Empathy is a critical ability in developing relationships, and deficits in empathy have been associated with various maladaptive social outcomes. Although specific parenting behaviors (including warmth, reasoning, overprotection, and critical control) are expected to be related to the development of child empathy, these may function differently for children with an insecure attachment or inhibited temperament. Children with an insecure attachment may have deficits in empathy when compared with securely attached children. Children with an inhibited temperament, who are also at risk for developing an anxiety disorder, may also struggle with expressing empathic behaviors. These relations were tested in a longitudinal study including mothers and their toddlers. Attachment did not relate to empathy directly or serve as a moderator between parenting behaviors and empathy. Although no moderating effects were found for overprotection or critical control in relation to empathy, moderating effects were found for parental warmth and reasoning. Maternal warmth and reasoning predicted more empathic behaviors only for children with low levels of inhibited temperament. Thus, the effects of maternal warmth and reasoning may be attenuated for children with inhibited temperament, in terms of their empathy development.
This Thesis titled

EMPATHY DEVELOPMENT IN TODDLERS AND THE INFLUENCE OF PARENTING, ATTACHMENT, AND TEMPERAMENT

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Empathy refers to the ways in which an individual is able to understand and share the feelings or experiences of another individual (Zahn-Waxler & Radke-Yarrow, 1990). This ability has both affective and cognitive components and is characterized by a response that shows concern for another individual and a desire to assuage that individual’s distress. Empathy is a critical ability in developing relationships with others and in everyday communication (Young, Fox, & Zahn-Waxler, 1999). Not only has empathy been discussed within the context of individual relationships, but also it has been implicated as a precursor of prosocial and moral behavior. Deficits in empathy have been related to psychopathology, both on externalizing and internalizing spectrums (Findlay, Girardi, & Coplan, 2006; Young et al., 1999). Specifically, children with an inhibited temperament, who are at a heightened risk for anxiety, may also be at a heightened risk for experiencing deficits in empathy (Biederman et al., 2001; Young et al., 1999). Given the importance of empathy in social settings, researchers have often studied the factors that may influence its development. Among these factors, specific parenting behaviors, attachment style, and inhibited temperament have been suggested to play some role (Findlay et al., 2006; Young et al., 1999). Researchers have frequently examined the relation between either parenting behaviors, attachment style, or inhibited temperament and empathy development. However, few researchers have observed all factors simultaneously. In order to further understand empathy development, the current study will examine a model in which the relation between specific parenting behaviors, including warmth, reasoning, overprotection, and critical control, and child empathy will be moderated by attachment style. Additionally, to better understand deviation in typical empathy development for children at risk for anxiety, inhibited temperament will also be examined as a moderator of the path between parenting behaviors and empathy (Figure 1).

**Empathy Development**

At its core, empathy has been described as the vicarious experience of another individual’s emotional state (Robinson, Zahn-Waxler, & Emde, 1994). Speaking to the importance of this ability, many researchers suggest that the development of empathy has an early onset. In support of this, basic empathic responses, such as an infant’s response to the cries of others, can be observed as early as the first few days of life (Young et al., 1999). As development progresses, children can be observed differentiating themselves from others, expressing concern for others, attempting to understand others’ distress, and performing acts of prosocial behavior during the second year of life (Robinson et al., 1994; Young et al., 1999; Zahn-Waxler & Radke-Yarrow, 1990). Paired with this increase in other-focused behaviors is a decrease in both personal distress in response to the distress of another and non-empathic behaviors (Robinson et al., 1994; Zahn-Waxler & Radke-Yarrow, 1990). Although these expressions of concern become even more complex during early and middle childhood as perspective-taking abilities and moral reasoning are further developed (Robinson et al., 1994; Young et al., 1999), the second year of life appears to be especially critical for empathy development, as this is when many theorists believe higher-order emotions begin to emerge as well as when parents begin to shape their child’s patterns of social responsibility (Zahn-Waxler & Radke-Yarrow, 1990).

Individual differences in empathy are moderately stable over the first 20 years of life (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). Therefore, empathy is considered to be relatively stable throughout development, and most children should be expected to continue the pattern of increasing other-focused and decreasing personal-focused distress responses. Although parenting behaviors appear to play a role, it is not entirely clear if these parenting
behaviors are more or less effective for promoting empathy development with different children. Specifically, adaptive parenting experiences may encourage increased empathy development, and more maladaptive experiences may lead to decreased empathy relative to other children.

**Parenting Influences on Empathy Development**

In terms of environmental influences, parenting styles and parental socialization have frequently been studied in relation to the development of empathy. Parents who display an authoritative style are often warm, responsive, and supportive, which may function to model empathic behaviors. These parents tend to use reasoning with their children, which may encourage empathic thinking (Hastings et al., 2000; Panfile & Laible, 2012). Parenting behaviors specifically implicated in children’s anxiety development may also affect empathy. Specifically, it has been suggested that children of overprotective parents may experience excessive arousal in response to others’ distress, which may reduce their ability to respond in an empathic way, while children of parents who do not value sensitivity (e.g., are critically controlling in their parenting) may also appear to show few empathic responses to others’ distress (Robinson et al., 1994).

**Warmth and Reasoning.** Among the most frequently studied maternal behaviors, warmth, maternal empathy and perspective-taking, modeling of altruism, sensitive responding, and direct instruction of kind behaviors have all been found to be, in part, related to the development of empathy in children (Robinson et al., 1994; Trommsdorff, 2008; Young et al., 1999). Parents who show more behaviors, like warmth and reasoning, during toddlerhood when empathic behaviors are also beginning to be evident, have been found to have children who express more empathic behaviors (Zahn-Waxler & Radke-Yarrow, 1990). Parental, especially maternal, warmth has been studied by multiple researchers in terms of its effects on the development of empathy in children. Lower levels of maternal warmth and involvement have been found to be associated with decreases in empathic behaviors, and higher levels of maternal warmth have been associated with both stability and increases in empathic behaviors (Robinson et al., 1994). Conversely, Hoffman (1975) found that maternal warmth was associated with empathic behaviors only in boys, suggesting that girls and boys may be affected differently by warmth.

Koestner, Franz, and Weinberger (1990) conducted a longitudinal study in which they observed the relation between 11 parenting dimensions that were coded when the children were 5 years old and their empathic concern, 26 years later, at age 31. Eight of the parenting dimensions were specific to maternal behaviors and included warmth, strictness, restrictions of sexuality, inhibitions of aggression, tolerance of dependency, satisfaction with the mother role, use of physical punishment, and use of praise. The remaining dimensions were observed in both mothers and fathers and included involvement in child care, firmness in discipline, and warmth. These researchers found a relatively strong association between early parenting behaviors and adult empathic concern, with time spent with the child being most predictive of adult levels of empathy. Surprisingly, parental affection, reflected by measures of parental warmth, was not related to adult empathic concern in this study. Although many researchers have found a positive relation between parental warmth and empathy, others have suggested that warmth does not explain all of the variance in child empathy development and that warmth and involvement may not be sufficient in encouraging the development of empathy in children (Eisenberg et al., 1992; Robinson et al., 1994; Trommsdorff, 2008).

Parental reasoning and induction, or the encouragement to take another individual’s perspective, may more specifically facilitate empathy development than warmth more broadly. Although the link between parental reasoning behaviors and child empathy has not been as
frequently studied, it would be expected that the use of reasoning and encouragement to take the
perspective of another would promote empathy development more specifically than warmth. In
one study of preschool children, parents’ use of explanations predicted more independent and
stable empathic behaviors (Zahn-Waxler & Radke-Yarrow, 1990). Prosocial behavior, which is
highly correlated with empathy, has found to be more common in children whose parents use
inductive reasoning (Hay & Pawlby, 2003). The use of induction has been suggested to
encourage a child to pay attention to another individual’s distress and, therefore, evoke an
empathic response toward this individual (Janssens & Dekovic, 1997). Alternatively, induction
has also been conceptualized as being used to inhibit aggressive behaviors (Koestner et al.,
1990). From this perspective, reasoning/induction may be related to empathy because it allows
parents to discourage aggressive behaviors, express their behavioral expectations, and convey
responsibility (Henry, Sager, & Plunkett, 1996). Therefore, reasoning/induction, in addition to or
perhaps more strongly than warmth, may be important in promoting empathy development in
children.

**Overprotection and critical control.** In contrast to warmth and reasoning,
overprotective behaviors and critical control by parents has frequently been linked to poor socio-
emotional outcomes for children (McShane & Hastings, 2009). Although these behaviors have
typically been studied in relation to children’s anxiety development (Hastings, Rubin, & DeRose,
2005; Laurin, Joussemet, Tremblay, & Boivin, 2015; McShane & Hastings, 2009), they may
undermine empathy development as well. Both of these behaviors are considered forms of
psychological control, however, they differ in their method of control. Overprotective parents
often interfere with children’s abilities to be independent by reinforcing their shy behaviors.
Parents who express critical control, such as derision toward their child, undermine their
development of independence by instilling negative views about the self and failing to encourage
confidence (McShane & Hastings, 2009). Regardless of the specific type, parental psychological
control has been negatively associated with child empathy (Robinson et al., 1994) and adolescent
empathy (Yoo, Feng, & Day, 2013). In previous research, Robinson and colleagues (1994) found
high negative maternal control was associated with decreases in empathy, and low control was
associated with increases in empathic behaviors over two time-points. Even among children who
were initially high in empathic behaviors, those who experienced a high amount of parental
negative control displayed a decrease in empathic behaviors at the second assessment (Robinson
et al., 1994). Although previous research certainly seems to suggest that parent socialization
plays an important role in a child’s empathy development, parenting may mean different things
in different types of relationships and with children who have differing predispositions.

Whether specific parenting behaviors are more effective for encouraging empathy
development in children with a secure, as opposed to an insecure, attachment has yet to be tested.
Further, individuals may deviate from these predicted pathways because of their temperament,
with temperamental shy children less able to capitalize on a positive caregiving
environment and more vulnerable to the effects of suboptimal caregiving. The role of attachment
style and inhibited temperament in a moderation model of empathy development has also yet to
be tested, and it seems warranted to examine how parenting predicts empathy in the context of
both attachment and temperament.

**Moderators of Empathy Development**

**Attachment.** Given that empathy is theorized to develop in the context of the parent-
child relationship, parent-child attachment has been suggested to be a significant factor in the
development of empathy (van der Mark, van IJzendoorn, & Bakermans-Kranenburg, 2002).
Although empathic behaviors do not begin to be evident until around the second year of life, attachment, which develops early in life, may help prepare a child for the expression of later empathic behavior (Zahn-Waxler & Radke-Yarrow, 1990). A secure attachment stems from a child trusting that a caregiver will be available in times of distress, and this is apparent when the child seeks closeness to their attachment figure and is comforted by her presence during these times (Panfile & Laible, 2012; van der Mark et al., 2002). The caregiver provides external regulation of the child’s emotions in a sensitive and consistent manner. Secure children will be able to comfortably explore their environments, however, they will also be able to seek comfort or reassurance from their caregivers if distressed (Panfile & Laible, 2012). Caregivers of children with a secure attachment may also be more likely than caregivers of children with an insecure attachment to model empathic behaviors by providing sensitive responses to their child’s distress. Because of their experience with caregivers who likely accept and encourage their displays of emotion, secure children may also be more open in their expression and communication of emotion, which is a crucial factor in the experience and expression of empathy (Eisenberg, Cumberland, & Spinrad, 1998; van der Mark et al., 2002). Additionally, when compared to insecure children, secure children may feel less restrained or overwhelmed by another person’s distress (van der Mark et al., 2002).

Given that children with an insecure attachment may feel more overwhelmed by another’s distress, they may show deficits in empathy, when compared with securely attached children. It has been proposed that individuals can either experience empathy or, alternatively, empathic overarousal when confronted with someone in distress. During empathic overarousal, an individual becomes overwhelmed and must focus on reducing his or her own distress as opposed to helping the other individual (Panfile & Laible, 2012). Given that children in secure relationships are exposed to more frequent and varied methods of regulating emotions than children in insecure relationships, Panfile and Laible (2012) suggested that these children may, therefore, be better able to regulate their own negative emotions and focus on the emotions of others. Children in insecure relationships may have a deficit in regulating negative emotion. It has been proposed that those with a resistant-insecure attachment (characterized by heightened arousal and distress and theorized to result from inconsistent care or responding from the caregiver) may have more difficulty differentiating between their own and another’s distress, which would result in overarousal and therefore fewer empathic responses. Children with an avoidant-insecure attachment (characterized by a history of unresponsive or rejecting parenting in response to distress) may also have difficulty expressing empathy as they have less experience of how to respond appropriately (Kestenbaum, Farber, & Sroufe, 1989). Thus, regardless of the type of insecure attachment, these children may show deficits in empathy when compared to children who have a secure attachment. Panfile and Laible (2012) also hypothesized that children rated high in emotion regulation and low in reactivity would also be better able to focus on the emotions of others. Maternal report and observation were used to assess attachment and empathy. A mediation model, in which empathy was indirectly predicted by attachment through emotion regulation, was proposed. This model was supported, and researchers found that attachment and emotion regulation were able to predict prosocial behavior, which is an indicator of empathy.

Further empirical support has been provided to support the theory that children who are securely attached will show more empathic behaviors toward others than children who are insecurely attached (Kestenbaum et al., 1989; Panfile & Laible, 2012; van der Mark et al., 2002). Kestenbaum and colleagues (1989) found that children with secure attachment histories were
more likely to have a greater behavioral and emotional empathic response to another individual’s distress than children with insecure attachment histories. Other researchers have also found that a secure attachment history is associated with more expressions of empathic behavior, however, it does not explain empathy development entirely (Panfile & Laible, 2012; van der Mark et al., 2002). Therefore, it is expected that children with a secure attachment history will show more empathy than those with an insecure attachment. Further, research suggests that a secure attachment paired with an authoritative parenting style may be most conducive to empathy development (Panfile & Laible, 2012). This suggests an interaction, which would be consistent with the notion that parenting behaviors indicative of an authoritative style would predict empathy development most strongly in the context of a secure, rather than insecure, attachment relationship.

Temperament. Temperament, the biologically based pattern of tendencies to react to the environment, which are expressed through behaviors and emotional reactions in infancy and early childhood, has also been suggested to influence the development of empathy (Goldsmith et al., 1987; Young et al., 1999). Both reactivity and self-regulation components of temperament have been proposed to be relevant in the study of empathy development. From this framework, children who are able to regulate their reactivity to another individual’s distress would be expected to show some display of empathy and respond to the individual. However, if a child experiences overarousal and is unable to regulate this emotion, an expression of empathy would not be expected (Young et al., 1999).

Children who express an inhibited temperament, or behavioral inhibition, may take an extended period of time to approach an unfamiliar person or object, spend more time in proximity to their mother or primary caregiver, and express negative affect toward novelty (Kagan, 1994). Inhibited children are often described as being shy and show a general pattern of fear and withdrawal in new or uncertain situations (Garcia-Coll, Kagan, & Reznick, 1984). In other words, inhibited children demonstrate increased reactivity to uncertainty or novelty as well as more difficulty regulating their distress. Some argue that this greater sensitivity displayed by inhibited children could result in more advanced identification of distress and expressions of empathy, however, others maintain that these children experience overarousal when faced with the distress of another and must focus their attention on reducing their own distress (van der Mark et al., 2002). Conversely, it has been hypothesized that children who experience very little arousal when faced with another individual in distress will show little empathy, and this behavior has been linked to the callous and unemotional traits associated with aggression and antisocial behaviors (Young et al., 1999). It is worth noting, however, that the lack of empathy expressed by uninhibited children is believed to be a result of a competence deficit, whereas the lack of empathy expressed by inhibited children is believed to result from a performance deficit. In other words, it is hypothesized that inhibited or shy children feel empathy but may be unable to express this toward another individual as a result of trying to reduce their own distress (Findlay et al., 2006).

The relation between inhibition and empathy has not received as much empirical attention as that between aggression and empathy, however, results tend to support the hypothesis that shy children show fewer empathic behaviors than children who are less inhibited (Findlay et al., 2006). Findlay and colleagues (2006) observed relations among empathy, social behavior, and social understanding in children in kindergarten and first-grade. These researchers asked mothers about their children’s empathic and shy behaviors and found empathic children were less likely to also be rated as being shy or withdrawn. Here, the authors suggest that fewer
empathic behaviors may result from a shy child’s desire to escape a stressful situation or overarousal in response to another’s distress. Interestingly, empathic children were also rated as having fewer social difficulties than children who did not express as many empathic behaviors, consistent with the notion of shy children having a performance deficit in empathy because of their difficulties in social situations.

Other researchers have also found a similar relation between inhibited temperament and a deficit in empathy. Young and colleagues (1999) studied the link between temperament and empathy in 2-year-olds. Temperament was assessed when children were 4 months old and again, along with empathy, at age 2. In order to assess empathy, the mother and experimenter both feigned an injury, and the child’s behavior was coded for hypothesis testing (i.e., the child asking their mom if she was hurt), prosocial behavior, concerned expression, a global rating of empathy, arousal level, and distress. Inhibition was also measured by observing children’s reactions to an unfamiliar experimenter who entered the room, sat quietly, and brought out a toy truck for the child. The authors found, consistent with their hypothesis, that toddler inhibition was associated with fewer empathic responses. Further, van der Mark and colleagues (2002) conducted a study in which they observed the relations among inhibition, temperament, and attachment in girls who were not yet 2. Home and laboratory visits were conducted when girls were 16 and 22 months-old. Simulations of pain and sadness were used during each visit, and behaviors were coded for empathic concern, prosocial behavior, and a global rating of empathy. Temperament and attachment were measured by observing and coding behaviors expressed during an adapted version of Kochanska’s (1995) risky events task and the Strange Situation, respectively. These researchers found that a high level of behavioral inhibition at 16 months predicted less empathy in response to a stranger’s distress at 22 months.

Whether or not temperament has a direct link to empathy, it may determine whether the typical influence of specific parenting on empathy development occurs. Kochanska (1997) suggested temperament may influence the development of conscience, which is correlated with empathy and prosocial behaviors, directly, but it may also moderate a child’s socialization experiences. The moderation of the relation between specific parenting behaviors and empathy development by temperament has not been frequently tested previously, however, related research supports this investigation (Kochanska, 1997). Previous research has shown that specific maternal behaviors predicted conscience development, of which empathy is included, but only for inhibited children (Kochanska, 1991). In another study, Kochanska (1997) found that the effect of aspects of socialization, including maternal discipline and the amount of mutual positivity in the mother-child relationship, on conscience development were moderated by an inhibited temperament, such that parenting behaviors impacted children of different temperaments in varied ways. Hastings and colleagues (2005) supported this assertion by finding that inhibition was not directly related to prosocial behaviors (a behavioral indicator of empathy), however, it did moderate the relation between maternal parenting practices and a child’s empathic behaviors. Therefore, although there seems to be a main effect of inhibited temperament on the development of empathy, it may also be possible that temperament works in a more indirect way by determining the types of parenting children experience and whether children experience typical developmental progressions of empathy development.

**Present Study**

Given that previous literature has established relations among parenting behaviors, attachment, temperament, and empathy but has not tested a comprehensive developmental model, this study aimed to test how interactions among constructs ultimately predict empathy
development. In the current study, maternal warmth/involvement and reasoning/induction were expected to predict higher levels of empathy. Conversely, lower scores of empathy were expected to be predicted by maternal overprotective and critical control behaviors. It was also expected that children with a secure attachment and lower levels of inhibited temperament would show higher scores of empathy in response to positive parenting. This study also aimed to test the moderation of the relation between parenting and empathy by both attachment security and inhibited temperament. It was anticipated that insecure attachment and inhibited temperament would attenuate the effects of warmth and reasoning on empathy and intensify the relations between overprotective and control behaviors and (decreased) empathy development.

**Method**

**Participants**

Participants included 89 18-20-month old children (42 female) and their mothers. Mothers, due to the likelihood that they would be the primary caregiver of the child, were recruited by mail through local birth announcements ($n=77$) and in person at Women, Infants, and Children program meetings ($n=12$). Mothers and toddlers were 86.5% European American, 3.4% African American, 1.1% Hispanic, 6.7% Asian American, 1.1% American Indian, and 1.2% biracial. The Hollingshead’s four factor index (Hollingshead, 1975) was used to measure socioeconomic status (SES). This index, which includes weighted scaled scores of the occupation and educational attainment of the mother and father, can result in a score ranging from 8 to 66 with higher scores reflecting higher SES. The range of SES was represented in the sample, however, most families were middle class (scores between 20 and 54). Families received compensation ($10) for their participation, and children received a small gift. Of the initial 89 participants, 84.4% and 78.8% returned for the second laboratory visit or completed the Time 2 questionnaire, respectively, and 61.1% of the original 89 (72.4% of those who completed Time 2) completed the Time 3 questionnaire.

**Procedure**

The current study used data from laboratory visits when children were ages 1 1/2 (Time 1) and 2 years (Time 2) and questionnaire completion by the mother when her child was 2 (Time 2) and 3-years old (Time 3). At each assessment, after showing interest in participating, mothers were mailed a consent form and a packet of questionnaires, which were either brought to the laboratory visit (Time 2) or mailed to the laboratory (Time 3).

During the Time 1 laboratory visit, the mother and child participated in the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978). The Strange Situation consists of eight episodes that are approximately 3 minutes long each. Over the course of the episodes, the child was either in a room with the mother, the mother and a female stranger, the female stranger, or in the room alone. Two mother-child reunions also occur after brief separations from the mother over the course of the task, and these reunions were coded to classify attachment style.

For the Time 2 laboratory visit, a Risk Room and other standardized episodes were included; however, only the Risk Room is relevant for the current study, as it provides an assessment of inhibited temperament. During the Risk Room (Buss & Goldsmith, 2000), the mother stayed in the room but was asked to limit her interactions with her child as he or she engaged in free play with a tunnel, trampoline, balance beam, large black box with a face and open mouth, and a gorilla mask for 3 minutes. After the 3 minutes, the experimenter entered the room and prompted the child to interact with each item. This episode was recorded for subsequent coding of inhibited temperament.
At Time 3, when children were approximately 3-years-old, mothers were asked to participate in a follow-up assessment. After showing interest in participation, mothers were mailed a consent form, questionnaire packet, and a stamped, addressed envelope in which to return their materials. The outcome variable of empathy comes from this battery of questionnaires, which were also given at Time 2 so that change could be assessed.

**Measures**

**Attachment (Time 1).** According to guidelines for the Strange Situation Procedure (Ainsworth et al., 1978), coders scored infants for proximity seeking, contact maintenance, contact resistance, and proximity avoidance in relation to their mothers during the two mother-child reunions, each on 1 (none) to 7 (extreme) scales. Based on the values and patterns of these scores across the two reunions, the coder classified the dyad as secure, insecure-avoidant, or insecure-resistant. In general, secure children tend to show any range of proximity seeking and contact maintaining behaviors with little resistance or avoidance. In contrast, avoidant children tend to show many avoidant behaviors, but few proximity seeking, contact maintaining, or resistant behaviors. Resistant children tend to show high proximity seeking, contact maintenance, and resistance, but few avoidant behaviors. However, for this study, avoidant and resistant were collapsed to compare children with secure versus insecure attachment. This variable was dummy coded with secure = 1 and insecure = 0. Prior to scoring, the master coder achieved reliability (% agreement > .80) with trainers at the University of Minnesota. Additional coders received extensive training from the master coder and achieved adequate reliability (κ > .80) prior to coding independently. The master coder double-scored approximately 10% of the attachment visits, which yielded good reliability for attachment classifications (κ = .80).

**Parenting Behaviors (Time 2).** Warmth/involvement and reasoning/induction were assessed with the Parenting Practices Questionnaire (PPQ; Robinson, Mandleco, Olsen, & Hart, 1995). This measure includes 62 items assessing behaviors characteristic of authoritative, authoritarian, and permissive parenting styles, however, only the subscales assessing warmth/involvement and reasoning/induction were included in the present study. Both subscales fall under the larger authoritative parenting domain and were hypothesized to be particularly relevant to the development of empathy. The warmth/involvement subscale is made up of 11 items (α = .66; e.g., “Show sympathy when child is hurt or frustrated”), and the reasoning/induction subscale is made up of seven items (α = .87; e.g., “Talks it over and reasons with child when the child misbehaves”). All items were rated on a 5-point Likert scale (1=never, 5=always). This measure has been found to be reliable and most studies report high internal consistency for the authoritarian and authoritative scales. Research has supported the content, concurrent, and predictive validity of this measure (Olivari, Tagliabue, & Confalonieri, 2013; Robinson et al., 1995).

Overprotective parenting and critical control behaviors were assessed with the New Friends Vignettes (NFV; McShane & Hastings, 2009). This measure includes two vignettes in which the mother is asked to imagine her child in a social situation in which the child displays shyness and then asked how she would respond to her child or another individual in these situations. The NFV includes 36 items, however, only the items used to assess overprotective behaviors (12 items, α = .80; e.g., “We’ll just watch for now”) and critical control (12 items, α = .76; e.g., “She’s just being a silly girl”) will be used for the current study. Items were rated on a 3-point scale (0 = No, 1 = Maybe, 2 = Yes), with higher scores indicating greater likelihood of responding with the behavior. Research has shown the overprotective and critical control scales
have good internal consistency and test-test reliability as well as modest convergent validity with other measures and observations of parenting (McShane & Hastings, 2009).

**Inhibited Temperament (Time 2).** Inhibited temperament was assessed by creating a composite of behaviors observed during the Risk Room episode, which comes from the toddler version of the Laboratory Temperament Assessment Battery (Lab-TAB; Buss & Goldsmith, 2000). Latency to touch the first toy, attempt to be held by the mother, approach toward caregiver, tentativeness of play, and compliance to the experimenter were all included in the composite score. The number of seconds between the start of the episode and the toddler’s first intentional touch of a toy was used to assess latency to touch. Attempt to be held, approach toward caregiver, and tentativeness were scored on 0 (none) to 3 (strong display) scales for each 10-second epoch of the episode. A mean of scores across epochs was computed to create a final score for each of these three behaviors. Compliance to the experimenter was simply the count (0 to 5) of the number of objects with which the child interacted after being prompted by the experimenter. These behaviors were moderately correlated with one another ($r$s = .25 to .71, all $p$s < .05), and principal components analysis indicated that they loaded on one component explaining 65% of the variance among them (component loadings > .65). Thus, they were standardized (after compliance to experimenter was reversed) and averaged to create the inhibited temperament variable.

**Empathy (Time 2 and Time 3).** Mothers completed the Infant-Toddler Social and Emotional Assessment (ITSEA; Briggs-Gowan & Carter, 2001). This measure has been found to be a reliable and valid measure for the emotional and social assessment of children between the ages of 12 and 36 months (Briggs-Gowan & Carter, 2001). Specifically, the ITSEA has been found to have good test-retest reliability and inter-rater agreement as well as adequate criterion and construct validity (Briggs-Gowan & Carter, 2001). For this study, only the Empathy subscale was included. The seven items assessing empathy (e.g., “Is worried or upset when someone is hurt”) were rated with a 3-point Likert scale (0=not true/rarely, 1=somewhat true/sometimes, 2=very true/often). The mean of the seven items was computed to create a final score ($\alpha = .76$ and .79 at ages 2 and 3, respectively).

**Results**

**Preliminary Analyses**

Descriptive statistics for variables studied can be viewed in Table 1. All continuous variables adhered to a normal distribution (skew < |2.00|) and transformation of variables was not needed. Of note, there were more children classified as securely attached with 64% ($n = 57$) being classified as secure and 36% ($n = 32$) being classified as insecure. Differences were found in maternal reasoning and overprotection between children with a secure and insecure attachment. Mothers of children with an insecure attachment ($M = -0.19$, $SD = 0.58$) had lower scores of reasoning than those with a secure attachment ($M = 0.10$, $SD = 0.66$; $t[87] = -2.072$, $p = .041$; $d = 0.47$). Children with an insecure attachment ($M = 0.11$, $SD = 0.31$) also had mothers who reported more overprotective behaviors than children with a secure attachment ($M = -0.06$, $SD = 0.30$; $t[87] = -2.665$, $p = .009$; $d = 0.59$). Bivariate correlations between variables are presented in Table 2. Maternal warmth and reasoning were positively correlated with child empathy at ages 2 and 3. Maternal overprotection and critical control, however, were not significantly correlated with child empathy at either age. Finally, inhibited temperament was not related to empathy at age 2; however, it was negatively correlated with empathy at age 3. Correlations were further examined to determine whether covariates should be included in the moderation analyses. Given previous literature suggesting an influence of socioeconomic status
and child gender on empathy development, these variables were examined in relation to the primary variables. Socioeconomic status was significantly related to overprotection and critical control ($r[86] = .27$ and $- .28$, both $p < .01$, respectively) and so was included as a covariate in analyses involving these specific parenting behaviors. Child gender was not significantly related to any primary variable and was not included as a covariate.

**Missing Data.** Several participants were missing data for the PPQ warmth and reasoning subscales ($n = 23; 25.8\%$), NFV overprotection and critical control subscales ($n = 21; 23.6\%$), and ITSEA empathy subscale at times 2 ($n = 20; 22.5\%$) and 3 ($n = 36; 40.4\%$). Additionally, some participants were also missing observational data for inhibited temperament ($n = 15; 16.9\%$). The observed pattern of missingness differed significantly from the Missing Completely at Random pattern (Little’s MCAR test: $\chi^2[30] = 55.44, p < .01$). Although participants who completed, compared to those who did not complete, portions of the Time 2 and Time 3 assessments did not differ on any primary variables, they differed on SES, with participants missing data reporting lower SES than those without ($t[18.50] = -4.23, p < .01$). As a result, SES was included in the imputation algorithm, along with warmth, reasoning, overprotection, critical control, empathy, and temperament. In line with current guidelines (Graham, 2009), multiple imputation (20 imputations) was used to impute missing data. In order to probe moderations in a consistent fashion, imputations were averaged across data sets instead of using a pooled estimate weighted by standard errors.

**Moderation Analyses**

The current study proposed four models in which child empathy would be predicted by specific parenting behaviors, including warmth, reasoning, overprotection, and critical control, respectively. Attachment security and inhibited temperament were included as main effects, and as moderators between parenting behaviors and child empathy. The conceptual model is presented in Figure 1. Prior to analyses, all parenting variables and inhibited temperament were centered at their means. Interaction terms were computed as cross-products between the parenting variable and either attachment or inhibited temperament. Thus, regression models included SES if applicable; the parenting variable; attachment security; inhibited temperament; the two-way interactions among the parenting variable, attachment, and inhibited temperament; and the three-way interaction among the parenting variable, attachment, and inhibited temperament. To probe significant interactions, security was recoded with secure = 0 and insecure = 1, and inhibited temperament was recentered at ± 1 SD in order to examine effects of parenting at different levels of inhibited temperament. If appropriate (i.e., if a significant moderation occurred with the continuous moderator of inhibited temperament), the region of significance was computed. Non-significant interactions were removed, and the model was re-run to assess lower-order effects.

**Moderation of the relation between warmth and empathy.** In the initial model ($R^2 = 0.57, F[9, 78] = 11.45, p < .001$), the three-way interaction of warmth, attachment security, and temperament was not significant in relation to child empathy ($\beta = 0.392, t = 1.56, p = .122$). After the three-way interaction was dropped and the model was re-run, two-way interactions in relation to empathy were then examined (Table 3). Only the interaction between warmth and temperament was significant (Table 3, Figure 2). Probing revealed that warmth was significantly related to empathy for children with low levels of inhibited temperament ($\beta = 0.396, t = 2.44, p = .017$), but not those with mean ($\beta = 0.117, t = 0.78, p = .438$) or high levels ($\beta = -0.162, t = -0.87, p = .385$) of inhibited temperament. After probing across different levels of inhibited temperament, the region of significance of the moderation was determined. Warmth shifted to a
significant positive simple slope as it decreased beyond 0.68 SD below the mean of inhibited temperament. Warmth also became significant at 2.41 SD above the mean, indicating that higher levels of warmth predicted lower empathy scores for children with an inhibited temperament at this value; however, only two children scored in this range, so this result should be interpreted with great caution. Results suggest that maternal warmth helps to facilitate empathy development only in children with low inhibited temperament. High or mean levels of inhibited temperament may, therefore, dampen the effects of warmth on empathy development.

**Moderation of the relation between reasoning and empathy.** In the initial model ($R^2 = 0.52$, $F[9, 78] = 9.42, p < .001$), the three-way interaction of reasoning, attachment security, and temperament was also not significant in relation to child empathy ($\beta = -0.067, t = -0.36, p = .720$). The three-way interaction was dropped from the model and the two-way interactions in relation to empathy were then tested. The interaction between reasoning and temperament was the only significant interaction (Table 4, Figure 2). Probing revealed that reasoning was significantly related to empathy for children with low levels of inhibited temperament ($\beta = 0.212, t = 2.22, p = .029$), but not those with mean ($\beta = 0.079, t = 0.88, p = .381$) or high levels ($\beta = -0.055, t = -0.45, p = .651$) of inhibited temperament. Reasoning shifted to a significant positive simple slope as it decreased beyond 0.76 SD below the mean of inhibited temperament. These results suggest that maternal reasoning aids in the facilitation of empathy development only in children with low inhibited temperament. Therefore, high or mean levels of inhibited temperament may attenuate the effects of reasoning on empathy development.

**Moderation of the relation between overprotection and empathy.** In the initial model ($R^2 = 0.46$, $F[9, 78] = 7.41, p < .001$), the three-way interaction of overprotection, attachment security, and temperament in relation to empathy was not significant ($\beta = -0.451, t = -0.99, p = .324$). The three-way interaction was dropped from the model and two-way interactions were then examined, however, these were also not significant. Further, none of the main effects were significant after the two-way interaction was dropped (Table 5). Overprotection, therefore, was not related to toddler empathy development on its own or in interaction with other variables.

**Moderation of the relation between critical control and empathy.** In the initial model ($R^2 = 0.45$, $F[9, 78] = 7.05, p < .001$), the three-way interaction of critical control, attachment security, and temperament in relation to empathy was not significant ($\beta = -0.268, t = -0.80, p = .425$). The three-way interaction was dropped from the model and two-way interactions were examined, however, none of these were significant. There were also no significant main effects after the two-way interactions were dropped (Table 6). Critical control was not related to toddler empathy development on its own or in interaction with other variables.

**Discussion**

The current study was conducted in order to determine the influence of specific parenting behaviors, attachment security, and child inhibited temperament on child empathy development. Given that relations have been found between each of these variables and empathy, but have not been studied simultaneously, a developmental model was created in order to test how these variables work together to predict child empathy. Higher scores of empathy were predicted to be related to adaptive parenting practices, including warmth and reasoning, and lower scores of empathy were predicted to be related to maladaptive parenting practices, including overprotection and critical control. Further, these relations were expected to be moderated by both attachment security and a child’s inhibited temperament, such that the effects of positive parenting on empathy were expected to be attenuated for children with an insecure attachment and high levels of inhibited temperament. Insecure attachment and inhibited temperament were
also expected to intensify the negative effects of overprotection and critical control on empathy development.

Although the proposed three-way interactions and two-way interactions including attachment were not significant for any of the four models, interesting two-way interactions between parenting behaviors and inhibited temperament in relation to empathy were found. The interaction between maternal warmth and inhibited temperament was significant, with warmth predicting higher levels of empathy only at low levels of inhibited temperament. Given that maternal warmth is thought to provide an empathic model for a child as well as encourage their positive behavior, the finding that warmth was important for encouraging empathy development is congruent with previous literature (Robinson et al., 1994; Zahn-Waxler & Radke-Yarrow, 1990). The finding that this was only significant for children with low levels of inhibited temperament is also consistent with past literature that suggests warmth may not be sufficient to encourage empathy development in all children (Eisenberg et al., 1992). Empathy toward a stranger was not directly examined in the current study, however, children with an inhibited temperament have been found to show less empathy toward strangers than children without an inhibited temperament (van der Mark et al., 2002; Young et al., 1999). Given that the ITSEA asks mothers about empathic behaviors they witness their child expressing, the results of this study could be argued to be consistent with past literature. Because maternal warmth was only significantly related to empathy for children with lower levels of inhibited temperament, future research should attempt to find parental behaviors that could encourage empathy development in inhibited children or other ways that the development of their empathy could be promoted.

A similar interaction was also found with maternal reasoning, with reasoning predicting higher levels of empathy at low, but not mean or high, levels of inhibited temperament. While reasoning/induction has not been as frequently studied as warmth in relation to empathy, this finding is consistent with previous research that suggests parents’ use of reasoning and providing explanations serve to encourage empathy in their children (Zahn-Waxler & Radke-Yarrow, 1990). Induction has been thought of as being used to inhibit aggressive behaviors, which rarely exist in conjunction with empathic behaviors, and has also been shown to encourage empathy through a more indirect way (Koestner et al., 1990). This finding from the current study is able to add to the body of literature as few, if any, studies have included child temperament in their examination of the relation between reasoning and empathy.

Overprotection and critical control were not related to empathy directly or when in relation to attachment or temperament. Although these behaviors are relevant for the development of anxiety in children (Hastings, Rubin, & DeRose, 2005; Laurin et al., 2015; McShane & Hastings, 2009) and have been shown to be negatively related to empathy development in past research (Robinson et al., 1994; Yoo et al., 2013), this was not found in the current study. It may be possible that overprotection and critical control are relevant to anxiety development, but not what is shared between risk for anxiety and risk for deficits in empathy. Taken as a whole, the results of the current study suggest that positive parenting promotes positive outcomes, in terms of empathy development, for children who are not inhibited and, what may be viewed as maladaptive parenting does not necessarily hinder positive empathy development.

Although previous researchers have found a significant relation between attachment security and child empathy (Kestenbaum et al., 1989; Panfile & Laible, 2012; van der Mark et al., 2002), that hypothesis was not supported in the current study. A secure attachment is characterized by a child feeling able to explore the environment and also trusting that a caregiver
will be there during times of distress. Caregivers in secure relationships tend to provide more sensitive response to their child’s distress than those in insecure relationships and, as a result, secure children likely have more exposure to modeling of empathic behaviors from their caregivers than insecure children (van der Mark et al., 2002). Further, as a result of secure children typically having more developed emotion regulation skills, they may also feel less overwhelmed by another person’s distress (Panfile & Labile, 2012). Taken as a whole, secure children would be expected to be less overwhelmed by another’s distress, more comfortable in exploring their environment, and have more models of empathic behavior to draw from than insecure children. Given that this relation was not found in the current study, which only included children with a secure or insecure (avoidant and resistant types) attachment, it may be possible that empathy development could be disrupted for children who have a disorganized attachment. Children with a disorganized attachment style tend to show conflicted behaviors when reunited with their caregiver, including a lack of strategy for obtaining or avoiding proximity, apprehension toward their caregiver, freezing, or stereotyped movements (Shamir-Essakow, Ungerer, & Rapee, 2005). Children with a disorganized attachment, especially boys, are also at a heightened risk for internalizing and externalizing disorders, especially when behavioral inhibition is also present (Lewis-Morrarty et al., 2015). Therefore, children with a disorganized attachment may be at a heightened risk for disruptions in empathy development compared to children with an avoidant, resistant, or secure attachment. Interestingly, van der Mark and colleagues (2002) found that attachment security was related to more displays of empathy for a stranger, but not for a child’s caregiver, in children who did not show high levels of behavioral inhibition. The current study only included maternal report of child empathy and significant interactions including attachment security may have been evident if observational data with a stranger had been included. Bowlby’s theory states that past experiences and current conditions work together to influence development and behavior (Kestenbaum et al., 1989). Although somewhat unlikely in the course of a year, if a child’s current conditions had changed significantly, an earlier attachment pattern may not predict empathic behaviors. It may also be possible that, if parenting during toddlerhood develops out of the same processes as attachment did originally, empathy in toddlerhood would be influenced more by parenting than attachment. Finally, it may be possible that parenting behaviors are related to empathy for both secure and insecure children. In other words, attachment may not nullify the relation between parenting behaviors and empathy, but temperament is what modifies the relation.

The clinical implications of these findings are also important to consider. Given that deficits in empathy appear to be most likely in children with an inhibited temperament, who are also at a heightened risk for developing anxiety, it is important to consider both how to intervene and encourage empathy development as well as how this may further impact difficulties with peers and in social situations. Children with anxiety may have difficulty developing and maintaining peer-relationships, when compared to children without anxiety, and deficits in empathy expression may further impact these relationships. Empathic children have been found to be more socially capable, to have more advanced social understanding, and to have fewer social difficulties when compared with children who are less empathic, including inhibited children and aggressive children (Findlay et al., 2006). Results of the current study suggest that even with supportive parenting, deficits in empathy become worse for children with an inhibited temperament. The question then becomes how to encourage empathy development in children with an inhibited temperament. Since parenting behaviors, at least the behaviors studied, do not seem to be attenuating the effects of an inhibited temperament, interventions targeted at reducing
reactivity to overwhelming stimuli or providing skills to regulate emotions could be helpful in encouraging the development of empathy in inhibited children. Although current results suggest that behaviors associated with risk for anxiety influence empathy development, this relation could be bidirectional. Given that children who are more empathic often show more advanced social understanding, empathy training could be useful for children with anxiety, especially social anxiety, in helping them develop more accurate perceptions of social situations.

Multiple limitations were evident in the current study and should be considered when interpreting results. The sample included in the study primarily included middle class, European American participants. The function of parenting behaviors has been found to differ in different populations (Belsky & Jaffee, 2006), therefore, generalizations to other populations should be made with caution, and future research should examine these relations in other cultures. Although observation of some variables, including attachment and temperament, were examined, parenting behaviors and child empathy were all assessed through maternal report. Future research could benefit from both maternal report and observation of parenting behaviors and empathy. Further, fathers, other caregivers, and, potentially, siblings would be expected to contribute to the development of empathy and their report or contribution should be studied in future research as well. Finally, deficits in empathy are believed to result from either a performance deficit or a competence deficit. Previous literature suggests children with an inhibited temperament, while competent in the understanding of another’s distress, have a performance deficit. In other words, these children are understanding another’s distress, are too overwhelmed to respond, and appear as though they are not empathic (Findlay et al., 2006). The current study used maternal report of a broad conceptualization of empathy that did not separate these two components and future research should consider examining both in order to understand this further.

In this study, parenting behaviors were examined in relation to attachment security and child inhibited temperament in order to further understand how empathy develops in toddlers. Although each of these variables have been previously studied in relation to empathy, they have not been examined within the same model. The relation between attachment security and empathy, which has been documented in previous research (Panfile & Laible, 2012; van der Mark et al., 2002), was not supported. Parenting behaviors that are relevant for anxiety, including overprotection and critical control, were not relevant for the development of empathy in toddlers. Warmth and reasoning were related to empathy, but only for children with low levels of inhibited temperament. These results suggest that, even in the presence of warm and supportive parenting, children with an inhibited temperament may show deficits in empathy. Results also suggest that, in terms of empathy, positive parenting aids in producing positive outcomes for children low levels of inhibited temperament, however, maladaptive parenting behaviors do not obstruct empathy development in children, regardless of temperament.
References


Table 1

Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warmth/Involvement</td>
<td>4.50</td>
<td>0.36</td>
<td>3.40—5.00</td>
</tr>
<tr>
<td>Reasoning/Induction</td>
<td>3.87</td>
<td>0.65</td>
<td>1.43—5.00</td>
</tr>
<tr>
<td>Overprotection</td>
<td>1.06</td>
<td>0.31</td>
<td>0.33—1.83</td>
</tr>
<tr>
<td>Critical Control</td>
<td>0.28</td>
<td>0.23</td>
<td>0.00—1.17</td>
</tr>
<tr>
<td>Inhibited Temperament</td>
<td>-0.00</td>
<td>0.74</td>
<td>-1.02—2.74</td>
</tr>
<tr>
<td>Age 2 Empathy</td>
<td>1.26</td>
<td>0.39</td>
<td>0.33—2.00</td>
</tr>
<tr>
<td>Age 3 Empathy</td>
<td>1.40</td>
<td>0.37</td>
<td>0.43—2.00</td>
</tr>
</tbody>
</table>

Note. Warmth/involvement and reasoning/induction were rated on a 5-point Likert scale. Overprotection and critical control were rated on a 3-point scale. Inhibited temperament was the mean of five standardized variables. Empathy was rated on a 3-point scale.
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Warmth/Involvement</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Reasoning/Induction</td>
<td>.60**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Overprotection</td>
<td>-.01</td>
<td>.19</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Critical Control</td>
<td>-.26*</td>
<td>.04</td>
<td>.30**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Attachment</td>
<td>.04</td>
<td>.22*</td>
<td>-.28**</td>
<td>-.16</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Inhibited Temperament</td>
<td>-.01</td>
<td>.03</td>
<td>.19</td>
<td>.11</td>
<td>-.13</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Age 2 Empathy</td>
<td>.29**</td>
<td>.38**</td>
<td>.11</td>
<td>-.15</td>
<td>.07</td>
<td>-.10</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>8. Age 3 Empathy</td>
<td>.38**</td>
<td>.39**</td>
<td>.09</td>
<td>-.17</td>
<td>.05</td>
<td>-.39**</td>
<td>.56**</td>
<td>—</td>
</tr>
</tbody>
</table>

* *p<.05. **p<.01.
Table 3

**Moderation Analyses Predicting Child Empathy from Maternal Warmth, Attachment Security, and Inhibited Temperament**

<table>
<thead>
<tr>
<th>Variable</th>
<th>b (SE)</th>
<th>β</th>
<th>t-test</th>
<th>95% CI</th>
<th>sr²</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES</td>
<td>0.00 (0.00)</td>
<td>0.07</td>
<td>0.85</td>
<td>-0.00, 0.01</td>
<td>.004</td>
</tr>
<tr>
<td>Age 2 Empathy</td>
<td>0.46 (0.08)</td>
<td>0.49</td>
<td>6.08***</td>
<td>0.31, 0.61</td>
<td>.208</td>
</tr>
<tr>
<td>Warmth (W)</td>
<td>0.12 (0.15)</td>
<td>0.12</td>
<td>0.78</td>
<td>-0.18, 0.42</td>
<td>.003</td>
</tr>
<tr>
<td>Attachment Security (AS)</td>
<td>-0.07 (0.06)</td>
<td>-0.09</td>
<td>-1.20</td>
<td>-0.19, 0.05</td>
<td>.008</td>
</tr>
<tr>
<td>Inhibited Temperament (IT)</td>
<td>-0.16 (0.06)</td>
<td>-0.32</td>
<td>-2.86**</td>
<td>-0.27, -0.05</td>
<td>.046</td>
</tr>
<tr>
<td>AS x IT</td>
<td>0.01 (0.08)</td>
<td>0.01</td>
<td>0.13</td>
<td>-0.15, 0.17</td>
<td>.000</td>
</tr>
<tr>
<td>W x AS</td>
<td>0.13 (0.17)</td>
<td>0.11</td>
<td>0.75</td>
<td>-0.21, 0.47</td>
<td>.003</td>
</tr>
<tr>
<td>W x IT</td>
<td>-0.38 (0.12)</td>
<td>-0.26</td>
<td>-3.16**</td>
<td>-0.62, -0.14</td>
<td>.056</td>
</tr>
</tbody>
</table>

*Note.* The overall model was significant ($R^2 = 0.56, F[8, 79] = 12.35, p < .001$).

*p < .05, **p < .01, ***p < .001.*
Table 4
Moderation Analyses Predicting Child Empathy from Maternal Reasoning, Attachment Security, and Inhibited Temperament

<table>
<thead>
<tr>
<th>Variable</th>
<th>b (SE)</th>
<th>β</th>
<th>t-test</th>
<th>95% CI</th>
<th>sr²</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES</td>
<td>0.00 (0.00)</td>
<td>0.10</td>
<td>1.23</td>
<td>-0.00, 0.01</td>
<td>.009</td>
</tr>
<tr>
<td>Age 2 Empathy</td>
<td>0.42 (0.08)</td>
<td>0.44</td>
<td>5.14***</td>
<td>0.26, 0.59</td>
<td>.161</td>
</tr>
<tr>
<td>Reasoning (R)</td>
<td>0.08 (0.09)</td>
<td>0.14</td>
<td>0.88</td>
<td>-0.10, 0.26</td>
<td>.005</td>
</tr>
<tr>
<td>Attachment Security (AS)</td>
<td>-0.06 (0.06)</td>
<td>-0.08</td>
<td>-0.98</td>
<td>-0.19, 0.06</td>
<td>.006</td>
</tr>
<tr>
<td>Inhibited Temperament (IT)</td>
<td>-0.22 (0.05)</td>
<td>-0.43</td>
<td>-3.97***</td>
<td>-0.32, -0.11</td>
<td>.096</td>
</tr>
<tr>
<td>AS x IT</td>
<td>0.06 (0.08)</td>
<td>0.08</td>
<td>0.76</td>
<td>-0.10, 0.22</td>
<td>.003</td>
</tr>
<tr>
<td>R x AS</td>
<td>0.03 (0.10)</td>
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<td>0.34</td>
<td>-0.16, 0.23</td>
<td>.001</td>
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<tr>
<td>R x IT</td>
<td>-0.18 (0.08)</td>
<td>-0.19</td>
<td>-2.25*</td>
<td>-0.35, -0.01</td>
<td>.028</td>
</tr>
</tbody>
</table>

Note. The overall model was significant ($R^2 = 0.52, F[8, 79] = 10.79, p < .001$).
*p < .05, **p < .01, ***p < .001.
Table 5
Moderation Analyses Predicting Child Empathy from Maternal Overprotection, Attachment Security, and Inhibited Temperament

<table>
<thead>
<tr>
<th>Variable</th>
<th>b (SE)</th>
<th>β</th>
<th>t-test</th>
<th>95% CI</th>
<th>sr²</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES</td>
<td>0.00 (0.00)</td>
<td>0.01</td>
<td>0.11</td>
<td>-0.01, 0.01</td>
<td>.000</td>
</tr>
<tr>
<td>Age 2 Empathy</td>
<td>0.49 (0.08)</td>
<td>0.51</td>
<td>5.98***</td>
<td>0.32, 0.65</td>
<td>.247</td>
</tr>
<tr>
<td>Overprotection (O)</td>
<td>0.31 (0.18)</td>
<td>0.26</td>
<td>1.72</td>
<td>-0.05, 0.66</td>
<td>.020</td>
</tr>
<tr>
<td>Attachment Security (AS)</td>
<td>0.01 (0.07)</td>
<td>0.01</td>
<td>0.10</td>
<td>-0.13, 0.15</td>
<td>.000</td>
</tr>
<tr>
<td>Inhibited Temperament (IT)</td>
<td>-0.21 (0.06)</td>
<td>-0.41</td>
<td>-3.21**</td>
<td>-0.33, -0.08</td>
<td>.071</td>
</tr>
<tr>
<td>AS x IT</td>
<td>0.06 (0.09)</td>
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<td>0.61</td>
<td>-0.13, 0.24</td>
<td>.003</td>
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<tr>
<td>O x AS</td>
<td>-0.30 (0.22)</td>
<td>-0.20</td>
<td>-1.38</td>
<td>-0.74, 0.13</td>
<td>.013</td>
</tr>
<tr>
<td>O x IT</td>
<td>0.06 (0.17)</td>
<td>0.03</td>
<td>0.33</td>
<td>-0.29, 0.40</td>
<td>.001</td>
</tr>
</tbody>
</table>

Note. The overall model was significant ($R^2 = 0.45$, $F[8, 79] = 8.22$, $p < .001$).

* $p < .05$, ** $p < .01$, *** $p < .001$. 
Table 6
Moderation Analyses Predicting Child Empathy from Maternal Critical Control, Attachment Security, and Inhibited Temperament

<table>
<thead>
<tr>
<th>Variable</th>
<th>b (SE)</th>
<th>β</th>
<th>t-test</th>
<th>95% CI</th>
<th>sr²</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES</td>
<td>0.00 (0.00)</td>
<td>0.01</td>
<td>0.14</td>
<td>0.43, 1.13</td>
<td>.000</td>
</tr>
<tr>
<td>Age 2 Empathy</td>
<td>0.50 (0.08)</td>
<td>0.52</td>
<td>6.03***</td>
<td>-0.01, 0.01</td>
<td>.256</td>
</tr>
<tr>
<td>Critical Control (CC)</td>
<td>-0.13 (0.21)</td>
<td>-0.08</td>
<td>-0.60</td>
<td>-0.55, 0.29</td>
<td>.003</td>
</tr>
<tr>
<td>Attachment Security (AS)</td>
<td>-0.04 (0.07)</td>
<td>-0.05</td>
<td>-0.55</td>
<td>-0.17, 0.10</td>
<td>.002</td>
</tr>
<tr>
<td>Inhibited Temperament (IT)</td>
<td>-0.19 (0.06)</td>
<td>-0.38</td>
<td>-3.26**</td>
<td>-0.30, -0.07</td>
<td>.075</td>
</tr>
<tr>
<td>AS x IT</td>
<td>0.05 (0.09)</td>
<td>0.07</td>
<td>0.63</td>
<td>-0.18, 0.23</td>
<td>.003</td>
</tr>
<tr>
<td>CC x AS</td>
<td>0.02 (0.28)</td>
<td>0.01</td>
<td>0.08</td>
<td>-0.54, 0.59</td>
<td>.000</td>
</tr>
<tr>
<td>CC x IT</td>
<td>0.17 (0.17)</td>
<td>0.09</td>
<td>1.04</td>
<td>-0.16, 0.50</td>
<td>.008</td>
</tr>
</tbody>
</table>

*Note. The overall model was significant ($R^2 = 0.44, F[8, 79] = 7.89, p < .001$).

*p < .05, **p < .01, ***p < .001.
Figure 1. Conceptual model of how attachment security and inhibited temperament may moderate the development from specific parenting behaviors to child empathy. Parenting behaviors included warmth, reasoning, overprotection, and critical control. Each of these behaviors were tested in separate models.
Figure 2. Two-way interaction among parenting behaviors and inhibited temperament in relation to child empathy. Panel a denotes the interaction between warmth and inhibited temperament. Panel b denotes the interaction between reasoning and inhibited temperament. *p < .05, **p < .01.