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Prediction of Children's Empathy-Related Responding From Their Effortful Control and Parents' Expressivity

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Abstract

In this study, the linear and interactive relations of children's effortful control and parents' emotional expressivity to children's empathy-related responses were examined. Participants were 214 children, 4.5 to 8 years old. Children's effortful control was negatively related to their personal distress and was positively related to their sympathy. Parents' positive expressivity was marginally negatively related to children's personal distress and was marginally positively related to children's dispositional sympathy. Parents' negative expressivity was positively related to children's personal distress, but primarily at high levels of children's effortful control. Moreover, parents' negative expressivity was negatively related to children's situational sympathy at low levels of effortful control but was positively related to children's dispositional sympathy at high levels of effortful control. There were also quadratic relations between the measures of parents' expressivity and children's empathy-related responses.

Empathy is believed to play an important role in fostering prosocial behavior and social competence (Eisenberg & Fabes, 1998; Hoffman, 2000; Staub, 1979). Although a number of definitions of *empathy* exist, a representative definition is "an affective response that stems from the apprehension or comprehension of another's emotional state or condition, and that is identical or very similar to what the other person is feeling or would be expected to feel" (Eisenberg & Fabes, 1998, p. 702). For example, if a person witnesses a child feeling sad and consequently feels sad, that person is experiencing empathy. In addition, empathy is viewed as frequently associated with two related responses (Eisenberg & Fabes, 1998; Eisenberg, Shea, Carlo, & Knight, 1991): sympathy and personal distress. *Sympathy* has been defined as an emotional response stemming from the apprehension of another's emotional state or condition, that is not the same as the other's state or condition but consists of feelings of sorrow or concern for the other (Eisenberg & Fabes, 1998). Sympathy is believed to frequently stem from empathy, although it may often be engendered by cognitive processes such as perspective taking. In contrast, *personal distress* is defined as a self-focused, aversive affective reaction to the apprehension of another's emotion (e.g., discomfort, anxiety; Batson, 1991)—a response that frequently may reflect empathic overarousal (Eisenberg & Fabes, 1998).

Distinguishing between personal distress and sympathy is important because they are expected to relate differently to prosocial and social behaviors and may have different precursors. In fact, sympathy has been positively related to prosocial behavior whereas personal distress has been unrelated or negatively related (Batson, 1991; Eisenberg & Fabes, 1990, 1998). Moreover, sympathy has been linked to higher level moral reasoning whereas personal distress has been

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negatively related or unrelated (e.g., Carlo, Eisenberg, & Knight, 1992; Eisenberg, Carlo, Murphy, & Van Court, 1995).

Because of the association between children's empathy-related responses and their moral behavior, it is important to understand variables related to individual differences in children's empathy-related responding. The purpose of the present study was to examine the relations of parents' expressivity and children's effortful control (a component of dispositional emotion-related self-regulation) to their empathy-related responses (see Figure 1). Specifically, based on thinking about the role of emotional arousal in empathy-related responding, we examined the quadratic as well as linear relations between parents' expressivity and children's empathy-related responses. Moreover, consistent with Rothbart and Bates' (1998) discussion of the importance of examining interactions between temperament (including effortful control) and the family environment, we examined the role of effortful control as a moderator of the relations between parents' expressivity and children's empathy-related responses.

Parents' Expressivity and Children's Empathy-Related Responses

Although empathy-related responses may be partially due to individual differences in regulation (see the next section) and genetic factors (Emde et al., 1992; Zahn-Waxler, Robinson, & Emde, 1992), parenting likely plays a role in the development of children's empathy-related responses (Plomin et al., 1993). In a heuristic model of parents' socialization of emotion and related behaviors, Eisenberg, Cumberland, and Spinrad (1998) hypothesized that children's willingness to express and experience emotions is related to parents' expressivity. In the model, it is suggested that parents' expressivity can promote learning and adaptive behavior if it does not lead to children's emotional overarousal. If overarousal occurs, children's ability to learn about experiencing and managing emotions is likely to be compromised, because of diminished attentional capacities and, for negative emotion, high levels of self-concern.

Parents' expressivity is often defined as the "dominant style of exhibiting nonverbal and verbal expressions within a family" (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995, p. 93) and is usually measured with self-reports or observed during parent–child interactions. Traditionally, expressiveness is either viewed as positive, negative dominant, or negative submissive (Halberstadt, 1986). *Positive expressiveness* refers to positive emotional expressions such as praising someone, demonstrating admiration, and/or expressing gratitude for a favor. *Negative dominant expressiveness* involves the display of emotions that are assertive and threaten people, including expressions of anger and hostility. In contrast, *negative submissive expressions* involve less assertive emotional displays such as sulking, expressing sorrow, and/or crying. Findings that parents' positive and/or negative dominant expressivity are related (usually, but not always, in inverse ways) to children's social competence and adjustment (G. H. Brody & Ge, 2001; Eisenberg, Gershoff, et al., 2001; Halberstadt, Crisp, & Eaton, 1999) suggest that parents' emotional expressivity may contribute to their children's empathy-related responses. Moreover, because parental dominant negative emotionality is more likely than parental submissive negative emotionality to overarouse children, it may be especially relevant to the development of personal distress. Therefore, we focus on negative dominant emotionality in this study.

Relations Between Parents' Expressivity and Children's Empathy-Related Responses

Positive Expressivity—There is some evidence supporting the hypothesis (see Figure 1) that parents' positive expressivity predicts children's empathy-related responses. For example, in a study of elementary school children, mothers who reported high levels of positive emotional communication had offspring who were high in perspective taking, daughters who were sympathetic, and sons who were low in personal distress (Eisenberg & McNally, 1993).

In another study, young women (but not men) who were exposed to relatively high levels of positive emotion experienced high levels of sadness, sympathy, and distress in response to an empathy-inducing film (Eisenberg, Fabes, Schaller, Miller, et al., 1991). Zhou et al. (2002) found that mothers' positive facial expressivity related positively to their child's situational facial and self-reported empathy with positive and/or negative emotions. However, in another study, mothers' facial expressiveness (positive vs. negative expressiveness) while telling a story was unrelated to indices of their children's sympathy or personal distress (Fabes et al., 1994), and reported maternal positive expressivity has sometimes been unrelated to sympathy (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991).

If exposure to high levels of positive emotion helps children experience and express emotion, then they may feel more comfortable feeling others' emotions than children not exposed to positive emotion (Roberts & Strayer, 1996). Parents who express high levels of positive emotion and discuss these emotions may also foster children's understanding and experience of emotion (Eisenberg, Cumberland, & Spinrad, 1998), especially in early childhood (Halberstadt et al., 1999). Although not directly assessing expressivity, the work of Kochanska and colleagues suggests that a mutually positive parent–child relationship is associated with high levels of toddlers' internalization, conscience, and empathy (Kochanska & Aksan, 1995; Kochanska, DeVet, Goldman, Murray, & Putnam, 1994; Kochanska, Forman, & Coy, 1999).

Negative Expressivity—In contrast to parental positive expressivity, parental negative dominant expressivity is hypothesized to relate positively to personal distress and negatively to sympathy. When parents' expressions of negative emotion are intense, aversive, or frequent, it seems likely that children will become overaroused and will have difficulty learning about and managing emotions (Hoffman, 1983). Consequently, they may be ill prepared to cope with negative emotions associated with viewing another's distress. Indeed, some investigators have found that exposure to high levels of parents' negative expressivity is related to low levels of emotion understanding (Dunn & Brown, 1994; although findings are mixed; see Halberstadt et al., 1999), prosocial behavior (Denham, 1997; Denham, Renwick-Debardi, & Hewes, 1994), and sociometric status (Boyum & Parke, 1995). Kochanska (1991, 1995, 1997) has also found that for toddlers who are fearful, gentle discipline deemphasizing power relates to high levels of conscience assessed in middle childhood.

Children exposed to high levels of negative affectivity in the home may, over time, feel increasingly distressed by such emotion and increasingly likely to respond to others' negative emotions in an avoidant or self-protective manner. Consistent with this notion, parental conflict (which likely involves high levels of ongoing parental expression of dominant negative emotion) has been linked to verbal, facial, and physiological indices of children's distress (Ballard, Cummings, & Larkin, 1993; Cummings, 1987; Cummings, Iannotti, & Zahn-Waxler, 1985; Cummings, Vogel, Cummings, & El-Sheikh, 1989; El-Sheikh & Cummings, 1992).

Findings in regard to the relation of parental negative expressivity to children's empathy-related responding are mixed. For example, Eisenberg et al. (1992) found that mothers' reported expression of negative dominant emotion was associated with high levels of girls' distress and low levels of boys' facial concern. In Indonesia, children's sympathy has been negatively related to parents' negative expressivity (dominant and submissive combined; Eisenberg, Liew, & Pidada, 2001). In a sample of American elementary school children, mothers' negative expressivity (a composite including both dominant and submissive) was positively related to children's facial distress for the total sample of boys and girls (and the finding was not moderated by sex; Valiente et al., 2004). Among preschoolers, parents' negative expressiveness has been negatively related to teachers' reports of children's empathy (Denham, 1997).

It is also possible, however, that exposure to some degree of others' negative emotion fosters sympathy because these experiences offer children opportunities to learn about emotions and how to respond to them, especially if the emotion is not overly arousing or if the child is well-regulated (Halberstadt et al., 1999). Indeed, Dunn and Brown (1994) obtained evidence that the discussion of real-life negative emotion in the family was associated with children's understanding of emotion, although not in families in which the levels of exposure to negative emotion were high.

Quadratic Relations Between Parents' Expressivity and Children's Empathy-Related Responses

In addition to linear relations between parents' expressivity and children's sympathy and personal distress, curvilinear relations seem likely. Indeed, the existence of a quadratic relation may be one reason that linear relations between parents' expressivity and children's empathy-related responses may be inconsistent and/or weak. On the basis of findings that exposure to negative expressivity is sometimes related to high levels of labeling emotions and/or emotion understanding, Halberstadt et al. (1999) hypothesized that moderate amounts of negative expressivity may allow children to learn about emotions, and possibly experience sympathy, whereas intense expressions likely inhibit learning and undermine children's regulation and, as a consequence, are expected to be associated with low levels of sympathy.

Parents' positive expressivity is generally believed to have linear relations with children's empathy-related responses, but it is possible that these variables are also related in a curvilinear fashion. Examining the curvilinear relation between positive expressivity and children's empathy-related responses is important because linear relations are often weak or nonsignificant, and Eisenberg, Fabes, and Murphy (1996) found an inverted-U relation between mothers' encouragement of the expression of emotion and their daughters' quantity and quality of comforting behaviors. Although not only tapping positive expressivity, Stifter and Moyer (1991) found an inverted-U relation between mothers' activity (including smiling) and frequency of infants' smiles. These data suggest that too much maternal activity and/or smiling may become overarousing. Excessively high levels of maternal positive emotion may be dysregulating for their children if the children vicariously experience the emotional arousal or if the maternal expressivity reflects insincere attempts at portraying high levels of positive affect. If exposure to high levels of positive expressivity promotes overarousal, it is possible that there also are curvilinear relations between parents' positive expressivity and children's empathy-related responses.

Effortful Control and Empathy-Related Responses

As indicated above, a clear pattern of relations between parents' expressivity and children's empathy-related responses has yet to emerge. In addition, the amount of variance accounted for in empathy-related responses from parents' expressivity generally has been modest. Given these limitations, it seems likely that other variables contribute to individual differences in empathy-related responses and may moderate the relation of parents' expressivity to empathy-related responding, especially for sympathy. One possible moderator is children's effortful control.

Effortful control is believed to contribute to the regulation of emotional reactivity (Derryberry & Rothbart, 1997). Although definitions vary, *emotion regulation* can be defined as "the process of initiating, maintaining, modulating, or changing the occurrence, intensity, or duration of internal feeling states and emotion-related physiological processes, often in the service of accomplishing one's goals" (Eisenberg, Fabes, Guthrie, & Reiser, 2000, p. 137). When considering regulation of emotion, recent empirical and theoretical advances suggest that it is useful to distinguish between voluntary, effortful regulation and less voluntary types

of control (see Eisenberg, Morris, & Spinrad, in press). In the present article, we focus on *voluntary effortful control*, defined as "the ability to inhibit a dominant response to perform a subdominant response" (Rothbart & Bates, 1998, p. 137). It involves executive attention and is believed to be controlled primarily by parts of the frontal cortex and especially the cingulate gyrus (Mirsky, 1996; Posner & DiGirolamo, 2000). Individuals high in effortful control are able to voluntarily focus and shift attention, and inhibit or activate behavior, even when they may not want to do so. These skills are believed to play a central role in modulating the experience and expression of emotion.

In an attempt to account for individual differences in personal distress and sympathy, Eisenberg and Fabes (1990, 1992; also see Hoffman, 1982) suggested that personal distress often is engendered by empathic overarousal, which is experienced as aversive and, consequently, promotes a focus on the self rather than on others. In contrast, individuals are expected to experience sympathy if the intensity of their emotional reactions remains moderate in intensity and tolerable. In this situation, sympathy rather than personal distress is expected because one can experience what the other is feeling and attend to the source of the emotion without becoming overwhelmed and self-focused. Consistent with this argument, Kochanska (1993) argued that children high in effortful control are sensitive to others' emotional experiences and are expected to be high in empathic and prosocial responding. In support of this line of reasoning, Wood, Saltzberg, and Goldsamt (1990) found that situational emotional overarousal leads to self-focused reactions, and Eisenberg and colleagues (Eisenberg, Fabes, et al., 1988; Eisenberg, Fabes, Schaller, Miller, et al., 1991; Eisenberg, Schaller, et al., 1988) have found that situations likely to have involved personal distress elicited more physiological arousal than situations likely to have elicited sympathy. On the basis of this line of reasoning and the limited empirical evidence, Eisenberg and Fabes (1992) hypothesized that individual differences in dispositional regulation would be related to children's empathy-related responses.

Data from toddlers and children are somewhat consistent with this prediction. Kochanska and colleagues have conducted a series of studies demonstrating that toddlers low in inhibitory control display low levels of conscience (including, in some studies, empathy; Kochanska, Coy & Murray, 2001; Kochanska, Murray, & Coy, 1997; Kochanska, Tjebkes, & Forman, 1998). There is also evidence that children's adult-reported regulation is concurrently and longitudinally positively related to teachers' or children's reports of dispositional sympathy (Eisenberg, Fabes, Murphy, Karbon, et al., 1996; Eisenberg, Fabes, Shepard, et al., 1998; Murphy, Shepard, Eisenberg, Fabes, & Guthrie, 1999). Consistent with these findings, Rothbart, Ahadi, and Hershey (1994) found positive relations between mothers' reports of their 7-year-olds' effortful control and their reports of children's empathy. Although regulation also has been found to predict situational (rather than dispositional) empathy-related responses, generally the relations are weak or only significant for one sex (e.g., Eisenberg et al., 1994).

In one of the few studies involving children's personal distress, Guthrie et al. (1997) found that adult-reported regulation was positively related to markers of children's sympathy, but the relations generally were weak and there was little evidence of a negative relation between personal distress and regulation. In this same study, children's, primarily boys', heart rate acceleration (a marker of personal distress) was negatively related to reports of their attentional control. In another study with 4- to 6-year-olds, teacher-reported attentional regulation was positively correlated with children's facial concern during an empathy-inducing film but was unrelated to children's facial distress reactions (Eisenberg & Fabes, 1995). Although infants' self-regulation at 4 months has been found to predict low personal distress at 12 months (Ungerer et al., 1990), in general there are very few data pertaining to the relation between personal distress (situational or dispositional) and regulation in childhood. In brief, there is inconsistent evidence that adults' or children's regulation is related to their personal distress.

Moderation by Effortful Control of the Relation of Parental Expressivity to Empathy-Related Responding

We also predicted that children's effortful control and parents' expressivity might jointly predict children's empathy-related responding in a nonlinear (interaction) manner. Specifically, we expected parents' negative expressivity to be positively related or unrelated to sympathy for children high in effortful control but negatively related for those low in effortful control. In contrast to sympathy, at low levels of effortful control, we expected a positive relation between negative expressivity and personal distress; a weaker positive relation was expected for children higher in effortful control. Thus, the predicted quadratic relation between parental negative expressivity and children's empathy-related responding might not be evident when children's effortful control was taken into account because high levels of parental expressivity have different effects on well-regulated and less-regulated children's sympathy and personal distress reactions. In addition, we predicted that parents high in positive expressivity would have children high in sympathy and low in personal distress, albeit perhaps primarily when their children were high in effortful control. In essence, we predicted that children high in effortful control are able to avoid becoming overaroused when exposed to intense negative (or positive) emotion and thus they are able to learn from these experiences. Consequently they may be better equipped to manage negative emotion and to understand and respond to another's needs in other circumstances than those low in effortful control.

The Present Study

The purpose of the present study was to examine the linear relations of parents' expressivity and children's effortful control to their empathy-related responses, to examine the quadratic relations of parents' expressivity to sympathy and personal distress, and to examine whether children's effortful control moderates the relations of parents' expressivity and children's empathy-related responses. On the basis of the available literature, we expected children's effortful control to be positively related to their sympathy (both situational and dispositional) and negatively related to personal distress.

Relations between parents' expressivity and children's empathy-related responses were expected to be more complex. Both linear and quadratic (especially for negative expressivity) relations were predicted. Consistent with the existing literature, we expected parents high in negative expressivity to have children low in sympathy and high in personal distress; the reverse linear relation was predicted for parental positive expressivity. In addition, we predicted a curvilinear relation for negative expressivity—that low and/or mean levels of negative expressivity would be related to somewhat high levels of sympathy (and low levels of personal distress), whereas high levels of negative expressivity would relate to relatively low levels of sympathy (and high levels of personal distress). Moreover, it seemed reasonable that positive parental expressivity might overarouse children, particularly if the display of positive emotion is not perceived as genuine. Therefore, although there were fewer reasons to expect curvilinear relations for positive expressivity, we tested for the possibility that there would be quadratic relations between parents' positive expressivity and children's empathy-related responses. In addition, we expected interactions between parental expressivity and children's effortful control, such that children who are high in effortful control, but not children low in effortful control, benefit from exposure to relatively high levels of parental expressivity (i.e., are prone to sympathy and not personal distress).

Method

Recruitment and Screening Procedures

Participants were recruited through schools, newspaper ads, and flyers that were placed at after-school programs and preschools. Using the Child Behavior Checklist (CBCL; Achenbach, 1991a), a sample of children that was relatively diverse in regard to problem behavior was selected. Parents of 315 children completed the questionnaire; all children with *T* scores of 60 or higher on either internalizing or externalizing were chosen for participation. Achenbach (1991b) designated scores of 60–63 as indicating moderate risk and higher scores as indicating relatively high risk for the given type of problem behavior. In addition to the children selected because their *T* scores were above 60 (on either internalizing or externalizing, but not necessarily both), children who had *T* scores below 60 on both the internalizing and externalizing scales were considered control (nondisordered) children and were matched as closely as possible in regard to age, sex, race, and social class (using parental education and occupation; if a child was high on both internalizing and externalizing, the highest score was used for initial grouping). Thus, the selected children covered the entire range of scores (the scores were continuous), although the number of children with problem behaviors probably was somewhat higher than would have been obtained if random selection were used.

Participants

The selection criteria resulted in the recruitment of 96 girls and 118 boys who were between the ages of 55 and 97 months ($M = 73.48$, $SD = 9.59$; Eisenberg, Cumberland, et al., 2001; Eisenberg, Gershoff, et al., 2001). Seventy-six percent of participants were European American, 12% were Hispanic, 5% were Native American, 3% were African American, 3% were of other origins, and 1% were Asian. Mothers' mean level of education was 14.11 years ($SD = 2.49$), and fathers' mean level of education was 14.06 years ($SD = 3.05$). The mean family income was $41,000 ($SD = $25,000). Of the 214 children, 74 had *T* scores below 60 for both internalizing and externalizing, 36 had *T* scores above 60 for internalizing (but not externalizing), 30 had scores over 60 for externalizing (but not internalizing), and 74 had scores over 60 for both externalizing and internalizing.

Procedure

The children and their parent came to a university laboratory.[1] Parents completed a packet of questionnaires, including measures of their own expressiveness in the family and their children's effortful control. While parents were completing questionnaires, children observed an empathy-inducing film about a girl who was burned in a fire and was subsequently teased by peers for her appearance, and then they completed some self-report measures and a puzzle task that taps effortful control. After the film, parents' observed expressivity was assessed during a parent–child interaction.

Measures

Children's Empathy-Related Responses—The experimenter read all questions to the children. Moreover, prior to completing the scales, several practice items were completed by the children. To aid the children in determining their response, a visual scale was provided.

Dispositional sympathy: Before watching the empathy-inducing film, children completed an adapted version of Bryant's (1982) empathy scale that was expanded by Eisenberg, Fabes, Schaller, Carlo, & Miller (1991). Items were rated on a 3-point scale (1 = *not like you*; 2 = *sort*

[1]Twelve fathers were the primary caregiver. When the major analyses were computed using only mothers ($N = 202$), the findings were virtually identical.

of like you; 3 = *really like you*). Children's self-reported dispositional sympathy (e.g., "I feel sorry for other kids who don't have toys and clothes") was reliably assessed with five items (α = .76; see Spinrad et al., 1999).[2]

Situational personal distress and sympathy: After viewing the empathy-inducing film, each child rated his or her emotional reactions to the film (e.g., upset, scared, nervous, anxious, sad, concern, sad for others, and sorry). The experimenter read each adjective to the child; the child then endorsed each item by pointing to a visual scale (rectangles varying in height) that indicated how strongly they experienced the emotional reaction (1 = *not at all* to 4 = *feel that way a whole lot*). These variables were entered into a principal-components analysis with a varimax rotation. Children's reports of being upset (factor loading = .72), scared (.56), nervous (.66), and anxious (.71) all loaded on the first factor (and accounted for 32% of the variance) and were averaged to form the factor of Personal Distress. Concern (.53), sad for others (.75), and sorry (.75) all loaded on the second factor (and accounted for 16% of the variance) and were averaged to form the factor of Situational Sympathy. Alphas for Personal Distress and Situational Sympathy were .61 and .52, respectively. Although relatively low in an absolute sense, they are reasonable for three-(and four-) item scales because the number of items highly affects the alpha (Nunnally, 1978). Reports of sadness were not used because (a) they cross-loaded and (b) sadness could tap a number of vicarious emotional reactions, not just sympathy based on empathic sadness.

Children's Effortful Control

Reported effortful control: Mothers and teachers completed a modified version of the Child Behavior Questionnaire (CBQ; Rothbart, Ahadi, Hershey, & Fisher 2001). The attention focusing (e.g., "When drawing or coloring in a book, shows strong concentration"), attention shifting (e.g., "Can easily shift from one activity to another"), and inhibitory control (e.g., "Can lower his/her voice when asked to do so") subscales were used to assess children's effortful control. The adult-reported regulation scales were modified to deal with potential overlap of items between effortful control and problem behaviors. Using rating procedures similar to Lemery, Essex, and Snider (2002), 32 experts in the field (24 faculty; 8 graduate students) rated temperament items from the CBQ (Rothbart et al., 1994, 2001) as aspects of temperament and/or child psychopathology. Each individual completed a questionnaire measure that assessed how much each item reflected either temperament or behavior problems (1 = *much better measure of temperament*; 3 = *not a better measure of temperament or symptoms; substantial content for both*; 5 = *much better measure of symptoms than temperament*). The means of the experts' ratings for each item were calculated. Items that experts rated as a better measure of behavior problems were considered to be contaminated and were eliminated from the effortful control scales. Following these procedures, 2 out of 11 items for both parent and teacher were deleted from the attention shifting subscale ("Sometimes has a dreamy quality when others talk to her/him, as if she/he were somewhere else" and "Sometimes doesn't seem to hear me when I talk to her/him"). Alphas for parents and teachers were .80 and .86 for attention shifting, .74 and .85 for attention focusing, and .84 and .88 for inhibitory control, respectively. Parents' reports of attention shifting were positively correlated with their reports of attention focusing and inhibitory control, and attention focusing was related to inhibitory control, *r*s(205–206) = .37, .73, .61, *p*s < .01, respectively. Teachers' reports of these same variables were also positively correlated, *r*s(192–193) = .61, .76, .78, *p*s < .01. Therefore, scales were standardized and averaged within reporter to form parent and teacher reported effortful control.

[2]Spinrad et al. (1999) used a six-item version of the scale. However, we chose to use only five items because one item had a negative item correlation and lowered the alpha to .63.

Observed effortful control: Persistence during the puzzle task was used as an observational index of effortful control. The child was shown a wooden box that contained a puzzle with geometric-shaped pieces. The box was constructed with a clear Plexiglas back, so that children's hand movements could be observed, as well as a cloth covering the front that had sleeves through which the children put their arms. An experimenter instructed the child to assemble the puzzle without looking at it. However, although the cloth at the front of the box blocked the child's view of the puzzle, it was not attached at the bottom and could be lifted easily so the child could cheat by looking at the puzzle. Children were told that if they finished the puzzle within the allotted time (5 min), they would receive an attractive prize. A timer was set for 5 min and placed in front of the child so he or she would know how much time was left. The experimenter left the room during the puzzle task until the child called him or her back by ringing a bell or until the timer went off. The amount of time children persisted on the puzzle task rather than being off task or cheating (i.e., lifting up the cloth to look at the puzzle) was coded by two observers, as well as by a reliability coder (different people coded persistence and parents' expressivity; see section on observed expressivity). The time a child spent persisting was divided by the total time he or she spent on the puzzle task. Interrater reliabilities for the continuous data (e.g., Pearson *r*s; based on 111 observations) were .97 and .98, respectively.

To further reduce the number of variables and analyses and because there were significant relations among the indices of children's effortful control (*r*s for the relations between parent- and teacher-reported effortful control, parent and observed effortful control, and teacher and observed effortful control were all significant, *r*s[191–206] = .48, .27, and .24, *p*s < .01), we standardized and then averaged the three indices of effortful control to form a composite score. Using structural equation modeling, Eisenberg, Spinrad, et al. (2004) have found that the observed measure of effortful control loads with parent and teacher reports of effortful control.

Parents' Expressivity

Reported expressivity: Parents' reported positive and negative dominant expressivity in the family were assessed with Halberstadt's Self-Expressiveness in the Family Questionnaire (SEFQ; Halberstadt et al., 1995). Parents were asked to indicate the frequency with which they express various emotions with family members on a 9-point scale (1 = *rarely expresses the feeling*; 9 = *frequently expresses the feeling*). Positive expressivity was the mean of 14 items (e.g., "Praising someone for good work"; α = .85), and negative dominant expressivity was the mean of 10 items (e.g., "Showing contempt for another's action"; α = .80).[3]

Observed expressivity: Parents' observed expressivity was coded while they completed a 5-min mildly stressful parent–child puzzle task. Parents' positive affect was coded every 30 s on a scale from 1 (*low positive affect*) to 5 (*high positive affect*), on the basis of their facial expressions (e.g., smiling) and laughing. Both intensity and duration of positive affect were considered. Parents' global warmth also was coded once per interaction (on a 1–5 scale). Parents' negative affect was coded on the 1–5 scale described above. Cues such as frowning, biting lips, giving irritated looks, and exhibiting negative voice tone were used as indicators of negative affect, which could include sadness, anger, worry, and anxiety. Many of the negative looks were subtle and were relatively infrequent. Therefore, anger and irritation were not coded separately from other negative emotions. Interrater reliabilities (*r*s) on these

[3]Six positive expressivity items in the SEFQ that were not recommended for a short positive expressivity scale by Halberstadt et al. (1995) were dropped to save administration time. In addition, the item "Sulking over unfair treatment by a family member," which was coded as "submissive negative emotion" in Halberstadt (1986) but as "dominant negative emotion" in Halberstadt et al. (1995), was left as "submissive negative emotion." This decision was based on both face validity and the finding that dropping it from the negative submissive scale lowered the alpha of that scale .03 and only lowered the alpha for dominant negative emotion by .02. The negative dominant scale without this item correlated .99 with the scale with this item, so it made little difference in the findings.

continuous scales for 25% of the interactions were .83, .63, and .74 for parents' positive affect, global warmth, and negative affect, respectively. Because the positive affect and warmth measures were significantly correlated, $r(209) = .65$, $p < .001$, they were combined to form a composite of observed positive expressivity. Observed negative expressivity was calculated as the mean of the 30-s negative affect codes.

Parents' reported and observed positive expressivity were significantly related, $r(205) = .19$, $p < .01$; thus these measures were standardized and averaged to form a measure of parents' positive expressivity. Negative dominant expressivity was marginally related to observed negative expressivity, $rs(204) = .13$, $p < .068$. Thus, to reduce the number of measures and to increase the reliability of the index (Epstein, 1979; Rushton, Brainerd, & Pressley, 1983), after standardizing, we averaged parents' reports of negative dominant and observed negative expressivity to form a composite of parents' negative expressivity. We refer to the average of negative dominant and observed negative expressivity as *negative expressivity* (as opposed to *negative dominant expressivity*) because the composite likely reflects much, albeit not all, negative dominant emotion. Although the relations between reported and observed expressivity (both positive and negative) were not strong, the decision to combine these measures is supported by the finding that both measures of positive expressivity loaded on one construct (a similar finding occurred for negative expressivity) in a structural equation model (Eisenberg, Gershoff, et al., 2001). Moreover, combining reported and observed expressivity allows for the presentation of a more parsimonious results section. The composites of positive and negative expressivity were negatively related, $r(211) = -.25$, $p < .01$.

Results

Analytic Strategy

First, we conducted a series of descriptive analyses. Second, we examined the correlations between children's empathy-related responses, their effortful control, and parents' expressivity. Third, we used regressions to examine the quadratic relations between parents' expressivity and children's empathy-related responses. Fourth, also using regressions, we tested whether children's effortful control moderated the relation between parents' expressivity and children's empathy-related responses. Variables that were not normally distributed (skew/$SE > 2$ or < -2) were transformed by using the procedures outlined by Tabachnick and Fidell (1996).

Descriptive Analyses

Table 1 contains the means and standard deviations. In a series of initial analyses, age, family socioeconomic status (SES), and sex differences were examined. SES was computed by standardizing and averaging mothers' and fathers' education and then averaging education with income (which was standardized). Children's age was positively related to situational sympathy and dispositional sympathy, $rs(212) = .31$ and .34, $ps < .01$. SES was positively related to children's effortful control and parents' positive expressivity and was negatively related to parents' negative expressivity, $rs(210) = .19$, .18, and $-.22$, $ps < .01$.

To test for sex differences, we computed two multiple analyses of variance (one for the indices of parents' expressivity and one for the indices of children's empathy-related responses) and one *t* test for effortful control, with sex as the independent variable. The multivariate effect for parents' expressivity was nonsignificant. However, there was a significant multivariate effect for children's empathy-related responses, $F(3, 210) = 6.24$, $p < .01$. According to univariate tests, girls were higher than boys on situational and dispositional sympathy, $Fs(1, 212) = 17.52$ and 4.41, $ps < .01$ and .04, respectively. According to a significant *t* test, $t(212) = 4.34$, $p < .01$, girls were higher than boys on effortful control.

Main Effects for Parents' Expressivity and Children's Effortful Control

The correlations of children's empathy-related responding with the composite measures of effortful control and parents' expressivity are presented in Table 2.[4] As predicted, children high in effortful control reported feeling low levels of personal distress and high levels of situational sympathy (although not when controlling for sex, age, and SES) and dispositional sympathy. Parents' positive expressivity was marginally negatively related to children's personal distress and marginally positively related to children's dispositional sympathy. Parents' negative expressivity was marginally positively related to children's personal distress.[5] However, most correlations between parental expressivity and empathy-related responding were quite weak.[6]

We also examined whether the relations presented in Table 2 were moderated by the child's sex or age. In regressions, interactions with age were nonsignificant. Interactions between parents' negative expressivity and children's sex indicated that the relation of personal distress with negative expressivity was stronger for girls (slope = .37, $p < .01$) than for boys (slope = .03, *ns*) and that the relation of situational sympathy with negative expressivity was nonsignificant for girls (slope = .07, *ns*) but was significant for boys (slope = −.06, $p < .05$).

The Quadratic Relations of Parents' Expressivity on Children's Effortful Control—In addition to examining direct relations, we examined the quadratic relations of parents' expressivity to children's empathy-related responses. We entered child's sex, age, and SES on step one. The index of parental expressivity (either positive or negative) was entered on the second step, and the quadratic term was entered on the third step. Three of 6 (2 types of expressivity × 3 types of empathy-related responses) tests were significant, and 1 was almost significant (see Table 3).

As predicted, the quadratic relation between negative expressivity and situational sympathy was significant. When we plotted the quadratic effect (using the procedures outlined by Aiken & West, 1991), there was an inverted-U-shaped relation between negative expressivity and situational sympathy (ΔR^2 for step = .02, $p < .05$; data points for low [−1 *SD*], mean, and high [+1 *SD*] levels of expressivity were −1.37, −1.34, and −1.37, respectively; the data points are all negative because situational sympathy was transformed; see Figure 2). In addition, although the omnibus model was not significant, there was a quadratic relation of negative expressivity to personal distress that was almost significant (ΔR^2 for step = .02, $p < .10$; see Figure 3; data points for low, mean, and high levels of parental negative expressivity were 2.11, 2.34, and 2.39, respectively). Personal distress was higher for mean and high levels of parental negative expressivity than for low parental negative expressivity.

The quadratic (but not linear) relation between positive expressivity and situational sympathy was significant (ΔR^2 for step = .02, $p < .05$; see Figure 2; data points for low, mean, and high positive expressivity were −1.38, −1.35, and −1.37, respectively). Sympathy was highest at moderate levels of parental positive expressivity. The quadratic effect of positive expressivity on personal distress was also significant (ΔR^2 for step = .03, $p < .05$, although the omnibus

[4]Children's social desirability, assessed with 14 items from the Crandall, Crandall, and Katkovsky (1965) scale (α = .64) was not significantly related to any of the child-reported variables.

[5]We also examined whether the relations for effortful control presented in Table 2 were stronger for one reporter or method of data collection (e.g., questionnaire or observed). In general, we found that the indices of effortful control were all related in the expected direction to children's empathy-related responses. Relations between children's empathy-related responses and parents' expressivity tended to be stronger for the observed measure of the latter.

[6]Because the participants were partly chosen on the basis of their level of problem behaviors, we examined the correlations between externalizing and internalizing problem behaviors (on the basis of the average of mothers' and teachers' report) and children's empathy-related responses. There were no significant relations between children's empathy-related responses and internalizing problem behaviors. The only significant relation for externalizing behaviors was with children's personal distress, $rs(212) = .17$, $p < .01$. Moreover, we did not find evidence that *T*-score status moderated the pattern of findings.

model was not significant). When plotted, personal distress was high at low (data point = 2.35) and medium (2.34) levels of positive expressivity but was lower (2.15) at high levels of positive expressivity (see Figure 3). There were no quadratic effects for dispositional sympathy.

The Moderating Role of Effortful Control

When computing regression equations examining the potential moderating role of effortful control, we entered child's sex, age, and SES on the first step. The main effects of parental expressivity and effortful control were entered on the second step and the multiplicative interaction term for Parental Expressivity × Effortful Control was entered on the third step. Out of six interactions, three were significant (all for negative expressivity) and one was almost significant (see Table 4). The plots of the interactions were created using the procedures outlined by Aiken and West (1991).

Prediction of personal distress from parents' negative expressivity (a positive relation) was strongest at high levels of children's effortful control; slopes for low, medium, and high effortful control were, respectively, −.06, .11, and .27, *t*s(205) = −.60, 1.36, and 2.24, *ns*, *ns*, and $p < .05$ (see Figure 4). The effect sizes (equal to the slope divided by the standard deviation of the dependent variable; L. Aiken, personal communication, October 21, 2003) were −.07, .13, and .31 for low, mean, and high levels of effortful control, respectively. For children high in effortful control, personal distress increased with the levels of parental expression of negative emotion (and was low if parental negative expressivity was low). In contrast, when children were moderate or low in effortful control, personal distress was relatively high regardless of the level of parental expression of negative emotion. Conversely, prediction of situational sympathy from parents' negative expressivity was significant and negative at low levels of children's effortful control and nonsignificant at medium and high levels of children's effortful control; slopes for low, medium, and high effortful control were, respectively, −.07, −.01, and .06, *t*s(205) = −2.13, −.05, and 1.61, $p < .05$, *ns*, and *ns* (see Figure 5). Effect sizes for low, mean, and high levels of effortful control were −.25, .00, and .21, respectively. Thus, for children low in effortful control only, sympathy decreased with increasing levels of parental negative expressivity. In a somewhat analogous manner, dispositional sympathy was positively related to parents' negative expressivity, but only for children high in effortful control; slopes of low, medium, and high effortful control were, respectively, −.07, .03, and .14, *t*s(205) = −1.10, 0.59, and 1.64, *ns*, *ns*, and $p = .10$; see Figure 6.[7] Effect sizes for low, mean, and high levels of effortful control were −.12, .05, and .23, respectively. Although the interaction between positive expressivity and effortful control marginally predicted situational sympathy, all slopes were nonsignificant. Interactions between effortful control and the quadratic component of parents' expressivity (positive and negative) were nonsignificant.[8,9]

[7]Although there are more reasons to expect relations between parents' negative dominant expressivity and children's empathy-related responses, we examined the relations of parents' negative submissive expressivity (assessed with the SEFQ, α = .71) to children's empathy-related responses. There were no significant linear or quadratic relations between negative submissive expressivity and children's empathy-related responses. A significant interaction indicated that prediction of personal distress from effortful control was strongest at high levels of negative submissive expressivity (and was similar to the interaction illustrated in Figure 4). In addition, the interaction of negative submissive expressivity and effortful control on dispositional sympathy was very similar to the interaction in Figure 6.

[8]We also tested whether the context of negative expressivity predicts empathy-related responses. Specifically, we computed interactions between positive and negative expressivity. Children's age, sex, and SES were entered on the first step, the main effects of positive and negative expressivity were entered on the second step, and the interaction term (Positive Expressivity × Negative Expressivity) was entered on the third step. Although there were a few marginal main effects for expressivity or interaction terms, none was significant. We also tested whether the proportion of negative expressivity (e.g., negative expressivity divided by the sum of positive and negative expressivity) predicted children's responses. Again, none of the tests was significant.

[9]In additional analyses, we found that the quadratic relations for parental negative expressivity (but not for positive parental expressivity) became nonsignificant if the linear Expressivity × Effortful Control interaction was entered in the regression prior to the quadratic term (although one generally would not enter the linear by quadratic relation when examining the mere existence of a quadratic relation).

Discussion

In this study, the direct relations of parents' expressivity and children's effortful control to their empathy-related responses were examined. Moreover, we examined whether relations between parents' expressivity and children's empathy-related responses were nonlinear and whether children's effortful control moderated the relations between parents' expressivity and children's empathy-related responses. The results generally supported our predictions.

Relations of Effortful Control to Children's Sympathy and Personal Distress

Consistent with the model proposed by Eisenberg and Fabes (1992), children's effortful control was negatively related to their personal distress and was positively related to their situational sympathy (although not when controlling for sex, age, and SES) and dispositional sympathy. The finding that children who were able to efficiently regulate themselves reported few feelings of distress and high levels of sympathy is consistent with prior limited work linking adults' attentional control with low levels of personal distress (Eisenberg & Okun, 1996) and linking children's attentional control with their situational sympathy (Guthrie et al., 1997) and dispositional sympathy (Eisenberg, Liew, & Pidada, 2001). These findings are also consistent with evidence that toddlers' inhibitory control is positively related to their conscience and empathy (Kochanska et al., 1997, 1998, 1999, 2001). Thus, it appears that individuals who are able to regulate their emotional arousal are likely to have the skills necessary to focus on others' needs and are unlikely to be self-focused.

Relations Between Parental Expressivity and Children's Sympathy and Personal Distress

In contrast to the clear linear relations between children's effortful control and their empathy-related responding, relations between parents' expressivity and children's empathy-related responses were more complex. For parents' negative expressivity, the zero-order correlation with children's personal distress was positive and marginal; this relation held primarily for girls. In contrast, there was evidence that parents' negative expressivity and children's situational sympathy were negatively related for boys (but not for girls). L. R. Brody (1993, 1999) proposed that sex differences such as this occur partly because mothers express their emotions differently on the basis of the sex of their child. Overall, however, the weak linear relations between parental negative expressivity and children's empathy-related responding indicate that parental expressivity has at best a modest linear relation to children's empathy-related responding, at least if one does not consider moderating variables.

Although parents' negative expressivity did not have significant linear relations to children's situational and dispositional sympathy, there were significant quadratic relations between these variables. Children's situational sympathy was highest at moderate levels of parental negative expressivity (compared with low or high levels of expressivity). The quadratic relation between negative expressivity and children' situational sympathy supports Halberstadt et al.'s (1999) hypothesis that exposure to mild or moderate levels of negative expressiveness may promote emotion understanding but that exposure to high levels of negative expressivity likely inhibits learning and promotes overarousal (also see Hoffman, 1983). Although significant, the quadratic component did not account for a large percentage of the variance. Nevertheless, the quadratic relation is theoretically important. The somewhat limited range in the expression of negative emotion may be one reason that the strength of the findings was modest.

There were also linear and quadratic relations between parents' positive expressivity and their children's empathy-related responses. Partially consistent with Eisenberg and McNally's (1993) findings, there was a positive correlation between parents' positive expressivity and children's dispositional sympathy that was almost significant. In addition, we found a negative

correlation between parents' positive expressivity and children's personal distress that was almost significant.

One reason the linear relation between personal distress and positive expressivity was not stronger is because there was also a quadratic relation between these variables. Children's personal distress remained relatively high at low and medium levels of positive expressivity, with the possible benefits of positive expressivity becoming apparent only at high levels of positive expressivity. Thus, positive expressivity in the home may provide a sense of security or other benefits that reduce the likelihood of children experiencing empathic overarousal (i.e., personal distress) when exposed to others' negative emotion. However, because the omnibus *F* was not quite significant, this finding should be viewed with caution.

Similar to the inverted-U relations between parents' negative expressivity and children's situational sympathy, we found a quadratic relation between parents' positive expressivity and children's situational sympathy. Moderate levels of parents' positive expressivity were most strongly associated with children's sympathy. Although high levels of positive expressivity are generally associated with high levels of sympathetic responding (Eisenberg, Fabes, Schaller, Miller, et al., 1991; Eisenberg & McNally, 1993), it is possible that high positive expressivity promotes overarousal and may hinder sympathetic responding in some children. Alternatively, high levels of parental positive expressivity may be associated with a pattern of parenting (e.g., low use of control or reasoning with children) that has an effect on the development of sympathy. This finding seems especially important when considering that, in general (as was the case in this study), parents often report expressing high levels of positive expressivity. However, because this quadratic relation has not been found previously and is somewhat inconsistent with the general finding of a positive relation between maternal positive affect and/or warmth and children's sympathy (as well as general adjustment and social competence), it should be viewed with caution until it is replicated.

With the exception of the quadratic relation just discussed, the pattern of relations between parental positive expressivity and children's empathy-related responding—albeit not very strong—are consistent with the data reviewed by Halberstadt et al. (1999), suggesting that positive expressivity promotes (and negative expressivity inhibits) high levels of general competence. They also are somewhat consistent with attachment theorists' assertion that parents' expression of warmth promotes a secure parent–child relationship, which in turn fosters children's empathic responses (Kestenbaum, Farber, & Sroufe, 1989; Waters, Hay, & Richters, 1986). However, our findings suggest that it is important to consider the possibility that very high levels of parental positive expressivity may not always have positive effects on children, perhaps because the expressivity may become overarousing.

Effortful Control as a Moderator of the Relation Between Parental Expressivity and Children's Empathy-Related Responding

The premise that relations between parenting practices and children's developmental outcomes are partly dependent on children's temperament is consistent with the theoretical work of Rothbart and Bates (1998) and empirical findings by Kochanska (1997). In this study, although there were some weak direct relations between parents' expressivity and children's empathy-related responses, interactions indicated that these relations were dependent on the level of children's effortful control. Prediction of dispositional sympathy from parents' negative expressivity was positive at high levels of effortful control (and was nonsignificantly negative for children low in effortful control). Moreover, prediction of situational sympathy from parents' negative expressivity was negative only at low levels of effortful control (whereas children high in effortful control tended to be relatively high in sympathy at high levels of negative parental expressivity). Although it has been suggested that exposure to high levels of parental negative emotion inhibits sympathetic responding (Eisenberg, Liew, & Pidada,

2001), the data in the present study suggest this may not be the case if the children are high in effortful control. Indeed, exposure to moderately high levels of negative emotion may promote sympathy when children have skills to manage their emotions; this relation is consistent with the not quite significant positive relation between parental negative expressivity and dispositional sympathy for children high in effortful control. This finding is reminiscent of Eisenberg and Fabes's (1992) prediction that children who are high in dispositional negative emotional intensity are high in sympathy if they are well-regulated, a finding with some support (see Eisenberg, Fabes, Murphy, Karbon, et al., 1996; Eisenberg, Fabes, Shepard, et al., 1998). For well-regulated children, exposure to negative emotion may provide opportunities for learning about and experiencing others' negative emotions (without becoming overwhelmed by them). In contrast, less regulated children may be less likely than regulated children to attend to emotion and learn when exposed to high levels of parental negative emotion; rather, they may tend to become overaroused by such exposure and to experience personal distress. In brief, effortful control may be particularly important for the development of sympathy for those children exposed to high levels of parental negative emotion because of the potential for high levels of parental negative emotion to either disrupt or enhance empathy-related development, depending on how children manage their attention and empathic emotion. It will be important to replicate these findings in a sample of children exposed to higher levels of negative expressivity. Like parents in most studies on negative dominant expressivity, as a group, parents in this study reported moderate levels of negative expressivity.

In contrast to sympathy, parents' negative expressivity was positively related to children's personal distress, but only at high levels of children's effortful control. At low levels of effortful control, children were uniformly high in personal distress across all levels of parents' negative expressivity. In contrast, children high in effortful control were low in personal distress at low levels of negative expressivity. At high levels of negative expressivity, all children experienced high levels of personal distress. Although the plot of the interaction is not exactly what we predicted, it appears that exposure to high levels of negative expressivity is related to high levels of personal distress, irrespective of children's level of effortful control.

In future studies, it would be interesting to examine whether this interaction persists as children age. With age and further development of effortful control, perhaps regulated children with parents who express high levels of negative emotion learn to modulate their personal distress better than do other children. Therefore, in comparison to those low in regulation, well-regulated children may be more immune to the deleterious effects of exposure to parents' negative expressivity. However, it is also possible that the relation between parental negative expressivity and children's personal distress becomes stronger with age, because of the effects of accumulated exposure to negative emotion (Davies, Myers, Cummings, & Heindel, 1999). Although age did not moderate the relations between parents' expressivity and children's empathy-related responses in this study, the age range of the participants was relatively limited. Using a meta-analysis, Halberstadt and Eaton (2002) found that the relation between parental expressiveness and children's emotion understanding was related across age curvilinearly (an inverted-U-shaped relation). Specifically, parents' negative emotions were positively related to children's emotion understanding for young children, but the relation was negative for college students. In future work, it would be informative to examine whether and how age moderates the relation between parental expressivity and children's empathy-related responses, and whether these relations change as children age.

For the group in general (regardless of effortful control), exposure to moderate levels of parental expressivity was associated with sympathy (especially situational sympathy). However, there was also evidence that for children low (but not moderate or high) in effortful control, situational sympathy declined with increases in parental negative expressivity. Moreover, there was a trend for children high in effortful control to report higher dispositional

sympathy if their parents expressed high negative emotionality. Thus, the pattern of results differs depending on whether child characteristics are taken into consideration.

Although effortful control moderated the linear component of parents' negative expressivity, it did not moderate the quadratic component. Therefore, the quadratic relations depicted in Figures 2 and 3 were not dependent on children's effortful control. The fact that there were some quadratic effects but no Parental Expressivity × Effortful Control quadratic interactions is not surprising; moderation could occur at the linear or quadratic level of analysis, and moderation of linear effects often is evident when the main linear effect is weak or nonsignificant. Moreover, it is likely that the power to detect either a quadratic effect after entering the Expressivity × Effortful Control interaction or a Quadratic × Effortful Control interaction was quite low.

Limitations of the Study

The use of different reporters for the independent and dependent variables and multiple methods of data collection bolsters our confidence in the findings. Nevertheless, there are several limitations. First, because of the correlational nature of the data, we cannot be certain that the direction of effects goes from parents' expressivity and children's effortful control to children's empathy-related responses. Children high in personal distress could elicit more negative, or less positive, expressivity from their parents (and children high in sympathy might elicit more positive emotion). In addition, genetic factors might affect both children's empathy-related responding and parents' expressivity. Second, the clear majority of participants in this study were from European American working- and middle-class families. The extent to which our findings apply to those from other backgrounds is unclear. Moreover, approximately half of the sample had children who were displaying clinical levels of externalizing and/or internalizing problem behaviors. Given previous work linking problem behaviors and negative emotionality (Eisenberg, Fabes, Murphy, Karbon, et al., 1996), it is possible that effortful control plays a more important function in this sample than in less clinical samples. Therefore, before replicated in more representative samples, caution should be exercised when generalizing these findings. Nevertheless, this study is consistent with findings that children high in effortful control are prone to sympathy and low levels of personal distress and that parents' expressivity is related—often in nonlinear ways—to these responses. To our knowledge, this study is unique in demonstrating that there are quadratic relations between parents' expressivity and children's empathy-related responses and that the relations between parents' expressivity and empathy-related responses are moderated by children's effortful control.

Summary and Developmental Implications

In summary, children's empathy-related responses were clearly related to their effortful control but were weakly directly related to their parents' expressivity. The quadratics and interactions suggest that exposure to some negative emotion, especially for children who are skilled at managing negative emotion, can promote sympathy. It is interesting that prediction of children's empathy-related responses was improved when quadratic or moderated effects were examined (in addition to linear effects). Although there are limitations, our data are consistent with a growing body of literature indicating that both parents' expression of emotion and children's effortful control contribute to children's empathy-related responses.

In future work it will be important to examine how these relations change (or remain consistent) as children age. As mentioned above, Halberstadt and Eaton (2002) found evidence that relations between parents' expressivity and developmental outcomes change across development. There is also evidence that mothers refer to and display emotion increasingly as their child matures (Beeghly, Bretherton, & Mervis, 1996; Capatides & Bloom, 1993; Campos,

Kermoian, & Zumbahlen, 1992). In addition, Fabes et al. (1994) found that mothers may change the way they express emotion on the basis of their child's age. Furthermore, parents may adjust their emotion-related socializing behaviors on the basis of their child's temperament. For example, Eisenberg et al. (1999) found that mothers were punitive and avoidant in reaction to children's negative emotions if they perceived their child as highly emotional or unable to regulate their emotions. It will be important for future research to describe how relations between parents' expressivity, children's temperament, and child outcomes change over time. For example, it would be interesting to use longitudinal data to confirm the curvilinear relations between parents' expressivity and children's emotion understanding described in Halberstadt and Eaton's meta-analysis. The integration of these two bodies of work represents an important next step in developmental research.

Given the importance of empathy to one's social interactions, it may be beneficial for parenting programs or interventions to focus on the level of parental negative and positive emotion expressed in the home. Activities designed to help parents express emotion in ways that can teach children about managing emotions may be especially helpful (Eisenberg & Fabes, 1998; Gottman, Katz, & Hooven, 1996; Hoffman, 2000). In addition, because parents' emotional expression is likely influenced by their child's behaviors and temperament (e.g., effortful control), it may be beneficial to train parents to better identify their own attributions regarding their child's behaviors, and the ways children respond to their emotional expressions, so that parents can express emotion at levels that foster children's positive social and emotional development.

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References

Achenbach, T. M. (1991a). *Integrative guide for the 1991 CBCL/4–18, YSR, and TRF profiles.* Burlington: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1991b). *Manual for the Child Behavior Checklist/4–18 and 1991 Profile.* Burlington: University of Vermont.

Aiken, L., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions* Newbury Park, CA: Sage.

Ballard ME, Cummings EM, Larkin K. Emotional and cardiovascular responses to adults' angry behavior and to challenging tasks in children of hypertensive and normotensive parents. Child Development 1993;64:500–515. [PubMed: 8477631]

Batson, C. D. (1991). *The altruism question: Toward a social–psychological answer.* Hillsdale, NJ: Erlbaum.

Beeghly M, Bretherton I, Mervis CB. Mother's internal state language to toddlers. British Journal of Developmental Psychology 1986;4:247–261.

Boyum LA, Parke RD. The role of family emotional expressiveness in the development of children's social competence. Journal of Marriage and the Family 1995;57:593–608.

Brody GH, Ge X. Linking parenting processes and self-regulation to psychological functioning and alcohol use during early adolescence. Journal of Family Psychology 2001;15:82–94. [PubMed: 11322087]

Brody, L. R. (1993). On understanding gender differences in the expression of emotion. In S. L. Ablon, D. Brown, E. J. Khantzian, & J. E. Mack (Eds.), *Human feelings: Explanations in affect development and meaning* (pp. 87–121). Hillsdale, NJ: The Analytic Press.

Brody, L. R. (1999). *Gender, emotion, and the family* Cambridge, MA: Harvard University Press.

Bryant B. An index of empathy for children and adolescents. Child Development 1982;53:413–425.

Campos JJ, Kermoian R, Zumbahlen MR. Socioemotional transformations in the family system following infant crawling onset. New Directions of Child Development 1992;55:25–40.

Capatides, J. B., & Bloom, L. (1993). Underlying process in the socialization of emotion. In C. Rovee-Collier & L. P. Lipsitt (Eds.), *Advances in infancy research* (Vol. 9, pp. 99–135). Norwood, NJ: Ablex Publishing.

Carlo G, Eisenberg N, Knight GP. An objective measure of adolescents' prosocial moral reasoning. Journal of Research on Adolescence 1992;2:331–349.

Crandall VC, Crandall VJ, Katkovsky W. A child's social desirability questionnaire. Journal of Consulting Psychology 1965;29:27–36. [PubMed: 14277395]

Cummings EM. Coping with background anger in early childhood. Child Development 1987;58:976–984. [PubMed: 3608667]

Cummings EM, Iannotti RJ, Zahn-Waxler C. Influence of conflict between adults on the emotions and aggression of young children. Developmental Psychology 1985;21:495–507.

Cummings EM, Vogel D, Cummings JS, El-Sheikh M. Children's responses to different forms of expression of anger between adults. Child Development 1989;60:1392–1404. [PubMed: 2612248]

Davies PT, Myers RL, Cummings EM, Heindel S. Adult conflict history and children's subsequent responses to conflict: An experimental test. Journal of Family Psychology 1999;13:610–628.

Denham SA. "When I have a bad dream, mommy holds me": Preschoolers' conceptions of emotions, parental socialisation, and emotional competence". International Journal of Behavioral Development 1997;20:301–319.

Denham SA, Renwick-Debardi S, Hewes S. Emotional communication between mothers and preschoolers: Relations with emotional competence. Merrill-Palmer Quarterly 1994;40:488–508.

Derryberry D, Rothbart MK. Reactive and effortful processes in the organization of temperament. Development and Psychopathology 1997;9:633–652. [PubMed: 9448999]

Dunn J, Brown J. Affect expression in the family, children's understanding of emotions, and their interactions with others. Merrill-Palmer Quarterly 1994;40:120–137.

Eisenberg N, Carlo G, Murphy B, Van Court P. Prosocial development in late adolescence: A longitudinal study. Child Development 1995;66:1179–1197. [PubMed: 7671655]

Eisenberg N, Cumberland A, Spinrad TL. Parental socialization of emotion. Psychological Inquiry 1998;9:241–273. [PubMed: 16865170]

Eisenberg N, Cumberland A, Spinrad TL, Fabes RA, Shepard SA, Reiser M, et al. The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. Child Development 2001;72:1112–1134. [PubMed: 11480937]

Eisenberg N, Fabes RA. Empathy: Conceptualization, assessment, and relation to prosocial behavior. Motivation and Emotion 1990;14:131–149.

Eisenberg, N., & Fabes, R. A. (1992). Emotion, regulation, and the development of social competence. In M. Clark (Ed.), *Emotion and social behavior: Vol. 14. Review of personality and social psychology* (pp. 119–150). Newbury Park, CA: Sage.

Eisenberg N, Fabes RA. The relation of young children's vicarious emotional responding to social competence, regulation, and emotionality. Cognition & Emotion 1995;9:203–228.

Eisenberg, N., & Fabes, R. A. (1998). Prosocial development. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 701–778). New York: Wiley.

Eisenberg N, Fabes RA, Bustamante D, Mathy RM, Miller P, Lindholm E. Differentiation of vicariously induced emotional reactions in children. Developmental Psychology 1988;24:237–246.

Eisenberg N, Fabes RA, Carlo G, Troyer D, Speer AL, Karbon M, Switzer G. The relations of maternal practices and characteristics to children's vicarious emotional responsiveness. Child Development 1992;63:583–602. [PubMed: 1600824]

Eisenberg N, Fabes RA, Guthrie IK, Reiser M. Dispositional emotionality and regulation: Their role in predicting quality of social functioning. Journal of Personality and Social Psychology 2000;78:136–157. [PubMed: 10653511]

Eisenberg N, Fabes RA, Murphy BC. Parents' reactions to children's negative emotions: Relations to children's social competence and comforting behavior. Child Development 1996;67:2227–2247. [PubMed: 9022240]

Eisenberg N, Fabes RA, Murphy B, Karbon M, Maszk P, Smith M, et al. The relations of emotionality and regulation to dispositional and situational empathy-related responding. Journal of Personality and Social Psychology 1994;66:776–797. [PubMed: 8189352]

Eisenberg N, Fabes RA, Murphy B, Karbon M, Smith M, Maszk P. The relations of children's dispositional empathy-related responding to their emotionality, regulation, and social functioning. Developmental Psychology 1996;32:195–209.

Eisenberg N, Fabes RA, Schaller M, Carlo G, Miller PA. The relations of parental characteristics and practices to children's vicarious emotional responding. Child Development 1991;62:1393–1408. [PubMed: 1786723]

Eisenberg N, Fabes RA, Schaller M, Miller PA, Carlo G, Poulin R, et al. Personality and socialization correlates of vicarious emotional responding. Journal of Personality and Social Psychology 1991;61:459–470. [PubMed: 1941517]

Eisenberg N, Fabes RA, Shepard SA, Guthrie IK, Murphy BC, Reiser M. Parental reactions to children's negative emotions: Longitudinal relations to quality of children's social functioning. Child Development 1999;70:513–534. [PubMed: 10218267]

Eisenberg N, Fabes RA, Shepard SA, Murphy BC, Jones S, Guthrie IK. Contemporaneous and longitudinal prediction of children's sympathy from dispositional regulation and emotionality. Developmental Psychology 1998;34:910–924. [PubMed: 9779738]

Eisenberg N, Gershoff ET, Fabes RA, Shepard SA, Cumberland AJ, Losoya SH, et al. Mothers' emotional expressivity and children's behavior problems and social competence: Mediation through children's regulation. Developmental Psychology 2001;39:3–19. [PubMed: 12518805]

Eisenberg N, Liew J, Pidada SU. The relations of parental emotional expressivity with quality of Indonesian children's social functioning. Emotion 2001;1:116–136. [PubMed: 12899192]

Eisenberg N, McNally S. Socialization and mothers' and adolescents' empathy-related characteristics. Journal of Research on Adolescence 1993;3:171–191.

Eisenberg, N., Morris, A. S., & Spinrad, T. L. (in press). Emotion-related regulation: The construct and its measurement. In D. Teti (Ed.), *Handbook of research methods in developmental psychology* Oxford, England: Blackwell.

Eisenberg N, Okun MA. The relations of dispositional regulation and emotionality to elders' empathy-related responding and affect while volunteering. Journal of Personality 1996;64:157–183. [PubMed: 8656314]

Eisenberg N, Schaller M, Fabes RA, Bustamante D, Mathy RM, Shell R, Rhodes K. Differentiation of personal distress and sympathy in children and adults. Developmental Psychology 1988;24:766–775.

Eisenberg, N., Shea, C. L., Carlo, G., & Knight, G. (1991). Empathy-related responding and cognition: A "chicken and the egg" dilemma. In W. Kurtines & J. Gewirtz (Eds.), *Handbook of moral behavior and development: Vol. 2. Research* (pp. 63–88). Hillsdale, NJ: Erlbaum.

Eisenberg N, Spinrad TL, Fabes RA, Reiser M, Cumberland A, Shepard SA, et al. The relations of effortful control and impulsivity to children's resiliency and adjustment. Child Development 2004;75:25–46. [PubMed: 15015673]

El-Sheikh M, Cummings EM. Availability of control and preschoolers' responses to interadult anger. International Journal of Behavioral Development 1992;15:207–226.

Emde RN, Plomin R, Robinson J, Corley R, DeFries J, Fulker DW, et al. Temperament, emotion, and cognition at fourteen months: The MacArthur Longitudinal Twin Study. Child Development 1992;63:1437–1455. [PubMed: 1446561]

Epstein S. The stability of behavior: I. On predicting most of the people most of the time. Journal of Personality and Social Psychology 1979;37:1097–1126.

Fabes RA, Eisenberg N, Karbon M, Bernzweig J, Speer AL, Carlo G. Socialization of children's vicarious emotional responding and prosocial behavior: Relations with mothers' perceptions of children's emotional reactivity. Developmental Psychology 1994;30:44–55.

Gottman JM, Katz LF, Hooven C. Parental meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. Journal of Family Psychology 1996;10:243–268.

Guthrie IK, Eisenberg N, Fabes RA, Murphy BC, Holmgren R, Maszk P, Suh K. The relations of regulation and emotionality to children's situational empathy-related responding. Motivation and Emotion 1997;21:87–108.

Halberstadt AG. Family socialization of emotional expression and nonverbal communication styles and skills. Journal of Personality and Social Psychology 1986;51:827–836.

Halberstadt AG, Cassidy J, Stifter CA, Parke RD, Fox NA. Self-expressiveness within the family context: Psychometric support for a new measure. Psychological Assessment 1995;7:93–103.

Halberstadt, A. G., Crisp, V. W., & Eaton, K. L. (1999). Family expressiveness: A retrospective and new directions for research. In P. Philippot & R. S. Feldman (Eds.), *The social context of nonverbal behavior: Studies in emotion and social interaction* (pp. 109–155). New York: Cambridge University Press.

Halberstadt AG, Eaton KL. A meta-analysis of family expressiveness and children's emotion expressiveness and understanding. Marriage and Family Review 2002;34:35–62.

Hoffman, M. L. (1982). Development of prosocial motivation: Empathy and guilt. In N. Eisenberg (Ed.), *The development of prosocial behavior* (pp. 281–313). New York: Academic Press.

Hoffman, M. L. (1983). Affective and cognitive processes in moral internalization. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), *Social cognition and social development: A sociocultural perspective* (pp. 236–274). New York: Cambridge University Press.

Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice.* Cambridge, England: Cambridge University Press.

Kestenbaum, R., Farber, E. A., & Sroufe, L. A. (1989). Individual differences in empathy among preschoolers: Relation to attachment history. In N. Eisenberg (Ed.), *New directions for child development: No. 44. Empathy and related emotional responses* (pp. 51–64). San Francisco: Jossey-Bass.

Kochanska G. Socialization and temperament in the development of guilt and conscience. Child Development 1991;62:1379–1392. [PubMed: 1786722]

Kochanska G. Toward a synthesis of parental socialization and child temperament in early development of conscience. Child Development 1993;64:325–347.

Kochanska G. Children's temperament, mother's discipline, and security of attachment: Multiple pathways to emerging internalization. Child Development 1995;66:597–615.

Kochanska G. Multiple pathways to conscience for children with different temperaments: From toddlerhood to age 5. Developmental Psychology 1997;33:228–240. [PubMed: 9147832]

Kochanska G, Aksan N. Mother–child mutually positive affect, the quality of child compliance to requests and prohibitions, and maternal control as correlates of early internalization. Child Development 1995;66:236–254.

Kochanska G, Coy KC, Murray KT. The development of self-regulation in the first four years of life. Child Development 2001;72:1092–1111.

Kochanska G, DeVet K, Goldman M, Murray K, Putnam SP. Maternal reports of conscience development and temperament in young children. Child Development 1994;65:852–868. [PubMed: 8045172]

Kochanska G, Forman DR, Coy KC. Implications of the mother–child relationship in infancy socialization in the second year of life. Infant Behavior and Development 1999;22:249–265.

Kochanska G, Murray K, Coy K. Inhibitory control as a contributor to conscience in childhood: From toddler to early school age. Child Development 1997;68:263–277. [PubMed: 9180001]

Kochanska G, Tjebkes TL, Forman DR. Children's emerging regulation of conduct: Restraint, compliance, and internalization from infancy to the second year. Child Development 1998;69:1378–1389. [PubMed: 9839422]

Lemery KS, Essex MJ, Snider NA. Revealing the relation between temperament and behavior problem symptoms by eliminating measurement confounding: Expert ratings and factor analyses. Child Development 2002;73:867–882. [PubMed: 12038557]

Mirsky, A. F. (1996). Disorders of attention: A neuropsychological perspective. In G. R. Lyon & N. A. Krasnegor (Eds.), *Attention, memory, and executive function* (pp. 71–93). Baltimore: Paul H. Brookes.

Murphy BC, Shepard S, Eisenberg N, Fabes RA, Guthrie IK. Contemporaneous and longitudinal relations of young adolescents' dispositional sympathy to their emotionality, regulation, and social functioning. Journal of Early Adolescence 1999;29:66–97.

Nunnally, J. C. (1978). *Psychometric theory* New York: McGraw-Hill.

Plomin R, Emde RN, Braungart JM, Campos J, Corley R, Fulkner DW, et al. Genetic change and continuity from fourteen to twenty months: The MacArthur Longitudinal Twin Study. Child Development 1993;64:1354–1376. [PubMed: 8222877]

Posner MI, DiGirolamo GJ. Cognitive neuroscience: Origins and promise. Psychological Bulletin 2000;126:873–889. [PubMed: 11107880]

Roberts W, Strayer J. Empathy, emotional expressiveness, and prosocial behavior. Child Development 1996;67:449–470.

Rothbart MK, Ahadi SA, Hershey KL. Temperament and social behavior in childhood. Merrill-Palmer Quarterly 1994;40:21–39.

Rothbart MK, Ahadi SA, Hershey KL, Fisher P. Investigations of temperament at three to seven years: The Children's Behavior Questionnaire. Child Development 2001;72:1394–1408. [PubMed: 11699677]

Rothbart, M. K., & Bates, J. E. (1998). Temperament. In W. Damon (Series Ed.) and N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 105–176). New York: Wiley.

Rushton JP, Brainerd CM, Pressley M. Behavioral development and construct validity: The principle of aggregation. Psychological Bulletin 1983;94:18–38.

Spinrad TL, Losoya SH, Eisenberg N, Fabes RA, Shepard SA, Cumberland A, et al. The relations of parental affect and encouragement to children's moral emotions and behaviour. Journal of Moral Education 1999;28:323–337.

Staub, E. (1979). *Positive social behavior and morality: Vol. 2. Socialization and development.* New York: Academic Press.

Stifter CA, Moyer D. The regulation of positive affect: Gaze aversion activity during mother–infant interaction. Infant Behavior & Development 1991;14:111–123.

Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* New York: HarperCollins.

Ungerer JA, Dolby R, Waters B, Barnett B, Kelk N, Lewin V. The early development of empathy: Self-regulation and individual differences in the first year. Motivation and Emotion 1990;14:93–106.

Valiente C, Eisenberg N, Shepard SA, Fabes RA, Cumberland AJ, Losoya SH, Spinrad TL. The relations of mothers' negative expressivity to children's experience and expression of negative emotion. Journal of Applied Developmental Psychology 2004;25:215–235.

Waters, E., Hay, D., & Richters, J. (1986). Infant–parent attachment and the origins of prosocial and antisocial behavior. In D. Olweus, J. Block, & M. Radke-Yarrow (Eds.), *Development of antisocial and prosocial behavior: Research, theories, and issues* (pp. 97–125). Orlando, FL: Academic Press.

Wood JV, Saltzberg JA, Goldsamt LA. Does affect induce self-focused attention? Journal of Personality and Social Psychology 1990;58:899–908. [PubMed: 2348375]

Zahn-Waxler C, Robinson JJ, Emde RN. The development of empathy in twins. Developmental Psychology 1992;28:1038–1047.

Zhou Q, Eisenberg N, Losoya SH, Fabes RA, Reiser M, Guthrie IK, et al. The relations of parental warmth and positive expressiveness to children's empathy-related responding and social functioning: A longitudinal study. Child Development 2002;73:893–915. [PubMed: 12038559]

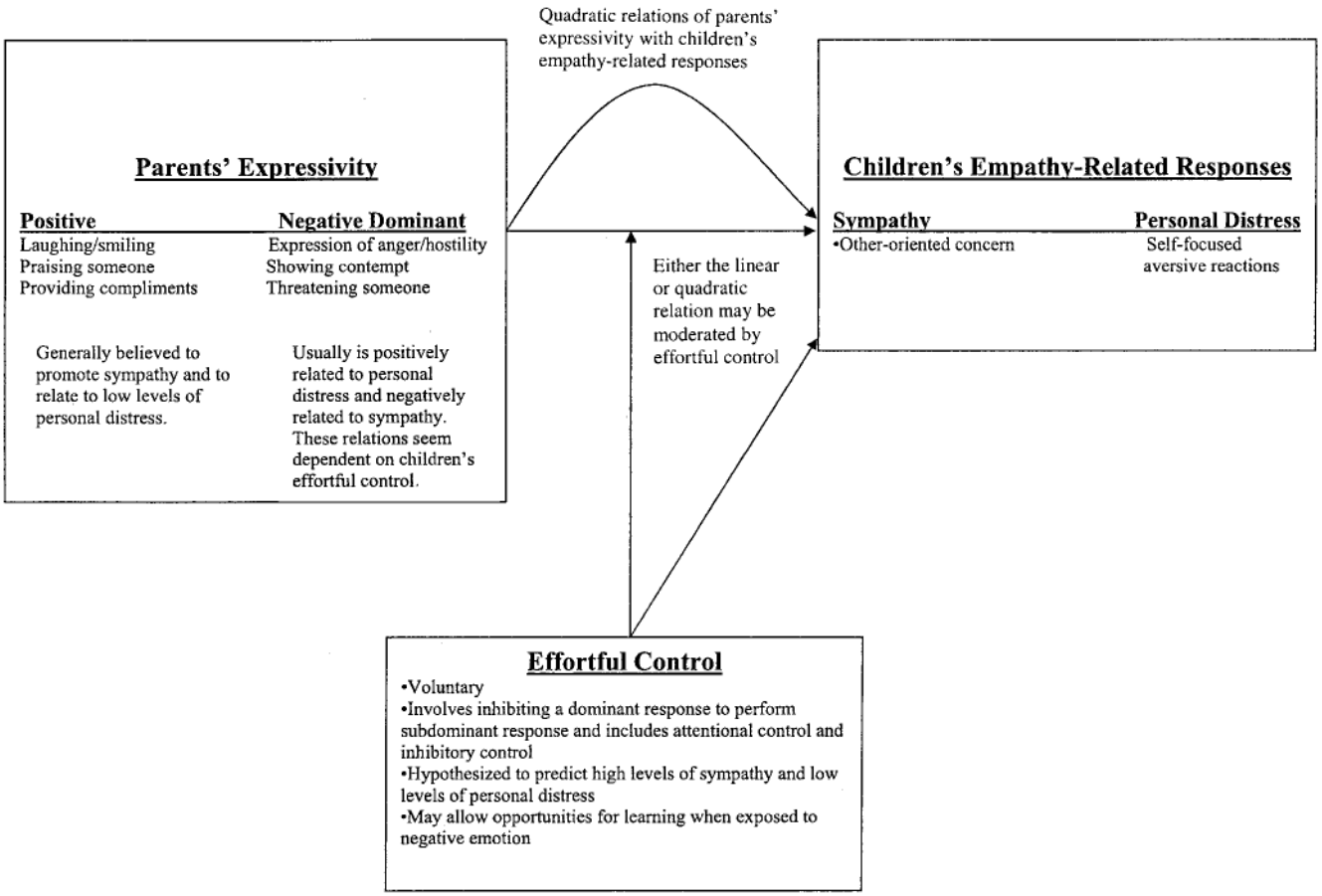

Figure 1.
Heuristic model.

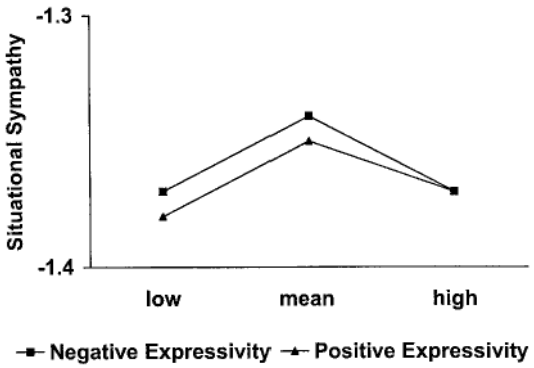

Figure 2.
The quadratic relations between parents' negative and positive expressivity and children's situational sympathy (the data points are all negative because situational sympathy was transformed; $M = -1.38$, minimum = −2.00, maximum = −1.00, $SD = 0.28$).

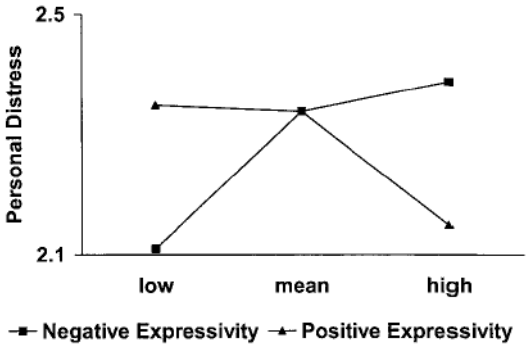

Figure 3.
The quadratic relations between parents' negative and positive expressivity and children's personal distress.

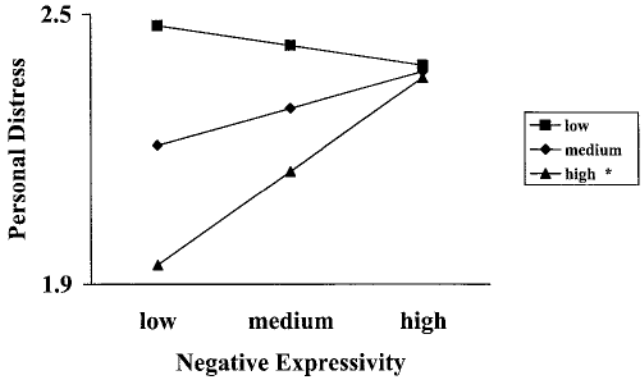

Figure 4.
The interaction of parents' negative expressivity and children's effortful control when predicting children's personal distress. *$p < .05$.

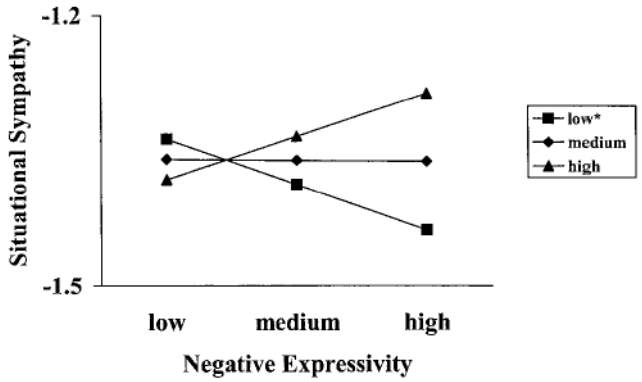

Figure 5.
The interaction of parents' negative expressivity and children's effortful control when predicting children's situational sympathy (the data points are all negative because situational sympathy was transformed; $M = -1.38$, minimum = −2.00, maximum = −1.00, $SD = 0.28$). *$p < .05$.

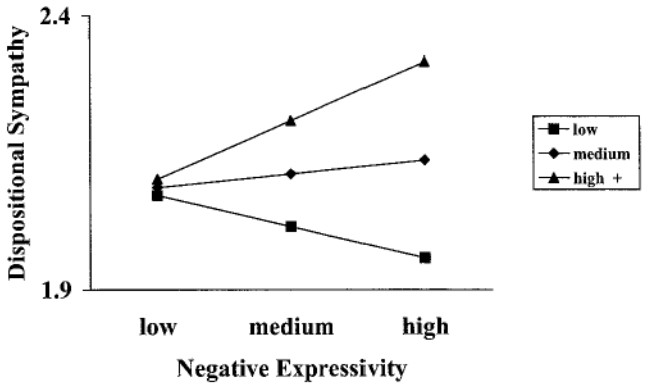

Figure 6.
The interaction of parents' negative expressivity and children's effortful control when predicting children's dispositional sympathy. $^{+}p < .10$.

Table 1

Means and Standard Deviations of Major Variables

Variable	*M*	*SD*
Children's parent-reported effortful control	4.42	0.74
Children's teacher-reported effortful control	4.89	1.02
Children's observed effortful control	0.55	0.30
Parents' reported positive expressivity	7.27	0.98
Parents' observed positive expressivity	2.47	0.66
Parents' reported negative dominant expressivity	3.97	1.22
Parents' observed negative expressivity	1.21	0.31
Children's personal distress (child reported)	2.26	0.82
Children's situational sympathy (child reported)	3.02	0.80
Children's dispositional sympathy (child reported)	2.08	0.61

Note. *N*s range from 195 to 214. The means and standard deviations are presented prior to transformations or standardizing. The standardized or transformed variables were used in all analyses.

Table 2

Relations Between Parents' Expressivity, Children's Effortful Control, and Their Empathy-Related Responses

Variable	Personal distress	Situational sympathy	Dispositional sympathy
Children's effortful control	−.21 (−.22****)	.17 (.08)*	.20 (.14***)
Parents' positive expressivity	−.13 (−.13††)	.02 (.04)	.12 (.14$^{\dagger *}$)
Parents' negative expressivity	.13 (.13††)	−.07 (−.07)	−.05 (−.04)

Note. Relations presented in parentheses are partial (controlling for age, sex, and socioeconomic status). *N*s range from 213 to 214. Children's effortful control was positively related to parents' positive expressivity, $r(211) = .29$, $p < .01$, and negatively related to parents' negative expressivity, $r(211) = -.31$, $p < .01$.

† $p < .10$.

* $p < .05$.

** $p < .01$.

Table 3

Quadratic Relations Between Parents' Expressivity and Children's Empathy-Related Responses

Step	Personal distress		Situational sympathy		Dispositional sympathy	
	β	ΔR^2 for step	β	ΔR^2 for step	β	ΔR^2 for step
			Positive expressivity			
Step 1		.01		.16		.13
Sex	−.03		−.25**		−.10	
Age	−.04		.29**		−.34**	
SES	−.05		−.04		.05	
Step 2		.01		.00		.02
Positive expressivity	−.12†		.03		−.13†	
Step 3		.03		.02		.00
Quadratic of positive expressivity	−.16*		−.16*		−.03	
$F(1, 206)$ change for step		5.35*		6.05*		0.23
Total R^2		.04		.17		.15
Omnibus $F(5, 206)$		1.88†		9.43**		7.14**
			Negative expressivity			
Step 1		.01		.16		.13
Sex	−.02		−.24**		−.09	
Age	−.05		.27**		.32**	
SES	−.04		−.05		−.06	
Step 2		.01		.00		.00
Negative expressivity	.17*		.00		.01	
Step 3		.02		.02		.01
Quadratic of negative expressivity	−.15†		−.16*		−.10	
$F(1, 206)$ change for step		3.77†		5.50*		2.07
Total R^2		.04		.19		.14
Omnibus $F(5, 206)$		1.51		9.46**		6.71**

Note. Coefficients are from the final step. SES = socioeconomic status.

† $p < .10$.

* $p < .05$.

** $p < .01$.

Table 4

The Interaction of Parents' Expressivity and Children's Effortful Control on Children's Empathy-Related Responses

Step	Personal distress		Situational sympathy		Dispositional sympathy	
	β	ΔR^2 for step	β	ΔR^2 for step	β	ΔR^2 for step
			Positive Expressivity × Effortful Control			
Step 1		.005		.162		.131
Sex	−.08		−.23**		−.07	
Age	−.03		.28**		.33	
SES	−.02		−.06		.03	
Step 2		.048		.005		.024
Positive expressivity	−.07		.001		.10	
Effortful control	−.20**		−.08		.11	
Step 3		.002		.011		.002
Positive Expressivity × Effortful Control	−.05		−.11†		−.05	
$F(1, 205)$ change for step		0.42		2.81†		0.53
Total R^2		.055		.18		.16
Omnibus $F(6, 205)$		1.98†		7.37**		6.38**
			Negative Expressivity × Effortful Control			
Step 1		.005		.162		.130
Sex	−.06		−.21**		−.05	
Age	−.02		.28**		.32**	
SES	−.02		−.06		.04	
Step 2		.047		.006		.015
Negative expressivity	.10		−.01		.04	
Effortful control	−.17*		.10		.16*	
Step 3		.021		.027		.016
Negative Expressivity × Effortful Control	.15*		.17**		.13*	
$F(1, 205)$ change for step		4.67*		6.92**		3.98*
Total R^2		.07		.20		.16
Omnibus $F(6, 205)$		2.69*		8.27**		6.60**

Note. Coefficients are from the final step. SES = socioeconomic status.

† $p < .10$.

* $p < .05$.

** $p < .01$.