ABSTRACT

Title of Thesis:	EMPATHY IN PARENTS AND CHILDREN: LINKS TO PRESCHOOLERS' ATTACHMENT AND AGGRESSION
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Though theory suggests that parents' empathy is important for children's empathic development, the transmission of empathy from parent to child remains poorly understood. The goals of this investigation were to test an intergenerational model of empathy with child attachment as a potential mediating mechanism and to replicate findings linking child empathy to reduced risk for aggression. Eighty-nine preschoolers and their mothers completed measures of parent empathy, as well as child attachment, empathy, and aggression. Parent empathy predicted child empathy, but associations varied by the measure of empathy employed. Attachment did not mediate the association between parent and child empathy, although secure attachment predicted greater child empathy. Child empathy predicted aggression, but the direction of the effect varied by the measure of child empathy and by child sex. Findings shed light on the intergenerational transmission of empathy and highlight the importance of multi-method assessment in the study of empathy.

EMPATHY IN PARENTS AND CHILDREN: LINKS TO PRESCHOOLERS'
ATTACHMENT AND AGGRESSION

by

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Dedication

To those who have shown great kindness, empathy, and understanding in difficult times, especially Catherine Gould and Dennis Stern; Dr. Pepper Phillips; and Gabe, Nicki, and Dan Dayley.

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Chapter 1: Introduction

Empathy is the capacity to understand and resonate with emotions beyond one's own, and to care for others' welfare (Decety & Meyer, 2008; Eisenberg, 2000; Hoffman, 2001). Evolutionary theory places empathy at the heart of humans' ability to understand others' intentions, to respond altruistically to the needs of kin and group members, and to forge cooperative social relationships (de Waal, 2008; Preston & de Waal, 2002). From a developmental perspective, nurturing this capacity to understand and care for others in childhood has long-term implications for building a kinder, more compassionate society (Greenberg & Turksma, 2015).

Across development, individual differences in empathy predict the quality of children's social interactions, with more empathic children demonstrating greater prosocial behavior (Eisenberg & Fabes, 1990; Eisenberg & Miller, 1987) and earning greater acceptance among peers (Denham, McKinley, Couchoud, & Holt, 1990). Conversely, lack of empathy has been associated with problems of aggression and bullying in childhood (e.g., Findlay, Girardi, & Coplan, 2006; see Miller & Eisenberg, 1988). These early aggressive tendencies place children at risk for more serious violent and delinquent behavior later in development (Coie & Dodge, 1998; Dadds et al., 2009; Moffitt, 1993). In turn, deficits in empathy in adulthood are associated with child abuse, violence, and psychopathy (e.g., Jolliffe & Farrington, 2004; Perez-Albeniz & de Paul, 2003, 2004).

Given the significance of these outcomes, it is important to understand the developmental antecedents of empathy, particularly in early childhood, when individual differences first become apparent in everyday interactions with peers (e.g., Rose-Krasnor & Denham, 2009). Theory and research suggest that parental characteristics and the quality of the parent–child relationship are

crucial contributors to children's social functioning across a variety of domains (Booth-Laforce & Kerns, 2009; Bowlby, 1973; Parke & Ladd, 1992). Specifically, parents' own empathic capacities may contribute to children's empathy; however, the transmission of empathy from parent to child remains poorly understood (Feshbach, 1987; Strayer & Roberts, 1989, 2004).

The current study explores an intergenerational model of empathy, with child attachment as a mediating mechanism. First, I introduce attachment theory as a framework for understanding parental influences on children's social and emotional development. Second, I review the existing literature on the link between parent and child empathy, with particular emphasis on methods of empathy assessment in early childhood. Third, I review findings on attachment as one possible mechanism mediating this link, both in terms of how parent empathy contributes to child attachment and how child attachment, in turn, contributes to child empathy. Finally, I review evidence showing a negative relation between empathy and aggression, focusing on the preschool years. Building on these findings, I describe an empirical study to address the gaps in the literature by testing a model of empathy transmission from an attachment perspective, and by replicating previous findings linking empathy and aggression using multi-method assessment of empathy in early childhood.

An Attachment Perspective on Empathic Development

Quality of parenting has long been viewed as an important source of individual differences in children's developing social-emotional capacities (e.g., Booth-LaForce & Kerns, 2009; Parke & Ladd, 1992), including empathy (Feshbach, 1987; Hoffman, 1975, 2001; Sroufe, Egeland, & Carlson, 1999). One particularly influential perspective on children's social development is *attachment theory* (Bowlby, 1969/1982, 1973, 1980; Ainsworth, 1967). Attachment theory proposes that early patterns of interaction with a caregiver shape children's

"internal working models" of relationships, which in turn guide social functioning throughout the lifespan (Bowlby, 1969; Main, Kaplan, & Cassidy, 1985). Children who experience sensitive, responsive care are thought to develop secure working models, whereas children who experience unresponsive, inconsistent, or insensitive caregiving develop insecure working models (Ainsworth, Blehar, Waters, & Wall, 1978). Inherent in the secure model is a view of the self as effective and worthy of care, and of others as responsive and caring; thus, attachment security is thought to shape specific positive expectations, attributions, and emotional processes relevant to empathy (Sroufe, Egeland, Carlson, & Collins, 2005).

From this perspective, securely attached children may be more likely to expect distress to be met with compassion and care, to make accurate attributions about others' intentions, and to effectively regulate their emotions, which together support the capacity to *empathize*. In contrast, insecure children may expect distress to be met with avoidance, rejection, or hostility, to make negative attributions about others' intentions, and to use less adaptive emotion regulation strategies, inhibiting empathy and potentiating *aggression*. Indeed, empirical work suggests that insecure individuals are more likely to process social information in a biased manner, at times excluding cues of emotional pain or vulnerability (see Dykas & Cassidy, 2011). In contrast, attachment security may contribute to children's empathy in part by enabling open, non-defensive cognitive processing of others' emotional cues.

An additional perspective to consider is that empathic caregivers are likely to raise empathic children, and that secure attachment mediates this process. In addition to modeling empathy directly, parents' empathic capacities may help to organize and regulate their children's emotional experiences and motivate sensitive caregiving behavior, forming the basis of secure attachment (Ainsworth, 1969), which in turn contributes to empathy. Thus, children may learn

empathy directly through repeated experiences of empathic caregiving, as well as through the development of a secure working model of relationships, which in turn facilitates their own empathic responses to others. This is in keeping with Sroufe and Fleeson's (1986) view that through secure attachment, children learn both sides of a sensitive, responsive relationship.

Following this theoretical model, I next summarize the empirical research on the intergenerational transmission of empathy from parent to child and explore the role of child attachment as a potential mediating mechanism. Note that additional factors likely interact with parenting to influence children's empathic development, including genetics (Knafo, Zahn-Waxler, Hulle, & Robinson, 2008), socialization (Hastings, Utendale, & Sullivan, 2007; Maccoby, 1992), child temperament (Kochanska, Aksan, Knaack, & Rhines, 2004), context, and culture (Markus & Kitayama, 1991; van IJzendoorn, 1997). Here, however, I focus on parental contributions to children's empathy, reflecting the attachment theoretical perspective that it is through receiving sensitive, empathic care that children are able to extend care to others (Ainsworth, Bell, & Stayton, 1991; Belsky, 1984; Ricks, 1985).

Transmission of Empathy from Parent to Child

Developmental theorists have long proposed that parents' empathy may play a role in their children's developing capacity to understand and "feel with" emotions beyond their own (Feshbach, 1987; Zahn-Waxler & Radke-Yarrow, 1990; Zahn-Waxler, Radke-Yarrow, & King, 1979). Parents who model empathic behavior, who communicate their understanding of their child's emotions, and who point out others' emotional responses to their child may help foster their child's ability to extend empathy to others. Although a number of studies have examined children's empathic development in relation to parenting behaviors that reflect parents' general

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awareness of others' emotions (e.g., inductive discipline, other-oriented reasoning; Hoffman, 1970, 2001), only a small body of literature has examined parents' empathy specifically.

In a meta-analytic review, Strayer and Roberts (2004) reported mixed findings regarding the association between parents' and children's empathy, with a mean correlation of only .07 for mothers and -.01 for fathers. On the one hand, a study of 30 German kindergarteners and their mothers demonstrated a strong positive association ($r = .61$) between mothers' self-reported empathy on the Emotional Empathic Tendencies Scale (EETS; Mehrabian & Epstein, 1972) and teachers' ratings of children's empathic behavior at school (Trommsdorf, 1991). On the other hand, Barnett and colleagues (1980) reported mixed results in a study of 5-year-olds, showing that mothers' self-reported empathy on the EETS was positively related to children's empathy, as assessed via self-reported emotional responses to empathy-inducing pictures (Feshbach & Roe, 1968); however, results were significant only for girls, and the association was negative for father empathy (Barnett, King, Howard, & Dino, 1980). Similarly, a study of 47 first-grade boys and their fathers found no significant relation between fathers' self-reported empathy on the EETS and sons' self-reported empathy on Bryant's (1982) child empathy index (Bernadett-Shapiro, Ehrensaft, & Shapiro, 1996). In a sample of 51 six-year-olds and their parents, Strayer and Roberts (1989) found no significant associations between either mothers' or fathers' empathy on the EETS and children's empathy, as assessed via both self-report and parent-report measures. In a larger sample of 215 Finnish families of 9- to 12-year old children, Kalliopuska (1984) found weak, positive correlations between parent and child self-reported empathy on the EETS, but results were significant only for fathers.

Thus, among studies examining parents' self-reported emotional empathy on the EETS and children's self-reported empathy on picture-based and self-report measures, results appear

equivocal at best, and are in some cases influenced by parent or child gender (e.g., Barnett et al., 1980; Kalliopuska, 1984). It may be that gender-stereotyped demand characteristics of the EETS lead to different response biases for mothers and fathers. Alternately, it may be that parents' self-reported emotional empathy does not capture key dimensions of empathy such as perspective taking and empathic concern (Davis, 1980) that are important in the intergenerational transmission of empathy.

In support of this view, three studies show concordance between parent and child empathy on the Interpersonal Reactivity Index (IRI; Davis, 1980)—a self-report measure of empathy that captures dimensions of empathic concern and perspective taking. Hawk and colleagues (2013) report positive concurrent associations between mothers' and adolescents' self-reported empathic concern and perspective taking on the IRI, with similar associations reported in a Belgian sample mothers and adolescents (Soenens, Duriez, Vansteenkiste, & Goossens, 2007). Further, van Lissa et al. (2014) found associations specifically between mother and adolescent empathic concern, and between mother and adolescent perspective taking, across a four-year period, suggesting domain-specific transmission of empathy from parent to child. These data point to the importance of taking a multidimensional approach to the study of empathy. In addition, these more consistent results may reflect the improved validity of self-report measures in adolescence, as children gain greater verbal and self-reflective capacities. This explanation suggests that the self-report measures of child empathy employed in previous research may require further validation in young children, or may be best utilized alongside other, complimentary assessments of child empathy.

Indeed, studies employing multimethod assessment of both parent and child empathy have shed additional light on the development of empathy in younger children. For example,

Eisenberg, Fabes, and colleagues (1990, 1991, 1992) conducted a series of studies of parent and child empathy using multiple measures, including: (a) parents' self-reported empathic concern, perspective taking, and personal distress on the IRI; (b) parents' and children's verbal ratings of sympathy after watching empathy-inducing films; (c) parents' and children's facial expressions during the films; and (d) parents' and children's heart rate deceleration in response to the films. In their first study of 117 second and fifth graders and their mothers, Fabes, Eisenberg, and Miller (1990) found that mothers' perspective taking was negatively related to girls' personal distress and positively related to girls' sympathy. Moreover, mothers who reported greater empathic concern had girls who demonstrated greater sympathy and heart rate deceleration in response to the films; mothers' empathic concern also predicted boys' and girls' willingness to help the characters depicted in the films. In a second study of 127 third and sixth graders and their parents, Eisenberg and colleagues (1991) observed that mothers' and fathers' perspective taking was positively related to girls' heart rate deceleration during the films, and mothers' sympathy was inversely related to girls' personal distress. For boys, mothers' perspective taking and fathers' sympathy were negatively related to boys' facial expressions of distress during the films, and mothers' sympathy was positively related to boys' self-reported empathy on Bryant's (1982) empathy index (Eisenberg, Fabes, Scallo, Carlo, & Miller, 1991). In a third study, Eisenberg et al. (1992) found that mothers who reported greater sympathy had kindergarteners who also reported greater sympathy during the films. Positive associations also were noted between mothers' and children's observed facial expressions, as well as their heart rate deceleration. Mothers' empathic concern and perspective taking were significantly positively related to girls' facial expressions of concerned attention and negatively related to their personal distress, although results were not significant for boys (Eisenberg et al., 1992). Together, this

body of research suggests that mothers' empathy in particular may be important for children's empathic development, and that empathy may best be assessed using a combination of multiple methodological approaches, including (a) self-report, (b) observed responses to realistic displays of others' distress, and (c) physiological recording.

Beyond methodological considerations, another explanation for some of the inconsistent results reviewed above is that the intergenerational transmission of empathy is mediated by other factors, such that the path from parent to child empathy is indirect. In a preliminary study of 50 parents and their 5- to 13-year old children, Strayer and Roberts (2004) found that variables such as parents' encouragement of children's emotional expressiveness and children's anger mediated the relation between parents' self-reported emotional empathy on the EETS and children's empathy, as assessed through a combination of self-report, teacher-report, and best friend ratings. The results suggest that both parent- and child-level factors mediate the intergenerational transmission of empathy. Similarly, Soenens and colleagues (2007) reported that the association between parents' and adolescents' self-reported empathy on the IRI was mediated by adolescents' reports of their parents' supportive parenting behavior, although direct associations between parent and child empathy remained significant. These findings suggest that the quality of parent–child interactions may play a role in empathy transmission; however, results should be replicated in younger children, employing more robust measures of empathy.

Thus, the first aim of the present study is to contribute to resolving discrepant findings regarding the link between parent and child empathy, using a multi-method approach in a sample of preschoolers, where results have been especially inconclusive. Specifically, I follow Eisenberg and colleagues' (1991, 1992) approach of combining self-report, video measures, physiological recording, and observational coding to assess empathy in mothers and children. Further, building

on results by Strayer and Roberts (2004) and Soenens and colleagues (2007), I explore the possibility that factors related to the parent–child relationship mediate the link between parent and child empathy. This model is described in detail in the following section.

Attachment as a Mechanism of Transmission

If parents' empathy is linked to their children's empathy, a central question becomes, by what mechanism might this occur? One possibility is that the quality of the parent–child relationship—namely children's secure attachment to the parent—mediates the link between parent and child empathy. I first review the research on the role of parent empathy in child attachment, then turn attention to the role of child attachment in the development of empathy.

The role of parent empathy in child attachment

In Ainsworth's (1969) original criteria for assessing maternal sensitivity, she noted that "The mother must be able to empathize with her baby's feelings and wishes before she can respond with sensitivity" (pp. 2). Thus, in Ainsworth's view, parents' capacity to empathize with their child is a precondition for sensitive interaction with the child. Further, Bowlby (1988) cited empathy as a central component in establishing a secure base in clinical contexts. Given that sensitive responding and secure base provision are foundational in the development of secure attachment (Ainsworth, 1967; Bowlby, 1973, 1988), it is reasonable to expect parents' empathy to be linked to their children's attachment. From the perspective of children's internal working models, we would expect children who experience empathy from a parent to develop a secure model of relationships, including a view of self and other as worthy of care and an expectation that emotions be met with understanding and sensitivity.

Despite the rich theoretical foundation for the role of parent empathy in child attachment, little empirical research has explored this link; however, other parental capacities closely related to empathy have been shown to play a key role in attachment. For example, Meins et al. (2001) demonstrated that mothers' "*mind-mindedness*," or tendency to view their 6-month-old infant as an individual with a mind predicted infants' secure attachment in the Strange Situation six months later. Follow-up studies yielded similar results in mothers and fathers of older infants (Laranjo, Bernier, & Meins 2008; Lundy, 2003; Meins et al., 2012) and preschoolers (McMahon & Meins, 2012). Although the studies do not address empathy specifically, mind-mindedness may provide a foundation for empathy; that is, parents must first acknowledge the existence of their child's unique internal world in order to understand and empathize with the child's emotional experiences.

A related line of research has shown that parents' *reflective functioning*—the capacity to reflect on one's own and others' thoughts, emotions, and motivations—contributes to children's secure attachment (Slade, 2005). Parental reflective functioning (RF) is assessed from parents' responses to interview questions about their own and their child's thoughts and emotions in everyday parent–child interactions (Fonagy, Target, Steele, & Steele, 1998; Slade et al., 2004). Using this protocol, Slade and colleagues (2005) demonstrated that mothers' RF positively predicted their infants' secure attachment in the Strange Situation (Slade, Grienenberger, Bernbach, Levy, & Locker, 2005). Conversely, a pilot study linked low RF to insensitive caregiving behavior and to children's insecure attachment (Grienenberger, Kelly, & Slade, 2005). Both RF and empathy involve the capacity to understand thoughts and emotions and to link internal states to behavior (Fonagy et al., 1998); however, parent empathy is concerned

specifically with the child's emotions and also involves the affective experience of concern for and resonance with the child's experience.

To address these considerations, Stern, Borelli, and Smiley (2015) adapted the RF protocol to assess parents' empathy for their children from their verbal accounts of their child's emotions. In our sample of 60 caregivers of school-aged children (ages 7 to 12 years), parents' empathic responses were positively related to their children's attachment security on the Child Attachment Interview (Target, Fonagy, & Shmueli-Goetz, 2003), as well as to children's perceptions of parents' caregiving behavior. Results suggest that parents' capacity to empathize with their children's emotional experiences is linked to secure attachment in middle childhood.

Similar evidence comes from studies of empathic understanding or "*insightfulness*," assessed from mothers' interviews about video recordings of their child's behavior (Oppenheim & Koren-Karie, 2002). Mothers who demonstrated insight and acceptance regarding the motives underlying their child's behavior were more likely to have infants classified as secure in the Strange Situation (Oppenheim, Koren-Karie, & Sagi, 2001; Koren-Karie, Oppenheim, Dolev, Sher, & Etzion-Carasso, 2002). The overall pattern of results held even among children with developmental disabilities (Oppenheim, Koren-Karie, Dolev, & Yirmiya, 2009), suggesting that parents' empathic insight plays a role in the development of secure attachment in both typically and atypically developing populations.

Other video-based assessments of parent empathy provide compelling support for the link between the affective dimension of parent empathy and child attachment. Leerkes, Parade, and Gudmundson (2011) demonstrated that mothers' emotional responses to video clips of crying infants, assessed prenatally, predicted their own infants' attachment behavior in the Strange Situation at 16 months postpartum. Specifically, mothers who reported empathic, infant-oriented

emotional responses to infant crying were more likely to have children classified as secure, whereas mothers who reported anger and anxiety were more likely to have children classified as insecure at 16 months (Leerkes et al., 2011).

Attachment interventions provide additional evidence for a link between parent empathy and child attachment. In one study, low-SES immigrant mothers of insecurely attached infants were randomly assigned to an attachment-based intervention designed to improve their contingent responding to their child's signals. In post-intervention observations of mothers' empathic responsiveness to their infants' emotional cues, mothers in the intervention group showed greater empathy than mothers in the control group, bringing them on par with a comparison group of mothers of secure children. Further, their infants demonstrated behaviors indicating enhanced attachment security (Lieberman, Weston, & Pawl, 1991). Relatedly, the Circle of Security intervention model posits that a critical "empathic shift" underlies parents' progress toward providing a secure base for their children and enhancing their children's attachment security (Cooper, Hoffman, Powell, & Marvin, 2005; Powell, Cooper, Hoffman, & Marvin, 2014); beyond qualitative clinical observations, however, parent empathy has yet to be evaluated empirically as a potential mechanism of change in attachment interventions.

Finally, it is also worth noting that low parent empathy, particularly in combination with poor emotion regulation, has been widely considered to be a risk factor for child abuse (Perez-Albeniz & de Paul, 2003, 2004; Rosenstein, 1995; Wiehe, 1997, 2003). For example, whereas typical mothers reported increases in empathy in response to a video of an infant crying, mothers at high risk for child abuse reported no change; rather, high-risk mothers reported more hostility, low mood, and distress in response to infant crying (Milner, Halsey, & Fultz, 1995). As noted above, such negative reactions to infant distress have been associated with insecure attachment

(Leerkes, 2011). Moreover, abuse is strongly linked to attachment insecurity and disorganization (Carlson, Cicchetti, Barnett, & Braunwald, 1989; Crittenden & Ainsworth, 1989; Egeland & Sroufe, 1981; Lyons-Ruth & Block, 1996). It may be that part of empathy's function within the parent–child relationship is to reduce abusive, hostile, and atypical parenting behavior, as much as it is to promote sensitivity (see Kelly et al., 2005, for a similar discussion of parental RF).

In sum, although robust evidence demonstrates that parental capacities closely related to empathy (such as mind-mindedness and reflective functioning) are linked to attachment security, few studies have examined empathy directly. Those that have done so show preliminary support for a link between parent empathy and attachment in infancy (Oppenheim et al., 2001; Oppenheim & Korel-Karie, 2002) and middle childhood (Stern et al., 2015). What the research points to most clearly is the need for further study of the link between parent empathy and child attachment, particularly in preschool-aged children; therefore, I test this link in the current study.

Attachment security and empathy for others

According to attachment theory, a secure internal working model of relationships is likely to promote empathy for a number or reasons. First, security reduces self-focused attention to social threat, freeing mental resources to attend to others' emotions (Mikulincer & Shaver, 2015). Second, security reduces biased information processing of emotional stimuli, supporting more accurate interpretation of others' emotional cues (Dykas & Cassidy, 2011). Third, the secure model involves a mental "script" for how emotional distress should be met with sensitive care (Waters & Waters, 2006). Finally, security has been shown to promote emotion regulation, a key capacity underlying empathic responding (Calkins & Leerkes, 2011; Cassidy, 1994; Eisenberg, 2000; Panfile & Laible, 2012).

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These theoretical links are well supported in studies of adolescents and adults. For example, experimental priming of attachment security has been shown to enhance adults' self-reported empathy and willingness to help distressed others (Mikulincer et al., 2001; Mikulincer, Shaver, Gillath, & Nitzberg, 2005; Mikulincer & Shaver, 2005), providing evidence for a causal link between felt security and empathy. Among adolescents, self-reported attachment security has been consistently linked to self-reported empathy (e.g., Laible, Carlo, & Roesch, 2004; Markiewicz, Doyle, & Brendgen, 2001; Thompson & Gullone, 2008). Fewer investigations, however, have examined this link in younger children.

Studies of preschoolers have yielded moderate support for a link between attachment security and empathy in preschool. One of the first longitudinal studies to investigate this link found that securely attached infants received higher observer ratings of sympathy to peers' distress at age 3½ (Waters, Wippman, & Sroufe, 1979). Sroufe (1983) found that teacher reports of preschoolers' empathy were highest among secure children and lowest among avoidant children. In a study of 3-5-year-olds, concurrent attachment security was positively associated with maternal ratings of empathic behavior and negatively associated with ratings of aggressive behavior (Laible, 2006). Secure preschoolers also evince better understanding of emotions in naturalistic and lab-based paradigms (Laible, 2004; Laible & Thompson, 1998), providing a potential mechanism by which attachment may be linked to empathy in childhood.

Results are inconsistent, however; Iannotti and colleagues (1992) found that toddler attachment predicted observed prosocial behavior at 5 years, including comforting toward others in distress, but was unrelated other indicators of empathy such as affect matching and emotion understanding (Iannotti, Cummings, Pierrehumbert, Milano, & Zahn-Waxler, 1992). Further, securely attached infants displayed greater empathy for a peer in a naturalistic setting at age 4

compared to insecure-avoidant infants, but differences were not significant for insecure-resistant infants (Kestenbaum, Farber, & Sroufe, 1989). Murphy and Laible (2013) found no association between preschoolers' attachment and empathic concern in response to a crying infant when assessed concurrently, but security significantly predicted empathic concern when assessed longitudinally (approximately 5 months after the initial assessment of attachment).

To date, investigations of whether attachment is related to empathy in preschoolers have yielded modest evidence at best, but findings in older children and adults offer compelling reason to pursue this question further. Notably, other studies have reported positive associations between attachment security and children's *prosocial behavior*, including comforting and other responses often assumed to reflect empathy (e.g., Futh, O'Connor, Matias, Green, & Scott, 2008; Iannotti et al., 1992; Teti & Ablard, 1989); however, because empathy cannot be inferred solely from broad assessments of prosociality, future research should employ questionnaire measures alongside behavioral assessments of empathy (with specific operationalization of "empathic behavior"). (For a more extensive theory and review of attachment, empathy, and prosocial behavior, see Shaver, Mikulincer, Gross, Stern, & Cassidy, 2016.) Therefore, I aim to test the link between preschoolers' attachment security and empathy, assessed using parent and child report measures, in addition to observations of children's empathic responses to others' distress.

Predicting Child Aggression

Although empathy is important for a variety of positive social outcomes, an especially important one is the reduction of aggression—that is, behavior intended to physically or emotionally harm another individual (Miller & Eisenberg, 1988). Theorists suggest that aggressive behavior may result from either (a) social cognitive deficits such as lack of cognitive empathy regarding others' emotions and intentions and poor emotion regulation (Crick & Dodge,

1994, 1996; Eisenberg, 2000; Feshbach, 1987); or (b) intact social cognitive capacities, including accurate interpretation of others' emotions and intentions, but deficient emotional empathy or concern for others' wellbeing (Arsenio & Lemerise, 2001; Björkqvis, Österman, & Kaukiainen, 2000; Sutton, Smith, & Swettenham, 1999a, 1999b; Smith, 2006; see Blair, 2005, 2008). Thus, deficits along both the cognitive and emotional dimensions of empathy are thought to contribute to aggressive behavior. This section provides a brief overview of the research linking children's empathy to their aggressive behavior; rather than providing an exhaustive review, I focus specifically on research in younger children to illustrate the importance of empathy early in development (see Miller & Eisenberg, 1988, for a systematic review).

Although extensive research demonstrates that empathy is inversely related to child aggression, effects are often weaker in younger children, perhaps in part due to difficulties operationalizing empathy in young children (Miller & Eisenberg, 1988); in general, studies employing task-based and questionnaire measures of empathy have yielded more consistent results. For example, a study of 51 preschool-aged children found that better performance on a task assessing emotion knowledge, a key dimension of cognitive empathy, was related to lower levels of observed and teacher-reported aggression (Arsenio, Cooperman, & Lover, 2000). Similarly, first- and second-graders who reported lower empathy on Bryant's (1982) measure and demonstrated poorer performance on an emotional attribution task received higher ratings of aggression from both teachers and peers (Schultz, Izard, & Bear, 2004). Among 132 kindergarten and first grade children, those who received lower ratings on a parent-report measure of empathy tended to report more aggressive responses to vignettes about hypothetical peer interactions (Findlay, Girardi, & Coplan, 2006). Finally, Strayer and Roberts (2004) found that a combination of self-, parent-, and teacher-reported empathy was negatively associated with

children's observed physical aggression, verbal aggression, and object struggles among preschoolers randomly assigned to same-sex play groups.

Further evidence of the link between low empathy and aggression comes from research with children with behavior problems related to aggression. For example, research with preschoolers identified as "hard to manage" due to externalizing problems found that these children demonstrated small but significant deficits in perspective taking and emotion understanding abilities (Hughes, Dunn, & White, 1998). Among preschoolers at risk for behavior problems, Zahn-Waxler et al. (1995) found that compared to low-risk children, high-risk children were less able to remain positively engaged with a person expressing sadness and distress. The authors also found that higher heart rate and heart rate deceleration in response to empathy-inducing vignettes was associated with children's empathic concern and prosocial behavior, whereas low heart rate was associated with avoidance and aggressive behavior, irrespective of risk status (Zahn-Waxler, Cole, Welsh, & Fox, 1995). In a large study of mother-reported empathy and psychopathic traits in 3- to 13-year-old children, Dadds and colleagues (2009) found strong evidence for emotional empathy deficits among children with callous-unemotional traits across all age groups; however, results were significant only for boys. For both sexes, marked deficits in cognitive empathy were observed in younger children with callous-unemotional traits (Dadds et al., 2009). Among older children, youth diagnosed with conduct disorder were less accurate in their attributions regarding vignettes of others' emotions and reported lower levels of empathy across three self-report measures (including the empathic concern and perspective taking scales of the IRI), compared to children without conduct disorder (Cohen & Strayer, 1996).

Finally, preliminary evidence of a causal link between empathy and reduced aggression comes from research on bullying intervention programs. Interventions that involve perspective taking and role-play tasks designed to enhance children's empathy have been shown to be effective in reducing instances of bullying and antisocial behavior in schools (e.g., Feshbach, 1979, 1984; Feshbach & Feshbach, 1982; Şahin, 2012). In particular, a program called Roots of Empathy, which focuses on improving children's emotion understanding, perspective taking, and concern for others, has shown promise in both enhancing children's empathy and reducing teacher-reported aggression in a preliminary quasi-experimental study (Santos, Chartier, Whalen, Chateau, & Boyd, 2011) and a randomized controlled trial (Schonert-Reichl, Smith, Zaidman-Zait, & Hertzman, 2012); however, these results merit replication with gold standard measures of empathy and aggression, with reporters blind to children's intervention condition.

Thus, research from developmental, clinical, and school intervention perspectives support the negative association between empathy and aggression in young children; however, as with the intergenerational transmission of empathy, child sex appears to moderate this link in a number of cases (e.g., Zahn-Waxler et al., 1995; Dadds et al., 2009). It is also worth noting that attachment has been repeatedly linked to individual differences in aggression, with insecure and disorganized children at higher risk for aggressive behavior (e.g., Lyons-Ruth, 1996; Suess, Grossman, & Sroufe, 1992; Sroufe, 1988), and it remains unclear whether children's empathy plays a role over and above the contributions of attachment. In order to better understand the unique contributions of empathy in the prediction of aggression, I examine the link between children's empathy and aggression, controlling for child sex and attachment.

As described above, extant research points to the need for further examination of the intergenerational transmission of empathy. First, few studies to date have examined the link between parent and child empathy, and those that have show mixed results. Second, although preliminary evidence suggests that parent empathy plays a role in child attachment, this link merits examination in preschool; further, although some research has shown that secure attachment is positively associated with empathy in preschool, it may be useful to test a complete mediation model, with parent empathy as a variable of interest. Third, research has shown that greater child empathy is associated with lower levels of aggression, but not in relation to other relevant factors such as attachment and parent empathy.

In light of the gaps in the literature, the goals of the current study were threefold: First, I aimed to better understand the discrepant findings related to the link between parent and child empathy through the use of multi-method, multi-informant assessment. Second, I tested a theoretical model in which the intergenerational transmission of empathy is mediated by children's attachment. Finally, I sought to replicate previous findings on aggressive behavior, examining the unique contribution of child empathy, over and above other factors. The model is illustrated in Figure 1, and specific hypotheses are outlined below.

Hypothesis 1. Parent empathy will positively predict child empathy, as assessed using a combination of questionnaire, physiological, and behavioral measures.

Hypothesis 2. Child attachment will mediate the link between parent and child empathy. Specifically, parent empathy will positively predict child attachment security, which in turn will positively predict child empathy.

Hypothesis 3. Greater child empathy will predict lower child aggression.

To test these hypotheses, we conducted a two-visit laboratory study of mothers and their preschool-aged children. During the visits, mothers (a) completed a series of widely used questionnaires about their own empathy, their children's empathy, and their children's aggressive behavior, and (b) respond to empathy-inducing videos while their physiological responses were recorded. Independently, children (a) completed to a widely used play-based measure of attachment, along with a control measure of verbal ability; (b) rated their feelings of empathy on a verbal self-report measure; and (c) responded to an experimenter feigning physical distress. This approach allowed us to collect data using multiple, robust methods of assessment and to observe children's empathic responses during a naturalistic simulation of distress.

The current study follows previous researchers' (Decety & Meyer, 2008; Eisenberg, 2000; Hoffman, 2001) operational definition of *empathy* as an affective experience of emotional resonance with and concern for an individual in distress. Cognitively, empathy involves a basic understanding of the other's internal state, as well as awareness that the person in distress is separate from oneself (Decety, 2015; Decety & Jackson, 2004). Finally, empathy is emotionally regulated, promoting other-oriented concern and responsiveness, rather than self-focused personal distress (Decety & Jackson, 2004; Eisenberg & Eggum, 2009). Importantly, although it is often associated with prosocial behavior such as instrumental helping, sharing, and caring (Eisenberg & Miller, 1987), empathy refers specifically to an internal experience of concern in response to others' distress, which does not always result in prosocial action; similarly, prosocial behavior may be motivated by factors other than empathy, such as compliance or desire for reciprocity (Paulus, 2014). Thus, observational assessments focus on the behavioral indicators identified most often in previous research of child empathy: concerned attention, affective

mirroring, verbal expression of concern or comfort, and comforting physical touch toward the individual in distress (e.g., Zahn-Waxler, Robinson, & Emde, 1992).

Chapter 2: Method

Participants

Participants were recruited from the greater Washington, D. C. metropolitan area through University of Maryland IRB-approved flyers and listserv announcements. Inclusion criteria were: (1) child is 4 years of age and (2) is typically developing, (3) mother is at least 18 years of age, and (4) mother and child speak English. A total of 107 mother–child dyads came to the laboratory for the first visit. The first seven dyads were used as pilot data to test the appropriateness of the measures and protocol. Of the remaining 100, four dyads were deemed ineligible (two children not typically developing, one child outside the age range, one mother not proficient in English). An additional seven participants did not return for the second visit (attrition rate = 7%). Thus, the final sample used for analyses comprised 89 mothers and their four-year-old children (53% female; $M_{age} = 53.5$ months, $SD = 3.5$, range: 48 - 60 months). The sample was racially diverse, with 21% of mothers identifying as Black/African American, 56% as Caucasian/White, 11% as Latina/Hispanic, 7% as Asian, 2% as Multiracial, and 2% as Other. The majority of children (86%) were from two-parent households, and the median annual household income reported was $80,000 - $99,000.

Procedure

Data were collected during two laboratory visits, with most occurring approximately 1-3 weeks apart. Prior to the first visit, mothers completed questionnaires including a self-report measure of empathy. During the first visit (~1.5 hours), mothers provided informed consent,

remained with their child until the child was comfortable with the experimenter, and then retired

to a separate room while their children participated in tasks not relevant to the current study (for

details see Brett, 2016). Mothers were fitted with BIOPAC electrocardiogram equipment that

recorded their baseline respiration and heart rate while they watched a 5-minute video of an

aquatic scene. Physiological recording continued as mothers then completed two additional

tasks, presented in random counterbalanced order: a parenting interview (not part of the present

study) and a computer-based empathy task in which mothers respond to videos of infants crying,

as described below. At the end of the first visit, children received a "Junior Scientist" certificate,

and arrangements were made for the second visit.

During the second visit (~1 hour), mothers again retired to a separate room to complete a

set of questionnaires about their child, including parent report measures of child empathy and

aggression. Meanwhile, their children participated in a variety of activities with a male

experimenter, including a play-based attachment story task, a verbal self-report measure of

empathy, and a naturalistic empathy task in which the experimenter pretended to pinch his finger

with a clipboard. At the conclusion of the second visit, mothers were compensated $30, and

children received a small prize for participating. Measures are described below, and a timeline of

their administration is summarized in Table 1. Copies of all questionnaires are included in

Appendix A, and excerpts from behavioral coding manuals in Appendix B, at the end of this

document.

Measures

Parent Measures

Interpersonal Reactivity Index—Parent version (IRI-P). The IRI-P is a modification of several scales of the Interpersonal Reactivity Index (IRI; Davis, 1980) that we created for this study. The original IRI is one of the most widely used adult self-report measures of "trait" empathy (i.e., overall empathic disposition, in contrast to "state" empathy in response to a specific stimulus), and has been validated with diverse populations (Davis, 1983). The measure includes four subscales, each comprising 7 items: Empathic Concern (EC; e.g., "I often have tender, concerned feelings for people less fortunate than me"), Perspective-Taking (PT; e.g., "I sometimes try to understand my friends better by imagining how things look from their perspective"), Personal Distress (PD; e.g., "I sometimes feel helpless when I am in the middle of a very emotional situation"), and Fantasy (FS; e.g., "I really get involved with the feelings of the characters in a novel"); typically, researchers omit the fourth subscale, and I follow this precedent. Respondents rate each statement on a 5-point Likert scale (1 = *Does not describe me well*; 5 = *Describes me very well*). The scale demonstrates strong psychometric properties, including a reliable four-factor structure reflecting the four subscales, and strong test-retest reliability (Davis, 1980, 1983). The measure also shows strong convergence with other self-report measures of empathy (Davis, 1980), as well as positive associations with prosocial behavior (Eisenberg et al., 2002; Sze, Gyurak, Goodkind, & Levenson, 2012) and negative associations with aggressive behavior (Davis, 1983; Mayberry & Espelage, 2007).

In the current study, the EC, PT, and PD subscales were adapted to reflect mothers' trait empathy specifically for their children. For example, the item, "Before criticizing somebody, I try to imagine how I would feel if I were in their place" was changed to "Before criticizing <u>my</u>

child, I try to imagine how I would feel if I were in his/her place." Internal consistency was acceptable for the revised version (α_{EC} = .69, α_{PT} = .64, α_{PD} = .72)

Physiological recording. BIOPAC electrocardiogram equipment and AcqKnowledge acquisition software were used to record mothers' psychophysiological activity. Respiratory sinus arrhythmia (RSA) was obtained from electrode leads placed on the torso in a Lead II configuration. First, mothers watched a two-minute video of an aquatic scene (i.e., watching waves on a beach) to establish a baseline index of physiological activity (used as a covariate to control for baseline individual differences in respiratory parameters; Grossman & Taylor, 2007). Next, they viewed a series of short videos of infants (described below). RSA was calculated using AcqKnowledge's RSA Analysis routine by subtracting the minimum heart period during inspiration from the maximum heart period during expiration (following recommendations of Grossman, van Beek, & Wientjes, 1990).

RSA reflects the activation of the vagus nerve—part of the parasympathetic branch of the autonomic nervous system involved in down-regulating the heart (Beauchaine, 2001; Berntson, Cacioppo, & Quigley, 1993)—and is thought to index empathic states and emotion regulation (Côté et al., 2011). Vagus nerve activity has been associated with oxytocin release (Porges, 2001), sensitive responses to others' social cues (Porges, 2001, 2007), enhanced feelings of social connection (Kok & Fredrickson, 2010), and empathic responses to others' distress (Fabes, Eisenberg, & Eisenbud, 1993; Fabes, Eisenberg, Karbon, Troyer, & Switzer, 1994; Stellar, Cohen, Oveis, & Keltner, 2015).

Response to infant distress (Leerkes & Siepak, 2006; Leerkes et al., 2011). Using a paradigm developed by Leerkes and colleagues (2006, 2011), mothers watched a series of four one-minute video clips of infants crying. Following each clip, mothers were asked questions

about (a) how they feel, (b) how they think the infant is feeling, and (c) why they think the infant

is feeling that way. When responding about their own feelings, mothers were presented with a

list of 17 emotions in a random order and indicated the degree to which they feel each one on a

4-point Likert scale (1 = *not at all*; 4 = *very strongly*). The list included four emotions indicative

of "state" empathy (*empathetic, concerned, sad, sympathetic*), five emotions indicating lack of

empathy (*irritated, annoyed, disgusted, frustrated, angry*), as well as other emotions. When

responding about the infant's emotions, mothers selected responses from a list of words

including more plausible attributions (e.g., *anxious, afraid, frustrated*) and less plausible

attributions (e.g., *bored, disgusted, hungry, pleased*). When responding about *why* the infant is

feeling this way, mothers indicated the extent to which they agree or disagree with a series of

statements on a 4-point Likert scale (1 = *strongly disagree*; 4 = *strongly agree*). These statements

included more empathic responses such as "The baby was trying to let someone know he/she

needs help," as well as less empathic responses such as "The baby was being selfish." Responses

were coded along two dimensions defined by Leerkes et al. (2011): *empathy* (infant-oriented

sympathy and concern) and *negative emotions* (mother-oriented anger, irritation, or anxiety).

Previous research using this paradigm has shown that more sensitive responses to these videos

(i.e., higher empathy scores, lower negative emotion scores) are associated with mothers' RSA

withdrawal (Leerkes et al., 2015) and predict mothers' sensitive behavior toward their own

children (Leerkes et al., 2011). Conversely, mothers' insensitive responses to the videos have

been shown to predict their children's insecure attachment (Leerkes, Parade, & Gundmundsen,

2011). Chronbach's alpha for the empathy items was .92.

     My Child—Empathy subscale (Kochanska, de Vet, Marguerita, Goldman, Murray, &

Putnam, 1994). The My Child scale is a multidimensional parent-report scale of young

children's conscience development, with subscales assessing trait empathy, guilt after wrongdoing, apology, and other factors. In the current study, mothers responded to the 13-item Empathy/Prosocial subscale, which includes items such as "Will try to comfort or reassure another in distress," using a 7-point Likert scale (1 = *extremely untrue*; 7 = *extremely true*). In its original validation study, the mothers' responses on the empathy subscale showed good internal consistency, moderate test-retest reliability across a five-month period, and substantial agreement with father-report (Kochanska et al., 1994). Mother-reported empathy on the My Child scale has shown to be positively associated with children's self-reported trait empathy and negatively associated with children's observed disregard for others' distress (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). Chronbach's alpha was .76 in the present sample.

Child Behavior Checklist (Achenbach, 1991). The Child Behavior Checklist (CBCL) is a widely used adult-report measure of children's behavior problems. In the current study, parents completed the Aggression subscale of the CBCL's Externalizing scale, which consists of 19 items including "Gets in many fights" and "Destroys things that belong to his/her family or to other people." Parents rate the extent to which each items describes their child on a 3-point Likert scale (0 = *not true*; 1 = *somewhat or sometimes true*; 2 = *very true or often true*). Parent ratings of aggression on the CBCL show good convergent validity with peer-, teacher-, and self-reported aggression (Epkins & Meyers, 1994), and observational studies confirm that CBCL aggression scores predict children's physical aggression, verbal aggression, and disruptive behavior in classroom settings (Henry, 2006). Chronbach's alpha in the present sample was .91.

Child Measures

Attachment Story Completion Task (Bretherton, Ridgeway, & Cassidy, 1990). The Attachment Story Completion Task (ASCT; Bretherton et al., 1990) is a 20-minute play-based

assessment of preschool-aged children's attachment representations using the MacArthur Story

Stem Battery (Bretherton, Oppenheim, Buchsbaum, Emde, & the MacArthur Narrative Group,

1990). In this task, a trained experimenter introduces a series of story stems to the child, using

doll figures, and asks the child to "Show me and tell me what happens next;" children's

attachment representations are thought to be reflected in their responses to the play scenarios.

The stories present attachment-themed problems (e.g., a child sees a monster in his bedroom and

calls out for his parents) and allow children to resolve these problems through open-ended play

(e.g., parents respond to the child's fear and tell the monster to take a hike). When needed, the

experimenter may ask for clarification about what the child is enacting in a scene, but otherwise

allows the child to respond without suggestion or interruption.

Children's responses were videotaped and coded using a manual developed in our lab

(Stern, Martin, & Cassidy, 2016), modified from Bretherton et al. (1990) by fleshing out more

details, while drawing on Cassidy (1988), and Main et al. (1985). Coding focused on three of the

story stems (Hurt Knee, Monster in the Bedroom, and Separation/Reunion, scored as a single

story). Children's responses were coded for both content (e.g., parents positively involved, story

issue is resolved) and process (i.e., coherence). Children's coherent resolution of the attachment

problem with the help of the caregiver(s) are principal indicators of security, whereas avoidance

of the problem and incoherent or bizarre responses are indicators of insecurity (see Appendix B

for coding manual with scoring details). Children were assigned a categorical attachment

classification (secure, avoidant, or disorganized), as well as a 5-point security score (1 = *highly*

insecure; 5 = *highly secure*). Previous studies have shown that children's security scores on the

ASCT are positively associated with their previously assessed attachment security in the Strange

Situation, in Main and Cassidy's (1988) separation–reunion procedure, and on the Attachment Q-Sort (Bretherton et al., 1990; George & Solomon, 1994; Turner, 1991).

Five coders were trained to reliability (Krippendorff's alpha [K-alpha] cutoff = .70) and then independently and blindly coded the ASCT videos; 84% of videos were double-coded for reliability, and discrepancies were resolved via conferencing. Following recommendations by Hayes and Krippendorff (2007) for best practices assessing reliability among more than two coders, reliability was calculated using Hayes' (2005) KALPHA macro for SPSS. K-alpha values indicated strong interrater reliability for the continuous security scores (α_{Knee} = .87; $\alpha_{Monster}$ = .88; $\alpha_{Reunion}$ = .92) and good reliability for the categorical classifications (α_{Knee} = .80; $\alpha_{Monster}$ = .78; $\alpha_{Reunion}$ = .75; $\alpha_{Overall}$ = .76).

Peabody Picture Vocabulary Test—Version IV (PPVT; Dunn & Dunn, 2007). Following previous work (e.g., Page & Bretherton, 2001), children also completed the PPVT to provide a potential control for verbal ability on the ASCT. The PPVT a standardized, norm-referenced assessment of receptive vocabulary for individuals ages 2 ½ years and up. An experimenter reads a series of words to the respondent; for each word, the respondent is presented with a page displaying four full-color pictures and is asked to point to the picture representing the corresponding word. The PPVT consistently demonstrates good internal and test-retest reliability, and good convergent validity with other indices of verbal ability across a range of ages (Campbell, 1998; Dunn & Dunn, 2007).

Index of Empathy for Children and Adolescents (Bryant, 1982). Bryant's original Index of Empathy for Children and Adolescents is a 22-item self-report measure of trait emotional empathy for use with school-aged children. Children respond to a series of statements about their emotional responses to others' distress (e.g., "It makes me sad to see a boy/girl who can't find

anyone to play with") on a *yes/no* scale. To ensure developmental appropriateness for a preschool-aged sample, we made the following adaptations: (1) shorten the measure to 10 empathy statements by selecting items with the strongest statistical properties (as reported by Bryant, 1982), plus 6 filler items; (2) administer items verbally and record children's verbal responses; and (3) implement a 3-point response scale (0 = *no*; 1 = *sometimes*; 2 = *yes*). In Bryant's (1984) validation of the measure with first-graders, the scale showed strong test-retest reliability, good convergent validity with Feshbach and Roe's (1968) picture-based empathy measure, and moderate negative associations with teacher-reported aggression among boys. Chronbach's alpha in the present sample was acceptable at .65.

Comforting task. Observed state empathy was coded from videotapes of children's responses to a naturalistic comforting task, modeled after procedures originally developed by Zahn-Waxler and colleagues (1992) that have been widely used in studies of children's empathic behavior (e.g., Hastings, Rubin, & DeRose, 2005; Hastings et al., 2000; Kiang, Moreno, & Robinson, 2004). In this task, an experimenter pulls back and then releases the clip on his clipboard, producing a loud snapping sound, followed by the exclamation, "Ow, I pinched my finger on my clipboard!" The experimenter then feigns distress for 2 minutes, beginning with subtle cues such as sighs and groans and becoming increasingly obvious about his distress, with explicit statements (e.g., "My finger really hurts") and bids for comfort (e.g., "Is there anything you can do to make me feel better?") directed toward the child. After 2 minutes, the experimenter "starts to feel better" and returns to playing with the child.

Videotapes were coded for empathy using a system previously developed in our lab for coding preschoolers' comforting behavior. Children's responses were coded on 10-second time intervals for empathic behaviors such as concerned attention, verbal expressions of concern or

comfort, and physical comforting, as well non-empathic behaviors such as personal distress, ignoring, and negativity/hostility. Coders also assigned a global score for the entire task, using a 5-point scale (1 = *no comforting*; 5 = *high comforting*; see Appendix B for coding details). Coders were trained to reliability (K-alpha cutoff = .70), 60% of videos were double-coded, and discrepancies were resolved via conferencing. K-alpha for global empathy scores was .80, indicating strong interrater reliability.

Chapter 3: Results

Data analysis proceeded in three stages: First, exploratory analyses were conducted to examine distributive properties of the variables; second, data reduction was applied where appropriate to combine multiple measures of the same construct; finally, hypotheses were tested using the analyses described below.

Exploratory analyses, descriptive statistics, and simple correlations

To address missing data, multiple imputation was conducted (*N* = 40 imputations, following Graham, 2009), and principal analyses were run using the imputed dataset. For any given variable, less than 5% of cases required imputation, indicating low rates of missingness.

Plots and distributions were examined to determine whether appropriate testing assumptions were met. All principal variables were normally distributed (skewness did not exceed a cutoff of +/-1.0); descriptive statistics are summarized in Table 2, and bivariate correlations among study variables are displayed in Table 3.

Examination of potential covariates revealed that children's verbal ability was unrelated to their security scores on the ASCT; thus, verbal ability was omitted from subsequent analyses and is not discussed further. Household income, mother race, child sex, and child age were also

examined as potential covariates; whereas household income (log-transformed to correct for positive skewness) and child age were not significantly associated with the outcome variables of interest (all ps > .05), mother race and child sex emerged as significant covariates. Specifically, girls had higher attachment security scores ($p = .005$) and reported higher empathy on the Bryant Empathy Index ($p = .019$) than boys. In addition, children of non-White mothers received higher empathy scores on the Clipboard task ($p = .003$), but reported lower empathy on the Bryant Empathy Index ($p < .001$), compared to children of White mothers. No other associations were significant. Thus, child sex and mother race were included as covariates in the principal analyses.

Data reduction

Given that the study includes multiple measures of the same constructs, principal components analyses (PCA) with varimax rotation were conducted to determine which variables could be combined into composite scores. Criteria for creating composite variables included: (1) variables load onto single empathy component in the PCA, (2) the eigenvalue for the component is greater than 1, and (3) the component accounts for a significant proportion of the variance.

First, PCA of items measuring mothers' empathy was conducted. A priori, Personal Distress items on the IRI-P were omitted from the analysis, given that these items measure self-focused distress reactions that theory and research suggest are unrelated or inversely related to empathy (see Davis, 1983). Thus, the following items were included: (a) items from the IRI-P Empathic Concern and Perspective Taking scales, (b) empathy items endorsed in response to each of the four infant distress videos, and (c) mean RSA for each of the four videos. Results indicated that all items except one (an item from the PT subscale) loaded satisfactorily onto one empathy component (all item loadings >.30), which accounted for 23% of the variance. Therefore, an overall parent empathy composite score was calculated by averaging mothers' z-

scores for Empathic Concern, Perspective Taking, empathy in response to infant distress, and RSA.

Second, PCA of items measuring child empathy was conducted, including (a) maternal report on the My Child—Empathy subscale, (b) child report on the Bryant Empathy Index, and (c) children's observed empathy in the Clipboard task. Because items did not load satisfactorily onto a single empathy component, these measures were kept separate for analyses.

Principal analyses

Hypothesis 1. **Parent empathy will be positively associated with children's empathy.** Each measure of child empathy was regressed on overall parent empathy, controlling for covariates in the first step (see Table 4, Models 1-3). Results indicated that parent empathy positively predicted maternal reports of child empathy, $\beta = .25$, $t = 2.41$, $p = .016$, $\Delta R^2 = .06$—a small effect size—but not child self-reports or observed empathy, ps > .05.

Because observed empathic behavior was considered our gold standard measure of child empathy, I conducted exploratory analyses probing the individual components of parent empathy in relation to this outcome. Children's observed empathy was predicted by mothers' reported empathy in response to infant distress (see Table 4, Model 4), but not mothers' empathic concern or perspective taking on the IRI-P, nor their RSA, ps > .05. Specifically, examination of the Clipboard empathy subscales showed that mothers' empathy in response to infant distress was positively associated with their children's observed problem-focused responses, concerned attention, and proximity to the experimenter, and negatively associated with their ignoring behavior in the Clipboard task (all ps < .05).

Hypothesis 2. **Children's attachment security will mediate the link between parent and child empathy.** Hayes' (2012) PROCESS technique for mediation, which uses 1,000

samples to generate a bias-corrected bootstrapped 95% confidence interval for the indirect effect, was used to test the proposed mediation model. Two versions of the model were performed, each controlling for child sex and mother race: In the first version—which probed the association between parent empathy and mother-reported child empathy—overall parent empathy was entered as the independent variable, children's attachment security as the mediator, and My Child empathy scores as the dependent variable. The indirect effect was not significant, bootstrapped 95% CI [-.03, .06]; the only significant path was the direct effect of overall parent empathy on mother-reported child empathy, consistent with the above regression results (all paths involving child attachment, ps > .05).

In the second version of the model—which probed the association between mothers' reported empathy in response to infant distress and children's observed empathy in the Clipboard task—mother empathy for infant distress was entered as the independent variable, children's attachment security as the mediator, and children's observed empathy as the dependent variable. Again, the indirect effect was not significant, bootstrapped 95% CI [-.08, .25]; specifically, mothers' empathy in response to infant distress did not significantly predict children's attachment security, p > .05, although children's attachment security positively predicted their observed empathy, β = .42, t = 3.26, p = .002.

To probe prediction of children's observed empathy further, exploratory mediation analyses were conducted to assess whether specific measures of maternal empathy and specific aspects of child security might provide a better fit for the data. These exploratory analyses yielded a best-fitting model in which mothers' self-reported Empathic Concern positively predicted children's attachment security in the Separation/Reunion story of the ASCT, β = .55, t = 1.93, p = .057; security in the Separation/Reunion story in turn positively predicted children's

observed empathy, $\beta = .28$, $t = 2.40$, $p = .019$. The indirect effect was significant, 95% CI [.01, .55], Preacher and Kelley's (2011) $\kappa^2 = .06$, a small effect size.

Hypothesis 3. **Greater child empathy will predict lower child aggression, over and above the contributions of mother empathy, child attachment, and relevant covariates.** A series of hierarchical regressions predicting child aggression was run with child sex, mother race, overall parent empathy, and child attachment entered in the first step and each measure of child empathy entered in the second step (see Table 5, Models 1-3). Notably, overall parent empathy was marginally negatively associated with child aggression in each model, *p*s < .10. Higher mother-reported child empathy predicted lower levels of aggressive behavior, over and above the contributions of child sex, mother race, parent empathy, and child attachment, $\beta = -.23$, $t = -2.18$, $p = .029$, $\Delta R^2 = .05$, a small effect size. Surprisingly, children's self-reported and observed empathy predicted aggression in the opposite direction, such that higher mother-reported aggression was associated with children's *greater* empathy on the Bryant Empathy Index, $\beta = .29$, $t = 2.67$, $p = .009$, $\Delta R^2 = .07$, and in the Clipboard task, $\beta = .25$, $t = 2.16$, $p = .031$, $\Delta R^2 = .05$.

To probe these unexpected results, I explored interactions with child sex, given previous literature documenting sex differences in the development and correlates of both empathy and aggression (e.g., Eagly & Steffen, 1986 Eisenberg & Lennon, 1983; Miller & Eisenberg, 1988; Strayer & Roberts, 2004). The main effects of children's self-reported and observed empathy on aggression were both qualified by an interaction with child sex; specifically, simple slopes analyses revealed that the positive associations between child aggression and children's empathy on both measures were significant only for boys (Bryant: $\beta_{boys} = .30$, $p = .020$, $\beta_{girls} = .15$, $p = .329$; Clipboard: $\beta_{boys} = .09$, $p = .031$, $\beta_{girls} = .05$, $p = .244$).

Further, examination of the Clipboard empathy subscales revealed that aggression was positively associated only with proximity to the experimenter (and not problem-focused responses, emotion-focused responses, nor concerned attention) and negatively associated with ignoring. Thus, the observed association between child aggression and empathy in the Clipboard task appeared to be driven by children's tendency to increase proximity to the experimenter; indeed, when proximity scores were partialled out, the association between global empathy scores and aggression was rendered non-significant, $p = .349$ (see Table 5, Model 4).

Chapter 4: Discussion

The principal goal of this study was to examine the link between parent and child empathy using a multi-method, multi-informant approach to help address the discrepant findings of previous literature. Further, I examined the role of children's attachment to their caregiver in explaining this link by testing a model of parent empathy predicting child empathy, mediated by child attachment security. Finally, I sought to replicate previous findings linking child empathy and aggressive behavior. Results provide partial support for hypotheses (see Figure 2), but they vary depending on the measure of parent and child empathy used, underscoring the importance of considering reporter and measurement characteristics in examining dimensions of empathy, particularly in young children. In the following sections I discuss findings related to each hypothesis in turn, beginning with the link between parent and child empathy, and then highlight areas for future research.

Hypothesis 1: Associations between Parent and Child Empathy

Results demonstrated a direct link between overall parent empathy—defined as a composite of mothers' self-reported trait empathy, empathic responses to infant distress, and

RSA—and mother-reported child empathy, but not children's self-reported or observed empathy. Probing results further, mothers' trait empathic concern was positively associated with mother-reported child empathy. Because both measures relied on maternal report, it is possible that the association reflects the value mothers place on empathy generally (rather than children's actual empathic tendencies), or is an artifact of shared method variance. Alternately, it is possible that the intergenerational transmission of empathy is specific to the type of empathy measured—that is, that parents' trait empathy maps onto child's trait empathy, but not state empathy (i.e., children's observed empathy to another person in an emotionally salient context). This interpretation is consistent with research demonstrating positive associations between parents' self-reported trait empathy and teacher reports of child trait empathy (Trommsdorf, 1991), and with research demonstrating concordance between parent self-reported and adolescent self-reported trait empathy later in development (Hawk et al., 2013; Soenens et al., 2007; van Lissa et al., 2014).

On the other hand, no significant links emerged between parent empathy and children's self-reported trait empathy on the Bryant index; however, previous work has shown a similar lack of association between parent empathy and young children's self-reported empathy on this measure (for an example in 5-year-olds, see Bernadett-Shapiro et al., 1996). One possibility is that young children's self-perceptions of their empathy are unrelated to parent empathy, informed instead by factors such as parents' emotion-focused talk with their children (e.g., Garner, 2003), children's level of experience with distressed others, or child temperament (e.g., Eisenberg et al., 1996). Another possibility is that 4-year-old children may not yet be able to accurately reflect on and report their own empathic tendencies. Indeed, children's self-reported empathy was unrelated to the other two measures of child empathy, whereas mother-reported and

observed child empathy showed the expected intercorrelation. Previous work has showed a similar lack of convergence between young children's self-reported empathy on the Bryant index and their observed or adult-reported empathy; indeed, in some studies, the measure is ultimately dropped from analyses for this reason (e.g., Strayer & Roberts, 2004). Such a lack of convergent validity in this and previous studies calls into question the validity and developmental appropriateness of this particular empathy measure in preschool-aged children.

With regard to children's observed state empathy, exploratory analyses of individual components of parent empathy revealed that children's empathic behavior was associated only with mothers' state empathy in response to infant distress. Though these results require replication, the preliminary evidence suggests that empathy in response to others' distress is related in parents and children. From a social learning perspective, mothers who are more empathic to others' distress may be more likely to model comforting behavior for their children (Hoffman, 1970). From an attachment perspective, mothers' empathic responses to child distress may shape within their children a cognitive script for responding empathically to distressed others, which in turn guides children's own comforting behavior (see Martin, 2016). This secure base script—involving expectations that distress will be met with concern and care—is a central part of children's secure internal working model of attachment (Waters & Waters, 2006), an idea explored further in Hypothesis 2.

Notably, mothers' RSA during the infant distress videos showed the expected intercorrelations with empathic concern and perspective taking (and thus was included in the parent empathy composite), in keeping with theory and previous research linking RSA and empathy (e.g., Côté et al., 2011; Fabes et al., 1993; Stellar et al., 2015; see Porges, 2001); however, RSA by itself was not directly linked to child empathy, nor to any measure of child

functioning in the current study. It's important to reiterate that RSA reflects the activity of the vagus nerve, involved in regulating fight–flight responses to environmental changes (Beauchaine, 2001; Thayer & Lane, 2000). Though strongly linked to empathy, RSA is ultimately a broader index of physiological regulation (Beauchaine, 2001; Porges, 2001, 2007). Thus, RSA may influence child empathy via an indirect pathway, in which RSA supports parents' empathy and sensitive caregiving, which in turn influence child empathy—a possibility that could be explored in a reexamination of the present data. Alternately, parents' RSA may predict children's own physiological regulation, which then supports child empathy. Indeed, some researchers have suggested that the basis for parent empathy involves synchrony between parent and child autonomic responses (e.g., Ebisch et al., 2011). Future research should explore potential indirect pathways between parent RSA and child empathy using measures of parent and child emotion regulation, alongside child RSA.

Thus, the hypothesized link between parent and child empathy was partly supported, with positive associations between some measures of parent and child empathy but not others. Overall parent empathy predicted mothers' reports of child empathy, but not children's self-reports or observed behavior. Further, preliminary evidence suggests that mothers' empathic responses to child distress are related to children's empathic responses to others' distress. No links emerged between any measure of parent empathy and children's self-reported empathy, nor between mothers' RSA and any measure of child empathy, suggesting that these indices may not be involved in the intergenerational transmission of empathy, or, alternately, that they are involved via indirect or moderated pathways.

Results also underscore the complexity of measuring the multiple dimensions of empathy at different stages of development. In adults, multiple measures of empathy—including self-

reported trait empathic concern and perspective taking, as well as self-reported state empathy in response to child distress—coalesce in predictable ways. Further, the RSA data—though not a direct index of empathy per se—lend validity to the self-report measures by providing evidence of physiological changes in response to empathy-inducing stimuli that are largely non-conscious and free of reporter bias. Despite their convergence, however, there is still much to be gleaned from examining each dimension of parent empathy separately: For example, parents' trait empathic concern and empathic responses to child distress emerged as particularly important for child empathy, whereas parents' perspective taking and RSA were less important in this sample. In preschool children (in contrast to adults), multiple measures of empathy—including mother-reported and self-reported trait empathy and comforting behavior in response to others' distress—did not coalesce; specifically, children's self-reported empathy stood out as unrelated to the other measures, suggesting that self-report may be a less optimal index of empathy in this developmental period. Nevertheless, as with adults, examining multiple dimensions of child empathy remains a worthwhile endeavor: The finding that parents' empathic responses to child distress predicted children's empathic responses to the experimenter's distress, for example, points to ripe new directions for future research, as discussed in subsequent pages.

Hypothesis 2: Attachment as a Mediator

To explore potential mechanisms and indirect paths of empathy transmission, I tested a model in which children's attachment security mediated the link between parent and child empathy (Figure 1). Consistent with predictions and previous literature (e.g., Kestenbaum et al., 1989; Waters et al., 1979), children's attachment security positively predicted their observed empathy toward a distressed experimenter. Attachment was not related to mother-reported or child self-reported trait empathy, however, suggesting that attachment may play a specific role in

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children's empathic behavior in responses to others' distress. On the other hand, previous research has found links between attachment security—as measured in the Strange Situation and the Attachment Q-Sort—and adult-report measures of preschoolers' trait empathy (e.g., Laible, 2006; Sroufe, 1983). To our knowledge, this is the first study to examine associations between attachment as assessed using a story stem measure and parent- or self-reported child empathy. It is possible that the story stem measure—which awards high scores for story resolutions involving parental comforting of child distress—taps dimensions of attachment representations that are particularly relevant to empathy and comforting in contexts involving emotional distress (e.g., the *secure base script*), and less relevant to dimensions of trait empathy represented on questionnaire measures.

Although the predicted path between child attachment security and observed empathy was supported, parent empathy did not significantly predict child attachment in this sample, in contrast to previous work in preschoolers (Oppenheim et al., 2001), as well as in infants (Leerkes et al., 2011) and school-aged children (Stern et al., 2015). For instance, using the same measure, Leerkes and colleagues (2011) found that mothers' empathic responses to videos infant crying predicted secure infant attachment in the Strange Situation. It is possible that maternal empathy—at least on this particular task—is related to attachment assessed in infancy but not preschool; thus, future research examining maternal responses to *preschoolers'* distress (or their own child's) could provide a more developmentally relevant measure of parent empathy for this age group. Further, given the small effect sizes noted in previous work, a larger sample may be necessary to detect effects. On the other hand, we must also consider the possibility that mechanisms other than attachment are at work; future research should draw upon Hoffman's (1970) theoretical work, as well as the parental socialization literature—to consider the role of

other possible mediators of the parent–child empathy link, including parents' prosocial behavior, inductive discipline, and emotion-focused dialogue (see Eisenberg, Spinrad, & Morris, 2014).

Exploratory analyses examining specific components of parent empathy and child attachment, however, suggested a best-fitting model in which parents' trait empathic concern was positively related to children's attachment security in the Separation/Reunion story only, which in turn positively predicted children's observed empathic behavior. Although the Separation/Reunion story of the ASCT has been used as a stand-alone measure of child attachment in previous research (e.g., Main et al., 1985), the model was not part of our planned analyses and so should be regarded as exploratory.

Overall, the hypothesized model of attachment as a mediator of the intergenerational transmission of empathy was not supported; specifically, parent empathy did not predict child attachment in this sample. Child attachment, however, positively predicted children's observed empathy, consistent with predictions. Despite null findings for the overall mediation, extant research linking parent empathy and child attachment—in combination with the observed association between child attachment and empathy, as well as the exploratory mediation results—suggest that the model merits further examination in a larger sample.

Hypothesis 3: Predicting Aggression

Findings regarding child aggression were contradictory: On the one hand, mother-reported child empathy predicted lower levels of child aggressive behavior, over and above influences of other variables, consistent with hypotheses. This is in keeping with a substantial body of previous literature linking empathy to lower levels of aggressive behavior in children, adolescents, and adults (see Miller & Eisenberg, 1988), and with theoretical views of empathy as

inhibiting aggression by allowing individual to take another's perspective and feel their pain (Feshbach, 1987; Feshbach & Feshbach, 1982).

On the other hand, contrary to predictions, children's self-reported and observed empathy were each related to *higher* levels of child aggression, but only for boys; for girls, there was no significant relation between self-reported or observed empathy and aggression. This is contrast to the research reviewed above, particularly the moderate negative correlations between boys' self-reported empathy and teacher-reported aggression reported in the initial validation study of the Bryant empathy measure (Bryant, 1982); notably, however, these associations emerged in some samples of children but not others, suggesting a tenuous link between children's aggression and self-reported empathy on this measure.

How might we explain these surprising *positive* relations between empathy and aggression? First, note that mean levels of mother-reported aggression were low in the present sample (though they did not exceed our skewness cutoff of +1.0), such that boys' empathy on these measures predicted mother reports of aggression in the low-to-moderate range. It is possible that in a higher-risk sample with more severe levels of aggression, the expected links would emerge. Second, an emerging body of research suggests that a combination of social competence and aggression may be adaptive in controlling resources (see Little, Rodkin, & Hawley, 2007), and that children high in social power tend to be both more prosocial and more aggressive (Hawley, 2003a, 2003b). Thus, empathy and moderate levels of aggression may coexist in more socially dominant children.

Third, closer examination of the association between aggression and observed empathy revealed that results were driven by proximity; that is, children who increased or maintained proximity to the distressed experimenter (contributing to their overall observed empathy score)

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were rated by their mothers as more aggressive. Aggression was unrelated to other important facets of empathic behavior, including problem-focused and emotion-focused responses. These findings raise the possibility that a third variable related to child temperament underlies both proximity and aggression; specifically, research has shown that uninhibited (or "fearless") children tend to be more approach-oriented when faced with novel situations or individuals (e.g., Kagan, 1989) and also tend to show greater aggressive behavior (e.g., Dollar & Stifter, 2012; Schwartz, Snidman, & Kagan, 1996). Fearless children may also be more likely to provide more favorable self-reports or be more comfortable talking to an experimenter, perhaps accounting for observed positive association between children's self-reported empathy and aggression. Conversely, more fearful children may feel empathy internally but be less willing to talk about or act upon it in a context involving an unfamiliar experimenter (whereas maternal reports of inhibited children's empathy in other contexts may better capture their full empathic abilities). Unfortunately, because temperament was not assessed in the present study, this explanation remains speculative, pointing to the need for further research.

In sum, the hypothesis that child empathy would predict lower levels of aggressive behavior was supported using mother-reported child empathy, but directly contradicted using other measures. Boys' self-reported and observed empathy predicted greater aggression. In the case of observed empathy, preliminary analyses suggest that children's tendency to increase proximity to the distressed experimenter may account for the association with aggression. Further research using observational measures of child aggression is needed to disentangle the contradictory findings.

The present study benefitted from a number of methodological strengths. First, the integration of multiple reporters allowed for comparisons of mother and child perspectives. That maternal empathy is related to mother-reported child empathy, but not child self-report, is important for making sense of the contradictory findings in previous literature, suggesting that parent empathy may not play a role in children's self-perceptions of their empathy until later in development, or, alternately, that child self-report measures of empathy may not be appropriate for this young age group. Second, the use of standardized observational measures, scored by multiple coders, provided high quality assessments of both child attachment and child empathy. The story stem task is considered a gold standard measure of child attachment in preschool (Solomon & George, 2016), and the clipboard task provides an ecologically valid assessment of children's empathic behavior in a naturalistic situation involving another's physical distress (e.g., Hastings et al., 2005; Kiang et al., 2004; Zahn-Waxler et al., 1992). Third, physiological recording provided a biological index of mothers' responses to infant distress, free from the reporter bias inherent in self-report, lending validity to the parent empathy composite.

Despite these strengths, results of this study are qualified by a number of methodological limitations. First, the correlational design precludes causal inference. Though theory and some intervention research suggest that parents' empathy influences children's attachment and empathy (e.g., Cooper et al., 2005; Hoffman, 1970; Feshbach, 1987; Lieberman et al., 1991), bidirectional effects are also possible; for example, child characteristics may elicit empathy differentially from parents, or child empathy may enhance attachment security by eliciting positive behavior from parents (see Panaccione & Wahler, 1986, for evidence that child prosocial behavior elicits increased affection from parents).

Second, as is typical in developmental research, sample characteristics limit the generalizability of findings. Although we recruited a racially diverse sample, mothers' median education level and household income indicated a high-SES demographic, with the majority of children coming from middle-to-high income, two-parent households. Further, non-English-speaking mothers were excluded from participating because key measures required fluency in English. Future research would benefit from active recruitment of low-income and single-parent families, as well as the inclusion of fathers and other caregivers. In addition, cross-cultural research could shed light on cultural similarities and differences in the intergenerational transmission of empathy.

Finally, one negative consequence of utilizing a multi-method approach to assessing empathy is that a large number of analyses were required to illuminate relations among the various measures. Thus, we caution that these results are preliminary and require replication with larger samples. Researchers can draw upon these findings to consider which measure(s) of parent and child empathy might best capture the dimension of empathy they seek to study (e.g., trait vs. state; parent vs. child perceptions; physiological vs. reported responses to distress; responses to different targets) and to inform hypotheses about specific measures.

Directions for Future Research

The present study sheds light on the complex nature of intergenerational transmission of empathy from parent to child, and on importance of considering specific measures and dimensions of empathy, while also raising new questions with specific avenues for future research. In particular, researchers can build on the present study's multi-method, multi-informant approach to replicate and extend current findings suggesting that specific dimensions of parent empathy map onto specific dimensions of child empathy. In particular, future work

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should attempt to temper overreliance on maternal report by garnering perspectives of other reporters (e.g., father reports of mother and child empathy; teacher reports of child empathy and aggression). Peer-report has also been shown to be an ecologically valid tool for assessing child behavior (e.g., Ladd & Kochenderfer-Ladd, 2002) and could provide a useful perspective on children's empathy and aggression toward peers. Further, naturalistic observational measures of parent empathy, as well as child aggression, could shed additional light on how these constructs relate to children's empathy.

Beyond these methodologies, research designed to test causal links is an important next step in providing a model of the intergenerational transmission of empathy. Future work should examine the effects of empathy-based parenting interventions on child attachment and empathy, as well as downstream effects on child aggression. Ideally, parent empathy could be assessed prenatally, with multiple postnatal assessments of child behavior during and following the intervention. Similarly, research examining the effect of attachment-based interventions on child empathy could help to establish a causal link between attachment and empathy in childhood. Given research in adults demonstrating that experimental priming of attachment security boosts empathy (Mikulincer et al., 2005), it is possible that this causal link could be demonstrated earlier in development using similar priming methods.

In addition, results point to the need to consider potential moderators of these links. For example, the failure to replicate findings linking maternal empathy in response to infant distress to child attachment raises the question of how characteristics of the *target* of parents' empathy might moderate the relation to child outcomes. In light of previous work linking parents' empathy *for their own child specifically* to child attachment (Oppenheim et al., 2001; Stern et al., 2015), future research should examine how parents' empathy for different targets (e.g., an adult,

own child, unfamiliar age-matched child) might relate differentially to child attachment and empathy. Similarly, links to child empathy may differ depending on whether the target is an adult experimenter—as in the present study—or a peer, sibling, or caregiver (e.g., van der Mark van IJzendoorn, & Bakermans-Kranenburg, 2002). Further, as noted above, the contradictory results regarding child aggression indicate a need to consider child characteristics such as genetics and *temperament* as potential moderators of the link between child empathy and aggression. For example, child empathy may predict lower aggression among more inhibited or average children, but higher aggression among uninhibited children. Moreover, in light of some research demonstrating interactions between temperament and attachment in the prediction of child empathy (van der Mark et al., 2002), temperament may be a key piece of the puzzle for building a more comprehensive model of the intergenerational transmission of empathy. Finally, future research examining the role of *context* could illuminate differential influences of parent and child empathy in different settings (e.g., at home, at school, in the lab) and in response to different empathy-inducing stimuli (e.g., high-distress vs. low-distress). For example, it may be that parents' empathy only in high-distress contexts with their own child is related to child attachment, in keeping with research demonstrating that maternal sensitivity to distress is uniquely predictive of secure attachment (Leerkes et al., 2011). Similarly, it may be that attachment security predicts child empathy only in high-distress contexts (such as the clipboard task), because the secure base script is specifically about response to distress (Waters & Waters, 2006).

Finally, although the present focus on 4-year-olds and short-term longitudinal assessment provided focused look at this developmental period, future research employing long-term longitudinal designs is needed to address questions of continuity and change in the observed

links across development. For example, the small effect sizes observed here may shift as children enter elementary school, where parental influences increasingly interact with teacher and peer characteristics to shape child behavior. Additional moderators such as pubertal timing may influence links with child empathy and aggression among teens. Further, in adolescence, children may be better able to self-report their emotions, including empathy, improving validity of child self-report measures. It is also possible that parent empathy sets in motion a positive developmental cascade (Masten & Cicchetti, 2010), shaping children's social-emotional skills in probabilistic manner over time, such that downstream effects on attachment and empathy may emerge more clearly later in development. Longitudinal investigation would also allow researchers to examine how individual differences in parent and child empathy contribute to the heterogeneity of outcomes during children's transition to kindergarten, during puberty, or at other critical nodes in children's developmental pathways, including when children eventually become caregivers themselves.

Appendix A. Tables & Figures

Table 1

Timeline of Measures Administered in Each Stage of the Study

T_0: ~1 week prior to lab visit →	T_1: First lab visit →	T_2: Second lab visit (~1-3 weeks later)
Mother • Interpersonal Reactivity Index—Parent version *(mother empathy)*	*Mother* • Physiological recording *(mother empathy)* • Responses to infant distress videos *(mother empathy)*	*Mother* • My Child—Empathy subscale *(child empathy)* • CBCL—Aggression subscale *(child aggressive behavior)*
	Child (other tasks; see Brett, 2016)	*Child* • Attachment Story Completion Task *(child attachment)* • Bryant Empathy Index *(child empathy)* • Clipboard empathy task *(child empathy)*

Table 2

Descriptive Statistics for Principal Study Variables

	M(*SD*)	Range	Skewness
Mother empathy			
Empathic Concern (IRI-P)	4.24(.57)	2.86 - 5.00	-.41
Perspective Taking (IRI-P)	3.73(.50)	2.43 - 5.00	.34
Personal Distress (IRI-P)	2.64(.74)	1.14 - 4.43	-.09
Empathic responses to infant distress	2.93(.69)	1.25 - 4.00	-.33
Child attachment security (ASCT)	3.03(1.21)	1.00 - 5.00	.07
Child empathy			
My Child—Empathy	5.46(.72)	3.92 - 6.92	.08
Bryant Child Empathy Index	1.28(.42)	.40 - 2.00	-.14
Clipboard empathy score	2.66(1.52)	1.00 - 5.00	.40
Child aggressive behavior (CBCL)	.52(.37)	.00 - 1.63	.62

Note. All numbers represent mean scores across scale items. IRI-P = Interpersonal Reactivity Index—Parent version; ASCT = Attachment Story Completion Task; CBCL = Child Behavior Checklist.

Table 3

Bivariate Correlations among Study Variables

	Mother empathy							Child empathy			
	1	2	3	4	5	6	7	8	9	10	11
Mother empathy											
1. Empathic Concern (IRI-P)	-	.39***	.01	.40***	.20†	.29**	.12	.33**	.04	.09	-.19
2. Perspective Taking (IRI-P)		-	-.05	.20†	.19†	.26*	-.07	.05	-.10	.03	-.29**
3. Personal Distress (IRI-P)			-	.04	.01	.11	.17	-.09	-.16	.15	.25*
4. Empathic responses to infant distress				-	-.06	-.04	.09	.33**	.08	.27*	.05
5. RSA Baseline					-	.81***	.05	-.02	.05	-.08	-.09
6. RSA during infant videos						-	.13	-.05	.00	.00	-.06
7. Child attachment security (ASCT)							-	.08	.06	.31**	-.09
Child empathy											
8. My Child—Empathy								-	.08	.22*	-.25*
9. Bryant Child Empathy Index									-	.07	.17
10. Clipboard empathy score										-	.20†
11. Child aggressive behavior (CBCL)											-

Note. Correlations are derived from the pooled results of the imputed data (all Ns = 89). IRI-P = Interpersonal Reactivity Index—Parent version; ASCT = Attachment Story Completion Task; CBCL = Child Behavior Checklist.
†$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

Table 4

Hierarchical Regressions of Parent Empathy Predicting Three Measures of Child Empathy

	β	t	p	ΔR^2
Model 1: Mother-reported child empathy (My Child)				
Step 1				.06
Child sex	.15	1.44	.150	
Mother race	.21	1.97	.049	
Step 2				.06
Overall parent empathy	.25	2.41	.016	
Model 2: Child self-reported empathy (Bryant)				
Step 1				.19
Child sex	.23	2.31	.021	
Mother race	-.36	-3.65	<.001	
Step 2				.00
Overall parent empathy	.03	.22	.830	
Model 3: Child observed empathy (Clipboard)				
Step 1				.10
Child sex	-.07	-.71	.479	
Mother race	.30	2.89	.004	
Step 2				.02
Overall parent empathy	.12	1.03	.305	
Model 4: Child observed empathy (Clipboard)				
Step 1				.10
Child sex	-.07	-.71	.479	
Mother race	.30	2.89	.004	
Step 2				.09
Mother's empathic responses to infant distress	.30	2.84	.005	

Note. Overall parent empathy = mean of z-scores for mothers' self-reported Empathic Concern and Perspective Taking on the Interpersonal Reactivity Index, empathic responses to infant distress, and RSA.

Table 5

Hierarchical Regressions Predicting Child Aggression from Three Measures of Child Empathy

	β	*t*	*p*	ΔR^2
Model 1: Mother-reported child empathy (My Child)				
Step 1				.06
Child sex	-.11	-.96	.339	
Mother race	.10	1.18	.236	
Overall parent empathy	-.19	-1.73	.084	
Child attachment security	-.03	-.35	.728	
Step 2				.05
My Child empathy	-.23	-2.18	.029	
Model 2: Child self-reported empathy (Bryant)				
Step 1				.06
Child sex	-.11	-.96	.339	
Mother race	.10	1.18	.236	
Overall parent empathy	-.19	-1.73	.084	
Child attachment security	-.03	-.35	.728	
Step 2				.07
Bryant Child Empathy Index	.29	2.63	.009	
Model 3: Child observed empathy (Clipboard)				
Step 1				.06
Child sex	-.11	-.96	.339	
Mother race	.10	1.18	.236	
Overall parent empathy	-.19	-1.73	.084	
Child attachment security	-.03	-.35	.728	
Step 2				.05
Clipboard global empathy	.25	2.11	.035	
Model 4: Child observed empathy (Clipboard)				
Step 1				.11
Child sex	-.08	-.73	.469	
Mother race	-.05	-.45	.654	
Overall parent empathy	-.20	-1.81	.070	
Child attachment security	-.02	-.10	.922	
Clipboard proximity score	.25	2.22	.026	
Step 2				.01
Clipboard global empathy	.14	.94	.350	

Note. Overall parent empathy = mean of z-scores for mothers' self-reported Empathic Concern and Perspective Taking on the Interpersonal Reactivity Index, empathic responses to infant distress, and RSA.
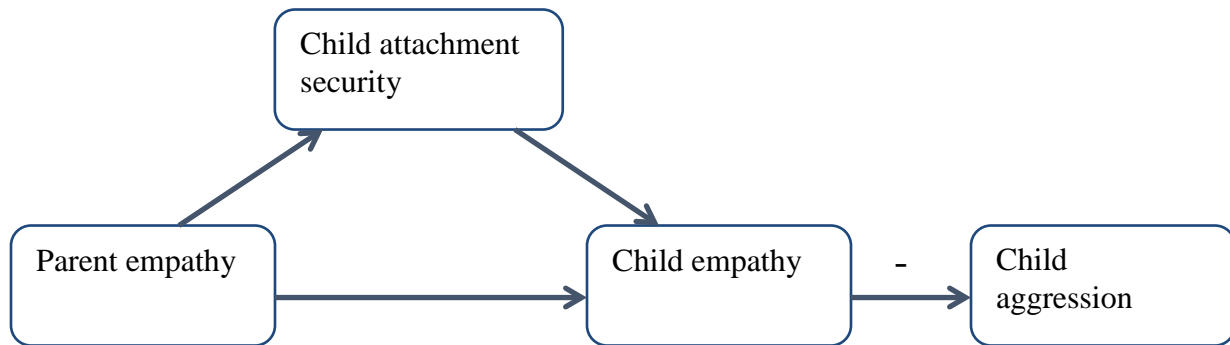
Figure 1. Proposed model of parent and child empathy, mediated by child attachment, in the prediction of child aggression.
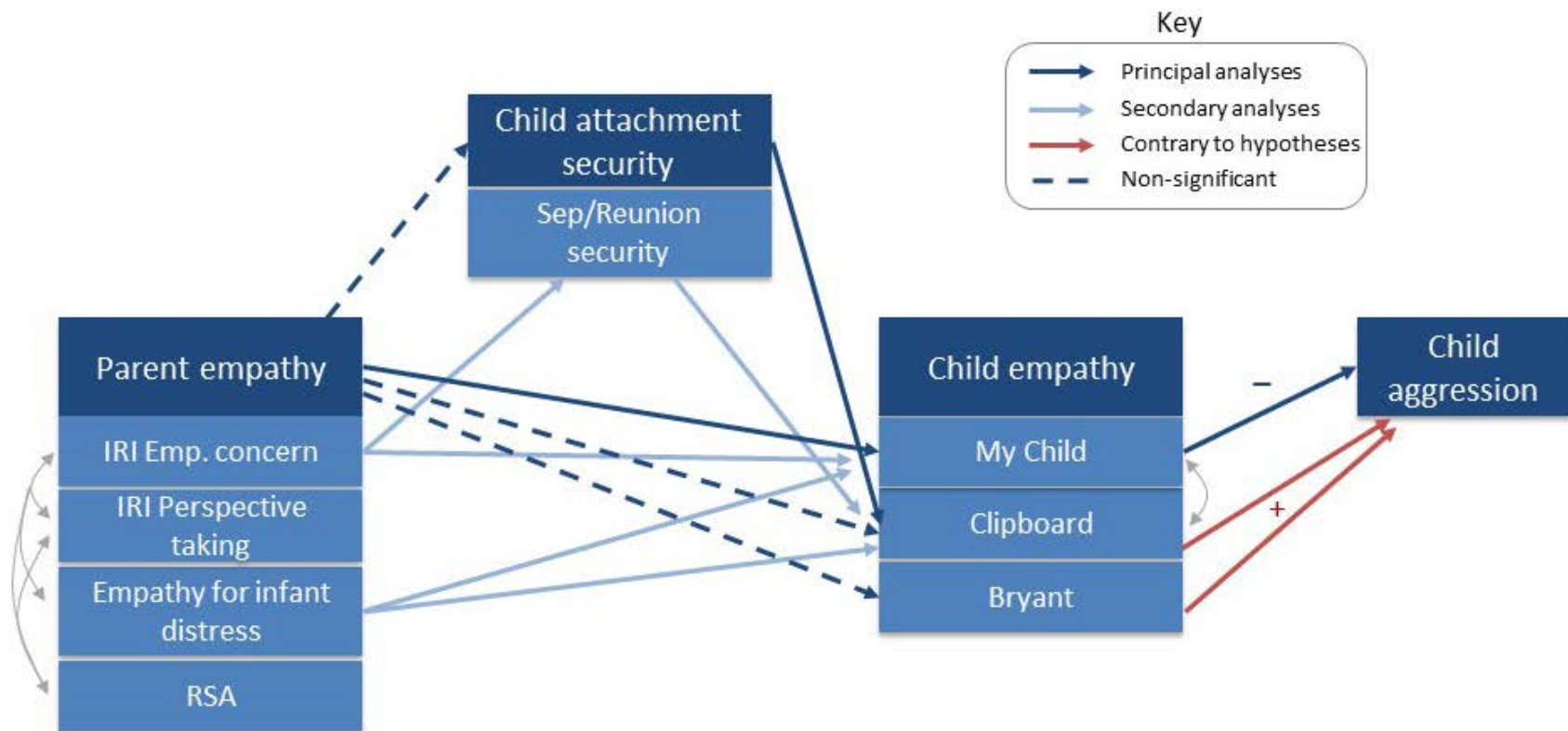
Figure 2. Empirical model of parent and child empathy. All paths represent regression results controlling for mother race and child

gender. Solid lines indicate significant paths; dotted lines indicate non-significant paths.

Appendix B. Questionnaire Measures

Interpersonal Reactivity Index – Parent version

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: 1, 2, 3, 4, or 5. When you have decided on your answer, fill in the letter next to the item number. Please read each item carefully before responding. Answer as honestly as you can.

	Does not describe me well				Describes me very well

Empathic Concern

1. I often have tender, concerned feelings for my child when (s)he is going through a rough time.	1	2	3	4	5
2. *Sometimes I don't feel very sorry for my child when (s)he is having problems.	1	2	3	4	5
3. When I see my child being taken advantage of, I feel protective towards him/her.	1	2	3	4	5
4. *My child's misfortunes do not usually disturb me a great deal.	1	2	3	4	5
5. *When I see my child being treated unfairly, I sometimes don't feel very much pity for him/her.	1	2	3	4	5
6. I am often quite touched by things that I see my child do.	1	2	3	4	5
7. I would describe myself as a pretty soft-hearted mother.	1	2	3	4	5

Perspective Taking

1. *I sometimes find it difficult to see things from my child's point of view.	1	2	3	4	5
2. I try to look at my child's side of a disagreement before I make a decision.	1	2	3	4	5
3. I sometimes try to understand my child better by imagining how things look from his/her perspective.	1	2	3	4	5
4. *If I'm sure I'm right about something, I don't waste much time listening to my child's arguments.	1	2	3	4	5
5. I believe that there are two sides to every question and try to look at my child's side.	1	2	3	4	5
6. When I'm upset at my child, I usually try to "put myself in his/her shoes" for a while.	1	2	3	4	5
7. Before criticizing my child, I try to imagine how I would feel if I were in his/her place.	1	2	3	4	5

	Does not				Describes

	describe me well				me very well

Personal Distress

1. In emergency situations with my child, I feel apprehensive and ill-at-ease. — 1 2 3 4 5
2. I sometimes feel helpless when I am in the middle of a very emotional situation with my child. — 1 2 3 4 5
3. *When I see my child get hurt, I tend to remain calm. — 1 2 3 4 5
4. Being in a tense emotional situation with my child scares me. — 1 2 3 4 5
5. *I am usually pretty effective in dealing with emergencies with my child. — 1 2 3 4 5
6. I tend to lose control during emergencies with my child. — 1 2 3 4 5
7. If I saw that my child badly needed help in an emergency, I would go to pieces. — 1 2 3 4 5

Indicates reverse-scored item

My Child – Empathy/Prosocial subscale
(Kochanska et al., 1994)

You will see descriptions of young children's behaviors in typical daily situations. Many refer to children's reactions when they get into mischief, and are very common for toddlers and preschoolers. Please tell us how true each description is for your child.

All answers are OK; all behaviors described here are normal and common. Young children differ very much in how they respond to different situations. Also, children of different ages behave very differently.

PLEASE BE SURE TO READ EACH ITEM VERY CAREFULLY.

		Extremely untrue	Quite untrue	Slightly untrue	Neither true nor untrue	Slightly true	Quite true	Extremely true
1.	Will try to comfort or reassure another in distress.	1	2	3	4	5	6	7
2.	Likely to offer toys or candy to a crying playmate even without parental suggestion.	1	2	3	4	5	6	7
3.	Feels good when good things happen to movie characters.	1	2	3	4	5	6	7
4.	Acts upset when she or he sees a hurt animal.	1	2	3	4	5	6	7
5.	Likely to show spontaneous nurturing and care-giving behavior toward an animal.	1	2	3	4	5	6	7
6.	Can tell at just a glance how others are feeling.	1	2	3	4	5	6	7
7.	Likely to ask, "What's wrong?" when seeing someone in distress.	1	2	3	4	5	6	7
8.	Gets angry at aggressor, "Bad Guy," who hurts a TV character.	1	2	3	4	5	6	7
9.	Is upset by stories in which characters are hurt or die.	1	2	3	4	5	6	7
10.	Will feel sorry for other people who are hurt, sick, or unhappy.	1	2	3	4	5	6	7
11.	*May occasionally tease a pet if unsupervised.	1	2	3	4	5	6	7
12.	*Rarely cries or looks upset when watching a sad TV show.	1	2	3	4	5	6	7
13.	*Is not likely to become upset if a playmate cries.	1	2	3	4	5	6	7

Reverse-scored item

Child Behavior Checklist – Aggression subscale
(Achenbach, 2001)

Please fill out this form to reflect your view of your child's behavior even if other people might not agree.

Below is a list of items that describe children. For each item that describes your child now or within the past 2 months, please circle the 2 if the item is true or often true of your child. Circle the 1 if the item is somewhat or sometimes true of your child. If the item is not true of your child, circle the 0. Please answer all items as well as you can, even if some do not seem to apply to your child.

	Not true (as far as you know)	Somewhat or sometimes true	Very true or often true
1. Can't stand waiting; wants everything now	0	1	2
2. Defiant	0	1	2
3. Demands must be met immediately	0	1	2
4. Disobedient	0	1	2
5. Destroys things belonging to his/her family or other children	0	1	2
6. Doesn't seem to feel guilty after misbehaving	0	1	2
7. Easily frustrated	0	1	2
8. Gets in many fights	0	1	2
9. Hits others	0	1	2
10. Hurts animals or people without meaning to	0	1	2
11. Angry moods	0	1	2
12. Physically attacks people	0	1	2
13. Punishment doesn't change his/her behavior	0	1	2
14. Screams a lot	0	1	2
15. Selfish or won't share	0	1	2
16. Stubborn, sullen, or irritable	0	1	2
17. Temper tantrums or hot temper	0	1	2
18. Uncooperative	0	1	2
19. Wants a lot of attention	0	1	2

Bryant Empathy Index: Instructions

Read:
- Now I'm going to ask you some questions. I'd like you to tell me if each one is true or not true for you.
- You can say, "Yes" if it's true for you, "No" if it's <u>not</u> true for you, or "Sometimes" if it's sometimes true for you.
- There's no right or wrong answer. I'm just interested in learning about you. Let's try one:

Example 1: "Do you like to eat cookies?" Remember, you can say "Yes," "No," or "Sometimes." [Agree with child]
  - *Yeah, I would say "Yes," too, because I like to eat cookies.*

Example 2: Let's try another one: "Do you eat toast for breakfast?"
[Disagree with child; unless the child said sometimes, state sometimes, and explain why.]
  - *For me, I would say <u>sometimes</u>, because sometimes I eat toast for breakfast, but sometimes I eat other things.*

[If child understands and answers Examples 1 and 2, go on to complete Bryant. If child is having trouble, go through Example 3 below.]

Example 3 (back-up): Let's do another! "Do you play outside with your friends?"
[Let child answer, then provide whatever answer is difficult for them or hasn't been covered.]

Administration Instructions:
Read each question aloud to the child.
Say the options "**Yes—No—Sometimes**" as prompts after every 3-4 questions.
If child is having difficulty, repeat the prompts after every question.
For each question, circle the number corresponding to the child's response.

Bryant Empathy Index—Revised
(Bryant, 1982)

		No	Sometimes	Yes
1.	Do you get upset when you see a child being hurt	0	1	2
2.	Does seeing a child who is crying make you sad?	0	1	2
3.	Do you play on the swing set?	0	1	2
4.	Do you go to school in the summer?	0	1	2
5.	Does seeing a funny movie make you laugh?	0	1	2
6.	* Does seeing someone being mean to a child make you laugh?	0	1	2
7.	Does it make you sad to see a child who can't find anyone to play with?	0	1	2
8.	Do you like to sing songs?	0	1	2
9.	Do you get upset when you see an animal being hurt?	0	1	2
10.	Do you feel sorry for a child who is left out of a game?	0	1	2
11.	* Does seeing a child who is crying make you happy?	0	1	2
12.	* Does seeing a child who is hurt make you laugh?	0	1	2
13.	Do you really like to watch people open presents, even when you don't get a present yourself?	0	1	2
14.	Do you get upset when you see a child getting picked on?	0	1	2
15.	Do you like to eat broccoli?	0	1	2
16.	Does it make you happy to play with your friends?	0	1	2

Grey text = filler items (not scored)

*Reverse-scored item

Appendix C. Behavioral Coding Manuals

Excerpted from *Attachment Story Completion Task Coding Manual*
Developed by: Jessica Stern, David Martin, & Jude Cassidy
[Based on Bretherton, Ridgeway, & Cassidy (1990),
      with additional information from Cassidy (1988) and Main, Kaplan, & Cassidy (1985)]

Description of the task:
Using doll figures, the experimenter sets up five story stems from the MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Buchsbaum, Emde, & the MacArthur Narrative Group, 1990): (1) Birthday (used as a warm-up task), (2) Spilled Juice, (3) Hurt Knee, (4) Monster, and (5) Separation/Reunion. After each story stem, the experimenter asks the child to "show and tell me what happens next." Children's responses are video-recorded.

The task of the coder is to interpret the child's verbal and behavioral (doll play) responses in terms of their underlying <u>attachment representations</u>—that is, their internal working model of themselves and their relationship with their attachment figures. Note that in the current system, only 3 stories are coded for attachment: Knee, Monster, and Separation.

I. Overview of Coding Procedure

1. Watch each story *at least 3 times*, taking **detailed notes** on the child's ACTIONS (including all doll play and child behavior) and all STATEMENTS (including the experimenter's prompts and the child's verbatim responses).
    * NOTE: If you can't understand what the child is saying/ doing, repeat the recording as many times as needed, and watch the recording from the other camera angle. Do not assume what the child said/ does!

2. Once you have a detailed transcript, **fill in the Yes/No ("0/1") questions** on the coding sheet—these will help you hone in on key indicators of security and insecurity, as well as experimenter prompts and errors. These questions include:

    - **Problem resolved**: Child successfully resolves central story issue
      - *Knee:* something is done to help knee feel better
      - *Monster:* something is done to make monster a non-threat or to make child feel safe
      - *Separation/Reunion:* child and parents do something to reestablish connection after separation

    - **Parent positively involved**: Do parents help to resolve story issue/make things better—i.e., provide HELP, PROTECTION, COMFORT, REASSURANCE or VALIDATION? Are parents generally portrayed as "bigger, stronger, wiser, kind"?

- **Avoidance present**: Are any indicators of avoidance present—i.e., child denies/ minimizes/ dismisses/ avoids discussing distress or story issue, ends story prematurely or refuses to complete story, resolves story in superficial way, or resolves story independently/ without help from parents?

- **Disorganization present**: Are any indicators of disorganization present—i.e., incoherence, themes of violence/ chaos/ death/ helplessness, addition of *unresolved problems*, parents threatening OR helpless, child freezing/stilling?

3. After watching a story, take a step back and ask yourself, "In general, **do things get better, stay the same, or get worse**? Ultimately, *do things end well* in this story?" In broad terms:
   - A *secure* representation involves things getting better and ultimately ending well due to the help of a caregiver.
   - An *avoidant* representation involves things staying the same, going unaddressed, or getting superficially better without meaningful help from a caregiver.
   - A *disorganized* representation involves things getting worse OR initially getting better but ultimately ending badly, often with a caregiver unable to provide help.

4. Assign a **security score** on a scale of 1 to 5 for each story and provide a brief <u>justification</u> for your score. This justification is to remind yourself of your decision process for discussion in coding meetings. Your scores should be based on:
   a. your notes about the child's statements and behavior
   b. the "0/1" indicators on your coding sheet
   c. **the scoring descriptions defined in THIS MANUAL (pp. 5-12)**
   Example justification: "4" – Knee is resolved w/ mom giving band-aid, but only after prompt 2; has proximity + pos parental involvement. Not a 5 due to lack of spontaneity.

   *NOTE: Occasionally, a video problem or experimenter error(s) will make a story uncodable (e.g., dolls are not visible from either camera OR the experimenter skips prompt that might influence a child's score). If you think a story might be uncodable, make a note on your coding sheet, put a post-it on the sheet, and bring this case to coding meeting to discuss. However, if at all possible, **assign a score using whatever information you have.** It's better to err on the side of coding what you have (rather than having lots of missing data). We will make the determination about whether to include it in the meeting.*

5. Assign a **classification** for each story. Classifications can be <u>Secure</u>, <u>Avoidant</u>, or <u>Disorganized</u>. Classifications reflect the child's overarching STRATEGY for managing distress in the story. They are based on:
   a. your security scores; typically, a security score of 1 indicates disorganization, 2 indicates avoidance, and 3-5 indicate security.
   b. **the classification descriptions defined in THIS MANUAL (p. 13)**

6. After coding all stories for a child, fill out the front page of your coding sheet, taking note of the child's overall quality of interaction with the experimenter (see next page). Then, calculate a **summary score** for each child by taking the MEAN of security scores across the 3 stories (range: 1 – 5).

7. Finally, assign an **overall classification** by taking the MODAL CLASSIFICATION (most frequently occurring) across the 3 stories. If there is no modal classification:
    a. Consider whether there is a primary/ dominant strategy that the child uses to deal with distress. Justify your assessment by referring to the classification descriptions.
    b. If the child's scores on Knee and Monster are borderline (2-3) OR if no consistent picture emerges in the first 2 stories OR if 1 story is uncodable, weight Separation/Reunion most highly in your determination.1
    c. If the child strongly demonstrates multiple strategies with no clear dominant strategy, consider assigning "Cannot Classify."
    d. **Conference with your coding team to make decisions regarding hard-to-classify children.**

In addition, track the child's **overall quality of interaction** with the experimenter and overall demeanor you watch. Pay particular attention to these 3 elements:

1. COLLABORATION – In general, does child **cooperate with the rules** of the story task and engage constructively with experimenter to create a story?
   → Collaboration is a hallmark of child security. If a child is *non-collaborative* or appears annoyed or exasperated with the experimenter's requests, it may reflect aversion to discussing attachment themes (avoidance). If a child is actively *hostile* or *controlling* toward the experimenter, it may indicate disorganization.
2. SHYNESS – Does the child appear initially inhibited or quiet, *but nevertheless engage fully in the story task?* Shyness is part of children's temperament and should NOT influence your scoring of attachment. If a child is shy, note it on your coding sheet to make sure that a child's shyness does not bias your scoring. In particular, shyness should be distinguished from *fearfulness*, described below.
3. FEARFULNESS – Does child appear fearful (i.e., anxious, rigid, passive, or withdrawn) throughout, such that *fear interferes with his/her ability to complete the task/ create coherent stories?* If a child appears actively afraid of the experimenter or the task (e.g., by refusing to touch/ play with the dolls or offering only 1 or 2 words in response to a prompt), review the child's stories for other "red flags" and consider an overall classification of disorganized.

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[1] We decided to give most weight to Separation/Reunion for the following reasons: (1) it offers the most attachment content, because it is includes 2 parts and more prompts by the experimenter; (2) it maps on most closely to other procedures used to measure attachment in this age group (e.g., reunion procedures, preschool SSP); (3) other researchers have used this story by itself to assess children's attachment (e.g., Main et al., 1985); and (4) it occurs last, giving children ample time to warm up to the experimenter and become familiar with the task.

II. Security Scores

Following Cassidy (1988) and others (e.g., Verschueren & Marcoen, 1999), we will score individual stories on a scale from 1 to 5, with the most secure stories receiving a 5. Scale points are defined below for each story (based Main et al., 1985; Bretherton et al., 1990). General notes:

<table>
<tr>
<td rowspan="2">insecure</td>
<td>1</td>
<td>Stories with <u>any</u> indicators of disorganization, however brief (e.g., 2-3 sec), receive an automatic score of 1, <u>regardless of other content</u>. Indicators of disorganization include:
a. CONTENT: themes of violence, chaos, death, helplessness, or bizarre elements, incoherence (i.e., lapses in logic, odd statements unrelated to story); and/or
b. BEHAVIOR: participant freezing/ stilling/ passivity/ dissociation, odd or repetitive body movements or doll play, may be controlling toward experimenter

*Be careful NOT to confuse with regular 4-year-old behavior! Only score disorganization (b) IF it is very overt OR if it occurs in combination with (a)</td>
</tr>
<tr>
<td>2</td>
<td>A 2 is characterized by:
• overly brief, casual, or stereotyped, with minimal detail,
  IF ALSO accompanied by one or more of the following:
• no helpful parental involvement (may involve DECREASE in proximity to parent)
• child overly independent – child resolves problem on his/her own
• denial of problem or distress
• premature closure – problem is resolved superficially or by skipping over issue
• refusal to engage (e.g., silence/shrug, "I don't know," "nothing," "next story," "the end")

*A "2" may ultimately resolve the story issue, but do so in an avoidant way (e.g., child resolves problem alone, resolution is casual/ dismissing, <u>sense that child wants to get story over with</u>)</td>
</tr>
<tr>
<td colspan="3">Scores of 3 and above MUST include:
a) RESOLUTION OF PROBLEM: Things get better/ end well.
b) COHERENCE: child's response is logical, well communicated, not overly digressive nor overly brief</td>
</tr>
<tr>
<td rowspan="2">weak secure</td>
<td>3</td>
<td>A 3 involves:
• simple story resolutions – little detail/elaboration, but ultimately story "gets the job done" of resolving problem/distress.
• parents involved – parents must be involved in some way, even if minimal or instrumental, with other person providing ultimate help (e.g., parent drives child to doctor, calls police about monster); involvement is not high-quality (no emotional comfort or check-ins)
• resolution without spontaneity – problem is resolved, but only <u>after 2nd prompt</u>;
OR spontaneous resolution after initial avoidance – child resolves problem after 1st prompt, but initially shows 1-2 characteristics of a "2" (e.g., decreasing proximity)</td>
</tr>
<tr>
<td>4</td>
<td>A 4 resolves the story problem with more elaboration 3; THAT IS, the story includes 1-2 of the characteristics of a 5 (see below).</td>
</tr>
<tr>
<td rowspan="1">secure</td>
<td>5</td>
<td>A 5 involves spontaneity – child resolves problem without requiring the 2nd prompt, PLUS AT LEAST 2 OF THE FOLLOWING:
• positive parental involvement – <u>parents provide help</u>/ comfort/ protection
• proximity - child seeks parent to help resolve distress OR parent comes to child OR dolls are placed together (e.g., side by side, hugging, leaning in, facing each other); participant may also make hugging gesture him/herself
• emotional openness – child <u>openly expresses positive and negative affect</u> appropriate to the story, either explicitly or implicitly, OR <u>parents validate</u> child's emotions

*Resolution & parental involvement must be CLEAR in order to get a "5." If central aspects are ambiguous, consider a "4" instead.</td>
</tr>
</table>

HURT KNEE

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1 Any of the following indicators of disorganization warrants an **automatic 1:**

CONTENT
- **Problem unresolved** OR **resolved but followd by negative events**
  Examples: Parent punishes child for getting hurt (NOT resolved)
  "They put on a band-aid and then they lock him up." (resolved + negative event)
- **Violence, chaos, helplessness** (anything that worsens child's fear)
  Examples: Rock falls on Dad repeatedly. (violence)
  Parents fall down and cry. (helplessness)
- **Incoherence**
  Example: "He goes—Alligator!."

BEHAVIOR
- **Freezing**/ stilling/ passivity/ dissociation
- **Odd or repetitive body movements** or doll play
  Examples: Participant flicks child doll back and forth repeatedly.

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2 A **2** is characterized by:

- **overly brief**, casual, stereotyped, or superficial, with minimal detail
  Examples: [After several prompts] "Um… Band-aid?" [E: Who puts on a band-aid?] "I don't
  know." (casual/ stereotyped)
  [Participant brushes off child's knee] "Wipe, wipe, all done." (brief/ superficial)
  *To warrant a "2," brevity must ALSO accompanied by at least one of the following:

- **no helpful parental involvement –** parents not involved or not helpful
  Examples: "The parents stand there and don't do anything." (uninvolved)
  Mom says, "Let's go on the swings" without acknowledging knee or providing comfort (involved
  but unhelpful)

- **child overly independent** – child resolves hurt knee on his/her own
  Examples: "Bob gets a band-aid."
  "Jane cleans it up."

- **denial** – distress and/ or knee issue is denied or skipped over
  Example: "Jane goes and plays on the slide." [E: "What do they do about the knee?"] "Nothing.
  It's better."

- **premature closure/refusal to engage** – refusal even after several prompts, attempts to escape
  story context, or oppositional toward E.
  Example: Child repeatedly says "I don't know"/ shrugs for multiple prompts

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CUTOFF FOR SECURITY: Scores of **3 and above** MUST show:

- **coherence** – child's response is logical, well communicated, neither overly digressive nor overly brief (i.e., 1- to 2-word stories)
- **parental involvement** – parents involved in resolving knee, even if minimal.
- **resolution of problem** – participant must resolve problem of knee; *Includes:*
    - ○ Giving/ applying band-aid – must involve 1 or more parents
      Example: "The mom puts a band-aid on it."
    - ○ PROXIMITY
      Examples: Parents approach child to apply band-aid or give hug.
      Child goes to parents for help with knee.
      "Mom and Jane sit down for awhile."
    - ○ COMFORT/ check-in
      Example: "The mommy gives it a kiss." (comfort)
      "The daddy says, 'Are you ok?' and Bob says 'Yes, I'm ok.'" (check in)
      "The mom says, 'It will be ok, just rest for a minute.'" (comfort)
      *NOTE: When distinguishing between comfort and minimizing, pay attention to TONE (soothing tone indicates comfort/ negative tone may indicate dismissal)

    Does NOT include: someone other than parents helping with knee (e.g., Superman, stranger, doctor—UNLESS parents are involved in taking child to doctor),
    NOR any responses described under a "1" or a "2" above.

3	A **3** involves: • **resolution without spontaneity** – knee is resolved, but only <u>after Prompt 2</u> (i.e., any of the resolutions listed above that occur AFTER experimenter says, "What do they do about the knee?") OR **spontaneous resolution after initial avoidance** • **simple story resolutions** – little detail/elaboration/emotional openness, no proximity, but ultimately story "gets the job done" of addressing knee *Example:* [E: "What do they do about the knee?"] "They clean it."/ "The daddy helps."
4	A **4** involves resolution with more elaboration 3; THAT IS, story includes 1-2 of the characteristics of a 5 (see below). A 4 *may or may not* require Prompt 2.
5	A **5** includes **spontaneity** – child resolves knee without requiring Prompt 2 *Example:* Parents immediately apply band-aid PLUS AT LEAST 2 OF THE FOLLOWING: • **positive parental involvement** – especially rich/ elaborative help from parent *Example:* "The daddy comes over and helps her up, and then he carries Jane to the top of the rock." • **proximity** – child seeks parent to help with knee OR parent comes to child to help OR dolls are **moved** close together *(see examples above)* • **emotional openness** – parent validates child's experience/ distress OR child expresses feeling better after comfort *Examples:* "The daddy gives a hug and Bob feels better." "Then mom climbs the rock and says, 'You're right! This IS a high rock."

MONSTER

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1   Any of the following indicators of disorganization warrants an **automatic 1:**

CONTENT
- **Problem unresolved** OR **resolved but followed by negative events**
  Examples: "Jane hides but the monster finds her." (NOT resolved)
  "The dad kills the monster, but then they get captured." (resolved + negative event)
- **Violence, chaos, helplessness** (anything that worsens child's fear)
  Examples: "The monster eats him." (violence)
  Parents hide under the bed and leave child in danger. (helplessness)
  "The Dad is the monster." (bizarre/ frightening)
- **Incoherence**
  Example: "Eat… Fall down."

BEHAVIOR
- **Freezing**/ stilling/ passivity/ dissociation
- **Odd or repetitive body movements** or doll play
  Examples: Participant looms over child doll and growls/ pretends to be monster.

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2   A **2** is characterized by:

- **overly brief**, casual, stereotyped, or superficial, with minimal detail
  Examples: [After several prompts] Participant flips dad doll around the floor and says, "Blah, blah, they fight the monster, the end." (casual)
  "It goes away." (superficial)
  *To warrant a "2," brevity must ALSO accompanied by at least one of the following:

- **no helpful parental involvement –** parents not involved or not helpful
  Examples: No mention of parents AND no movement of parent dolls. (uninvolved)
  Mom says, "Go back to sleep" without acknowledging monster or providing comfort (involved but unhelpful)

- **child overly independent** – child resolves monster problem on his/her own
  Examples: "Jane fights the monster"
  "Bob closes the door so he can't see any more shadows."

- **denial** – fear and/ or monster is denied or problem is skipped over
  Example: "Bob goes to sleep because there's no monster."

- **premature closure/refusal to engage** – refusal even after several prompts, attempts to escape story context, or oppositional toward E.
  Example: Child repeatedly says "I don't know"/ shrugs for multiple prompts

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CUTOFF FOR SECURITY: Scores of **3 and above** MUST show:

- **coherence** – child's response is logical, well communicated, neither overly digressive nor overly brief (i.e., 1- to 2-word stories)
- **parental involvement** – parents involved in resolving monster, even if minimal.
  Example: "The family fights the monster."
- **resolution of problem** – participant must resolve problem of monster; *Includes:*
  - Fighting/ defeating monster – must involve 1 or more parents
    Examples: Dad makes karate noises as he fights monster.
    "The mama convinces the monster to be good."
  - PROXIMITY/ protection
    Examples: Child runs out of room and goes to parents.
    Parents come to child's room and hide child under a blanket.
    "Jane goes and sleeps in her parents' room."
  - COMFORT/ reassurance
    Example: Dad says, "Don't worry. It's just bad dreams."
    *NOTE: When distinguishing between comfort and minimizing, pay attention to TONE (soothing tone indicates comfort/ negative tone may indicate dismissal)

  Does NOT include: child escaping alone, someone other than parents defeating monster (e.g., Batman), NOR any responses described under a "1" or a "2" above.

3	A **3** involves:
	- **resolution without spontaneity** – monster is resolved, but only <u>after Prompt 2</u> (i.e., any of the resolutions listed above that occur AFTER experimenter says, "What do they do about the monster?") OR **spontaneous resolution after initial avoidance**
- **simple story resolutions** – little detail/elaboration/emotional openness, no proximity, but ultimately story "gets the job done" of defeating monster
Example: [E: "What do they do about the monster?"] "They fight it." [E: "Anything else?"] "No."

| 4 | A **4** involves resolution with more elaboration 3; THAT IS, story includes 1-2 of the characteristics of a 5 (see below).
A 4 *may or may not* require Prompt 2. |
|---|---|

| 5 | A **5** includes **spontaneity** – child resolves monster without requiring Prompt 2
Example: Parents immediately come to whisk Jane out of the room.
PLUS AT LEAST 2 OF THE FOLLOWING: |
|---|---|
| | - **positive parental involvement** – especially rich/ elaborative help from parent
  Examples: "The Dad comes in and fights the monster—hi-ya! And then he tucks Bob in so he can go to sleep."
  Family moves to a new house with no more monsters.
- **proximity** – child seeks parent to help with monster OR parent comes to child to help OR dolls are moved close together *(see examples above)*
- **emotional openness**– child expresses fear directly to parent OR parent validates child's fear OR parent comforts child and child "feels better"
  Examples: No monster, but parents sleep in child's room "just in case."
  Dad looks for monster and says, "You're right, there IS a monster!" |

SEPARATION/REUNION

This story has 2 parts—Separation and Reunion—each of which has its own experimenter Prompt 1 ("Show and tell me what happens next"). **The central focus of coding is what happens during the reunion, when the parents return**. However, the separation gives valuable information, so you should also **track what is going on during the separation**, as certain elements will influence your final score. Key separation elements are listed on this page, and scoring criteria for Reunion are on the following page.

*NOTE: On your coding sheet, Prompt 1 and Prompt 2 refer to experimenter prompts given during Reunion only. Prompts given during Separation do not affect scoring.

SEPARATION

*If child shows "neutral" or "positive" coping assign a "1" to the "SEP_COPE question.

Positive separation elements
- Especially ELABORATIVE/CONSTRUCTIVE coping
  Examples: "Bob and Grandma play with everything. They make cookies and milk and do all sorts of things."
  "Grandma says, 'Come on, Bob. Let's do some exercises! Stretch out!'"
- Active PROTEST of separation
  Examples: Jane repeatedly yells "Mommy! Daddy!" when parents leave.
  Bob tries repeatedly to get in the car with parents as they drive away.
  Jane "sneaks off to get Mom and Dad"
  Jane "cries and stamps her foot" as parents leave
- Open expression of SADNESS in response to separation
  Examples: "Jane is sad."
  "Bob says 'I'm sad,' and Grandma says, 'It's ok.'"

Neutral separation elements
- BASIC COPING
  Examples: "Jane and Grandma go to sleep."
  "They just wait." "They play games."
  "Grandma takes Jane to the park." "Bob plays with his toys."

Negative separation elements – **subtract -1 from child's score if any are present:**
- NEGATIVE EVENT occurs during separation that is not resolved
  Examples: "Then a tornado comes and Bob is scared."
  "Jane hears a noise and can't sleep the whole night."
  "Bob and Grandma fight."
  "Grandma drives away and leaves him."
  → *NOTE: If any overt indicators of <u>DISORGANIZATION</u> are present during separation, it overrides all other content, including reunion, and story receives an **automatic "1"***
- NO COPING (child & grandma do nothing)
  Examples: E: "What do Bob and Grandma do while Mom and Dad are gone?"
  P: "Nothing." / "I don't know."/ Shrugs/ "They stay."

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REUNION

After noting positive, neutral, or negative elements of the separation, assess the REUNION. Add or subtract Separation points as needed in making your final score.

---

1   Any of the following indicators of disorganization warrants an **automatic 1:**

CONTENT
- **Problem unresolved** OR **resolved but followed by negative events**
  Examples: Parents get in car crash and Jane stomps on the car. (NOT resolved)
  Family has positive reunion, but then Dad hits Bob. (resolved + negative event)
- **Violence, chaos, helplessness, or bizarre elements**
  Examples: Parents explode and "there's blood everywhere." (violence/ chaos)
  Car runs over Grandma. (violence)
  Child begins to approach parents but "falls down and can't get up." (helplessness)
- **Incoherence**
  Example: "But then Bob is a baby and he cries and cries."

BEHAVIOR
- **Freezing**/ stilling/ passivity/ dissociation
  Example: During reunion, participant freezes and stares blankly for a few seconds.
- **Odd or repetitive body movements** or doll play
  Examples: Child approaches family for reunion, but then falls and gets hurt.
  Participant hits child's head against the car repeatedly.

---

2   A **2** is characterized by:

- **overly brief**, casual, or stereotyped, with minimal detail
  Example: "They just go home." [E: "Anything else?"] "No."
  *To warrant a "2," brevity must ALSO accompanied by one of the following:

- **no/minimal reintegration with family** – no greeting or physical contact; child does not seek proximity
  - o   No reintegration
    Examples: Child gets in car and drives away by himself.
    Mom and Dad go on another trip without child.
  - o   OR family engages in casual/ stereotyped tasks
    Examples: "They play games."
    "They eat dinner."

- **refusal to engage/premature closure** – refusal even after several prompts, attempts to escape story context, or oppositional toward E.
  Examples: "I don't know."/ "Nothing."/ Child shrugs
  "The end." Child pushes toys toward E. "I want it to be the end!"

CUTOFF FOR SECURITY: Scores of **3 and above** MUST show:
- **coherence** – child's response is logical, well communicated, neither overly digressive nor overly brief (i.e., 1- to 2-word stories)
- **resolution of problem** – child must re-establish connection w/ family; *Includes:*
  - Verbal greeting/ acknowledgement of separation
    Examples: Child says "Hi. I missed you."
    Dad says, "Did you have fun with Grandma?"
  - Nonverbal greeting/ PROXIMITY
    Examples: Dad leans in and gives Bob a kiss.
    Participant moves parents closer to child doll so they're face-to-face.
    Participant gathers family together in his/her hands as if embracing.
    Child makes hugging gesture toward him/herself.
  - Special joint activity (especially if suggesting enthusiasm/ joy)
    Example: "They all go on a trip together."

    Does NOT include: child solo activities or activities only with Grandma
    NOR any behavior described under a "1" or a "2" above.

3	A **3** involves:

- **resolution without spontaneity** – child reintegrates w/ family, but only after 2nd prompt (i.e., any of the resolutions listed above that occur AFTER experimenter says, "What does Bob do now that Mom and Dad are home?") OR **spontaneous resolution after initial avoidance**
- **simple story resolutions** – little detail/elaboration/emotional openness, no proximity, but ultimately story "gets the job done" of re-establishing w/ family
  Example: [E: "What does Jane do now that Mom and Dad are home?"] P: "They go home and eat cake."

4	A **4** involves resolution with more elaboration 3; THAT IS, story includes 1-2 of the characteristics of a 5 (see below). A 4 *may or may not* require Prompt 2.

5	A **5** includes **spontaneity** – child resolves problem without requiring Prompt 2

Example: Parents immediately get out of car and hug Bob.
PLUS AT LEAST 2 OF THE FOLLOWING:
- **positive reintegration w/ family** – child reconnects with family, often with clear sense of "togetherness."
  Examples: "They all go to the park and have a picnic and the Mom gives Bob a kiss."
  "Daddy and Jane play together with Jane's favorite doll."
- **proximity** – child GREETS parent/ seeks proximity OR parents greet/ come to child OR dolls moved close together OR child makes hugging gesture *(see examples above)*
- **emotional openness** – child expresses sadness/ protest upon separation AND/OR joy upon reunion (can be explicit or implicit)
  Examples: "Jane is sad that Mom and Dad are gone." (explicit)
  "Mom says, 'We missed you, Jane!'" (explicit)
  "Bob says 'Yay!' and throws a thousand parties." (implicit)

III. Classification Descriptions
SECURE/CONFIDENT (B)

- **Structure:** coherent, fluent presentation, collaborative w/ experimenter, emotional openness, completes task with minimal resistance or stress
- **Content:** benign story resolutions, positive and open interactions with a responsive caregiver, distress is acknowledged and resolved; characters show mutual support and enjoyment; reintegration into the family
    - **Child:** confident, valuable, worthy, capable of both acknowledging fear/distress and acting bravely, usually with the support of caregiver(s)
    - **Parent:** available, reliable, valued, helpful, provides safety/protection and comfort/reassurance; may sometimes be portrayed as a superhero
    - **Outcome:** Generally positive AFTER distress has been recognized
- **Play:** elaborated; child and one or both parent dolls are involved; sense of "togetherness" with placement and movement of figures (e.g., dolls placed in prox. or contact with one another, child doll not left out/left behind, except in Separation)
- **Overall strategy:** use parents as secure base to help regulate distress

AVOIDANT/CASUAL (A)

- **Structure:** brief, stereotyped, with experimenter doing most of the work, sometimes in Q&A format; little detail or elaboration; may be oppositional w/ experimenter
- **Content:** distress/ need for help not acknowledged; problems are denied, ignored, or resolved in a stereotyped manner ("premature closure"), usually by the child alone
    - **Child:** isolated, rejected, or overly independent
    - **Parent:** rejecting/ neglecting, unavailable/ unhelpful; minimally involved in story resolution; importance of parents and/or relationship denied or dismissed
    - **Outcome:** Can be positive or negative, but distress is minimized or denied
- **Play:** unelaborated, casual, may avoid using parent dolls or place dolls far apart OR refusal to engage altogether
- **Overall strategy**: deactivating/ minimizing (downplay distress)

DISORGANIZED/FRIGHTENED (D)

- **Structure:** incoherent, contradictory, fearful/ dysregulated; may also be hostile/ controlling toward experimenter
- **Content:** bizarre, violent, lapses in logic, problems unresolved or worsened; themes of chaos/ helplessness; other injuries/ disasters occur
    - **Child:** fearful/frightened, self-blaming, helpless
    - **Parent:** frightened/helpless or frightening/abusive
    - **Outcome:** Generally negative
- **Play:** negative/ violent interaction between dolls, throwing or attempting to harm/ destroy dolls OR stilling or bizarre movements/behavior unrelated to doll story
- Overall strategy: fearful (e.g., hiding), aggressive, or bizarre/ inconsistent; distress is overwhelming or unmanageable

Excerpted from _Comforting Tasks Coding Manual_
Developed by: Jackie Gross, Bonnie Brett, Jonathan Beier, & Jude Cassidy

Types of Responses
There are a variety of ways that someone can respond when another person is in need of comfort. The goal of coding these tasks is to capture the diversity of responses that a child can display, as well as to capture the frequency and duration of responses. To do this, we have divided all possible responses into 6 categories: (1) supportive responses (with two subtypes: emotion-focused and problem-focused), (2) negative responses, (3) personal distress, (4) concerned attention, (5) proximity increasing/maintaining, and (6) ignoring E's distress.

EVERY MOMENT of a comforting task can be classified into ONE AND ONLY ONE of these categories. **The only exception is that proximity increasing/maintaining can co-occur with supportive responses or concerned attention.** Some responses may seem to fit into more than one category or none of them at all. To determine which category a response is, you will use a decision hierarchy.

- First, consider whether the response is supportive OR negative OR personal distress. It can only be one of these. (If it is supportive then it may also be proximity increasing/maintaining).

- If it is none of these 3, then consider whether the response is concerned attention. (It may also be proximity increasing/maintaining).

- If it not concerned attention either, and it is also not proximity increasing/maintaining, then it will be coded as ignoring E's distress (by default).

- Also, any activity that is being done before the tasks begins is not coded as anything. If the C has their fingers in their mouth before Segment 1, then this would be considered as nothing. Verses if this happens after segment 1, which would be distress.

Use the following guidelines to decide which category a response fits into:

1. **Supportive responses**: In general, these responses are intended to make the other person feel better. There are two types of supportive responses: **emotion-focused** (i.e., any response oriented towards feelings/emotions/mood and with the goal of improving these things) and **problem-focused** (i.e., any response oriented towards solving or taking action to fix the underlying problem.) Use the following examples as a guide to classify the response in question:

Physical Soothing (e.g., hugging, patting, rubbing, leaning against E, handshaking). *Note: If the physical comforting happens during the Clipboard task, it may be coded as PF, not EF, because touching E would be in the service of fixing the "problem", while touching in every other task would typically only be to make E feel better.*

Verbal Soothing (e.g., "it's ok", "it happens sometimes", "It's not your fault")
- If child says, "I/it/she/he/they will make you feel better," this is EF because the focus is on E and/or E's feelings. If child says, "I/it/etc will make IT feel better," this is probably PF because the focus is on the Phone/Clipboard/Drawing (and thus on the problem).

Reframing the situation as though it's not so bad, in order to make E feel better (e.g., "don't be sad - it's not so bad", "it's not even that wet"). The child's suggestions can also be oriented towards the future (e.g. "It will get better"), this does not fix or address the problem in an active manner (PF if this is the case), but it reframes the situation to make it seem better because it won't be so bad in the future. Don't mistake this for negatively rejecting E's distress (e.g., "you shouldn't cry like a baby")
- Also anything that is considered to be passive solutions are considered to be reframing the situation as well. The way to identify these comments is to see if the child is suggesting that they or the experimenter should do anything to address the problem (which would be PF). "the world will heal you" is considered EF because the child is not suggesting to put any effort into fixing the problem. Instead, the problem will resolve itself in the future and therefore is reframing the situation to make it seem better because it will solve itself.

Mirroring E's sadness, in a way that is not personal distress ("awwwwww", "I feel bad", "I'm sad too"). Usually these statements have a similar emotional tone to E's distress, or sound sympathetic. They don't have to be exaggerated emotional expressions, however. A quiet child may look concerned and say, "oh no." The child clearly has to relate their pain to E's current situation.

Reflection of personal experience with this same problem in which the personal experience ended positively (e.g., "my daddy dropped his phone, and it was ok"). If the reflection of personal experience ended neutrally, negatively, or did not end, then see the concerned attention section (concerned attention requirements would still apply). However, if the reflection is directly related to the experimenter at any point (e.g. "that is like what happened to you") would be considered EF, no matter how the story ended.

Compensation (i.e., physically giving OR offering to give/share an object to E in order to help E feel better). Examples of compensation include: getting a book off the shelf and bringing it over to E, sharing the child's own nickels with E, saying, "I could buy you a racecar", saying, "do you want a cookie?".
- NOTE: It's only considered compensation if the material object offered isn't a "problem-fixer" but rather is an "emotion-helper". That is, consider whether the

object offered is instrumental in "fixing" the problem at hand (e.g., like giving a bandaid when E hurts her Finger, giving own drawing when E ruins hers) or, instead, is something irrelevant to the problem whose only purpose is to improve E's mood (e.g., like giving a teddy bear or an ice cream cone when E hurts her Finger). If the object offered is an "emotion-helper", it is compensation, because it targets the EMOTION of E, helping her to feel better. If the object offered is a "problem-fixer", it is NOT compensation, and instead is a problem-focused solution, because it targets the PROBLEM of E, helping her to solve it.

Attempts to distract E from her distress by introducing a new toy or activity to E with the intention of cheering her up. This is different from compensation because the child doesn't actually give or offer to give it to E, but just mentions it or holds it up to show E. This could include attempts to bring E back to play.

- Don't confuse attempts to distract with ignoring E's distress. Attempts to distract must include overt efforts to include E in the play, such as showing her a book or handing her a toy, and cannot be simply comments that the child is directing toward E (e.g., "look at this castle I made!"). Attempts to distract are always Experimenter-focused, and not child-focused. A way to tell if it is Experimenter focused is if the child tries to get the E's attention.

Friendly invitations to play (e.g., looking at E, smiling, switching to a new toy, phrasing the invitation as a suggestion for what E could do like "you can still…"). The key component here is that the child is trying to be nice to E while suggesting new play activities. If the child stops showing same friendliness or keeps suggestions the same thing over and over after E clearly says she doesn't want to, then it is no longer a friendly invitation to play.

- A good way to tell if this happened or not is to see if the child waited for E to response to their suggestions.

<div align="center">Problem-focused responses</div>

Verbal instrumental helping. This category includes all suggestions for fixing the problem (e.g., "I'll buy you another one", "I'll get my mommy to help you", "when I get hurt, I do xx", "you could try to clean it up", "you can go to the doctor or get some medicine "). It also includes suggestions meant to be helpful, or advice (e.g., "you should watch out next time", "be more careful"). **It does not include** statements about how the child did it correctly (e.g., "I pushed my chair back", "I didn't spill my water", "my phone is still ok").

- Anything intended to be helpful toward making the problem or broken item itself better/go away, even if it's not reasonable or logical for the situation. For example, saying, "we can put some sand on it." While this might seem like nonsense because sand cannot help a phone or hurt finger, if the child is oriented to the situation and trying to help, then it would be counted as PF. We are not coding how much sense a child makes but whether they are trying to solve the problem or not. E.g., a child offers to fix the phone in order to help the finger. This is PF.

Physical instrumental helping. These are physical ACTIONS the child takes to remedy the problem, and may or may not be accompanied by verbal instrumental helping (e.g., trying to clean up mess or fix the phone, wiping the drawing with hand, shaking the phone).

- The child must be doing something ACTIVE to the object to be considered PF and not simply curiosity or CA.
- e.g., MUST BE OBVIOUSLY TRYING TO CLEAN/REPAIR/MEND. USE THE WORDS OF THE CHILD BEFORE AND DURING AND AFTER THE ACTION TO HELP DECIDE THE PURPOSE OF THESE ACTIONS (e.g., "let me get this for you" is a clue that the action that follows is PF).
- Active things include: shaking the phone (rather than just picking it up and looking at it), holding up the drawing and shaking it (rather than just holding it up to look at it), balling up the drawing in order to throw it away or use it to clean off the table, or folding it deliberately to tidy it up (rather than just folding it over to look at the back of it). Moving a single finger across the drawing does not count as PF, as this is just playing with it (not CA, Neg, or PF). But wiping the water off with a hand is PF.
- ***But above all, use child's words to help decide if the action is meant to be helpful or is FOR the experimenter's benefit. That may clarify some of these ambiguous actions.***

If the child says something about how his/her mom, other family member or they could help, or ANY OTHER person could help, including the child him or herself, without specifying what the "help" would be, we will code these as problem-focused. If the child is more specific about what the help would entail, code it accordingly (e.g., "my mom could give you a teddy bear" is emotion-focused).

Asking where another person is, without giving more info, is too vague to be considered PF (e.g., "where the other lady at?", "where's my mom?"). This would be considered CA.

If the child asks a question (e.g. "why don't you get a band aid" or "You have band aids at home"). Even though this is a question, the child has a solution in mind and directly relates it to the experimenter (uses a you). If there is a you in a question and a solution as well, then it is PF.

Future and Present suggestions (e.g., "You should be more careful") are also considered PF. This is because they are trying to fix the problem in the future. Using what happened as an example to change the behavior in the future.

> Note: *Consider the child's tone of voice, facial expression, and context when deciding if a suggestion or statement is actually supportive, or if it was meant to be callous, demanding, or controlling. For example, the phrase "you should be more careful" could be considered a negative response if it's taunting, callous, or if the child is ordering E. It could also be considered supportive if delivered in the right way. A statement like "you hit your finger" could be taunting and judgmental, or it could be sympathetic.*

If you see a response that you think is supportive and is not included on this list, please tell a coding supervisor and it may be added to the manual.

What to do when a response could be classified as both emotion- AND problem-focused:

By their nature, problem-focused responses are often intended to both fix the problem at hand AND to improve the emotions of E. However, we cannot guess at the intentions of the child and can only use what we see and hear from the child. Therefore, responses intended to fix the problem will only be coded as problem-focused. If, on the other hand, the child explicitly mentions feelings/emotions or says something that shows he/she is thinking about the internal state of E (e.g., "I'm sorry", "it'll be ok", "don't worry", "don't be sad", "are you alright?", "Make you feel better"), then we can code for the presence of an emotion-focused response as well. Therefore, some statements can be double-coded as both problem- and emotion-focused WITHIN THE SAME SENTENCE, as long as both elements are present. For example, if a child says, "it's ok, I can buy you another one", then "it's ok" will be coded as emotion-focused, and "I can buy you another one" will be coded as problem-focused. Another example of both in one sentence is "You can go to the doctor and you will feel better!" The part about going to the doctor is PF, but the "feeling better" part is EF because the child is addressing E's distress and/or feelings. ****** If the action is definitely meant to comfort E but there is no way to know if the action was EF or PF, always default to PF.**

2**. Negative responses:** In general, these responses would typically make the Experimenter feel worse about her situation. Examples include:
- Laughing at E. (If you're not sure whether it's a laugh or not, then code it as though it were not)
- Teasing/taunting/mocking (e.g., while smiling, "you hurt yourself again!"). This is not to be confused for sympathetically restating the problem.
- Callous statements (e.g., "that's what you get", "you suck")
- Statements or "suggestions" that seem controlling or demanding (e.g., "don't spill it anymore!!!") This is not to be confused with helpfully giving advice.
- Scolding (e.g., "Why did you do that, you shouldn't do that").
- Any ambiguous sentence (could be interpreted as nice or mean, such as "you should be more careful") that is said in a negative way, such as yelled or screamed.
- Any sentence that brings all the focus away from E and onto the child, especially if said in a negative tone of voice.
- Intentionally making the situation worse (e.g. ripping or ruining E's paper, dropping the phone). Note: this does not include accidentally ripping the drawing while taking off the stickers on E's paper.
- Also includes intentionally holding back a way to help because of E's emotional state
- Any past tense suggestion (e.g. "You should have been more careful") with another negative response listed above (laughing, mocking, etc.)
- Smiling can also be considered negative if it is followed by or just after yelling, scolding, teasing, etc. Smiling is considered negative if it occurs in the interval before or after the negative event.

  Consider the child's tone of voice, facial expression, and context when deciding if a suggestion is helpful, or if it was meant to be callous, demanding, or negative. There should be no doubt when coding negativity. The phrase "you should be more careful"

could be considered a negative response if it's taunting, callous, or if the child is ordering E. It could also be considered supportive if delivered in the right way. ***CONTEXT IS KEY.***

If you see a response that you think is negative and is not included on this list, please tell a coding supervisor and it may be added to the manual.

3. **Distress / arousal**: Sometimes, a child becomes upset when another person is upset. This is always self-focused. Examples of personal distress include:
- Crying, whining, or whimpering because child is distressed. If there are other cues that point to a different motivation (e.g. child can't reach across the table, child is being impatient), these would not be coded as personal distress
- Very obvious facial distress (e.g., face falls and looks like about to cry). This does not include anything that could be confused with concerned attention; it must be clearly distress. This expression can also be instantaneous as well.
- Physical self-soothing (e.g., thumb-sucking, hand wringing, touching eyes/face) for at least three second
- Verbal statements of personal distress (e.g., "I wanna go home", "I don't like this").
- Speaking in a strained, upset-sounding way.
- Upset about own thing they messed up
- Defensiveness (e.g. "It's not MY fault").
- Active disengagement is distress. The child does everything in their power to not pay attention to E's problem or pain

If you see a response that you think shows personal distress and is not included on this list, please tell a coding supervisor and it may be added to the manual.

4. **Concerned attention (CA):** Only if a response cannot be classified as any of the three categories above, then it may be considered for concerned attention. Please understand what CA is before attempting to code it. This is because often, you will just have to use your best intuitive judgment in deciding whether the child is showing CA "in spirit". We think of CA as an outward sign that the child is concerned about E: the child's thoughts are tuned into E's distress and the child has entered E's mental world. The child is allowing him/herself to enter E's "zone of distress" by acknowledging the situation. The child could express this concern in two ways: overtly or through non-verbal means.

What is NOT considered CA?
- NODDING HEAD OR SAYING YES IN RESPONSE TO E'S QUESTION IN SEGMENT.
- If the child is in the midst of an EF or PF solution, child cannot also get credit for CA. Be sure to watch out for non-verbal EF or PF (e.g., child goes to cabinet to get a book for E, brings book back, and is holding it up for E to see, child is holding out her drawing for E to take), because that whole block of time cannot be considered CA.
- If the sentence child says qualifies for overt CA (below) but is also part of the EF or PF solution, then it is not CA (because it's already considered part of the comforting solution).
- ANY CARRYOVER

Overt (verbal) CA: If a child says something that does not qualify as comforting, yet shows that he/she is acknowledging the situation or that something bad happened, then it's CA. This could include something showing that they are thinking about E's plight, but without explicitly offering a solution or comfort.

It is overt (verbal) CA if: Child says or does any of the bullet points listed below (for any length of time, even a second or two), AND does one of the following:
- shows reduced/minimal play for at least 3 seconds during or very near to the time the statement was made
- or shows very obvious facial concern for any length of time (i.e., is not simply acknowledging the situation, but is CONCERNED about the situation)

- "I can't help you," if said in a tone that suggests the child is sympathetic.
- "I have bandaids at home." Again, consider tone of voice and facial expression. This is not problem focused because the child does not related the suggestion to the Experimenter.
- Seeking more information about the situation (e.g., "what happened?", "are you hurt?", "does it hurt?")
- Reflecting on a personal experience similar to E's problem, in which the ending was neutral, negative, or doesn't have an end (e.g., "I went to the phone store when I broke it, and it cost a lot of dollars"). Basically, this includes any ending that is not positive, because a positive ending implies that it will also turn out OK for E (in which case, this is EF comforting).
- Sympathetic restatement of what happened (e.g., "you hurt your finger??", "your drawing!") Consider the child's tone of voice, facial expression, and other cues of sympathy to determine if the statement is truly concerned. We include these types of statements into CA because it is a way of connecting sympathetically with E's plight, entering her zone of distress, and acknowledging that something bad has happened to her, but it does not qualify as comforting.
- But, getting more information about E's emotional state is considered emotional focused response. And example of this would be "are you sad right now?" or "you okay?"
- "Let me see…" (or showing other obvious signs of "thinking" about what to do for at least 3 sec, such as looking up and tapping chin or saying, "hmmmmmm", or looking around the room for something).
- If you're not sure what child says, but child is clearly oriented to the situation (and you can't give them credit for any other code), then code as CA (see nonverbal CA section below).
- Anything that is a past tense suggestion (e.g. "You should have been more careful"). Unless paired with any negativity (e.g. smiling, laughing or a scolding tone).
- Any miscellaneous stories or thoughts THAT RELATE even in the slightest TO THE CURRENT PROBLEM but do not end well are also considered Overt Ca.
- Child is thinking about the problem.

Non-verbal CA: Even though the child is not saying or doing anything, we can tell that he/she is concerned about the situation or about E. We can tell because the child becomes focused on the

scene, often stops playing and talking, and stares at E with a concerned expression. Sometimes, the child shows momentary gaze aversions from E (1 second or less), because the situation is hard to look at, and so the child quickly glances away and looks back again.

To be coded as concerned attention, the child must be doing the following things **simultaneously for at least 3 continuous seconds**:
- MUST be oriented toward the scene, which includes looking at E or the object (i.e., turned toward her and paying attention to what is happening with her). If, during this time, the child momentarily looks away from E (i.e., 1 second or less) and then looks back again, that is ok. This is simply a gaze aversion, and can happen during CA.
- MUST have a neutral/concerned face (i.e., not smiling or crying or very obviously distressed)
- MUST be playing/doing an activity less than he/she was moments before the task began (e.g., reduced energy in play, stopped swinging legs or arms as much, stopped play altogether). This is because reduced play indicates that the child is "tuned into" E's pain and is paying more attention to E's situation than to previous play. If the child wasn't playing at all before the scene began, then reduced play will simply be not playing at all. It is, however, possible for the child to be walking or moving closer to E while showing concerned attention.
- Cannot overlap with words or actions that have already been classified as comforting, negative, or personal distress.
- The child could be listening to something E is saying or listening to E respond to him/her as part of an ongoing conversation. If the child is having a conversation with E, they MAY get codes for CA only while listening to E, as long as they otherwise meet all the criteria for CA.

5. Proximity increasing/maintaining: This code is for any physical movement towards E. This only includes steps, so leaning forward does not count. The ONLY exceptions are:
- Child is on a mission to reach another location in the room and just passes by E, and does not stop. If child stops for any reason, and looks at E or the situation (for at least 2 seconds), then it's proximity.
- Child must clear the table in order to get proximity for (drawing and phone task). They must go at least around the bend in order for the movement to be considered a new destination.
- Once at their destination, if child turns around and looks at E/situation (for at least 2 seconds), this is proximity (IF the destination is closer/as close to E than the child's original position, such as by the box of sand toys). If the destination is farther than original position (such as the cabinet or the nickels by the door), turning around to look at E/situation is NOT proximity.
- Once at the destination, any movement toward E is proximity and is subject to the same rules that applied to movement toward E from the original position (behind the sandtable).
- What if the child moves to ANOTHER destination (i.e., has a goal/place in mind and doesn't stop): see the first bullet point. Once at this new destination, see the second bullet point. In this case, "original position" refers to child's FIRST position (when the task started; not the previous destination).

- Side to side stepping does not count if the child stays behind the sand table. Child must come out around the table (if seated) to get proximity (or be on her way out from behind sand table plus on her way directly over to E).
- If the only proximity in a given interval is carry-over from the previous interval, child must hold that position for at least one whole second to count as proximity in that interval.
- If the child is wandering around the room, pacing, or appears to have no particular destination or goal in mind, you cannot use the "destination" rule stated above. If this happens, the child is increasing/maintaining proximity whenever he/she is CLOSER to E than when child first started to wander.

6. Ignoring E's Distress: This code will capture any response that cannot be coded into any of the above 5 categories. As a result, this code will not reflect the child ignoring E or the entire situation, but rather it should reflect the child ignoring SPECIFICALLY E's distress. Examples include:
- Keeping attention focused on activity
- Smiling at E (i.e., not concerned attention because not neutral/concerned)
- Making irrelevant conversation (e.g., "my birthday is tomorrow")
- Staring at the floor
- Statements about the child's own property not being damaged (e.g., "MY phone isn't broken", "MY drawing isn't wet")
- Statements about the child's play or activity that he/she has been occupied with (e.g., "look, I finished the puzzle!")
- Statements about a toy/activity that aren't meant to cheer E up (e.g., "I wanna keep playing dinosaurs with you.")
- When E asks, "is there anything you can do to help me feel better?", if the child simply says, "yes" or nods head (or says "no" or shakes head), without actually saying or doing anything in addition to this, this will mostly likely be coded as Ignoring E's distress. That is because it is not supportive, negative, personal distress, or CA.
- Any response that cannot be classified

Coding Procedure

1. **Make general notes on your paper coding sheet.** Before you begin, take out the post-lab notes sheet for this participant and read the Prosocial Notes section for any relevant details about this task. First, write the physical description of the child, and verify that it matches the child in the video you have open. Then, write all relevant notes in the "Notes" section of your coding sheet. This could include notes specifically about this particular task (phone, Clipboard, or drawing) OR about comforting tasks in general OR about the entire lab visit (whatever is relevant to this task). If there is nothing, write "None". Keep these notes in mind while coding.

2. **Watch the entire 2 minute task all the way through. Again verify that you are coding the correct child by making sure the physical description matches what you see. While watching, get a feel for this child's behavior and become familiar with the task. Also take note of when you think the Experimenter moved from one segment to the next. Then code the following items:**

- If clipboard task: Did E say, "Oh my finger!", or something similar? If drawing task, did E say, "oh no, my drawing", or something similar? (1=yes, 0=no). IF NO, WHAT DID E SAY? Write it verbatim. IF YES, MARK AN X.
  - Also, the prompt can happen anytime after the initial 15 seconds. **If 15 seconds have past since the start and there has not been a prompt, list what E said, and indicate there was a segment error.**

Did E make any errors with regard to segments? This could include (but is not limited to): stating the problem or looking at the child during segment 1 (other than the initial prompt or in response to a direct question from child), looking at the child during segment 2, NOT looking at the child during segment 3, NOT stating the problem during segment 2, asking "is there anything you can do...?" during segment 3, NOT asking 2 questions during segment 4, NOT looking at the child during segment 4. It can also happen if one segment is > 45 seconds or <20 seconds (if a segment is =45 or 20 seconds, then there is no error.) (circle Y or N)

During which segment(s) did the errors occur? As an example, if E accidentally looked at the child at the very beginning of segment 2 (the transition INTO segment 2), mark the error as occurring in segment 2. Circle all that apply (1, 2, 3, or 4). IF YES, DESCRIBE THE ERROR.

During which segment of the task did the child first physically comfort E? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not physically comfort).

> *Note: Code this as the segment within which the first moment of physical contact was made to soothe E.*

Physical comforting includes: any touching that was made as the result of a PF or EF comforting strategy (e.g., hugging, placing a hand on E, putting a pretend bandaid on E's finger). It does not include touches that happened as the result of some other, non-comforting goal, or accidental touch, or cases in which E touched the child and not the other way around.

- During which segment of the task did the child first physically TOUCH E in a NON-comforting way? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not physically touch in a non-comforting way).

  > *Note: Code this as the segment within which the first moment of physical contact was made. Examples include: Incidental touch, like brushing against E's arm while doing something else, pulling E toward the door because child wants to play outside, bumping into E.*

  Physical touch includes incidental or accidental touches or those in service of a non-comforting goal. It does not includes touches that the experimenter initiated. If there is any ambiguous situation where a touch might have happen, then look at the lab notes. If the experimenter mentioned a touch then there is a touch. If not, then always side with no physical touch.

3. Now, you will break the task up into 10-second intervals ("timeslices") in order to see how frequently the child shows each of the five types of response (i.e., supportive, negative, personal distress, concerned attention, and proximity increasing/maintaining). Because all comforting tasks were approximately 2 minutes long, each task will have approximately 12 timeslices, but the number may vary as individual tasks may have lasted slightly longer or shorter than 2 minutes. ADD THE TOTAL FREQUENCY OF EACH RESPONSE ON YOUR CODING SHEET, BUT DO NOT INCLUDE THE FINAL INTERVAL IF IT IS LESS THAN 8 SECONDS LONG. You do not even need to code final intervals that are less than 8 seconds. The only exception is when E stops the task due to physical comforting. In this case, we want 1 and only 1 interval to capture that comforting behavior. Do not throw it out, even if it's less than 8 seconds long. The entire interval will be coded and included in the totals for all codes in this case. If the child physically comforts and E does not stop the task, or if the child physically TOUCHES (i.e., would not get an EF score), then stick to the regular rules.

Step 1. COMFORTING: Watch each 10-second timeslice (one at a time) to code for the presence of an emotion-focused and/or problem-focused supportive response in that timeslice.
- Does any portion of the given timeslice contain any portion of an emotion-focused response that is at least 1-second long OR that contains at least 1 full word? (1=yes, 0=no)
- Does any portion of the given timeslice contain any portion of a problem-focused response that is at least 1-second long OR that contains at least 1 full word? (1=yes, 0=no).

Step 2. NEGATIVE RESPONSES: Watch each 10-second timeslice (one at a time) to code for the presence of a negative response OR personal distress in that timeslice.
- Does any portion of the given timeslice contain any portion of a negative response that is at least 1-second long OR that contains at least 1 full word? (1=yes, 0=no).
- Does any portion of the given timeslice contain any personal distress that is at least 1-second long OR that contains at least 1 full word? (1=yes, 0=no).

Step 3. CONCERNED ATTENTION: Watch each 10-second timeslice (one at a time) to code for the presence of concerned attention in that timeslice.
Does any portion of the given timeslice contain overt CA or AT LEAST 3 FULL SECONDS of non-verbal CA? (1=yes, 0=no). *Please remember that concerned attention cannot occur AT THE SAME MOMENTS as any of the above 3 types of response. However, a given 10-second timeslice may contain codes for supportive response AND concerned attention (or negative and concerned attention, or personal distress and concerned attention), but these codes must have happened at different moments within that timeslice (e.g., supportive response ended within the first 3 seconds, and concerned attention began immediately after it). CA **can't** carry over.*
NOTE TO CODERS: If it's non-verbal CA, a timeslice must contain within it a full continuous 3 seconds as a stand-alone interval to be coded as having concerned attention.

Step 4. PROXIMITY: Watch each 10-second timeslice **one more time** (one at a time) in order to code for the child increasing OR maintaining proximity to E.
At any point during the given timeslice, did the child exhibit proximity increasing/maintaining for at least 2 seconds? (1=yes, 0=no).

Step 5. IGNORING: After you have coded all 5 types of response in all 10-second timeslices, code for the lack of any response in each timeslice (i.e., ignoring E's distress). You don't need to watch the timeslices again to do this.
For each timeslice: Were there NO types of response coded for in this timeslice? (1=yes, there were no coded responses, 0=no, there was at least one coded response).

Step 6: Enter the number of intervals that were calculated in your total. This won't include rows with 999 (missing data), or intervals of less than 8 seconds long (unless child physically comforted and E ended the task early because of this - then you WILL include that interval in the total).
Note for if the pre-made template gives you the wrong number of segments and does not end at the correct time: Calculate the number of seconds in the "real" final interval to the best of your ability. If it's close to the cut-off point (7 or 8 seconds), then consider it being only 7 seconds.

4. **After coding the timeslices, answer the following questions on your coding sheet. Go back to view the video as many times as needed:**
- During which segment of the task did the child first begin an EMOTION-FOCUSED supportive response? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not display an emotion-focused supportive response).
    Note: Code this as the segment within which the child first begins to say or do the emotion-focused supportive response.
- During which segment of the task did the child first begin a PROBLEM-FOCUSED supportive response? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not display a problem-focused supportive response).
    Note: Code this as the segment within which the child first begins to say or do the problem-focused supportive response.
- During which segment of the task did the child first begin a negative response? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not display a negative response).
    Note: Code this as the segment within which the child first begins to say or do the negative response.
- During which segment of the task did the child first begin to show personal distress? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not display a negative response).
    Note: Code this as the segment within which the child first begins to show the personal distress.

- During which segment of the task did the child first begin to increase proximity to E? (1= before E has stated the problem, 2=E has already stated problem but has not yet looked at the child, 3=E has already looked at the child but has not yet asked if there's anything he/she can do to help, 4=E has already asked if there's anything child can do to help, but task has not yet ended, 0=child did not increase proximity).
- Did the child mention his/her/anyone's mom/dad/grandparent for any reason?
  Also mark on the coding sheet the timestamp for when the mention BEGAN, as well as copy verbatim what the child said.

5. Global Score - Watch the task 1 more time from beginning to end. Mark quick bullet point notes about the types of things the child said or did during the task. Rate each bullet point in terms of its quality of comforting. Count the total number of unique strategies.

Use these bullet points to help you code the global score.

What is your overall impression of how comforting this child was toward E? *Note: this code should be done immediately after the other codes were entered, so the child is fresh in the coder's mind.*

All previous scores have only considered frequency and latency of the response, leaving us unable to differentiate between a child who gives away their own possessions from a child who simply gives advice. This global score will capture the diversity, quality, and activity of child's attempts to comfort. Consider the number of DISTINCT attempts, including the creativity seen in the diversity. A child who suggests the same thing over and over will not be treated the same as a child who suggests the same number of things but which are all distinct and creative. Also consider the quality of attempts, especially sweet statements or offers, big gestures, and offers to give E the child's OWN possessions (e.g., nickels, balloon, drawing). Also, the quality of a persistent attempt will be higher than that of an attempt made just once. Also consider the activity of the child's attempts (e.g., a child who goes to the shelf to get something, or to the door to look for help, is not the same as a child who sits in her chair and continues playing while simply saying suggestions). You will also inevitably consider the frequency of comforting, amount of concerned attention, proximity, ignoring, attitude, general demeanor, negativity, etc. The amount of proximity is also the deciding factor if wavering between two scores.

<div align="center">Description of Scores</div>

1 - Not at all comforting. To get this score, a child may:
- Show no sign of being concerned about the experimenter's distress and make no effort to comfort her
- Show concerned attention within the first 15 seconds of the task, but subsequently shows no concerned attention and no comforting behaviors
- Make one or two brief and minimal efforts to comfort, with very little to no concerned attention
- Make a few half-hearted attempts to comfort, but largely ignores or acts negatively toward E
- Child is personally distressed for much of the time and unable to focus on E's needs

2 - In between a 1 and 3. (for ex: at least 70% CA but no attempts to comfort, not engaging E much or at all, and no proximity; or at least 50% CA with 1 minimal attempt to comfort)

3 - Somewhat/moderately comforting. To get this score, a child may:
- Attempt at least 3 or 4 distinct mid-quality ways to comfort, with concerned attention for ≥ 33%
- Attempt at least 2 distinct and mid- to high-quality ways to comfort with concerned attention for ≥ 50%
- Display concerned attention for more than 75% of the task, with one mid-high or high-quality attempt to comfort.

4 - In between a 3 and a 5.

5 - Very comforting. To get this score, a child may:
- show ANY large display of physical comfort (e.g., a hug) at any point
- physically comfort with a handshake, rub, or pat within the first 30 sec, or in addition to trying at least 3 other comforting strategies
- attempt to comfort for more than 75% of the duration of the task, MOSTLY mid- to high-quality comforting; when child wasn't comforting there was CA or Proximity.
- Attempt at least 7 distinct mid-quality ways to comfort.

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