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The Influence of Parenting and Temperament on Empathy Development in Toddlers

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Abstract

Empathy is a critical ability in developing relationships, and deficits in empathy have been associated with various maladaptive social outcomes. Although specific parenting styles and behaviors (including warmth and reasoning) are expected to be related to the development of child empathy, these may function differently for children with an inhibited temperament. Children with an inhibited temperament, who are 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. Dyads participated at time points approximately 1 year apart when toddlers were 24- and 36-months old. Moderating effects were found for parental warmth and reasoning, and authoritative parenting broadly. Maternal warmth was related to higher levels of empathy only for children with low levels of inhibited temperament. Maternal reasoning was related to lower levels of empathy for children with high levels of inhibited temperament. Thus, for children with low levels of inhibited temperament, warmth predicts higher empathy, and for children with high levels of inhibited temperament, reasoning predicts lower empathy. These findings are discussed within a goodness of fit framework, suggesting that children's positive outcomes depend on the match between parenting behavior and temperament.

Keywords

empathy; parenting; inhibited temperament

Empathy, although the subject of different definitions, is commonly agreed upon as an emotional state that is prompted by and similar to another individual's emotion and includes the ways in which an individual is able to understand and share the feelings or experiences of another individual (Tone & Tully, 2014; Zahn-Waxler & Radke-Yarrow, 1990). Of note, positive empathy (e.g., sharing a positive emotion expressed by another individual; Morrison et al., 2016) has been a focus of some research, but past research has generally focused on negative empathy (e.g., sharing a negative emotion; Morrison et al., 2016). As a result, and because disruptions in negative empathy are expected to be more maladaptive, the current

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study focused on negative empathy (hereafter referred to as empathy). This ability has both affective and cognitive components (i.e., empathic concern and perspective taking, respectively) and is characterized by a response that shows concern for and a desire to assuage another individual's distress. Empathy is critical for developing and maintaining relationships with others and is also a precursor of prosocial and moral behavior (Young, Fox, & Zahn-Waxler, 1999).

Disruptions in empathy have been related to psychopathology, both on externalizing and internalizing spectrums (Findlay, Girardi, & Coplan, 2006; Young et al., 1999). Given the influence of empathy on multiple important outcomes, it is critical to understand the factors that may influence its development. Early theory of empathy development (Hoffman, 1970; Hoffman, 1983; Maccoby & Martin, 1983) suggested parental socialization was key to the adaptive development of empathy, and later theory built upon this by also considering the influence of temperament in relation to empathy development (Kochanska, 1997). This theory also suggested that a child's level of fearfulness, or inhibited temperament, would moderate the impact of parental socialization in relation to empathy development due to associated reactivity and vulnerability to arousal (Kochanska, 1997). Given that inhibited children have also been found to have a heightened risk for anxiety and social difficulties (Biederman et al., 2001), it is important to understand how this temperamental trait may interact with a child's family context in order to influence empathy.

Researchers have examined the relations among parenting behaviors, inhibited temperament, and empathy development; few researchers, however, have observed all factors simultaneously from a developmental perspective. Several developmental theories (e.g., goodness of fit, diathesis-stress, vantage sensitivity, differential susceptibility) suggest that environmental effects may influence children differently depending on their temperament or related biological predispositions (Belsky & Pluess, 2009; Pluess & Belsky, 2013). Thus, it is important to consider how the family context (i.e., parenting) interacts with temperament in order to predict empathy. The conceptual model presented in this study is structurally similar to each of the models prescribed by the aforementioned developmental theories, in that a child's parenting experience is the predictor, temperament is the moderator, and the dependent variable is a developmental outcome. However, for reasons delineated below, the expected pattern of results is expected to most closely align with a goodness of fit model in which positive developmental outcomes are expected when a child's temperament and environment are compatible (Thomas & Chess, 1977). In order to further understand empathy development and potential deviation in typical development for children high in inhibited temperament, the current study examined a model in which the relations between specific parenting behaviors associated with authoritative parenting (i.e., warmth and reasoning), and child empathy were moderated by inhibited temperament (Figure 1).

Empathy Development

At its core, empathy has been described as an other-oriented ability to understand and share another individual's emotional state (Zahn-Waxler & Radke-Yarrow, 1990). Speaking to the importance of this ability, many researchers suggest that the development of empathy has an early onset, with the second year of life appearing to be especially critical for empathy

development. During the second year, higher-order emotions begin to emerge and parents begin to shape their children's patterns of social responsibility (Zahn-Waxler & Radke-Yarrow, 1990). Children can also be observed differentiating themselves from others, expressing concern for others, attempting to understand others' distress, and performing acts of prosocial behavior during this period (Young et al., 1999; Zahn-Waxler, Robinson, & Emde 1992). Paired with this increase in other-focused behaviors, most children are expected to show a decrease in both personal distress in response to the distress of another and non-empathic behaviors (Zahn-Waxler & Radke-Yarrow, 1990). 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 (Young et al., 1999). A driving force in healthy empathy development seems to be adaptive parenting in the family context and, given the developmental pattern of empathy, toddlerhood is an important time to examine how parenting influences this development.

Parenting Influences on Empathy Development

Theory of empathy development has emphasized the importance of parental socialization in promoting adaptive empathy (Hoffman, 1983; Maccoby & Martin, 1983). Parental socialization was suggested to model empathic behaviors and create an optimal level of arousal to encourage internalizing values related to empathy. Research has supported the notion that the family context influences children's empathy development, with findings that an authoritative parenting style, characterized by both high parental responsiveness and parental control of child behavior encourages empathy development in children (Zahn-Waxler & Radke-Yarrow, 1990). Within the family environment, parenting styles and parental socialization have frequently been studied in relation to the development of empathy (Cornell & Frick, 2007; van der Mark, van IJzendoorn, & Bakermans-Kranenburg, 2002). Parents who show more authoritative behaviors have been found to have children who express more empathic behaviors (Zahn-Waxler & Radke-Yarrow, 1990). Parents who display an authoritative style are often warm, responsive, and supportive, which may function to model empathic behaviors and the sharing of affect. These parents also tend to use reasoning with their children, which may encourage empathic thinking and perspective taking (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). We examined warmth and reasoning, specifically, because they seem to more closely model affective and cognitive empathy, respectively, compared to other authoritative parenting behaviors.

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 (Hoffman, 1975; Robinson, Zahn-Waxler, & Emde, 1994). Although some past research suggests that warmth would encourage the development of empathy, findings are mixed. Koestner, Franz, and Weinberger (1990) conducted a longitudinal study in which they observed the relation between 11 parenting dimensions, including warmth, that were coded when children were 5 years old, and children's empathic concern, 26 years later. These researchers found a relatively strong association between early parenting behaviors and adult empathic concern. Surprisingly, however, 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 all children (Eisenberg et al., 1992; Robinson et al., 1994).

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. Reasoning 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). 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 been found to be more common in children whose parents use inductive reasoning (Hay & Pawlby, 2003). Alternatively, induction has also been conceptualized as being used to inhibit aggressive behaviors (Koestner et al., 1990). From this perspective, reasoning and induction may be related to empathy because they allow parents to discourage aggressive behaviors, express their behavioral expectations, and convey responsibility (Henry, Sager, & Plunkett, 1996). Therefore, reasoning and induction, in addition to or perhaps more strongly than warmth, may be important in promoting empathy development in children.

Thus, the literature supports examining warmth and reasoning as individually contributing to children's empathy development. However, in order to have a more holistic view of the relation between parenting and empathy, we also examined the broader construct of authoritative parenting in relation to empathy. Further, it is unclear whether warmth and reasoning affect all children in the same way. Whether specific parenting behaviors are more effective for encouraging empathy development in children with differing temperaments has only been minimally studied, but this would be suggested by a number of theories related to interactive effects between the parenting environment and temperament in predicting outcomes (Belsky & Pluess, 2009). Individuals may deviate from the predicted pathways for empathy because of their temperament, with temperamentally inhibited children less able to capitalize on a positive family environment.

Inhibited Temperament and Empathy Development

Temperament is a biologically based pattern of tendencies to react to the environment and is expressed through behaviors and emotional reactions in infancy and early childhood (Goldsmith et al., 1987). Children who express high levels of 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 caregivers, 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.

Temperament has been suggested to influence the development of empathy, through both reactivity and self-regulation components. (Young et al., 1999). Some argue that the 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). Results tend to support the hypothesis that inhibited children show fewer empathic behaviors than children who are less inhibited (Findlay et al., 2006). Findlay and colleagues (2006) found that, in kindergarten, empathic children were less likely to be rated as being shy. They suggested 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. Of note, other researchers have also found a similar relation between inhibited temperament and disruptions in empathy in earlier developmental periods. In 24-month-olds, Young and colleagues (1999) 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 relation between inhibition and empathy in girls who were not yet 2. 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.

A number of theories provide a framework for how individual characteristics, such as inhibited temperament, may interact with the parenting environment in predicting outcomes. A goodness of fit framework would suggest adaptive development will result when a child's temperament is compatible with the environment and maladaptive development would be expected when a mismatch occurred between a child's temperament and environment (Thomas & Chess, 1977). From a diathesis-stress framework, resilient children would be expected to show stable development regardless of environment, while vulnerable children would be expected to do very poorly in negative environments, but show comparable development to resilient children in positive environments (Belsky & Pluess, 2009). In a vantage sensitivity model, when in an adaptive environment, those who are sensitive to support would be expected to show better outcomes than those who are not (Pluess & Belsky, 2013). Finally, from a differential susceptibility perspective, children sensitive to an environment are expected to show more negative outcomes in a negative context and more positive outcomes in a positive context than those who are not sensitive (Belskey & Pluess, 2009).

Children who are able to regulate their reactivity to another individual's distress would be expected to be more sensitive to positive socialization and show some display of empathy and respond to the individual. However, if a child experiences overarousal and is unable to regulate this emotion, less sensitivity to positive socialization would be expected, resulting in lower expressions of empathy (Young et al., 1999). Given the expected interactions between child temperament and environment in predicting outcomes, a goodness of fit model seemed most appropriate to frame the conceptualization of how inhibited temperament determines the relation between positive parenting and empathy in

toddlerhood. According to this theory, it would be expected that inhibited temperament may interfere with the adaptive effects of positive parenting, resulting in low levels of empathy due to low child-environment compatibility.

Additional developmental theory further refines expectations according to this model. Kochanska (1997) theorized that temperament may influence the development of conscience, which is correlated with empathy and prosocial behaviors, directly, but it may also determine the consequences of a child's socialization experiences. For uninhibited children, the attachment relationship and maternal responsiveness, both of which may reflect warmth, promoted conscience development, but this was not found for inhibited children (Kochanska, 1997). For inhibited children, maternal gentle discipline promoted conscience development (Kochanska, 1997). This finding suggests that what works for some children to promote empathy, may not work for inhibited children. 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 prosocial behaviors. In this study, maternal parenting predicted prosocial behaviors more strongly for highly inhibited girls, in comparison to less inhibited children or boys. Therefore, inhibited temperament may play an indirect role by interacting with the parenting children experience to make inhibited children less sensitive to the benefits of adaptive parenting in relation to empathy development.

Present Study

Previous theory suggests that specific aspects of authoritative parenting should promote empathy development in toddlers (Hoffman, 1983; Maccoby & Martin, 1983). In line with goodness of fit theory, and supported by empirical research, toddlers would be expected to show positive empathy development when their parenting is compatible with their temperament. Additionally, toddlers may be more sensitive to the effects of warmth and reasoning on empathy development when they experience low arousal. Given that previous literature has established relations among parenting behaviors, temperament, and empathy but has not tested a developmental model including all of these elements, this study aimed to test how interactions among constructs ultimately predict empathy development. This study also made use of a longitudinal design in which mothers and children were asked to participate when children were 24 and 36 months. The conceptual model is presented in Figure 1. Inhibited children are expected to be low in sensitivity to positive parenting and less inhibited children are expected to be sensitive to positive parenting. In the current study, we hypothesized moderation in which maternal warmth and reasoning would each predict higher levels of empathy, but that this would weaken as children displayed higher levels of inhibited temperament. We also hypothesized that authoritative parenting, broadly would similarly be moderated by inhibited temperament in its relation to empathy development.

Method

Participants

Participants included 117 24-month-old children (54 female) and their mothers. IRB approvals were obtained from the University of Missouri for the "Maternal Influences on

Toddlers' Social-Emotional Development" project (protocol number 1053100). Informed consent was obtained from the parents or guardians of the toddlers participating in the study. Mothers, due to the likelihood that they would be the primary caregiver of the child, were recruited by mail through local birth announcements ($n=100$) and in person at Women, Infants, and Children (WIC) program meetings ($n=17$) in a mid-sized, Midwestern city. Mothers and toddlers were 87.2 % European American, 2.6% African American, 0.9% Hispanic, 6% Asian American, 0.9% American Indian, and 2.6% 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. A range of SES was represented in the sample (scores between 17 and 66), however, most families (59%) were middle class (scores between 20 and 54). A range of educational backgrounds was represented in the sample with 25% of mothers having a high school or two-year degree, 40% having a four-year degree, and 35% having an advanced degree. Compared to the United States Census closest in time to the study, the participants in the sample had somewhat higher rates of education and higher socioeconomic status (U.S. Census Bureau, 2010).

Procedure

The current study used observational data from a laboratory visit when children were 24 months old (Time 1) and questionnaire completion by the mother when her child was 24 months (Time 1) and 36 months old (Time 2). 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 1) or mailed to the laboratory (Time 2).

For the Time 1 laboratory visit, a Risk Room (Buss & Goldsmith, 2000) 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. After several other procedures, families received compensation (\$10) for their time, and children received a small gift. At Time 2, when children were approximately 36 months 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 1 so that change could be assessed.

Measures

Parenting behaviors (Time 1).—Authoritative parenting broadly, and specific components of warmth and involvement, and reasoning and induction, were assessed with the Parenting Practices Questionnaire (PPQ; Robinson, Mandlco, Olsen, & Hart, 1995). This measure includes 62 items assessing behaviors characteristic of authoritative,

authoritarian, and permissive parenting styles, however, only the scales assessing authoritative parenting, warmth, and reasoning were included in the present study. The authoritative domain (27 items, $\alpha = .82$) includes scales of warmth, reasoning, democratic participation, and good-natured behavior. Following instructions by the authors of the measure (Robinson et al., 1995), the warmth and involvement subscale is made up of 11 items ($\alpha = .66$; e.g., “Show sympathy when child is hurt or frustrated”), and the reasoning and induction subscale is made up of seven items ($\alpha = .87$; 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 authoritative scales. Research has supported the content, concurrent, and predictive validity of this measure (Olivari, Tagliabue, & Confalonieri, 2013; Robinson et al., 1995). A mean of items within each scale comprised the final variables, referred to as “warmth” and “reasoning” hereafter. A mean of items was also calculated for the broader authoritative domain.

Inhibited temperament (Time 1).—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). This episode was recorded for subsequent coding of inhibited temperament. 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. Intraclass correlation coefficients were calculated to assess interrater reliability and all values were between .78 and .98. 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 1 and Time 2).—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). In previous research, the test-retest reliability of the Empathy subscale was found to be excellent (ICC = .84). Agreement between mother-father and parent-childcare provider pairs was also found to support inter-rater reliability (ICC = .71 for mother-father pairs and ICC = .66 for parent-provider pairs for the larger Competence scale which includes empathy; Briggs-Gowan & Carter, 2001). Criterion and construct validity of the ITSEA was also supported after an examination of items in relation to other established survey measures and child behaviors

rated during a home-visit (Briggs-Gowan & Carter, 2001). 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 or rarely*, 1=*somewhat true or sometimes*, 2=*very true or often*). The mean of the seven items was computed to create a final score (α s = .76 and .79 at Times 1 and 2, respectively).

Results

Preliminary Analyses

Descriptive statistics for variables studied can be found in Table 1. All continuous variables adhered to a normal distribution ($\text{skew} < |2.00|$), so transformation of variables was not needed. Bivariate correlations between variables are presented in Table 2. As hypothesized, maternal warmth and reasoning, as well as the broader authoritative parenting domain, were positively correlated with child empathy at Times 1 and 2. Inhibited temperament was negatively related to empathy at Times 1 and 2. Finally, empathy at Time 1 was positively correlated with empathy at Time 2. Bivariate associations were further examined to determine whether covariates should be included in the moderation analyses. Families recruited from WIC had lower income ($M = 36.26$, $SD = 12.10$) than families not recruited from WIC ($M = 52.04$, $SD = 10.33$, $d = 1.40$). These groups did not differ on any other demographic or primary variables and recruitment method was not considered for further analysis. Given previous literature suggesting an influence of socioeconomic status and child gender on empathy development (Jolliffe & Farrington, 2006; Robinson et al., 1994), these variables were examined in relation to the primary variables. Neither variable was significantly related to any of the primary variables and so were not included as covariates.

Missing data.—Several participants were missing data for the parenting measure ($n = 13$; 11.1%) and empathy subscale at Times 1 ($n = 9$; 7.7%) and 2 ($n = 41$; 35%). Overall, this amounted to 12.99% of observations missing. Missing data at Time 1 resulted from mothers being unable to complete the questionnaire packet prior to or at the visit, and not returning remaining questionnaires in a stamped and addressed envelope provided to them. Missing data at Time 2 resulted from mothers moving out of the area or not responding to repeated attempts to schedule a visit. The observed pattern of missingness did not significantly differ from the Missing Completely at Random (MCAR) pattern (Little’s MCAR test: $\chi^2[6] = 11.80$, $p > .05$). Participants who completed, compared to those who did not complete, portions of the Time 1 and Time 2 assessments did not differ on any primary or demographic variables (all t s $< .60$, all p s $> .05$). In line with current guidelines (Graham, 2009), multiple imputation (20 imputations) was used to impute missing data. Warmth, reasoning, Time 1 and Time 2 empathy, temperament, and the interactions between each parenting variable and inhibited temperament were included in the imputation algorithm. Pooled estimates were examined when reporting results from the moderation analyses.

Moderation Analyses

Two primary models examined whether change in child empathy would be predicted by either warmth or reasoning, and whether these relations would decrease in strength across increasing values of inhibited temperament. Prior to analyses, all parenting variables, Time 1

empathy, and inhibited temperament were centered at their means. Interaction terms were computed as cross-products between the parenting variable and inhibited temperament. Although interactions were tested separately to maintain power, both parenting variables were included in each model to control for shared variance. Thus, regression models included Time 1 values of empathy, both parenting variables, inhibited temperament, and the two-way interaction among one parenting variable and inhibited temperament. In line with recommendations for understanding interactions between parenting and temperament (Roisman et al., 2012), to probe significant interactions, inhibited temperament was recentered at ± 1 SD and ± 2 SD. The region of significance was computed (Hayes, 2013).

Moderation of the relation between warmth and empathy.—In the initial model (Table 3, Figure 2a), the two-way interaction of warmth and temperament was significant in relation to Time 2 child empathy. Probing revealed that warmth was significantly related to empathy for children with low levels of inhibited temperament ($\beta = 0.43$, $t = 2.56$, $p = .011$), but not those with mean ($\beta = 0.15$, $t = 1.08$, $p = .284$) or high levels ($\beta = -0.13$, $t = -0.61$, $p = .542$) of inhibited temperament. The region of significance suggested that warmth shifted to a significant positive simple slope as fearful temperament decreased beyond 0.49 SD below the mean. Results suggest that maternal warmth helps to facilitate empathy development only in children with lower inhibited temperament. High or mean levels of inhibited temperament may interfere with the effects of warmth on empathy development.

Moderation of the relation between reasoning and empathy.—In the initial model (Table 4, Figure 2b), the two-way interaction of reasoning and temperament was significant in relation to Time 2 child empathy. Probing revealed that reasoning was significantly, and negatively, related to empathy for children with high ($\beta = -0.236$, $t = -2.27$, $p = .024$) levels of inhibited temperament, but not those with low ($\beta = 0.128$, $t = 1.23$, $p = .223$) or mean ($\beta = -0.062$, $t = -0.81$, $p = .421$) levels of inhibited temperament. Reasoning shifted to a significant negative relation as fearful temperament increased beyond 0.52 SD above the mean. These results suggest that maternal reasoning may not be as effective in promoting empathy development in children with high levels of inhibited temperament as those with mean or low levels. In sum, although figures representing the findings appear to be similar, the simple slopes for warmth and reasoning are significant at different levels of inhibited temperament.

Moderation of the relation between authoritative parenting and empathy.—Finally, to understand the results of the primary models in relation to one including the broader parenting style, we examined a model using the authoritative parenting domain as the predictor. In this model, the two-way interaction of authoritative parenting and temperament was significant in relation to Time 2 child empathy. Probing revealed that authoritative parenting was significantly related to empathy for children with low levels of inhibited temperament ($\beta = 0.32$, $t = 3.11$, $p = .002$), but not those with mean ($\beta = 0.06$, $t = 0.63$, $p = .531$) or high levels ($\beta = -0.21$, $t = -1.39$, $p = .168$) of inhibited temperament. The region of significance suggested that authoritative parenting shifted to a significant positive simple slope as fearful temperament decreased beyond 0.67 SD below the mean. Results

suggest that authoritative parenting is beneficial for empathy development only in children with lower inhibited temperament.

Discussion

The current study tested a developmental model aimed at determining how parenting behaviors interact with child inhibited temperament to predict change in child empathy. In line with a goodness of fit model, the relations between parenting behaviors and empathy were expected to be moderated by a child's inhibited temperament, such that the effects of positive parenting on empathy were expected to be most robust for children low in inhibited temperament, whose relatively lower arousal would leave them open for the influence of positive parenting, and attenuated for children with high levels of inhibited temperament, whose high arousal may interfere with receiving the positive effects of warmth and reasoning.

Inhibited temperament was found to moderate the relation between each of the specific parenting behaviors of warmth and reasoning and empathy. Maternal warmth predicted 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 adaptive behaviors, 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 mothers reported on empathic behaviors they witnessed 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, it may be that the heightened reactivity and difficulties regulating emotion associated with inhibited temperament make it difficult to capitalize on positive parenting. From a goodness of fit perspective, low levels of inhibition could be suggested to be compatible with maternal warmth and result in higher empathy, whereas, the high arousal associated with inhibition may be incompatible with maternal warmth and result in lower empathy.

A somewhat contrasting pattern was found with maternal reasoning, with reasoning predicting lower levels of empathy at high levels of inhibited temperament. Although these findings are not exactly consistent with what was predicted, they are consistent with other literature about parenting children with an inhibited temperament. Previous research has shown that parenting behaviors typically thought of as being adaptive, such as sensitivity or physical affection, may not be as effective or beneficial for inhibited children as they are for children with lower levels of inhibited temperament (Rubin, Burgess, & Hastings, 2002). A similar relation may exist between reasoning and empathy for inhibited children. Inhibited children, particularly in the context of responding to someone in distress, may need more

time to process the situation than children who are less inhibited. To an inhibited child, who may be trying to regulate their own emotions and process a situation, a mother trying to further explain and encourage the child to act or engage in a particular line of thinking may be perceived as overwhelming and intrusive. In this case, more reasoning and induction may make the child withdraw and show fewer empathic behaviors. This finding from the current study is able to add to the body of literature as few, if any, studies have included child temperament, especially inhibited temperament, in their examination of the relation between reasoning and empathy.

It is worth noting that the interactions involving warmth and reasoning were in a similar direction, but differences in significant slopes emerged through probing. In both cases, a positive slope was found for the relation between the parenting behavior and change in toddlers' empathy at low levels of inhibited temperament, and a negative slope was found at high levels of inhibited temperament. Where these slopes reached significance differed. It is possible that with a larger sample, both behaviors would show a significant positive slope when inhibition was low, and a significant negative slope when inhibition was high. When examining the broader construct of authoritative parenting, which comprises both warmth and reasoning, along with other behaviors, the interaction was again in the same direction, although the pattern of significance among simple slopes mirrored that for warmth. Thus, we suggest caution in emphasizing differences between the warmth and reasoning models.

Together, typical developmental changes and parenting changes during toddlerhood make this an important and unique period to study how these factors influence empathy development. During this period, toddlers show increased cognitive and emotional ability, a wider range of behaviors, and more opportunity for social interactions (Zahn-Waxler & Radke-Yarrow, 1990). In addition, parents face new challenges and change their parenting from infancy by having higher emotional and behavioral expectations for their child, expressing less warmth, and showing more control (Zahn-Waxler & Radke-Yarrow, 1990).

Given that inhibited children, who are also at a heightened risk for developing anxiety (Biederman et al., 2001), appear to show lower levels of empathy, and do not seem to benefit from authoritative parenting, it is important to consider both how to intervene and encourage empathy development as well as how this may further impact difficulties in social situations. Children with, or prone to, anxiety may have difficulty developing and maintaining peer-relationships, when compared to children without anxiety, and disruptions in empathy expression may further impact these relationships. Thus, social skills training and the encouragement of parents to provide their inhibited children with increased opportunities to socialize with same-age peers may be appropriate. Helping these toddlers participate in the care of younger infants may also provide an explicit framework for demonstrating empathic behaviors. 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), so this type of intervention may bring inhibited children up to levels of their non-inhibited peers.

Results of the current study are in line with family process theories (Bowen, 1966) suggesting that family members operate in an interdependent system and also suggest that even with supportive parenting, disruptions in empathy may be more difficult to alter for children with higher levels of inhibited temperament. This could suggest that temperament is a stronger influence on empathy, relative to parenting. The question then becomes how to encourage empathy development in more inhibited children. More specific parenting behaviors, including direct teaching, providing more socialization opportunities, and supportive encouragement, may be more beneficial for children with an inhibited temperament. However, because the effects of the studied parenting behaviors seem to be attenuated for children with an inhibited temperament, interventions targeted at parenting behaviors that may assist a child in reducing reactivity to overwhelming stimuli or providing skills to regulate emotions could be helpful in encouraging the development of empathy in inhibited children. 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, to aid in developing more accurate perceptions of social situations. Although the current study identified parenting behaviors that either did not predict or attenuated empathy for inhibited children, it contributes to the broader literature of parenting and empathy development and may help to inform future research on parenting and family interventions that may be used to encourage empathy development in inhibited children.

Limitations of the current study should be considered when interpreting results. The sample included primarily middle class, European American families. Although there is little, if any, literature to suggest racial differences in inhibited temperament, and literature related to cultural or racial differences in empathy has largely been conducted with adults, the function of parenting behaviors has been found to differ in different populations (Belsky & Jaffee, 2006). Specifically, parents in lower socioeconomic contexts and parents of diverse ethnicities may use authoritarian parenting more than middle or upper class European American parents, and may be associated with different outcomes in these populations (Grusec, Danyliuk, Kil, & O'Neill, 2017). Further, individuals of different cultural groups may respond to inhibited temperament differently or use different strategies to socialize empathy. Therefore, generalizations to other populations should be made with caution, and future research should examine these relations with participants from different backgrounds. Although inhibited temperament was derived from laboratory observation, parenting behaviors and child empathy were both assessed through maternal report. Future research could benefit from collecting both maternal report and observation of parenting behaviors and empathy. Further, fathers would be expected to contribute to the development of empathy, and their report or contribution should be studied in future research as well. Although the longitudinal assessment of empathy is a strength of the project, there were only two time points and parenting and temperament were not assessed at Time 2. This is important to consider because a third time point would have better allowed for modeling change and it may be that change in parenting and temperament over time are important predictors of empathy. Finally, deficits in empathy are believed to result from either a performance or 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, it seems that these children understand another's

distress but are too overwhelmed to respond, and thus appear to show little empathy (Findlay et al., 2006). The current study used maternal report of a broad conceptualization of empathy that did not separate these components, so future research should examine both in order to understand this further.

Overall, the results of this study suggest that the effects of certain parenting behaviors, including warmth and reasoning, may be attenuated for children with an inhibited temperament, in terms of their empathy development. These results are important for understanding how empathy development differs for children with an inhibited temperament. Research is still needed, however, in order to determine whether these results hold for children of different cultures and how to best intervene and encourage empathy development for these children.

References

- Biederman J, Hirshfield-Becker DR, Rosenbaum JF, Herot C, Friedman D, Snidman N, ... Faraone SV (2001). Further evidence of association between behavioral inhibition and social anxiety in children. *American Journal of Psychiatry*, 158(10), 1673–1679. [PubMed: 11579001]
- Briggs-Gowan MJ & Carter AS (2001). *Infant Toddler Social and Emotional Assessment (ITSEA) Manual* Unpublished manual, New Haven, CT Yale University.
- Belsky J, & Jaffee SR (2006). The multiple determinants of parenting. In Cicchetti D & Cohen DJ (Eds.), *Developmental psychopathology, Vol. 3: Risk, disorder, and adaptation (2nd ed)* (pp. 38–85). Hoboken, NJ: John Wiley & Sons, Inc.nd
- Belsky J & Pluess M (2009). Beyond diathesis stress: Differential susceptibility to environmental influences. *Psychological Bulletin*, 135, 885–908. [PubMed: 19883141]
- Bowen M (1966). The use of family theory in clinical practice. *Comprehensive Psychiatry*, 7(5), 345–374. [PubMed: 5922263]
- Buss KA, & Goldsmith HH (2000). *Manual and normative data for the Laboratory Temperament Assessment Battery – Toddler Version* Unpublished technical report, University of Wisconsin-Madison.
- Cornell AH, & Frick PJ (2007). The moderating effects of parenting styles in the association between behavioral inhibition and parent-reported guilt and empathy in preschool children. *Journal of Clinical Child and Adolescent Psychology*, 36(3), 305–318. [PubMed: 17658976]
- Eisenberg N, Fabes RA, Carlo G, Troyer D, Speer AL, Karbon M, & Switzer G (1992). The relations of maternal practices and characteristics to children's vicarious emotional responsiveness. *Child Development*, 63(3), 583–602. [PubMed: 1600824]
- Findlay LC, Girardi A, & Coplan RJ (2006). Links between empathy, social behavior, and social understanding in early childhood. *Early Childhood Research Quarterly*, 21(3), 347–359.
- Garcia Coll C., Kagan J, & Reznick JS (1984). Behavioral inhibition in young children. *Child Development*, 55, 1005–1019.
- Goldsmith HH, Buss AH, Plomin R, Rothbart MK, Thomas A, Chess S, ... & McCall RB (1987). Roundtable: What is temperament? Four approaches. *Child Development*, 505–529. [PubMed: 3829791]
- Graham JW (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, 60, 549–576.
- Grusec JE, Danyliuk T, Kil H, & O'Neill D (2017). Perspectives on parent discipline and child outcomes. *International Journal of Behavioral Development*, 41(4), 465–471.
- Hastings PD, Rubin KH, & DeRose L (2005). Links among gender, inhibition, and parental socialization in the development of prosocial behavior. *Merrill-Palmer Quarterly*, 51(4), 467–493.
- Hastings PD, Zahn-Waxler C, Robinson J, Usher B, & Bridges D (2000). The development of concern for others in children with behavior problems. *Developmental Psychology*, 36(5), 531–546. [PubMed: 10976595]

- Hay DF, & Pawlby S (2003). Prosocial development in relation to children's and mothers' psychological problems. *Child Development*, 74(5), 1314–1327. [PubMed: 14552400]
- Hayes AF (2013). *Introduction to mediation, moderation, and conditional process analysis* New York, NY: The Guilford Press.
- Henry CS, Sager DW, & Plunkett SW (1996). Adolescents' perceptions of a family system, characteristics, parent-adolescent dyadic behaviors, adolescent qualities, and adolescent empathy. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 45(3), 283–292.
- Hoffman ML (1970). Conscience, personality, and socialization techniques. *Human Development*, 13, 90–126. [PubMed: 5452755]
- Hoffman ML (1975). Altruistic behavior and the parent-child relationship. *Journal of Personality and Social Psychology*, 31(5), 937–943.
- Hoffman ML (1983). Affective and cognitive processes in moral internalization. In Higgins ET, Ruble D, & Hartup W (Eds.), *Social cognition and social development: A socio-cultural perspective* (pp. 236–274). New York, NY: Cambridge University Press.
- Hollingshead AB (1975). Four factor index of social status Unpublished manuscript, Department of Sociology, Yale University, New Haven, Connecticut.
- Janssens J, & Dekovic M (1997). Child rearing, prosocial moral reasoning, and prosocial behavior. *International Journal of Behavioral Development*, 20(3), 509–527.
- Jolliffe D, & Farrington DP (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, 29(4), 589–611. [PubMed: 16198409]
- Kagan J (1994). *Galen's prophecy* New York, NY: Basic Books.
- Kochanska G (1997). Multiple pathways to conscience for children with different temperaments: From toddlerhood to age 5. *Developmental Psychology*, 33(2), 228–240. [PubMed: 9147832]
- Koestner R, Franz C, & Weinberger J (1990). The family origins of empathic concern: A 26-year longitudinal study. *Journal of Personality and Social Psychology*, 58(4), 709. [PubMed: 2348366]
- Maccoby EE, & Martin JA (1983). Socialization in the context of the family: Parent-child interaction. In Hetherington EM (Ed.), Mussen PH (Series Ed.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social development* (pp. 1–101). New York, NY: Wiley.
- Morrison AS, Mateen MA, Brozovich FA, Zaki J, Goldin PR, Heimberg RG, & Gross JJ (2016). Empathy for positive and negative emotions in social anxiety disorder. *Behaviour Research and Therapy*, 87, 232–242. [PubMed: 27816799]
- Olivari MG, Tagliabue S, & Confalonieri E (2013). Parenting Style and Dimensions Questionnaire: A review of reliability and validity. *Marriage & Family Review*, 49(6), 465–490.
- Pluess M, & Belsky J (2013). Vantage sensitivity: Individual differences in response to positive experiences. *Psychological Bulletin*, 139(4), 901. [PubMed: 23025924]
- Robinson JL, Zahn-Waxler C, & Emde RN (1994). Patterns of development in early empathic behavior: Environmental and child constitutional influences. *Social Development*, 3(2), 125–145.
- Robinson CC, Mandlco B, Olsen SF, & Hart CH (1995). Authoritative, authoritarian, and permissive parenting practices: Development of a new measure. *Psychological Reports*, 77(3), 819–830.
- Rubin KH, Burgess KB, & Hastings PD (2002). Stability and social-behavioral consequences of toddlers' inhibited temperament and parenting behaviors. *Child Development*, 73(2), 483–495. [PubMed: 11949904]
- Thomas A, & Chess S (1977). *Temperament and development* Brunner/Mazel.
- Tone EB, & Tully EC (2014). Empathy as a "risky strength": A multilevel examination of empathy and risk for internalizing disorders. *Development and Psychopathology*, 26 (4, Pt 2), 1547–1565. [PubMed: 25422978]
- U.S. Census Bureau (2010). Quick facts Retrieved from <https://www.census.gov/quickfacts/fact/table/US/PST045217>.
- van der Mark IL, van IJzendoorn MH, & Bakermans-Kranenburg MJ (2002). Development of empathy in girls during the second year of life: Associations with parenting, attachment, and temperament. *Social Development*, 11(4), 451–468.
- Young SK, Fox NA, & Zahn-Waxler C (1999). The relations between temperament and empathy in 2-year-olds. *Developmental Psychology*, 35(5), 1189–1197. [PubMed: 10493645]

- Zahn-Waxler C, & Radke-Yarrow M (1990). The origins of empathic concern. *Motivation and Emotion*, 14(2), 107–130.
- Zahn-Waxler C, Robinson J, & Emde RN (1992). The development of empathy in twins. *Developmental Psychology*, 28, 1038–1047.

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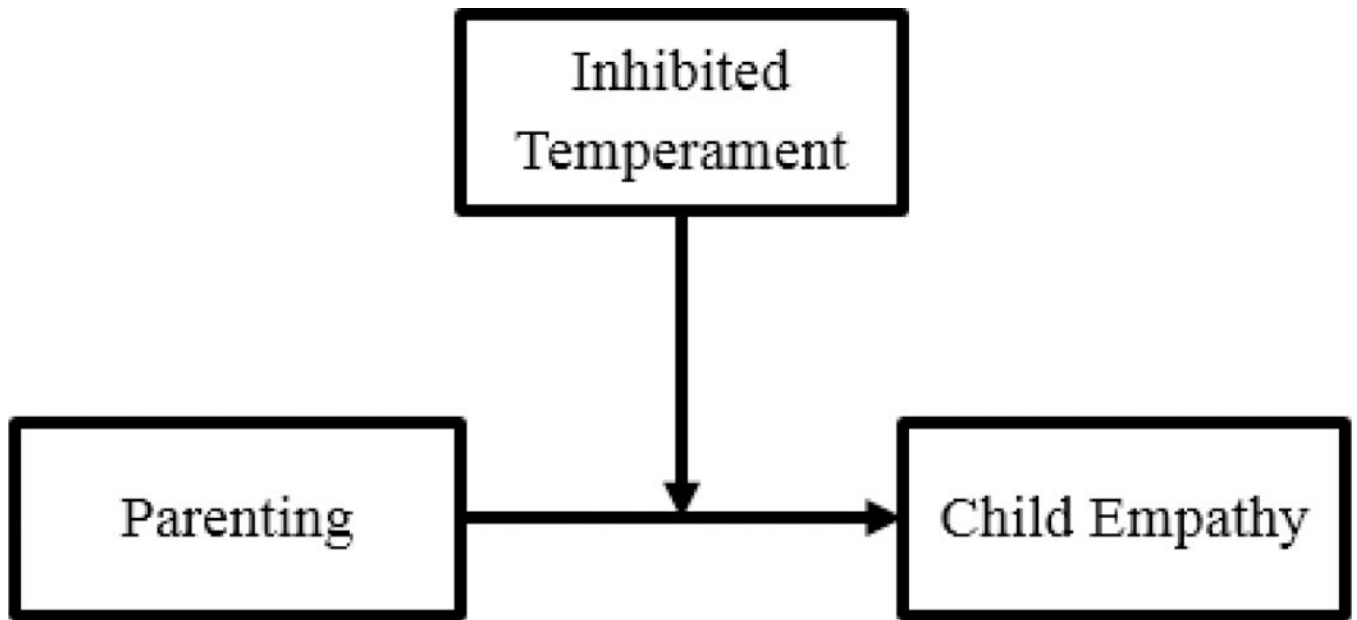


Figure 1. Conceptual model of how inhibited temperament may moderate the development from specific parenting behaviors to child empathy. Parenting included warmth, reasoning, and authoritative parenting, and each of these behaviors were tested in separate models.

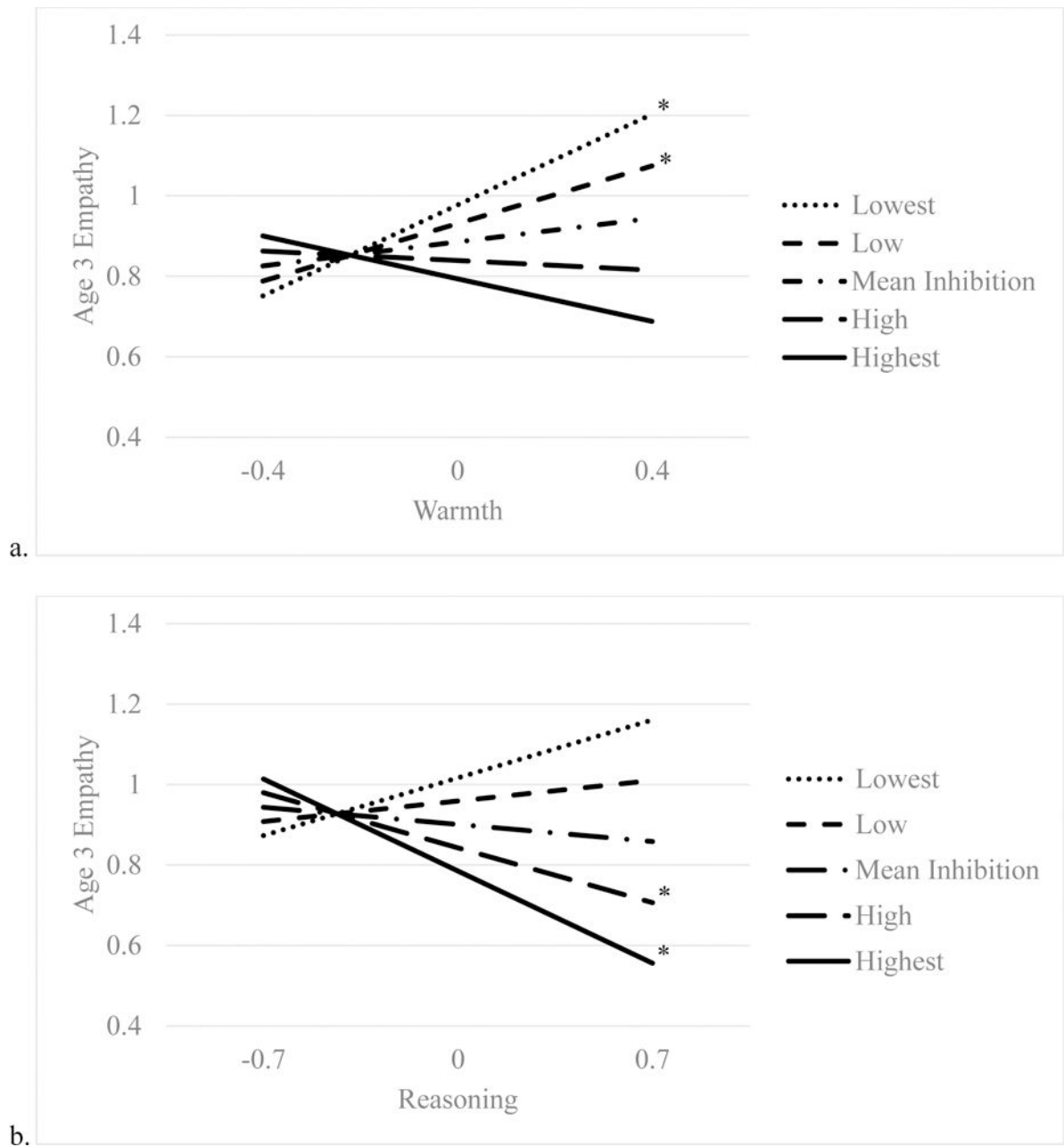


Figure 2.

Two-way interaction among parenting behaviors and inhibited temperament in relation to child empathy. Results reflect mean levels of inhibition, and ± 1 and ± 2 standard deviations from the mean. Panel “a” denotes the interaction between warmth and inhibited temperament. Panel “b” denotes the interaction between reasoning and inhibited temperament. $*p < .05$.

Table 1

Descriptive Statistics

Variable	Mean	SD	Range
Authoritative Parenting	3.88	0.47	2.52—5.00
Warmth	4.48	0.39	3.27—5.00
Reasoning	3.79	0.70	1.43—5.00
Inhibited Temperament	0.00	0.78	-1.02—2.76
Age 2 Empathy	1.22	0.42	0.14—2.00
Age 3 Empathy	1.47	0.35	0.43—2.00

Note. Authoritative parenting, warmth, and reasoning were rated on a 5-point Likert scale. Inhibited temperament was the mean of five standardized variables. Empathy was rated on a 3-point scale. All descriptive statistics represent pooled estimates after multiple imputation.

Table 2

Bivariate Correlations

Variable	1	2	3	4	5
1. Authoritative Parenting	—				
2. Warmth	0.76 ^{**}	—			
3. Reasoning	0.88 ^{**}	0.64 ^{**}	—		
4. Inhibited Temperament	-0.01	-0.04	-0.05	—	
5. Age 2 Empathy	0.38 ^{**}	0.31 ^{**}	0.37 ^{**}	-0.10 ^{**}	—
6. Age 3 Empathy	0.35 ^{**}	0.28 ^{**}	0.23 ^{**}	-0.18 ^{**}	0.53 ^{**}

*
 $p < .05$.

**
 $p < .01$.

All correlations represent pooled estimates after multiple imputation.

Table 3

Moderation Analyses Predicting Child Empathy from Maternal Warmth and Inhibited Temperament

Variable	<i>b</i> (SE) [†]	<i>b</i> (SE)	<i>t</i> -test	95% CI	<i>sr</i> ²
Age 2 Empathy	0.46 (0.07)	0.46 (0.10)	4.76***	0.27, 0.66	0.25
Reasoning (R)	-0.03 (0.05)	-0.07 (0.07)	-0.91	-0.21, 0.08	0.01
Warmth (W)	0.16 (0.09)	0.15 (0.14)	1.08	-0.12, 0.42	0.02
Inhibited Temperament (IT)	-0.07 (0.03)	-0.07 (0.05)	-1.36	-0.17, 0.03	0.03
W × IT		-0.39 (0.16)	-2.44*	-0.70, -0.07	0.09

Note. The overall model was significant ($R^2 = 0.27-0.50$, $F[5, 111] = 8.25-21.84$, $p_s < .001$, across imputations).

* $p < .05$

** $p < .01$

*** $p < .001$.

[†] Coefficients prior to including interaction term.

Table 4

Moderation Analyses Predicting Child Empathy from Maternal Reasoning and Inhibited Temperament

Variable	<i>b</i> (SE) [†]	<i>b</i> (SE)	<i>t</i> -test	95% CI	<i>sr</i> ²
Age 2 Empathy	0.46 (0.07)	0.44 (0.10)	4.53***	0.25, 0.64	0.24
Warmth (W)	0.16 (0.09)	0.12 (0.14)	0.76	-0.17, 0.38	0.01
Reasoning (R)	-0.03 (0.05)	-0.06 (0.08)	-0.81	-0.21, 0.09	0.01
Inhibited Temperament (IT)	-0.07 (0.03)	0.09 (0.05)	-1.78	-0.19, 0.01	0.05
R x IT		-0.26 (0.09)	-2.84**	-0.45, -0.08	0.11

Note. The overall model was significant ($R^2 = 0.31-0.47$, $F[5, 111] = 9.73-19.56$, $p < .001$, across imputations).

* $p < .05$

** $p < .01$

*** $p < .001$.

[†] Coefficients prior to including interaction term.