecure attachment styles (Jones, Cassidy, and Shaver, 2015).

Despite the notable differences in capacity of attachment representations and attachment styles in predicting parenting behavior as shown in the present study, these findings are notable because such simultaneous utilization within one study is uncommon (Jones, Cassidy, & Shaver, 2015). Traditionally researchers utilize either self-report or interview-based attachment variables to predict related outcomes (Ravitz et al., 2010). The use of both in the present study allows for immediate comparison and interpretation from the same sample. The underutilization of such efforts has contributed to a limited understanding of how dimensional or categorical attachment measures predict attachment-related behavior, such as parenting (Simpson & Rholes, 2015).

Beyond the convergent validity of these two approaches to attachment construct measurement, still less is known regarding when, or under what circumstances one might be able

to predict parenting behavior, as was examined in Research Question 4. This research question was set up to examine the same relationship as Research Question 3, but this time with the 4 latent class attachment representations introduced as moderators. Despite the unexpected results from research question 3, the primary pathway (attachment styles to parenting behavior) was maintained due to theoretical background. In the context of attachment representations, it is understood that individual characteristics of both the child or the caregiver can modify the manner in which each member of the dyad responds to or engages the other (Zeanah & Anders, 1987). With this in mind, by introducing attachment representations as the moderator, we introduced a dyad-specific variable that might contribute to information that is not only informed by the parent, but by characteristics of the child as well. With this in mind, it hypothesized that attachment representations would therefore modify the relationship between parental attachment style and parenting outcomes. To a degree, though not always in the manner expected, this hypothesis was confirmed.

Across each of the five regressions representing different parent behavior domains, three relationships emerged that were consistently predicted at a level of significance. First, mothers classified as Incoherent with a Fearful attachment style were found to possess significantly lower responsiveness, encouragement, teaching, and positive parenting scores than mothers with an Incoherent classification and Secure attachment style, with significant post-hoc class differentiation occurring in 47% of inter-class comparisons across all parenting behaviors. This finding is notable because in the previous analysis the Fearful attachment style was the only insecure attachment style found to predict lower parenting behavior scores than those with a Secure attachment style, however, that pathway was not found to be significant. By introducing the attachment representation-based latent classes as moderators, not only are we able to now

identify a significant pathway, but we can now see that this pattern may be particularly salient for mothers with fearful attachment styles who are also classified as Incoherent. This finding has implications given that mothers with either insecure attachments or incoherent classification have been shown to exhibit poorer parenting behavior (Jones, Cassidy, & Shaver, 2015). While these attachment styles and attachment representations have not been previously tied to parenting behavior simultaneously, studies have indicated that insecure attachment styles often contribute to maladaptive parenting behavior including lower parental supportiveness (Berlin et al., 2011), lower parental functioning (Cohen, Zerach, & Solomon, 2011), and elevated risk of abuse (Rodriguez, 2006), and that incoherent attachment representations often contribute to suboptimal parenting behavior including negative depictions of parent-child play (Sher-Censor & Yates, 2013), less optimism in the parenting (Aber et al., 1999), and lower emotional availability (Sher-Censor et al., 2017). Taken together, this finding has additional clinical implications in that mothers who are both identified as having an insecure attachment and who have an incoherent attachment representation of their child may warrant additional care or potential intervention in an attempt to enhance parental attachment as a means for improving parenting behavior (Morris et al., 2020).

In the second significant pathway, mothers classified as Adequate with a Preoccupied attachment style were found to possess significantly higher affection, responsiveness, encouragement, teaching, and positive parenting scores than mothers with an Adequate classification and Secure attachment style, with significant post-hoc class differentiation occurring in 93% of inter-class comparisons across all parenting behaviors. While the direction of these findings are unexpected, this is not unheard of in the attachment literature. Although termed “preoccupied” by the ASQ, the Van Oudenhoven and colleagues (2003) defined this

attachment style as being qualitatively similar to the traditionally defined anxious attachment style. Despite anxious attachment being considered a suboptimal attachment style, research has indicated that parents with an anxious attachment style can excel, though typically temporarily, in certain areas of parenting given their notable focus on relationship maintenance and fear of relationship dissolution (Howe, 2011). Additionally, it has been found that anxiously attached parents can at times utilize hyper-activating strategies that may present as heightened emotional awareness as well as attention seeking behavior from their child, which could potentially manifest as enhanced parental involvement in observational contexts (Stevens, 2014).

Finally, mothers classified as Comprehensive with a Dismissing attachment style were found to possess significantly higher responsiveness, encouragement, teaching, and positive parenting scores than mothers with a Comprehensive classification and Dismissing attachment style, with significant post-hoc class differentiation occurring in 30% of inter-class comparisons across all parenting behaviors. While the lower level of significant differentiation limits the generalizability of this finding, these results are notable, nonetheless. Given the high level of attachment coherence reported among those classified as Comprehensive, it would theoretically be uncommon for individuals with highly coherent attachment representations to simultaneously possess an insecure attachment style (Simpson & Rholes, 2015). As previously mentioned in describing the rationale behind using attachment representations as moderators, this finding could be indicative of dyad-based attachment representations contributing to parenting behavior above attachment style. For example, even if a mother generally possesses an insecure attachment style, she could still possess a comprehensively coherent attachment representation of this particular child, which could contribute to elevated parenting behavior (Zeanah & Anders, 1987). Although unexpected, this finding contributes to the argument that attachment styles and

attachment representations ought to be examined simultaneously, as this practice may reveal that attachment styles and representations are more dyad-based than traditionally believed.

While producing partially unexpected results, the introduction of the 4 class model of attachment representations contributed to varying levels of moderation for the Incoherent-Fearful group indicating medium moderation, the Adequate-Preoccupied group showing clear moderation, and the Comprehensive-Dismissing group showing low indicators moderation. Because there is not a defined cutoff for determining whether moderation exists or does not, the results from this research question should be observed with care. Regardless of the strength of the moderation, findings from this research question suggest that attachment representations may contribute to our understanding of the circumstances under which attachment styles predict parenting behavior, and warrants further investigation.

## **IMPLICATIONS**

A number of implications can be drawn from this study. First, from the use of rigorous up-to-date and person-centered analysis, coherence-based attachment representations were found to be meaningfully categorizable beyond the two traditional coherent and incoherent dimensions to include dimensions such as Incoherent, Adequate, Clear, and Comprehensive. While categorization is a common practice for two of the most widely used coherence-based attachment representation measures (i.e., AAI and WMCI), the FMSS-C coding method was only published 10 years ago and was yet to be categorized prior to being evaluated in this study. Continuing, the 4 latent profiles proved to be an effective categorization model for which attachment representations could be organized. The analyses performed using these new attachment representation-based latent profiles aided in contributing to the face validity of each category, at least in the context of predicting parenting behavior and modifying the relationship between

traditional attachment styles and parenting behavior. These findings contribute to the overall utility of the FMSS-C coding method and establish a need for further evaluation with different self-reported attachment style measures and attachment-based outcomes including other caregiver characteristics or behaviors that contribute to child health and well-being (George & Solomon, 2008).

Next, this study provided empirical support for the use of the FMSS-C coding method on mothers of very young children. The average child age for the sample used in this study ( $M = 13.4$ ,  $SD = 1.42$ ) is the youngest sample on which the FMSS-C has been used to this point (Sher-Censor et al., 2018), implying that this tool can be effective even for examining attachment coherence for parents of infants. These findings also suggest that maternal attachment representations are developed to the point of measurement by the second year of a child's life.

Taken further, findings from this study make a case for the increased evaluation of attachment coherence in parents of young children due to the notable role that attachment coherence appears to play in parenting behavior at these early stages of the child's life. While a number of interventions have been developed with theoretical foundations of attachment, there is lacking evidence for interventions and programs developed on the foundation of parental attachment coherence (Morris et al., 2020). Attachment coherence could be used as a mechanism for changing parenting behavior and vice versa. Moreover, the FMSS is cost effective, requires little training, and is not labor intensive for participants (Sher-Censor, 2015). As such, it could easily be implemented with greater frequency for both clinical and parenting intervention purposes. Additionally, specifically in clinical contexts, outliers in the examination of coherence scores may warrant additional observation, both for gathering information regarding the



antecedents of positive parenting and to potentially identify low-coherence parents for who could potentially benefit from attachment-based interventions or programming.

An additional implication that can be taken from this study is the questionable utility of the Attachment Styles Questionnaire (Van Oudenhover et al., 2003) in attachment coherence and parenting behavior contexts. Despite interview and self-report measures for attachment constructs historically being poorly correlated, the lacking relationship presented in this study was poorer than expected (Simpson & Rholes, 2015). Additionally, the poor convergent validity of the ASQ measure in predicting parenting behavior in a manner similar to the FMSS-C raises questions regarding contexts in which this measure can be successfully utilized, as a number of studies to date have experienced mixed results from using the measure, including unacceptable internal consistency among some of the attachment styles (Oudenhoven, Hofstra, & Bakker, 2003; Zeinali et al., 2011), poor differentiation between each of the insecure attachment styles (i.e., permissive, dismissing, fearful; Bakker et al., 2004); and poor model fit in structural equation modeling (Zeinali et al., 2011). However, it must also be noted that the ASQ has yet to be used in a published study that features a sample size as small as that of the present study.

Finally, in the attachment literature there is notable evidence for the use of self-report or interview-based attachment measures (Jones et al., 2015; Ravitz et al., 2010). This study is unique in that it showed that both forms can be used simultaneously in research, allowing for comparison between the utility of each, as well as examinations into how they interact with each other to predict observed attachment-related behavior, such as parenting. Moreover, this study illustrated the interplay between three distinct measurement modalities, including self-report, interview, and observation. The simultaneous use of interview, self-report, and observational

measures in one study creates a dynamic perspective of the parent and their child not typically available in other studies (Simpson & Rholes, 2015).

## LIMITATIONS

This study possessed a number of limitations. First, the total sample size ( $N = 76$ ) was smaller than is typically utilized in mixture modeling. Because of this, the mixture model alone pushed this sample near its limit even before additional analyses were performed. As such, the small sample size limited the addition of control variables in each of the regressions to one control variable at a time, resulting in five regressions for each analysis, which hindered ease of interpretation and made some of the overall results more subjectively than they would have been had all controls variables been entered into the regression models at once. While general trends and consistencies were observable, this approach is certainly not ideal.

Next, the sample collected for this study was not particularly diverse, with nearly seventy-five percent of mothers being White. This lack of diversity within the collected sample limits generalizability across various racial and ethnic groups and limits the potential for meaningful ethnocultural interpretation of study results. Moreover, research utilizing the FMSS-C coding method to this point has primarily relied on samples of Western White families, so this study does not contribute meaningfully to expanded understanding in terms of racial and ethnic applications of this coding method.

Third, while the *Legacy for Children* evaluation study is longitudinal, the data used in the present study are cross-sectional, which only gives a snapshot of maternal attachment and parenting behaviors when the child was close to one year of age. The use of longitudinal data could inform the determinants of attachment representations and styles, as well as how they contribute to child health and wellbeing long-term.

Finally, the FMSS-C offers some limitations given that it is very brief and largely participant driven, allowing for various participant-based variables to potentially dictate the narrative. For example, individual experiences with the researcher or research environment, present feelings such as mood, or even social-desirability bias may influence coherence scores as parents attempt to present an overly positive narrative of their child.

## **FUTURE DIRECTIONS**

Future studies seeking to use mixture modeling as a means of categorizing individuals based on attachment representations should consider the use of much larger sample sizes. While the sample size in this study was adequate for the latent profile analysis conducted, although seemingly unique, the Comprehensive class was rather small ( $n = 6$ ). Future studies using a larger sample size may be able to better determine a representative distribution of individuals between the four coherence-based classes, as well as determine whether the more conservative 3 class model or more dynamic 5 class model could provide useful information and evaluation capabilities beyond that found in the present study.

As the attachment style measure selected for this study was found to produce inconsistent and mixed results, future studies might consider examining similar pathways using attachment styles measures that have been notably validated, as presently there are a wealth of attachment style measures that have been developed and have received ample psychometric support (Jones et al., 2015; Ravitz et al., 2010). Additionally, future studies may need to be more selective about the measures paired with the FMSS-C coding method in order to best fit theoretical models and research questions. Because parenting behavior was the only construct examined using the ASQ and FMSS-C in the present study, we cannot determine whether the low correlation was due to the ASQ being a poor fit for this study, or if coherence-based attachment representations are

simply different. Future studies might also further examine the convergent validity of the FMSS-C method using other attachment-based predictors and outcomes beyond observed parenting behavior (Sher-Censor, 2015).

As previously mentioned, to this point the FMSS has been primarily utilized with samples of western, white families. Given that culture largely informs norms surrounding parenting and child behavior (Grusec, Rudy, & Martini, 1997; Halgunseth, Ispa, & Rudy, 2006), cultural differences could notably influence the meaning of the various subdomains assessed using the FMSS-C coding method (i.e., focus, elaboration, separateness, concern, acceptance, complexity). For example, expressions of criticism that might be considered rejection in one culture could instead indicate care and support in another (Cheng, 2002; Deater-Deckard & Dodge, 1997). Moreover, it has been found that developmental research examining ethnocultural differences in the meaning of the FMSS-C subdomains is scant (Sher-Censor, 2015). As such, future studies using the FMSS-C method should consider representative or even minority-based samples as a means of better informing the ethnocultural sensitivity of this method.

Further considering the utility of the FMSS measure, it is relatively understudied in both infant and adolescent samples (Sher-Censor, 2015). It has been posited that attachment representations reflect information processing regarding the child, and should therefore be expected to do so from infancy into adulthood (Hesse, 2008). The FMSS-C coding method, however, has only been utilized in studies of parents with preschool-aged children (Sher-Censor et al., 2013; Sher-Censor & Yates, 2015). Beyond the present study, future studies using samples of parents of infants, school age, and adolescent children could contribute to the longitudinal evaluation of attachment representations and inform further utility of the FMSS measure (Sher-Censor, 2015)

Finally, studies examining attachment coherence have found that parents who provide narratives for more than one of their children tend to produce narratives that are qualitatively different (Cartwright et al., 2011; Caspi et al., 2004). This finding suggests that attachment representations are not only relationship-specific, but that they can be measurably different between family members. Little is known, however, about the reasons or processes whereby parents develop these different attributions, feelings, and information processing, or the degree of influence that early infant characteristics and relationship factors influence attachment representations (Waller et al., 2014). Future studies might consider examining how attachment representations differ between children, but more importantly, the determinants of attachment representations (Lambregtse-van den Berg et al., 2013; Smith et al., 2013).

## REFERENCES

- Aber, J. L., Belsky, J., Slade, A., & Crnic, K. (1999). Stability and change in mothers' representations of their relationship with their toddlers. *Developmental Psychology*, 35(4), 1038. DOI:10.1037/0012-1649.35.4.1038
- Adam, E. K., Gunnar, M. R., & Tanaka, A. (2004). Adult attachment, parent emotion, and observed parenting behavior: Mediator and moderator models. *Child Development*, 75(1), 110-122. DOI:10.1111/j.1467-8624.2004.00657.x
- Ainsworth, M. D. S. (1979). Infant – mother attachment. *American Psychologist*, 34, 932- 937. DOI:0003-066X/79/3410-0932
- Ainsworth, M. D., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of Attachment*. Hillsdale, NJ: Erlbaum.
- Asparouhov, T., & Muthen, B. (2007). Computationally efficient estimation of multilevel high-dimensional latent variable models. In *proceedings of the 2007 JSM meeting in Salt Lake City, Utah, Section on Statistics in Epidemiology*, 2531-2535.
- Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2009). The first 10,000 Adult Attachment Interviews: Distributions of adult attachment representations in clinical and non-clinical groups. *Attachment & Human Development*, 11(3), 223-263. DOI:10.1080/14616730902814762

- Bakker, W., Van Oudenhoven, J. P., & Van Der Zee, K. I. (2004). Attachment styles, personality, and Dutch emigrants' intercultural adjustment. *European Journal of Personality, 18*(5), 387-404. DOI:10.1002/per.515
- Bandura, A. (2005). The evolution of social cognitive theory. In K. G. Smith & M. A. Hitt (Eds.), *Great minds in management: The process of theory development* (pp. 9-35). New York: Oxford University Press.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: a test of a four-category model. *Journal of Personality and Social Psychology, 61*(2), 226. DOI:10.1037/0022-3514.61.2.226
- Berlin, L. J., Whiteside-Mansell, L., Roggman, L. A., Green, B. L., Robinson, J., & Spieker, S. (2011). Testing maternal depression and attachment style as moderators of Early Head Start's effects on parenting. *Attachment & Human Development, 13*, 49-67. DOI:10.1080/14616734.2010.488122
- Bowlby, J. (1958). The nature of the child's tie to his mother. *The International Journal of Psychoanalysis, 39*, 350-373. PMID:13610508
- Bowlby, J. (1973). *Attachment & Loss, Volume II: Separation: Anxiety and Anger*. USA: HarperCollins.
- Bowlby, J. (1977a). The making and breaking of affectional bonds. I. Aetiology and psychopathology in the light of attachment theory. The fiftieth Maudsley Lecture. *The British Journal of Psychiatry, 130*, 201-210. DOI:10.1192/bjp.130.3.201
- Bowlby, J. (1977b). The making and breaking of affectional bonds. II. Some principles of psychotherapy. The fiftieth Maudsley Lecture. *The British Journal of Psychiatry, 130*, 421-431. DOI:10.1192/bjp.130.5.421

- Bowlby, J. (1984). Violence in the family as a disorder of the attachment and caregiving systems. *American Journal of Psychoanalysis*, *44*, 9-27. DOI:10.1007/BF01255416
- Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. London: Routledge.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). The Guilford Press.
- Carr, A., Flanagan, E., Dooley, B., Fitzpatrick, M., Flanagan-Howard, R., Shevlin, M., ... & Egan, J. (2009). Profiles of Irish survivors of institutional abuse with different adult attachment styles. *Attachment & Human Development*, *11*(2), 183-201.  
DOI:10.1080/14616730802638741
- Cartwright, K. L., Bitsakou, P., Daley, D., Gramzow, R. H., Psychogiou, L., Simonoff, E., et al. (2011). Disentangling child and family influences on maternal expressed emotion toward children with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *50*, 1042–1053. DOI:10.1016/j.jaac.2011.07.006.
- Caspi, A., Moffitt, T. E., Morgan, J., Rutter, M., Taylor, A., Arseneault, L., et al. (2004). Maternal Expressed Emotion predicts children's antisocial behavior problems: Using monozygotic-twin differences to identify environmental effects on behavioral development. *Developmental Psychology*, *40*, 149–161. DOI:10.1037/0012-1649.40.2.149.



- Cheng, A. T. A. (2002). Expressed emotion: A cross-culturally valid concept? *British Journal of Psychiatry*, *181*, 466–467. DOI:10.1192/bjp.181.6.466.
- Cohen, E., Zerach, G., & Solomon, Z. (2011). The implication of combat-induced stress reaction, PTSD, and attachment in parenting among war veterans. *Journal of Family Psychology*, *25*, 688-698. DOI:10.1037/a0024065
- Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology*, *71*(4), 810. DOI:10.1037/0022-3514.71.4.810
- Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology*, *58*(4), 644. DOI:10.1037/0022-3514.58.4.644
- Collins, N. L., & Read, S. J. (1994). Cognitive representations of attachment: The structure and function of working models. In K. Bartholomew & D. Perlman (Eds.) *Attachment processes in adulthood* (pp. 53-90). London: Jessica Kingsley Publishers.
- Council on Children With Disabilities, Section on Developmental Behavioral Pediatrics, Bright Futures Steering Committee, & Medical Home Initiatives for Children With Special Needs Project Advisory Committee. (2006). Identifying infants and young children with developmental disorders in the medical home: An algorithm for developmental surveillance and screening. *Pediatrics*, *118*(1), 405-420. DOI:10.1542/peds.2006-1231
- Crowell, J. A., Fraley, R. C., & Shaver, P. R. (1999). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 434–465). New York: Guilford Press.

- Dallos, R., & Vetere, A. (2009). *Systemic therapy and attachment narratives: Applications in a range of clinical settings*. Routledge. DOI:10.4324/9780203881453
- De Wolff, M. S., & Van Ijzendoorn, M. H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development*, 68(4), 571-591.  
DOI:10.1111/j.1467-8624.1997.tb04218.x
- Deater-Deckard, K., & Dodge, K. A. (1997). Externalizing behavior problems and discipline revisited: Nonlinear effects and variation by culture, context, and gender. *Psychological Inquiry*, 8, 161–175. DOI:10.1207/s15327965pli0803\_1.
- Diamond, L. M., & Hicks, A. M. (2004). Psychobiological Perspectives on Attachment: Implications for Health over the Lifespan. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (pp. 240-263). Guilford Publications.
- Dodge, K. A., & Crick, N. R. (1990). Social information-processing bases of aggressive behavior in children. *Personality and Social Psychology Bulletin*, 16(1), 8-22.  
DOI:10.1177/0146167290161002
- Dykas, M. J., & Cassidy, J. (2011). Attachment and the processing of social information across the life span: Theory and evidence. *Psychological Bulletin*, 137, 19-46.  
DOI:10.1037/a0021367
- Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Mattoon, G., & Target, M. (1995). Attachment, the reflective self, and borderline states: The predictive specificity of the Adult Attachment Interview and pathological emotional development. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental and clinical perspectives* (pp. 233-279). Hillsdale, NJ: Analytic Press.

- Green, J., & Goldwyn, R. (2002). Annotation: attachment disorganization and psychopathology: new findings in attachment research and their potential implications for developmental psychopathology in childhood. *Journal of Child Psychology and Psychiatry*, 43(7), 835-846. DOI:10.1111/1469-7610.00102
- George, C., Kaplan, N., & Main, M. (1984). *The attachment interview for adults*. Unpublished manuscript, University of California, Berkeley. DOI:10.1037/t02879-000
- George, C., & Solomon, J. (1996). Representational models of relationships: Links between caregiving and attachment. *Infant Mental Health Journal: Official Publication of The World Association for Infant Mental Health*, 17(3), 198-216. DOI:10.1002/(SICI)1097-0355(199623)17:3<198::AID-IMHJ2>3.0.CO;2-L
- George, C., & Solomon, J. (2008). The caregiving system: a behavioral systems approach to parenting. *Handbook of attachment: Theory, research, and clinical applications*, 2, 833–856.
- George, C., West, M., & Pettem, O. (1999). The Adult Attachment Projective: Disorganization of adult attachment at the level of representation. In Solomon, J & George, C (Eds.) *Attachment Disorganization*. New York, NY: Guilford Press.
- Gottschalk, L. A., & Gleser, G. C. (1979). The measurement of psychological states through the content analysis of verbal behavior. *Clinical Psychology: Science and Practice*, 2(2), 151.
- Grusec, J. E., Rudy, D., & Martini, T. (1997). Parenting cognitions and child constructs: An overview and implications for children's internalization of values. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp. 259–282). New York: Wiley.

- Gustman, B. D. (2015). An examination of the psychometric properties of the working model of the child interview coding scheme with biological mothers who have maltreated. *Theses and Dissertations--Educational, School, and Counseling Psychology*. Retrieved from: [https://uknowledge.uky.edu/edp\\_etds/30](https://uknowledge.uky.edu/edp_etds/30)
- Halgunseth, L. C., Ispa, J. M., & Rudy, D. (2006). Parental control in Latino families: An integrated review of the literature. *Child Development, 77*, 1282–1297. DOI:10.1111/j.1467-8624.2006.00934.x.
- Hesse, E. (2016). The Adult Attachment Interview: Protocol, method of analysis, and empirical studies: 1985–2015. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 553–597). New York, NY: Guilford Press.
- Hock, E., Eberly, M., Bartle-Haring, S., Ellwanger, P., & Widaman, K. F. (2001). Separation anxiety in parents of adolescents: Theoretical significance and scale development. *Child Development, 72*(1), 284-298. DOI:10.1111/1467-8624.00279
- Hofstra, J. (2009). Attaching cultures: the role of attachment styles in explaining majority members' acculturation attitudes. Retrieved from: <http://hdl.handle.net/11370/984f1ab6-4a76-4eb3-86bd-50475af58981>
- Hofstra, J., van Oudenhoven, J. P., & Buunk, B. P. (2005). Attachment styles and majority members' attitudes towards adaptation strategies of immigrants. *International Journal of Intercultural Relations, 29*(5), 601-619. DOI:10.1016/j.ijintrel.2005.05.009
- Holland, A. S., & Roisman, G. I. (2010). Adult attachment security and young adults' dating relationships over time: Self-reported, observational, and physiological evidence. *Developmental Psychology, 46*, 552– 557. DOI:10.1037/a0018542

- Jaccard, J., & Jacoby, J. (2019). *Theory construction and model-building skills: A practical guide for social scientists*. Guilford Publications.
- Jones, J. D., Cassidy, J., Shaver, P. R. (2015a). Adult attachment style and parenting. In Simpson, J. A., Rholes, W. S. (Eds.), *Attachment theory and research: New directions and emerging themes* (pp. 234–260). New York, NY: Guilford Press.
- Jones, J. D., Cassidy, J., & Shaver, P. R. (2015b). Parents' self-reported attachment styles: A review of links with parenting behaviors, emotions, and cognitions. *Personality and Social Psychology Review*, *19*(1), 44-76. DOI:10.1177/1088868314541858
- Karreman, A., & Vingerhoets, A. J. (2012). Attachment and well-being: The mediating role of emotion regulation and resilience. *Personality and Individual Differences*, *53*(7), 821-826. DOI:10.1016/j.paid.2012.06.014
- Kim, Y. (2006). Gender, attachment, and relationship duration on cardiovascular reactivity to stress in a laboratory study of dating couples. *Personal Relationships*, *13*(1), 103-114. DOI:10.1111/j.1475-6811.2006.00107.x
- Lambregtse-van den Berg, M. P., Lucassen, N., Kuipers-Nap, M. F., Dingemans, P. M., Jaddoe, V. W., Hofman, A., et al. (2013). Assessing expressed emotion during pregnancy. *Psychiatry Research*, *205*, 285–288. DOI:10.1016/j.psychres.2012.08.037.
- Lei, R. F., & Rhodes, M. (2021). Why developmental research on social categorization needs intersectionality. *Child Development Perspectives*, *15*(3), 143-147. DOI:10.1111/cdep.12421

- Lyons-Ruth, K., & Spielman, E. (2004). Disorganized infant attachment strategies and helpless-fearful profiles of parenting: Integrating attachment research with clinical intervention. *Infant Mental Health Journal: Official Publication of The World Association for Infant Mental Health*, 25(4), 318-335. DOI:10.1002/imhj.20008
- Main, M. (1991). Metacognitive knowledge, metacognitive monitoring, and singular (coherent) vs. multiple (incoherent) models of attachment: Findings and directions for future research. In C. Parkes, J. Stevenson Hinde, & P. Marris (Eds.), *Attachment across the life cycle* (pp. 127- 160). London: Routledge.
- Main, M. (2006). Metacognitive knowledge, metacognitive monitoring, and singular (coherent) vs. multiple (incoherent) model of attachment: Findings and directions for future research. In *Attachment across the life cycle* (pp. 135-167). London: Routledge.  
DOI:10.4324/9780203132470-13
- Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 161-182). The University of Chicago Press.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, 50, 66-104. DOI:10.1111/1540- 5834.ep11889989

- 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.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 121-160). The University of Chicago Press.
- Maunder, R. G., & Hunter, J. J. (2009). Assessing patterns of adult attachment in medical patients. *General hospital psychiatry*, *31*(2), 123-130.  
DOI:10.1016/j.genhosppsy.2008.10.007
- Mayseless, O. (2006). Studying parenting representations as a window to parents' internal working model of caregiving. In O. Mayseless (Ed.) *Parenting representations: Theory, research and clinical implications* (pp. 3-40). New York, NY: Cambridge University Press. DOI:10.1017/CBO9780511499869.002
- McBride, C., & Atkinson, L. (2009). Attachment theory and cognitive-behavioral therapy. In J. H. Obegi & E. Berant (Eds.). *Attachment theory and research in clinical work with adults* (pp. 434-458). New York, NY: Guilford Press.
- Michiels, D., Grietens, H., Onghena, P., & Kuppens, S. (2010). Perceptions of maternal and paternal attachment security in middle childhood: Links with positive parental affection and psychosocial adjustment. *Early Child Development and Care*, *180*(1-2), 211-225.  
DOI:10.1080/03004430903415064
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York, NY: Guilford Press.
- Mikulincer, M., & Shaver, P. R. (2007). Measurement of attachment-related constructs in adulthood. In M. Mikulincer & P. R. Shaver (Eds.). *Attachment in adulthood: Structure, dynamics, and change* (pp. 81-115). New York, NY: Guilford Press.

- Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion, 27*(2), 77-102. DOI: 10.1023/A:1024515519160
- Morris, A. S., Jespersen, J. E., Cosgrove, K. T., Ratliff, E. L., & Kerr, K. L. (2020). Parent education: What we know and moving forward for greatest impact. *Family Relations, 69*(3), 520-542. DOI:10.1111/fare.12442
- Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus User's Guide* (8<sup>th</sup> ed.). Los Angeles, CA: Muthén & Muthén.
- Noftle, E. E., & Shaver, P. R. (2006). Attachment dimensions and the big five personality traits: Associations and comparative ability to predict relationship quality. *Journal of Research in Personality, 40*(2), 179-208. DOI: 10.1016/j.jrp.2004.11.003
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling, 14*(4), 535–569. DOI:10.1080/10705510701575396
- Nylund-Gibson, K., Grimm, R., Quirk, M., & Furlong, M. (2014): A latent transition mixture model using the three-step specification. *Structural Equation Modeling: A Multidisciplinary Journal, 21*(3), 439-454. DOI:10.1080/10705511.2014.915375
- Oppenheim, D. (2006). Child, parent, and parent–child emotion narratives: Implications for developmental psychopathology. *Development and Psychopathology, 18*, 771–790. DOI:10.1017/ S095457940606038X.



- Oppenheim, D., Goldsmith, D., & Koren-Karie, N. (2004). Maternal insightfulness and preschoolers' emotion and behavior problems: Reciprocal influences in a therapeutic preschool program. *Infant Mental Health Journal: Official Publication of the World Association for Infant Mental Health*, 25(4), 352-367. DOI: 10.1002/imhj.20010
- Oppenheim, D., & Koren-Karie, N. (2002). Mothers' insightfulness regarding their children's internal worlds: The capacity underlying secure child-mother relationships. *Infant Mental Health Journal*, 23, 593-605. DOI:10.1002/imhj.10035
- Onishi, M., Gjerde, P. F., & Block, J. (2001). Personality implications of romantic attachment patterns in young adults: A multi-method, multi-informant study. *Personality and Social Psychology Bulletin*, 27(9), 1097-1110. DOI:10.1177/0146167201279003
- Panter-Brick, C. (2004). Homelessness, poverty, and risks to health: Beyond at risk categorizations of street children. *Children's Geographies*, 2(1), 83-94. DOI:10.1080/1473328032000168787
- Parker, G., Tupling, H., & Brown, L. B. (1979). A parental bonding instrument. *British Journal of Medical Psychology*, 52, 1-10. DOI: 10.1111/j.2044-8341.1979.tb02487.x
- Perou, R., Elliott, M. N., Visser, S. N., Claussen, A. H., Scott, K. G., Beckwith, L. H., . . . Smith, D. C. (2012). Legacy for Children™ : A pair of randomized controlled trials of a public health model to improve developmental outcomes among children in poverty. *BMC Public Health*, 12(691), 1- 23. DOI:10.1186/1471-2458-12-691
- Ravitz, P., Maunder, R., Hunter, J., Sthankiya, B., & Lancee, W. (2010). Adult attachment measures: A 25-year review. *Journal of Psychosomatic Research*, 69(4), 419-432. DOI:10.1016/j.jpsychores.2009.08.006

- Räikkönen, K., Matthews, K. A., & Salomon, K. (2003). Hostility predicts metabolic syndrome risk factors in children and adolescents. *Health Psychology, 22*(3), 279.  
DOI:10.1037/0278-6133.22.3.279
- Rholes, W. S., Simpson, J. A., & Friedman, M. (2006). Avoidant attachment and the experience of parenting. *Personality and Social Psychology Bulletin, 32*(3), 275-285.  
DOI:10.1177/0146167205280910
- Rodriguez, C. M. (2006). Emotional functioning, attachment style, and attributions as predictors of child abuse potential in domestic violence victims. *Violence and Victims, 21*, 199-212. DOI:10.1891/vivi.21.2.199
- Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V., & Christiansen, K. (2013a). Parenting interactions with children: Checklist of observations linked to outcomes (PICCOLO) in diverse ethnic groups. *Infant Mental Health Journal, 34*(4), 290-306.  
DOI: 10.1002/imhj.21389
- Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V. K., Christiansen, K., & Andersen, S. (2013b). Parenting Interactions with Children: Checklist of Observations Linked to Outcomes (PICCOLO). Baltimore: Paul H. Brookes Publishing.  
DOI:10.1037/t72148-000
- Roisman, G. I., Holland, A., Fortuna, K., Fraley, R. C., Clausell, E., & Clarke, A. (2007). The Adult Attachment Interview and self-reports of attachment style: an empirical rapprochement. *Journal of Personality and Social Psychology, 92*(4), 678.  
DOI:10.1037/0022-3514.92.4.678

Sameroff, A. J., & Fiese, B. H. (2000). Transactional regulation: The developmental ecology of early intervention. *Handbook of Early Childhood Intervention*, 2, 135-159.

DOI:10.1017/CBO9780511529320.009

Shaver, P. R., & Mikulincer, M. (2002). Attachment-related psychodynamics. *Attachment & Human Development*, 4(2), 133-161. DOI:10.1080/14616730210154171

Sher-Censor, E. (2015). Five Minute Speech Sample in developmental research: A review. *Developmental Review*, 36, 127-155. DOI:10.1016/j.dr.2015.01.005

Sher-Censor, E. (2019). Assessing the Coherence of Parents' Short Narratives Regarding their Child Using the Five-Minute Speech Sample Procedure. *JoVE (Journal of Visualized Experiments)*, (151), e60025. DOI:10.3791/60025

Sher-Censor, E., Dolev, S., Said, M., Baransi, N., & Amara, K. (2017). Coherence of representations regarding the child, resolution of the child's diagnosis and emotional availability: A study of Arab-Israeli mothers of children with ASD. *Journal of autism and developmental disorders*, 47(10), 3139-3149. DOI:10.1007/s10803-017-3228-8

Sher-Censor, E., Grey, I., & Yates, T. M. (2013). The intergenerational congruence of mothers' and preschoolers' narrative affective content and narrative coherence. *International Journal of Behavioral Development*, 37(4), 340-348. DOI:10.1177/0165025413482760

Sher-Censor, E., Khafi, T. Y., & Yates, T. M. (2016). Preschoolers' self-regulation moderates relations between mothers' representations and children's adjustment to school. *Developmental psychology*, 52(11), 1793. DOI:10.1037/dev0000178

- Sher-Censor, E., Shulman, C., & Cohen, E. (2018). Associations among mothers' representations of their relationship with their toddlers, maternal parenting stress, and toddlers' internalizing and externalizing behaviors. *Infant Behavior and Development, 50*, 132-139. DOI:10.1016/j.infbeh.2017.12.005
- Sher-Censor, E., & Yates, T. M. (2012). *Five Minute Speech Sample Narrative Coherence Coding Manual*. Riverside, CA: University of California.
- Sher-Censor, E., & Yates, T. M. (2015). Mothers' expressed emotion and narrative coherence: Associations with preschoolers' behavior problems in a multiethnic sample. *Journal of Child and Family Studies, 24*(5), 1392-1405. DOI:10.1007/s10826-014-9946-z
- Simpson, J. A., & Rholes, W. S. (2015). *Attachment theory and research: New directions and emerging themes*. New York, NY: Guilford Publications.
- Simpson, J. A., Rholes, W. S., Oriña, M. M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality and Social Psychology Bulletin, 28*(5), 598-608. DOI:10.1177/0146167202288004
- Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of personality and social psychology, 71*(5), 899. DOI:10.1037/0022-3514.71.5.899
- Smith, J. D., Dishion, T. J., Moore, K. J., Shaw, D. S., & Wilson, M. N. (2013). Effects of video feedback on early coercive parent-child interactions: The intervening role of caregivers' relational schemas. *Journal of Clinical Child & Adolescent Psychology, 42*, 405-417. DOI:10.1080/15374416.2013.777917.

- Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development, 7*(4), 349-367.  
DOI:10.1080/14616730500365928
- Steele, R. D., Waters, T. E. A., Bost, K. K., Vaughn, B. E., Truitt, W., Waters, H. S., . . . Roisman, G. I. (2014). Caregiving antecedents of secure base script knowledge: A comparative analysis of young adult attachment representations. *Developmental Psychology, 50*, 2526–2538. DOI:10.1037/a0037992
- Stevens, F. L. (2014). Affect Regulation Styles in Avoidant and Anxious Attachment. *Individual Differences Research, 12*(3).
- Vandell, D. L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N., & NICHD Early Child Care Research Network. (2010). Do effects of early child care extend to age 15 years? Results from the NICHD study of early child care and youth development. *Child Development, 81*(3), 737–756. DOI:10.1111/j.1467-8624.2010.01431.x.
- Vaillancourt-Morel, M. P., Labadie, C., Charbonneau-Lefebvre PhD candidate, V., Sabourin, S., & Godbout, N. (2022). A latent profile analysis of romantic attachment anxiety and avoidance. *Journal of Marital and Family Therapy, 48*(2), 391-410.  
DOI:10.1111/jmft.12503
- Van IJzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin, 117*, 387–403. DOI:10.1037/0033-2909.117.3.387

- Van Oudenhoven, J. P., & Hofstra, J. (2006). Personal reactions to 'strange' situations: Attachment styles and acculturation attitudes of immigrants and majority members. *International Journal of Intercultural Relations*, 30(6), 783-798.  
DOI:10.1016/j.ijintrel.2006.05.005
- Van Oudenhoven, J. P., Hofstra, J., & Bakker, W. (2003). Ontwikkeling en evaluatie van de Hechtingstijlvragenlijst (HSL). *Nederlands Tijdschrift voor de Psychologie*, 58, 95-102.  
DOI:10.1037/t59144-000
- Waller, R., Gardner, F., Viding, E., Shaw, D. S., Dishion, T. J., Wilson, M. N., et al. (2014). Bidirectional associations between parental warmth, callous unemotional behavior, and behavior problems in high-risk preschoolers. *Journal of Abnormal Child Psychology*, 42, 1275–1285. DOI:10.1007/s10802-014-9871-z.
- Waters, E. (1995). Appendix A: The attachment Q-set (version 3.0). *Monographs of the Society for Research in Child Development*, 234-246. DOI: 10.1111/j.1540-5834.1995.tb00214.x
- Waters, T. E., Raby, K. L., Ruiz, S. K., Martin, J., & Roisman, G. I. (2018). Adult attachment representations and the quality of romantic and parent–child relationships: An examination of the contributions of coherence of discourse and secure base script knowledge. *Developmental psychology*, 54(12), 2371. DOI:10.1037/dev0000607
- Waters, T. E. A., Ruiz, S. K., & Roisman, G. I. (2017). Origins of secure base script knowledge and the developmental construction of attachment representations. *Child Development*, 88, 198–209. DOI:10.1111/cdev.12571
- Weston, S., Hawes, D. J., & Pasalich, D. S. (2017). The five minute speech sample as a measure of parent–child dynamics: Evidence from observational research. *Journal of Child and Family Studies*, 26(1), 118-136. DOI:10.1007/s10826-016-0549-8

- Zeanah, C. H., & Anders, T. F. (1987). Subjectivity in parent-infant relationships: A discussion of internal working models. *Infant Mental Health Journal*, 8, 237-250.  
DOI:10.1002/1097-0355(198723)8:3
- Zeanah, C. H., Benoit, D., Barton, M. L., & Hirshberg, L. (1996). *Working Model of the Child Interview Coding Manual*. Unpublished manuscript. Division of Infant, Child and Adolescent Psychiatry, Louisiana State University School of Medicine, New Orleans, LA. DOI:10.1037/t47439-000
- Zeanah, C. H., Boris, N. W., Heller, S. S., Hinshaw-Fuselier, S., Larrieu, J. A., Lewis, M., ... Valliere, J. (1997). Relationship assessment in infant mental health. *Infant Mental Health Journal*, 18, 182-197. DOI:10.1002/(SICI)1097-0355(199722)18:2
- Zeanah, C. H., Smyke, A. T. (2009) Attachment Disorders. In: Zeanah C. H. (Ed.) Handbook of infant mental health, 3rd Edition (pp. 421–434). New York, NY: Guilford Press.
- Zeinali, A., Sharifi, H., Enayati, M., Asgari, P., & Pasha, G. (2011). The mediational pathway among parenting styles, attachment styles and self-regulation with addiction susceptibility of adolescents. *Journal of Research in Medical Sciences: The Official Journal of Isfahan University of Medical Sciences*, 16(9), 1105.

## APPENDICES



**Table 1***Correlations for Study Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1 Income	--																					
2 Age	.30*	--																				
3 Partnered	.33**	.08	--																			
4 Education	.55**	.52**	.15	--																		
5 Grouping	.28*	.16	.14	.20	--																	
6 Affection	.26*	.25*	.20	.19	.14	--																
7 Responsiv.	.29*	.23*	.14	.30**	.13	.75**	--															
8 Encourag	.45**	.32**	.20	.34**	.12	.60**	.73**	--														
9 Teaching	.37**	.30**	.25*	.40**	.09	.48**	.63**	.61**	--													
10 Parenting	.41**	.33**	.24*	.38**	.14	.80**	.90**	.86**	.83**	--												
11 Secure A.	.26*	.02	.26*	.16	.18	.09	.22	.12	.16	.18	--											
12 Preoc A.	.08	.00	-.03	-.15	.03	.06	.08	.23	.05	.12	-.16	--										
13 Dismis A.	-.29*	-.09	-.13	-.17	-.25*	.08	.06	-.02	-.14	-.02	-.32**	-.26*	--									
14 Fearful A.	-.29*	-.12	-.22	-.33**	-.22	.09	-.04	-.01	-.14	-.05	-.73**	.30**	.56**	--								
15 Focus	.29*	-.01	.30**	.05	-.10	.26*	.15	.18	.23*	.24*	.14	.01	-.18	-.07	--							
16 Elaborat.	.15	.09	.06	.38**	.09	.19	.23*	.10	.25*	.23*	.28*	-.10	-.19	-.34**	.12	--						
17 Separat.	-.09	-.07	.06	-.13	-.04	-.19	-.21	-.18	-.11	-.19	-.12	.11	-.08	.11	.13	.05	--					
18 Concern	.05	-.08	-.02	.11	.07	-.18	-.14	-.28*	-.11	-.19	.07	-.07	-.05	-.09	.14	.01	-.07	--				
19 Accepta.	.13	.03	.11	.23	.27*	.21	.22	.31**	.14	.25*	.09	.00	-.08	-.13	.11	.13	.05	-.18	--			
20 Complex.	.18	.05	.19	.12	.14	.29*	.19	.30**	.23*	.29*	.16	-.01	-.09	-.15	.33**	.34**	.33**	-.11	.38**	--		
21 Coheren.	.17	-.02	.16	.27*	.15	.24*	.26*	.33**	.25*	.32**	.07	.07	-.13	-.16	.26*	.35**	.32**	-.22	.71**	.72**	--	

*Note.* Responsiv. = Responsiveness; Encourag. = Encouragement; A. = Attachment; Preoc. = Preoccupied; Dismis. = Dismissing; Elaborat. = Elaboration; Separat. = Separateness; Accepta. = Acceptance; Coheren. = Coherence. \* $p < .05$ . \*\* $p < .01$

**Table 2***Demographics for Treatment and Comparison Groups*

Variable	Legacy Treatment ( <i>n</i> = 10)	Legacy Control ( <i>n</i> = 30)	OK Baby Study ( <i>n</i> = 36)	ANOVA or $\chi^2$	<i>p</i> value
<i>Parent Demographics</i>					
Age ( <i>M, SD</i> )	27.4 (3.9)	28.2 (5.4)	31.08 (4.6)	<i>F</i> = 3.90	0.03
Race (%)	White	6 (60.0)	17 (56.7)	$\chi^2 = 20.32$	0.00
	Black	2 (20.0)	12 (40.0)		
	American Indian	2 (20.0)	1 (3.3)		
Ethnicity (%)	Hispanic	0 (0.0)	2 (6.7)	$\chi^2 = 0.68$	0.71
Partner (%)	Partnered	6 (60.0)	19 (63.3)	$\chi^2 = 7.08$	0.03
	Single	4 (40.0)	11 (36.7)		
Education (%)	No HS Diploma	2 (20.0)	3 (10.0)	$\chi^2 = 31.70$	0.02
	HS Diploma/GED	2 (20.0)	9 (30.0)		
	Some College	2 (20.0)	5 (16.7)		
	Assoc/Vo-Tech	3 (30.0)	10 (33.3)		
	Bachelor's	1 (10.0)	3 (10.0)		
	Graduate Degree	0 (0.0)	0 (0.0)		
Income (%)	< \$10,000	4 (40.0)	9 (30.0)	$\chi^2 = 32.92$	0.00
	\$10,001 - \$30,000	5 (50.0)	17 (56.7)		
	\$30,001 - \$50,000	1 (10.0)	3 (10.0)		
	\$50,001 - \$70,000	0 (0.0)	0 (0.0)		
	\$70,000 - \$90,000	0 (0.0)	1 (3.3)		
	\$90,001 <	0 (0.0)	0 (0.0)		
<i>Child Demographics</i>					
Age ( <i>M, SD</i> )	13.1 (1.3)	12.6 (0.9)	14.7 (1.3)	<i>F</i> = 26.92	0.00
Gender (%)	Male	5 (50.0)	17 (56.7)	$\chi^2 = 2.86$	0.24
	Female	5 (50.0)	13 (43.3)		

**Table 3***Model Fit Statistics by Latent Class Model*

Class Model	2	3	4	5
Log likelihood	-694.085	-670.19	-647.53	-626.31
AIC	1432.17	1400.37	1371.07	1344.62
BIC	1483.45	1470.30	1459.63	1451.83
SSABIC	1414.10	1375.73	1339.855	1306.83
11 VLMR <i>p</i> -value	0.077	0.291	0.291	0.359
14 Bootstrap LRT <i>p</i> -value	0.000	0.000	0.000	0.000
Entropy	0.81	0.96	1.00	0.99
Sample Distribution (%)				
Class 1	0.49	0.27	0.28	0.09
Class 2	0.51	0.27	0.26	0.18
Class 3		0.46	0.38	0.38
Class 4			0.08	0.26
Class 5				0.08

*Note.* AIC = Akaike's Information Criteria; BIC = Bayesian Information Criteria; SSABIC = Sample-Size Adjustment; VLMR = Vuong-Lo-Mendell-Rubin; LRT = Likelihood ratio test.

**Table 4***Mean FMSS-Coherence Subdomain Scores by Latent Class for Class Model 4*

---

	Class 1 Incoherent	Class 2 Adequate	Class 3 Clear	Class 4 Comprehensive
Focus	6.1	5.9	6.5	6.8
Elaboration	5.8	6.5	6.5	7.0
Separateness	5.9	6.3	6.7	6.8
Concern	2.0	1.8	1.5	1.0
Acceptance	4.5	5.5	6.2	6.9
Complexity	4.2	4.9	5.8	6.9
Coherence	3.8	5.0	6.0	7.0

---

*Note.* Range of scores for FMSS-Coherence subdomains is 1 to 7.

**Table 5**

*Probability Comparisons Between Latent Classes of Attachment Representations on Adult Attachment Styles by Demographic Control Variable*

		Class 1 Incoherent	Class 2 Adequate	Class 3 Clear	Class 4 Comprehensive
<b>Income</b>					
	Secure	0.76 <sub>a</sub>	0.45 <sub>a</sub>	0.68 <sub>a</sub>	0.79 <sub>a</sub>
	Preoccupied	0.05 <sub>a</sub>	0.02 <sub>a</sub>	0.00 <sub>b</sub>	0.00 <sub>c</sub>
	Dismissing	0.13 <sub>a</sub>	0.29 <sub>a</sub>	0.18 <sub>a</sub>	0.21 <sub>a</sub>
	Fearful	0.02 <sub>b</sub>	0.19 <sub>a</sub>	0.10 <sub>ab</sub>	0.00 <sub>c</sub>
<b>Maternal</b>					
	Secure	0.65 <sub>a</sub>	0.48 <sub>a</sub>	0.69 <sub>a</sub>	0.25 <sub>a</sub>
	Preoccupied	0.04 <sub>a</sub>	0.00 <sub>b</sub>	0.00 <sub>c</sub>	0.00 <sub>d</sub>
	Dismissing	0.23 <sub>a</sub>	0.30 <sub>a</sub>	0.19 <sub>a</sub>	0.27 <sub>a</sub>
	Fearful	0.03 <sub>a</sub>	0.20 <sub>a</sub>	0.10 <sub>a</sub>	0.00 <sub>b</sub>
<b>Partner Status</b>					
	Secure	0.43 <sub>b</sub>	0.43 <sub>b</sub>	0.99 <sub>a</sub>	0.00 <sub>c</sub>
	Preoccupied	0.14 <sub>a</sub>	0.00 <sub>b</sub>	0.00 <sub>b</sub>	0.00 <sub>c</sub>
	Dismissing	0.43 <sub>b</sub>	0.29 <sub>b</sub>	0.00 <sub>c</sub>	0.99 <sub>a</sub>
	Fearful	0.00 <sub>b</sub>	0.29 <sub>a</sub>	0.00 <sub>c</sub>	0.00 <sub>d</sub>
<b>Education</b>					
	Secure	0.00 <sub>d</sub>	0.50 <sub>c</sub>	0.99 <sub>b</sub>	0.99 <sub>a</sub>
	Preoccupied	0.00 <sub>a</sub>	0.00 <sub>b</sub>	0.00 <sub>b</sub>	0.00 <sub>c</sub>
	Dismissing	0.50 <sub>a</sub>	0.50 <sub>a</sub>	0.00 <sub>b</sub>	0.00 <sub>c</sub>
	Fearful	0.50 <sub>a</sub>	0.00 <sub>b</sub>	0.00 <sub>c</sub>	0.00 <sub>d</sub>
<b>Group Type</b>					
	Secure	0.40 <sub>a</sub>	0.50 <sub>a</sub>	0.00 <sub>b</sub>	0.00 <sub>b</sub>
	Preoccupied	0.00 <sub>a</sub>	0.00 <sub>b</sub>	0.00 <sub>b</sub>	0.00 <sub>c</sub>
	Dismissing	0.40 <sub>b</sub>	0.00 <sub>c</sub>	0.00 <sub>c</sub>	0.99 <sub>a</sub>
	Fearful	0.20 <sub>b</sub>	0.50 <sub>b</sub>	0.99 <sub>a</sub>	0.00 <sub>c</sub>

*Note.* Probabilities in the same row that do not share subscripts differ at  $p < .05$  between latent classes.

**Table 6**

*Intercept Comparisons Between Latent Classes of Attachment Coherence on Observed Parenting Behavior by Demographic Control Variable*

		Class 1 Incoherent	Class 2 Adequate	Class 3 Clear	Class 4 Comprehensive
<b>Income</b>					
	Affection	10.92 <sub>b</sub>	11.28 <sub>ab</sub>	11.82 <sub>ab</sub>	12.32 <sub>a</sub>
	Responsiveness	10.63 <sub>a</sub>	10.88 <sub>a</sub>	11.74 <sub>a</sub>	11.35 <sub>a</sub>
	Encouragement	9.76 <sub>ac</sub>	9.92 <sub>ac</sub>	11.18 <sub>ab</sub>	11.65 <sub>a</sub>
	Teaching	7.09 <sub>a</sub>	7.94 <sub>a</sub>	7.88 <sub>a</sub>	7.72 <sub>a</sub>
	Pos. Parenting	38.39 <sub>a</sub>	40.02 <sub>ab</sub>	43.24 <sub>a</sub>	43.04 <sub>ab</sub>
<b>Age</b>					
	Affection	10.81 <sub>c</sub>	11.05 <sub>bc</sub>	11.91 <sub>ab</sub>	12.55 <sub>a</sub>
	Responsiveness	10.37 <sub>b</sub>	10.67 <sub>ab</sub>	11.87 <sub>a</sub>	11.82 <sub>ab</sub>
	Encouragement	9.36 <sub>c</sub>	9.44 <sub>c</sub>	11.44 <sub>b</sub>	13.42 <sub>a</sub>
	Teaching	6.87 <sub>b</sub>	7.37 <sub>ab</sub>	8.84 <sub>a</sub>	7.40 <sub>ab</sub>
	Pos. Parenting	37.41 <sub>b</sub>	38.52 <sub>ab</sub>	44.05 <sub>a</sub>	45.18 <sub>a</sub>
<b>Partnered</b>					
	Affection	10.29 <sub>b</sub>	11.29 <sub>ab</sub>	9.33 <sub>b</sub>	12.51 <sub>a</sub>
	Responsiveness	9.29 <sub>b</sub>	10.86 <sub>b</sub>	10.33 <sub>b</sub>	14.00 <sub>a</sub>
	Encouragement	8.14 <sub>b</sub>	9.71 <sub>b</sub>	9.67 <sub>b</sub>	13.00 <sub>a</sub>
	Teaching	5.86 <sub>b</sub>	6.14 <sub>b</sub>	9.09 <sub>b</sub>	10.00 <sub>a</sub>
	Pos. Parenting	33.57 <sub>b</sub>	38.00 <sub>b</sub>	36.00 <sub>b</sub>	49.50 <sub>a</sub>
<b>Education</b>					
	Affection	9.00 <sub>a</sub>	11.50 <sub>a</sub>	12.50 <sub>a</sub>	12.64 <sub>a</sub>
	Responsiveness	6.50 <sub>b</sub>	11.00 <sub>a</sub>	11.00 <sub>a</sub>	12.41 <sub>a</sub>
	Encouragement	6.50 <sub>b</sub>	11.50 <sub>a</sub>	10.00 <sub>a</sub>	12.85 <sub>a</sub>
	Teaching	3.50 <sub>c</sub>	5.00 <sub>b</sub>	8.50 <sub>a</sub>	9.51 <sub>a</sub>
	Pos. Parenting	25.50 <sub>b</sub>	39.00 <sub>a</sub>	42.00 <sub>a</sub>	46.26 <sub>a</sub>
<b>Group Type</b>					
	Affection	9.60 <sub>ab</sub>	10.50 <sub>b</sub>	13.00 <sub>a</sub>	12.50 <sub>ab</sub>
	Responsiveness	8.60 <sub>c</sub>	9.50 <sub>abc</sub>	13.00 <sub>b</sub>	14.00 <sub>a</sub>
	Encouragement	8.00 <sub>c</sub>	9.00 <sub>abc</sub>	12.00 <sub>b</sub>	13.00 <sub>a</sub>
	Teaching	6.80 <sub>ab</sub>	4.50 <sub>b</sub>	9.00 <sub>a</sub>	10.00 <sub>a</sub>
	Pos. Parenting	33.00 <sub>b</sub>	33.50 <sub>b</sub>	47.00 <sub>b</sub>	49.50 <sub>a</sub>

*Note.* Pos. = Positive. Probabilities in the same row that do not share subscripts differ at  $p < .05$  between latent classes.

**Table 7***Regressions of Adult Attachment Styles on Observed Parenting Behavior*

		<i>B</i>	S.E.	<i>p</i> value
<b>Affection</b>				
	Preoccupied	0.76	1.45	0.60
	Dismissing	0.45	0.56	0.43
	Fearful	0.54	0.64	0.40
<b>Responsiveness</b>				
	Preoccupied	0.85	1.46	0.56
	Dismissing	0.06	0.76	0.94
	Fearful	-0.15	0.92	0.87
<b>Encouragement</b>				
	Preoccupied	0.98	1.81	0.59
	Dismissing	-0.31	0.76	0.68
	Fearful	-0.52	1.04	0.62
<b>Teaching</b>				
	Preoccupied	3.57	3.21	0.27
	Dismissing	0.17	0.87	0.84
	Fearful	-1.27	1.33	0.34
<b>Positive Parenting</b>				
	Preoccupied	6.15	7.87	0.43
	Dismissing	0.36	2.60	0.89
	Fearful	-1.40	3.37	0.68

*Note.* All regression coefficients are in comparison to the Secure Attachment Style which was used as the reference group. *B* = Unstandardized estimate. S.E. = Standard Error.

**Table 8***Regressions of Adult Attachment Styles on Observed Parenting Behavior Moderated by Latent Classes of Attachment Coherence*

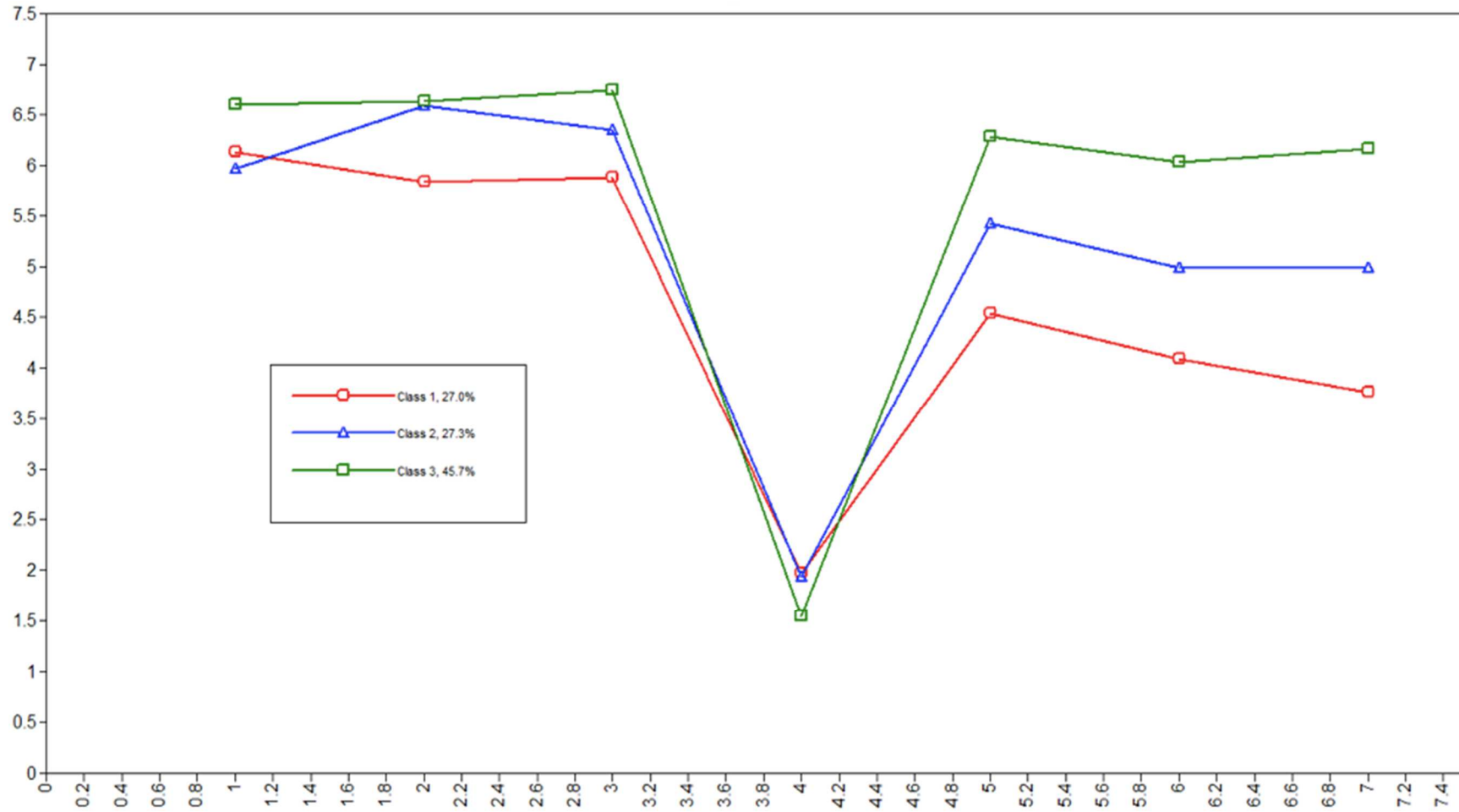
		Class 1 Incoherent		Class 2 Adequate		Class 3 Clear		Class 4 Comprehensive	
		<i>B</i> (S.E.)	<i>p</i> value	<i>B</i> (S.E.)	<i>p</i> value	<i>B</i> (S.E.)	<i>p</i> value	<i>B</i> (S.E.)	<i>p</i> value
Affection									
	Preoccupied	-0.85 <sub>b</sub> (0.76)	0.27	3.22 <sub>a</sub> (0.54)	0.00	0.00 <sub>b</sub> (0.01)	0.98	0.00 <sub>b</sub> (0.00)	0.88
	Dismissing	-0.35 <sub>a</sub> (1.25)	0.78	1.06 <sub>a</sub> (0.99)	0.29	1.10 <sub>a</sub> (0.59)	0.06	0.25 <sub>a</sub> (0.55)	0.65
	Fearful	1.15 <sub>ab</sub> (0.76)	0.13	-0.03 <sub>ac</sub> (1.16)	0.98	1.25 <sub>a</sub> (0.44)	0.00	0.00 <sub>a</sub> (0.02)	0.94
Responsiveness									
	Preoccupied	-0.62 <sub>b</sub> (0.89)	0.49	3.33 <sub>a</sub> (0.50)	0.00	0.00 <sub>b</sub> (0.01)	0.99	0.00 <sub>b</sub> (0.00)	0.85
	Dismissing	-0.62 <sub>b</sub> (1.69)	0.72	0.00 <sub>b</sub> (1.27)	1.00	0.45 <sub>b</sub> (0.73)	0.54	3.00 <sub>a</sub> (0.61)	0.00
	Fearful	-2.62 <sub>b</sub> (0.89)	0.00	0.08 <sub>ab</sub> (1.63)	0.96	0.25 <sub>a</sub> (0.79)	0.75	0.00 <sub>a</sub> (0.03)	0.91
Encouragement									
	Preoccupied	-0.62 <sub>b</sub> (0.77)	0.42	4.11 <sub>a</sub> (0.84)	0.00	0.03 <sub>b</sub> (0.01)	0.02	0.05 <sub>b</sub> (0.01)	0.00
	Dismissing	-0.78 <sub>ac</sub> (1.76)	0.66	0.28 <sub>ab</sub> (1.31)	0.83	-0.45 <sub>a</sub> (0.65)	0.49	1.75 <sub>a</sub> (0.82)	0.03
	Fearful	-1.62 <sub>b</sub> (0.77)	0.04	-1.64 <sub>ab</sub> (1.62)	0.31	1.00 <sub>a</sub> (0.88)	0.26	1.36 <sub>a</sub> (0.19)	0.00
Teaching									
	Preoccupied	0.00 <sub>b</sub> (0.81)	1.00	8.33 <sub>ab</sub> (1.19)	0.00	0.54 <sub>b</sub> (0.08)	0.00	8.27 <sub>a</sub> (1.27)	0.00
	Dismissing	-0.17 <sub>a</sub> (1.88)	0.93	0.50 <sub>a</sub> (1.90)	0.79	0.10 <sub>a</sub> (0.69)	0.89	2.25 <sub>a</sub> (1.19)	0.06
	Fearful	-3.00 <sub>b</sub> (0.81)	0.00	-1.92 <sub>b</sub> (2.23)	0.39	-0.45 <sub>b</sub> (1.86)	0.81	4.69 <sub>a</sub> (0.70)	0.00
Pos. Parenting									
	Preoccupied	-2.08 <sub>b</sub> (2.75)	0.45	19.00 <sub>a</sub> (2.07)	0.00	0.00 <sub>b</sub> (0.02)	0.96	0.00 <sub>b</sub> (0.00)	0.33
	Dismissing	-1.91 <sub>ac</sub> (6.05)	0.75	1.83 <sub>ab</sub> (4.32)	0.67	1.20 <sub>a</sub> (1.87)	0.52	7.25 <sub>a</sub> (1.67)	0.00
	Fearful	-6.07 <sub>b</sub> (2.75)	0.03	-3.50 <sub>ab</sub> (5.82)	0.55	2.05 <sub>a</sub> (2.74)	0.45	0.01 <sub>a</sub> (0.08)	0.90

*Note.* Estimates in the same row that do not share subscripts differ at  $p < .05$  between latent classes. All regression coefficients are in comparison to the Secure Attachment Style which was used as the reference group. Pos. = Positive. *B* = Unstandardized estimate. S.E. = Standard Error.



**Figure 1**

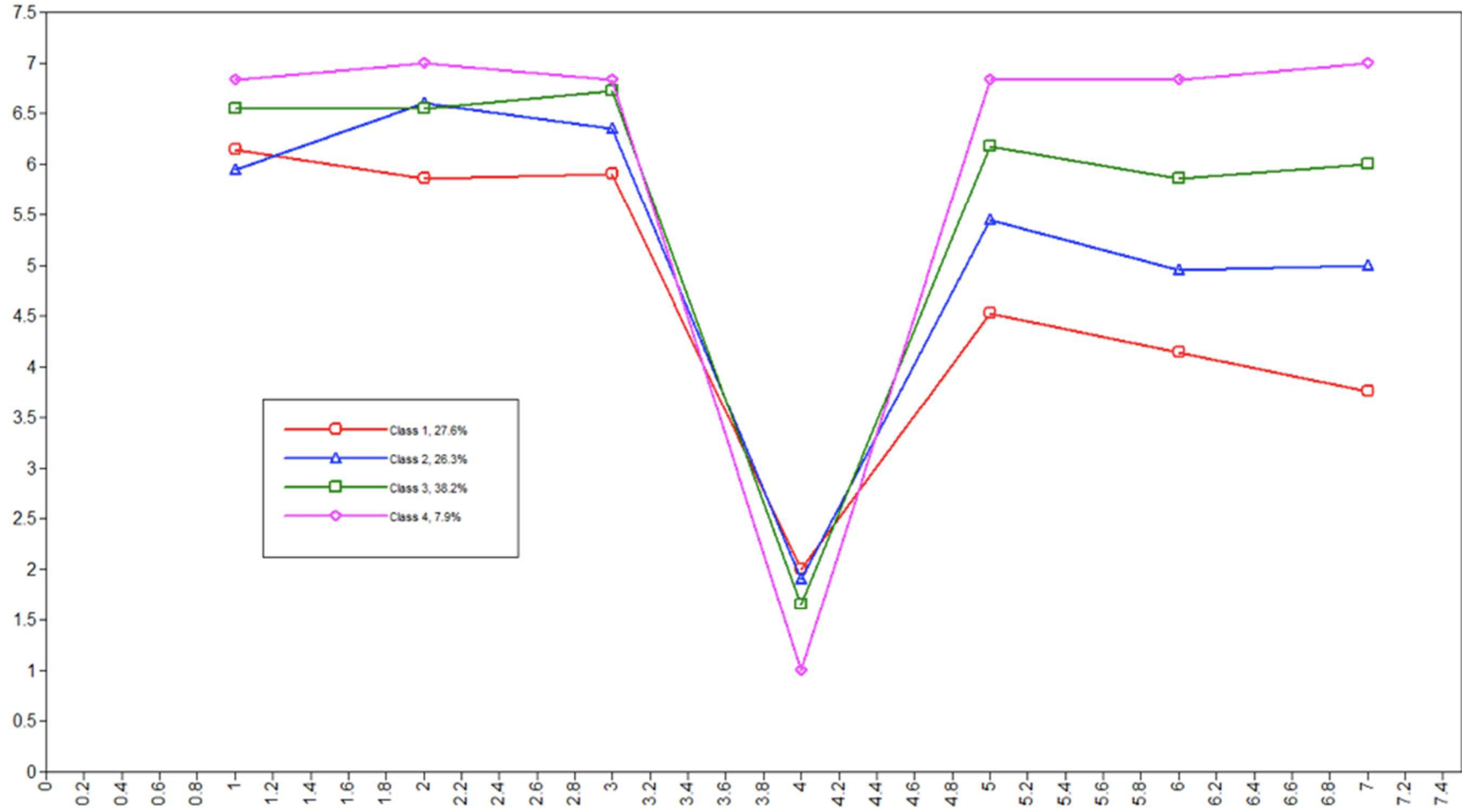
*Mixture Model for 3 Latent Profiles of Attachment Coherence*



*Note.* Distribution of FMSS-Coherence subdomain scores for the Latent Profile Model 3. 1 = Focus; 2 = Elaboration; 3 = Separateness; 4 = Concern; 5 = Acceptance; 6 = Complexity; 7 = Coherence.

**Figure 2**

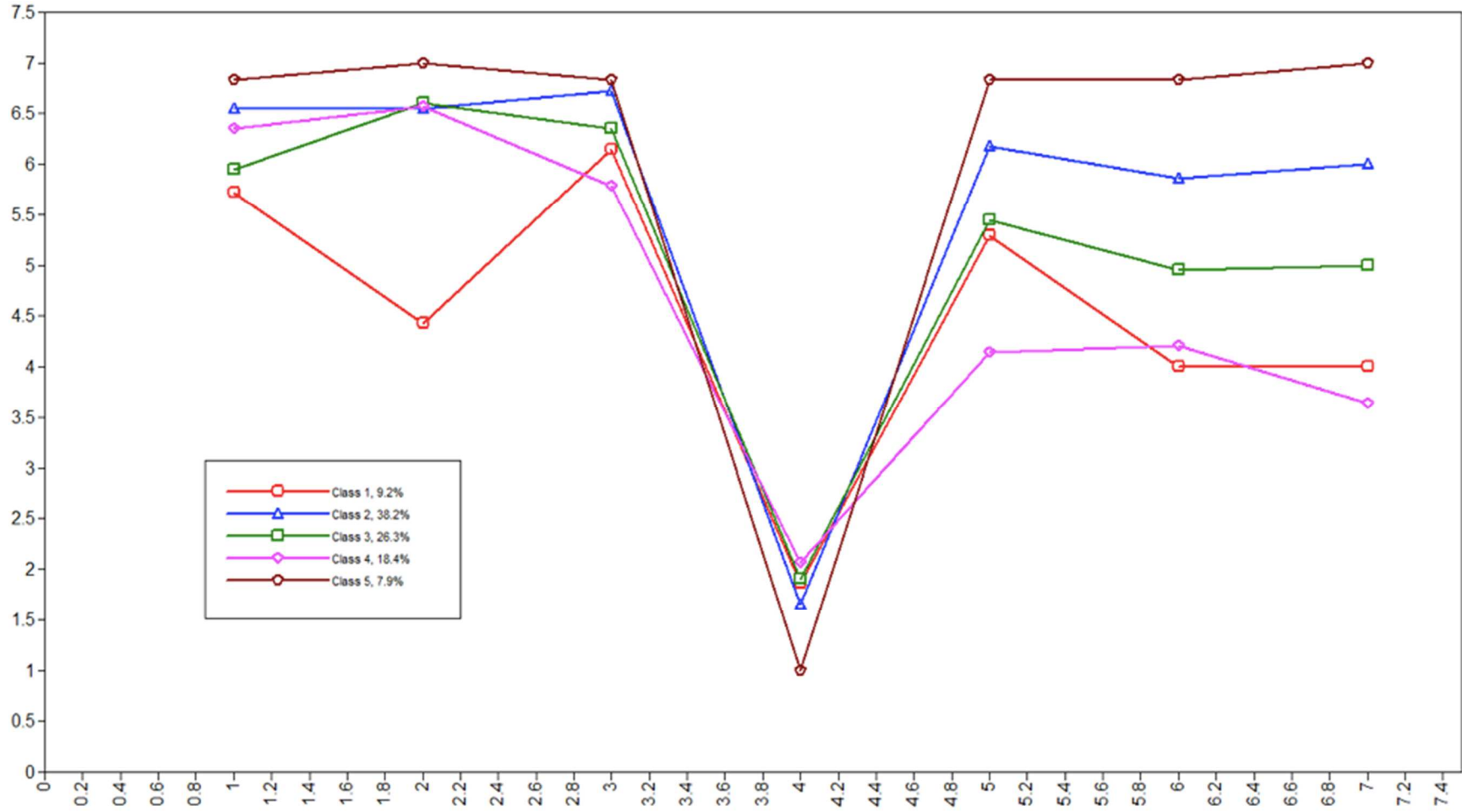
*Mixture Model for 4 Latent Profiles of Attachment Coherence*



*Note.* Distribution of FMSS-Coherence subdomain scores for the Latent Profile Model 4. 1 = Focus; 2 = Elaboration; 3 = Separateness; 4 = Concern; 5 = Acceptance; 6 = Complexity; 7 = Coherence.

**Figure 3**

*Mixture Model for 5 Latent Profiles of Attachment Coherence*



*Note.* Distribution of FMSS-Coherence subdomain scores for the Latent Profile Model 5. 1 = Focus; 2 = Elaboration; 3 = Separateness; 4 = Concern; 5 = Acceptance; 6 = Complexity; 7 = Coherence.

## FMSS-Coherence Coding Example – Incoherent

<p>1 <b>M: Before we have you play with baby's name, I would like to record you talking about (baby's name). I would like to hear</b></p> <p>2 <b>your thoughts and feelings about (baby's name), in your own words, without me interrupting you with any questions or</b></p> <p>3 <b>comments. When I ask you to begin, I'd like you to speak for 5 minutes, telling me what kind of baby (baby's name) is, and</b></p> <p>4 <b>how the two of you get along together. After you have begun to speak, I am not supposed to answer any questions. Are there</b></p> <p>5 <b>any questions you would like to ask me before we begin?</b></p>	
<p>6 Participant (P): That's the worst part of this whole thing [sniffs]. Did she start that already? [points to camera] P: (inaudible 11:38-</p> <p>7 11:40; whispering to self). She's fun, she's sweet. She doesn't sleep. She likes junk food. She's one now and I don't like it. If you ask</p> <p>8 me, they should stop growing at six months. They don't know how to talk, they don't know how to walk, they don't know how to</p> <p>9 scream. Perfect age; just stop growing at six months.  </p>	<p>Jens Jespersen Complexity +</p> <p>Jens Jespersen Acceptance -</p>
<p>10 Um, she's starting to walk. She's spoiled and she doesn't play well with others. So, that's X (child's name) up in a nutshell [in a</p> <p>11 serious tone].</p>	<p>Jens Jespersen Acceptance -</p> <p>Jens Jespersen Coherence -</p>
<p>12 P: See, that's why you don't make these things five minutes. Cause I done said everything about X (child's name), now I don't know</p> <p>13 what to tell you [sniffs].</p>	<p>Jens Jespersen Coherence -</p>
<p>14 P: It's fun until she bites; she bites too much and pulls hair. My daughter is a tomboy and when we play, she bites and pulls hair and I</p> <p>15 stop. And she likes to make messes 'cause she knows she don't have to clean them up. Everyone else does. Um yeah, that's about it.</p> <p>16 [silent 13:20-13:29]</p>	<p>Jens Jespersen Acceptance -</p>
<p>17 P: Quite frankly, this is the only part of the assessments I don't like. I'd rather sit on the computer for three hours.</p>	<p>Jens Jespersen Coherence -</p>

## FMSS-Coherence Coding Example – Incoherent (Continued)

18	<b>M: (inaudible 13:43-13:45)</b>	
19	P: Eh, it's about the same every time. It takes her a little while to react to toys. Unless they're very bright, bright colored. [sniffs] Like	Jens Jespersen Elaboration +
20	the hot pink ones. Or the yellow or if it makes noise. She doesn't like that thing [points with foot at toy], it scares her. Um, yeah.	
21	Trying to think here. It's not working very well. Has it been five minutes? [laughs] I don't like this part of the assessment.	Jens Jespersen Coherence -
22	P: She don't like reading books either. She only likes the people she knows. If she hasn't met you before, she won't go to you.	Jens Jespersen Complexity +
23	[silent 14:57-15:09]	
24	P: I think that's about it. Yeah, that's about it.	
25	[silent 15:17-15:32]	
26	P: [ to child] I see you. [to M] This is mainly the part I don't like; I don't like being closed off from her.	Jens Jespersen Coherence -
27	P: Okay, open the door now, you- you can open the door now. I have an attachment disorder to my children [laughs] and this is part of	Jens Jespersen Separateness -
28	it. [looks at cellphone] It's been five minutes. [sniffs]	
29	[silent 16:00-16:20]	Markup Area
30	P: Where'd they go?	
31	[silent 16:22-16:39]	
32	P: Here she comes. [laughs; looks at cellphone] Oh yeah, I've mastered how long these things take.	

## FMSS-Coherence Coding Example – Coherent

1 **M: Before we have you play with baby's name, I would like to record you talking about (baby's name). I would like to hear**  
 2 **your thoughts and feelings about (baby's name), in your own words, without me interrupting you with any questions or**  
 3 **comments. When I ask you to begin, I'd like you to speak for 5 minutes, telling me what kind of baby (baby's name) is, and**  
 4 **how the two of you get along together. After you have begun to speak, I am not supposed to answer any questions. Are there**  
 5 **any questions you would like to ask me before we begin?**

6 P: Nope, we're good

7 **M: You may begin.**

8 P: Okay, um, X (child's name) is a delightful kid. He is fun. He's my third child and, um, from the day he was born, just pretty easy  
 9 going, not a whole lot of fuss, he, um, he's fairly entertained by himself. I don't feel like he's very, uh, needy or he doesn't need me to  
 10 hold him all day but he is affectionate and, um, sometimes when we snuggle he'll just- he'll just hug and hold on for a while and just  
 11 rest his head on my shoulder and that always makes me feel really good. Um, he, uh, he's a very playful kid, like he- he tries to initiate  
 12 play a lot. I notice like, um, sometimes if- I know sometime- he knows, well I don't know if he knows or not but we're not- we don't  
 13 let him into the bathroom very often and sometimes when the bathroom door is open, he'll run halfway, then he'll [laughs] look back  
 14 at me and just wait and want me to chase him and then like of course I do, and he'll run toward the bathroom. Uh, I think more than  
 15 anything he just wants to have fun. It's awesome, he doesn't want to- he's not trying to get in trouble or anything. Um, uh, my  
 16 relationship with him, I just feel like we're, um, it's an easy relationship, um, I'm- I'm getting really excited for fall. Our, uh, three-  
 17 year-old or well, he will be four, our four-year-old will be going to school and so that'll give me just time with X (child's name) for

Jens Jespersen  
Complexity +

Jens Jespersen  
Elaboration +

Jens Jespersen  
Complexity +

Jens Jespersen  
Elaboration +

Jens Jespersen  
Complexity +

## FMSS-Coherence Coding Example – Coherent (Continued)

18	the afternoon. Which is- I'm really looking forward to that and just having him go with me to the store and go just be my little shadow	Jens Jespersen Acceptance +
19	for- for the year will be really fun. Um, let's see. I feel like he is very close with my husband, which is really great, I love that because	Jens Jespersen Complexity +
20	I feel like we c- my husband and I can kind of team off on him and like I don't always have to put him to bed, sometimes my husband	Jens Jespersen Elaboration +
21	does and, um, that makes it really easy for me, um, and nice to- to sometimes have a little break from the children, um, and so, um, I	
22	really like that. And I think it increases, um, increases my relationship with him and my husband. I just feel like it creates this great	
23	trio between us, you know. Um, let's see what else? He uh, he's learning, he's- he's completely learned to walk, he hardly even falls	Jens Jespersen Elaboration +
24	anymore. And he runs. Um, he's starting to learn his words. He's- he learned "ball" and "dog" and if it's a walking, breathing thing	
25	it's a dog and if he [laughs] can play with it, it's a ball. [smiles] And so, he's got life figured out, [to baby] huh? [to M] Um, uh, let's	
26	see, what else? What else? There's so many good things to say about X (child's name). Um, [sniffles] he, let's see, I feel like he- when	Jens Jespersen Complexity +; Acceptance +
27	he does- if he ever is fussy or, you know, it's for like a reason if he's hungry or tired or if he's been hurt or whatever but it's quickly	
28	resolved, um, and he just generally just is a- has a happy disposition. Uh, it's easy for him to get over things quickly. Um, um, hm,	Jens Jespersen Complexity +; Acceptance +
29	[mumbles to self] let me think about X (child's name), um, he- he has like six teeth now [laughs] and he bites [laughs]. Not hard	Jens Jespersen Acceptance +
30	though, he's pretty good. He's only bit me a few times and I think- I think he learned that he doesn't- he doesn't bite momma [laughs],	
31	she screams. Um, so um, [pauses 18:27-18:31] um, yeah, his favorite toy is a ball. He loves ball. We got him a big, uh, one of those	Jens Jespersen Elaboration +
32	big bouncy balls.	

## Dissertation Study IRB Letter



### Oklahoma State University Institutional Review Board

Date: 01/27/2022  
Application Number: IRB-22-37  
Proposal Title: Legacy for Children Implementation Study - Data Analysis

Principal Investigator: Jens Jespersen  
Co-Investigator(s):  
Faculty Adviser: Amanda Morris  
Project Coordinator:  
Research Assistant(s):

Processed as: Exempt  
Exempt Category:

#### **Status Recommended by Reviewer(s): Approved**

---

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in 45CFR46.

**This study meets criteria in the Revised Common Rule, as well as, one or more of the circumstances for which continuing review is not required. As Principal Investigator of this research, you will be required to submit a status report to the IRB triennially.**

The final versions of any recruitment, consent and assent documents bearing the IRB approval stamp are available for download from IRBManager. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be approved by the IRB. Protocol modifications requiring approval may include changes to the title, PI, adviser, other research personnel, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any unanticipated and/or adverse events to the IRB Office promptly.
4. Notify the IRB office when your research project is complete or when you are no longer affiliated with Oklahoma State University.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact the IRB Office at 405-744-3377 or [irb@okstate.edu](mailto:irb@okstate.edu).

Sincerely,  
Oklahoma State University IRB



## VITA

Jens Erik Jespersen

Candidate for the Degree of

Doctor of Philosophy

Dissertation: ATTACHMENT AND PARENTING BEHAVIOR IN MOTHERS OF YOUNG CHILDREN: A MIXED-METHODS APPROACH

Major Field: Human Sciences

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Human Sciences at Oklahoma State University, Stillwater, Oklahoma in July, 2022.

Completed the requirements for the Master of Science in Human Development and Family Science at Oklahoma State University, Stillwater, Oklahoma in 2019.

Completed the requirements for the Bachelor of Science in Psychology at Brigham Young University, Provo, Utah in 2016.

Experience:

Graduate Research Assistant at Oklahoma State University, 2016 to 2022

Instructor of Record at Oklahoma State University, 2020 to 2022

Professional Memberships:

American Psychological Association – Division 7  
Society for Research in Child Development  
World Association for Infant Mental Health