Predicting Empathy-Related Responding and Prosocial Behavior from Dispositional Sadness and Effortful Control

by

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ABSTRACT

The purpose of this study was to examine whether dispositional sadness predicted children's prosocial behavior, and whether empathy-related responding (i.e., sympathy, personal distress) mediated this relation. It was hypothesized that children who were dispositionally sad, but well-regulated (i.e., moderate to high in effortful control), would experience sympathy versus personal distress, and thus would engage in more prosocial behaviors than children who were not well-regulated. Constructs were measured across three time points, when children were 18-, 30-, and 42-months old. In addition, early effortful control (at 18 months) was investigated as a potential moderator of the relation between dispositional sadness and empathy-related responding. Separate path models were computed for sadness predicting prosocial behavior with (1) sympathy and (2) personal distress as the mediator. In path analysis, sadness was found to be a positive predictor of sympathy across time. There was not a significant mediated effect of sympathy on the relation between sadness and prosocial behavior (both reported and observed). In path models with personal distress, sadness was not a significant predictor of personal distress, and personal distress was not a significant predictor of prosocial behavior (therefore, mediation analyses were not pursued). The moderated effect of effortful control was significant for the relation between 18-month sadness and 30-month sympathy; contrary to expectation, sadness was a significant, positive predictor of sympathy only for children who had average and low levels of effortful control (children high in effortful control were high in sympathy regardless of level of sadness). There was

no significant moderated effect of effortful control on the path from sadness to personal distress. Findings are discussed in terms of the role of sadness in empathy-related responding and prosocial behavior as well as the dual role of effortful control and sadness in predicting empathy-related responding.

DEDICATION

For Charles. It is also a hat.

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Introduction

Research on the specific outcomes of children's dispositional emotionality, which is believed to be an aspect of temperament and personality, has been of interest to many investigators (e.g., Eisenberg et al., 2001; Guthrie et al., 1997; Martini, Root, & Jenkins, 2004; Zhou, Eisenberg, Wang, & Reiser, 2004; see also Rothbart & Bates, 2006, for a review). For example, researchers have examined how different emotions affect children's problem behaviors as well as their socially competent behaviors. Researchers have shown that dispositional aspects of emotionality and emotion regulation appear to play an important role in children's adjustment and social competence (Rothbart & Bates, 2006). The goal of this study was to examine whether sadness, a negative emotion, was related to children's empathy-related responding (i.e., sympathy and personal distress) and prosocial behavior. Furthermore, emotion regulation was examined as a moderator of this relation; it was hypothesized that children who were dispositionally sad, but also well-regulated, may tend to experience sympathy (versus personal distress) and engage in more prosocial behaviors than children who are not well-regulated.

There are very few investigators who have examined the relation of sadness with sympathy, personal distress, or prosocial behavior (e.g., Denham, Mason, & Couchoud, 1995; Jenkins & Ball, 2000; Rothbart, Ahadi, & Hershey, 1994). The research that has been conducted on the relation between emotionality and prosocial behavior generally has found that children's negative emotionality is negatively related to prosocial behavior (see Eisenberg, Fabes, & Spinrad,

2006, for a review). However, this relation is not always consistent. That is, researchers have found that negative emotionality was sometimes positively related to prosocial behavior (e.g., Carlson & Miller, 1987; Cialdini, Kenrick, & Baumann, 1982; Eisenberg, 1991). Carlson and Miller (1987) suggested that this relation may depend on regulation of one's own distress via attentional focusing on the other rather than on the self. If people become very distressed while witnessing another person's distress and are not able to regulate their distress, this over-arousal may lead to prosocial behavior, but only in an attempt to relieve their own distress.

Prosocial Behavior

Prosocial behavior is voluntary behavior intended to benefit another (Eisenberg, Fabes, et al., 2006). These behaviors can include helping, caring, sharing, and protecting. Prosocial behavior tends to be socially appropriate in most contexts; therefore, it is positively correlated with many measures of social competence. For example, children who are prosocial tend to have positive relationships with their parents, teachers and peers and tend to be low in behavior problems (e.g., Diener & Kim, 2004; Wentzel & McNamara, 1999). Most researchers are especially interested in *altruistic* prosocial behavior, which is prosocial behavior that is not motivated by external factors. This kind of altruistic behavior is seen as more other-oriented than other types of prosocial behavior (such as those behaviors motivated by relieving one's own distress – i.e., prosocial behaviors stemming from personal distress) and is considered to be an important component of moral development. Emotions can be an important part

of prosocial behavior, particularly those that are considered *empathy-related* emotions. Empathy, sympathy, and personal distress (discussed in more detail below) are all part of vicarious emotional responding that relate differently to, or produce differences in, prosocial behavior (Eisenberg, Fabes, et al., 2006).

Empathy

It is important to look at empathy in conjunction with prosocial behavior because empathy has been implicated as a motivator of prosocial behavior (Staub, 1978). Although researchers have defined empathy in various ways, addressing behavioral, affective, and cognitive dimensions, one commonly used definition of empathy is that it is "an affective response that stems from the apprehension or comprehension of another's emotional state or condition, and which is identical or very similar to what the other person is feeling or would be expected to feel" (Eisenberg, Fabes, et al., 2006, p. 647). The process of experiencing empathy follows a sequence that encompasses both the affective and cognitive components of empathy.

The first step in the sequence of experiencing empathy is two-fold. First, a person witnesses another person who is experiencing an emotion and showing signs of that emotion, such as facial and/or vocal displays. This is the cognitive aspect of empathy, by which an individual is able to identify another's emotion based on physical cues. On the other hand, one could witness a person who is not showing signs of an emotional response, but is in a situation or affected by a condition, such as poverty, that would be likely to elicit certain emotions. However, one does not even need to witness a particular person, either

experiencing an emotion or in a situation likely to engender a given emotional reaction to the situation; that is, a person may merely receive information about a person, such as hearing or reading about a person's situation or condition. This is also a cognitive aspect of empathy, whereby an individual must identify another's emotional cues or relevant information in the situation, take the perspective of another, and/or access information from memory in order to identify the others' expected emotion.

Next, the individual may have an emotional reaction that is the same as, or similar to, what the other person is experiencing or what the other person would be expected to feel in a particular situation. For instance, if a person sees someone who is sad, and then that person becomes sad themselves, the person is experiencing empathy. However, empathy alone is not necessarily enough to motivate moral or socially competent behavior (i.e., prosocial behaviors). In order to distinguish empathy from related emotional responses and to better predict prosocial behavior, it is important to introduce two related responses, sympathy and personal distress, which have been shown to relate differently to prosocial behaviors.

Sympathy

Sympathy is an affective response that is often a product of empathy, but it can derive directly from perspective taking or other cognitive processes such as retrieval of information from memory (e.g., retrieval of information from memory about people in need; Eisenberg, Fabes, et al., 2006). Sympathy consists of feeling sorrow or concern for the needy or distressed person, as opposed to merely

experiencing the same emotion that the person is experiencing or is expected to experience (Eisenberg, Fabes, et al., 2006). Sympathy is the positive side of empathy-related responding (as opposed to personal distress, discussed below).

It is the concern involved in sympathy that distinguishes it from empathy; just because a person experiences the same emotion as another person does not mean that he or she will be motivated to help that person (Eisenberg, Spinrad, & Sadovsky, 2006). Feeling concern for another's situation or distress (i.e., sympathy) is likely to be associated with a desire to reduce that distress (Batson, 1991) and researchers have generally found evidence to support the positive relation between sympathy and prosocial behavior (e.g., Eisenberg, Fabes, Murphy et al., 1996; Eisenberg, McCreath, & Ahn, 1988; Zahn-Waxler, Robinson, and Emde, 1992; see also Eisenberg, Fabes, et al., 2006, for a comprehensive review of the literature on this relation). Prosocial behaviors that stem from sympathy are the result of altruistic, other-focused concern. Prosocial behaviors originating from empathy-related responding are, therefore, morally motivated by sympathy.

Personal Distress

Personal distress refers to responding that is often also the result of exposure to another's emotions. In contrast to sympathy, personal distress is a self-focused, aversive response to the vicarious experiencing of emotion with a person in need or distress (e.g., discomfort or anxiety; see Eisenberg, Fabes, et al., 2006). If a person experiences a similar emotion with great intensity in response to another's emotional state and is not able to regulate his or her over-arousal, that

person is likely to experience personal distress. Personal distress is self-focused and believed to be associated with egoistic motivations for engaging in prosocial behavior (Batson, 1991; Eisenberg, Fabes, Schaller, & Miller, 1989). That is to say, a person who responds with personal distress (which may be experienced as anxiety or distress) to another's distress will only engage in prosocial behaviors if that is the easiest or only way to relieve his or her own distress (Batson, 1991; Eisenberg, Fabes, et al., 2006).

Negative Emotionality

In general, negative emotion has been assessed as part of measures of temperament (Bates, 1989). Rothbart and Bates (2006) viewed negative emotionality as part of a general dimension of temperament that includes the negative emotions of fear, anticipatory anxiety, sadness, frustration/anger, guilt, and discomfort. Although these negative emotions are considered part of a broader aspect of temperament, Rothbart and Bates (2006) also acknowledged that it is important to assess them independently as well.

Negative emotionality has been consistently shown to be positively related to both internalizing and externalizing problems, often with anger/irritability generally being related to externalizing behaviors and sadness and fear generally related to internalizing behaviors (see Eisenberg et al., 2001; Rothbart & Bates, 2006). However, as researchers differentiated individual negative emotions, they began to find clearer linkages between emotionality and adjustment (Rothbart & Bates, 2006). As researchers have differentiated among various aspects of negative emotionality, they have found that the relation between individual

negative emotions and behavioral problems is more complex. For instance, Eisenberg et al. (2005; a 2-year follow-up of the sample examined in Eisenberg et al., 2001) found that relations between emotionality and behavioral problems were more clearly differentiated at T1 (when children were approximately 5 years old) than at T2 (when children were approximately 7 years old). At T2, the externalizing group was only marginally higher than internalizers in anger and internalizers were only slightly higher in sadness than externalizers. This finding suggests that internalizing and externalizing behaviors may relate to a broad array of negative emotions, perhaps in ways that may be different from their relations to constructs of general negative emotionality.

Negative emotionality generally has been negatively linked to social competence and positive social development (Eisenberg, Fabes, Murphy, et al., 1996). Emotionality in general (and negative emotionality more specifically) has been found to be an important predictor of adults' perception of children's social skills (Eisenberg et al., 1993). Specifically, children who are prone to negative emotionality have been found to be less popular with their peers (Stocker & Dunn, 1990). Eisenberg et al. (1995) found that children's teacher-reported socially appropriate behavior, including low levels of aggressive and disruptive behavior, was related to low levels of negative emotionality.

Differentiating Negative Emotions

Many researchers studying emotionality have focused on the outcomes of negative emotionality, especially anger/frustration. This is not surprising considering the overwhelming effects on, and outcomes of, anger in childhood

(which is often associated with aggressive behavior; see Dodge, Coie, & Lynam, 2006, for a review). However, researchers are beginning to examine the effects of other specific negative emotions on various outcomes. Researchers have shown that beginning in infancy and continuing on into toddlerhood, children have different reactions to their own and others' specific negative emotions. Buss and Goldsmith (1998) found that fear and anger have different relations to the type and frequency of regulatory strategies that infants use. They found that the intensity of the fear expression was associated with the frequency of the type of regulatory strategy that the infant engaged in; that is, infants used different strategies for regulating their emotions depending on the intensity of their fear. The different strategies used for regulating fear were associated with the continuation of the fear expression and were successful at keeping the fear from increasing. However, they found that the intensity of the anger expression was largely independent of the type of regulatory strategy used. The strategies used for regulating anger were successful at reducing the level of anger and terminating the continuation of the anger expression. In a different study, Buss and Kiel (2004) exposed toddlers to two different threat tasks and two different frustration tasks and examined their facial distress and looks to their mother. They found that toddlers expressed more sadness than a target emotion (either fear or anger) when looking at their mothers. This finding suggests that even when children may be feeling another emotion they may facially express sadness in order to elicit social support from their caregivers.

We already know that, as broad categories of emotions, positive emotions are different from negative emotions, with each category (i.e., positive versus negative emotions) causing differential responding in different areas of the brain and each relating differently to adjustment and developmental outcomes (Ekman, Levenson, & Friesen, 1983; Serrano, Iglesias, and Loeches, 1995; Lagattuta & Wellman, 2002; see also Saarni, Campos, Camras, & Witherington, 2006). Researchers are now beginning to think the same way about negative emotions, and many believe that each negative emotion has causes and effects unique to that particular emotion (Levenson, 1992; Saarni et al., 2006; Springer, Rosas, McGetrick, & Bowers, 2007; Stemmler, Aue, & Wacker, 2007). In fact, although negative emotions such as anger/frustration, sadness, and fear are often grouped together as 'negative emotionality' in empirical studies, researchers are now finding that these individual negative emotions may relate differently to adjustment and maladjustment, as well as constructs such as regulatory skills, goals, and physiological markers (e.g., Eisenberg et al., 2001; Eisenberg et al., 2005; Eisenberg, Fabes, Guthrie, & Reiser, 2000; Jenkins & Ball, 2000; Keltner, Moffitt, & Stouthamer-Loeber, 1995; Kim, Walden, Harris, Karrass, & Catron, 2007; Rothbart & Bates, 2006; Rydell, Berlin, & Bohlin, 2003).

In addition, some researchers have shown that combining multiple measures of negative emotions into one general construct can mask certain relations for individual negative emotions. For example, Kim et al. (2007) found that three individual negative emotions (anger, sadness, and fear) were positively related to one another, but were differentially related to externalizing behavior.

When these three emotions were combined into one construct of negative emotionality, it did not significantly predict externalizing behaviors. However, when examined separately, anger was positively related to externalizing problems and fear and sadness were negatively related. Therefore, it is reasonable to speculate that sadness relates differently to empathy-related responding and prosocial behaviors when compared to other individual negative emotions.

Researchers have shown that negative emotions are generally negatively related to sympathy and prosocial behavior (e.g., Diener & Kim, 2004; Hay & Pawlby, 2003; Strayer & Roberts, 2004a; Strayer & Roberts, 2004b; see Eisenberg, Fabes, et al., 2006, for an additional review). However, the limitation of most of these studies is that they tend not to look at discrete or specific negative emotions. That is, they often look at general negative emotionality or externalizing behaviors/problems that may involve negative emotion (e.g., acting out behaviors, aggression). Although it is important to look at a variety of individual negative emotions when predicting empathy-related responding and prosocial behavior, this investigation will provide support for focusing on sadness. It is argued herein that sadness may provide unique and different prediction of empathy-related responding and prosocial behavior, as compared to anger or fear. Although anger and fear were not investigated in this study, they are mentioned briefly below.

Anger.

Those researchers who do look at individual negative emotions in relation to empathy-related responding or prosocial behavior tend to focus on anger (e.g.,

Goosens, Bokhorst, Bruinsma, & van Boxtel, 2002; Roberts & Strayer, 1996; Strayer & Roberts, 2004a, 2004b). The negative relation of anger to empathy-related responding and prosocial behavior may be primarily responsible for the negative relation between negative emotionality and positive social functioning. Researchers have suggested that sympathy may also be negatively related to anger, although negative relations have generally been found between children's sympathy and adults' reports of children's *negative emotionality* (Eisenberg, Fabes, Guthrie, et al, 1996; Eisenberg, Fabes, et al., 1998; Murphy, Eisenberg, Fabes, Shepard, & Guthrie, 1999). These investigators suggest that adults' reports of negative emotionality are likely to reflect salient negative emotions, such as anger. Anger and aggression have sometimes been found to relate positively to prosocial behavior (however, see Spinrad & Stifter, 2006, for contrasting findings), but it is theorized that this relation may be based on assertiveness or general approach tendencies, and this relation has generally been found for younger children (see Eisenberg, Fabes, et al., 2006). Children who are assertive or prone to approach versus withdrawal may engage in both aggressive and prosocial behaviors in their younger years. As aggressive behaviors begin to decrease in the preschool and elementary school years, those children who are not at risk for persistent aggressive and antisocial behaviors, and who remain relatively assertive, may become more prosocial.

Fear.

Few investigators have examined fear in relation to empathy-related responding or prosocial behavior and the results have been mixed depending on

how fear, empathy, and prosocial behavior are assessed. Marsh and her colleagues (Marsh & Ambady, 2007; Marsh, Kozak, & Ambady, 2007) found positive relations between empathy and fear when examining the effects of identifying and being primed for facial expressions of fear. However, van der Mark, van IJzendoorn, and Bakermans-Kranenburg (2002) found that higher fearfulness at 16 months predicted less empathic concern at 22 months when they assessed *temperamental* fearfulness. In contrast, Rothbart et al. (1994) found that temperamental measures of fear in 13-month-olds related positively to empathy and prosocial traits when the children were 6 to 7 years old. Although the findings regarding fear are somewhat mixed, it is likely that negative relations are often found for children who experience extreme fear, behavioral inhibition, and social withdrawal (e.g., Liew et al., 2011[although the relation was not significant]; Young, Fox, & Zahn-Waxler, 1999). In addition, this relation may depend on whether fearful children are presented with a familiar versus an unfamiliar person (e.g., Rubin, Burgess, & Hastings, 2002; Spinrad & Stifter, 2006; Volling, Herrera, & Poris, 2004). This relation may also be related to children's assertiveness. Children who are fearful, shy, or socially withdrawn may not engage in prosocial behaviors, particularly with unfamiliar people, even if they wish to do so. In examining fear, it is possible that some measures of *social* fear are actually tapping aspects of shyness (Goldsmith, Buss, & Lemery, 1997).

Sadness.

Sadness, in all age ranges, has commonly been viewed as a negative emotion, and often has been grouped together with other negative emotions such as fear and anger (Eisenberg & Okun, 1996; Garside & Klimes-Dougan, 2002; Martini, et al., 2004; Rothbart, Ahadi, Hershey, & Fisher, 2001). Rothbart et al. (2001) defined sadness as negative affectivity and lowered mood and energy related to exposure to suffering, disappointment, and object loss, but they did not distinguish between sadness due to exposure to one's own and sadness due to another's suffering, disappointment, and object loss; sadness that is experienced empathically is the result of exposure to another's suffering.

In a study with 6- to 12-year-old children, Jenkins and Ball (2000) found that sadness motivated prosocial behaviors because children saw it as a cue to others' distress and neediness. They also found that sadness, more than other negative emotions, motivated concern for the individual, as well as support and assistance (i.e., prosocial behaviors). Sadness may also communicate a loss and the need for social support from others. Biglan, Rothlind, Hops, and Sherman (1989) found similar results for adults' reactions to another distressed adult; that is, subjects reported that another's distress prompted the desire to comfort and support the needy other.

It is interesting to investigate how children learn that sadness communicates a loss or a need for help. Researchers interested in emotions and the socially competent expression of emotions have found that young children begin by being emotionally expressive with their parents, especially with regard to sadness (and negative emotions more generally; Saarni, 1988; Zeman &

Garber, 1996; Zeman, Penza, Shipman, & Young, 1997). When children express sadness to their parents and are responded to with support and help, it is likely that they learn the contingency between sadness and helping. In the future, these children may be more likely to offer help to others who are sad. Because sadness is likely to elicit support and protection from others, children may begin by being emotionally expressive with their parents because parents are the primary source of support and protection (Saarni et al., 2006; Shipman, Zeman, Nesin, & Fitzgerald, 2003). In addition, children (particularly girls) are also more likely to express sadness with mothers because mothers are seen as more receptive to sadness and more likely to offer support and protection in response to sadness (Fuchs & Thelen, 1988).

Emotion Regulation

Researchers have agreed that the regulation of emotion is important for children's socioemotional development and their social competence (e.g., Denham et al., 2003; Eisenberg, Eggum, Vaughan, & Edwards, 2010; Rubin, Coplan, Fox, & Calkins, 1995; Spinrad et al., 2006), but there has been debate on the most appropriate way to define this construct (e.g., Cole, Martin, & Dennis, 2004; Eisenberg & Spinrad, 2004). Emotion regulation is a broad construct that is likely to involve an individual's voluntary, effortful management of the experience of emotions and the behavioral expression of these emotions (see Eisenberg & Spinrad, 2004). Effortful control is a construct that has been viewed as an important aspect of effortful emotion regulation (Rothbart & Bates, 2006). That is, effortful control is a set of skills that contribute to the regulation of

emotions and refers to the capacity of executive functioning to effortfully regulate one's behavior and emotions, and it involves the abilities to focus and shift attention, to plan, to detect errors, and to inhibit or activate behavior when necessary and appropriate (Rothbart & Bates, 2006).

Regulation of negative emotions.

Many researchers have shown that negative emotions can be adaptive, or at least ameliorate negative outcomes, as long as they are well-regulated (e.g., Belsky, Friedman, & Hsieh, 2001; Eisenberg, Fabes, Guthrie, et al., 1996; Zhou et al., 2004). These researchers suggest that the relation between negative emotionality and social competence (including empathy-related responding and prosocial behavior) can be moderated by regulation (as indexed by effortful control). If children experience negative emotions and are not able to regulate these emotions, they are likely to externalize or internalize their emotions and behave in less socially competent ways (Eisenberg et al., 2001).

In a sample of 15-month-old infants, Belsky et al. (2001) found that attentional persistence (a component of effortful control) moderated the relation of negative emotionality to social competence and school readiness at age 3. High levels of negative emotionality were associated with low levels of social competence, but only for children who had poor attentional persistence. For school readiness, only the combination of high negative emotionality and high attention predicted school readiness (i.e., the combination of high negative emotionality and low attentional persistence was not found to predict poor school readiness).

Eisenberg and colleagues have found that effortful control (a composite of attention shifting, attention focusing, and inhibitory control) was more strongly negatively related to externalizing problems and positively related to socially appropriate behavior for children with higher negative emotionality (Eisenberg, Fabes, Guthrie, et al., 1996; Eisenberg, Fabes, et al., 2000; Eisenberg, Fabes, et al., 1997; Eisenberg, Guthrie, et al., 1997; Eisenberg, Guthrie, et al., 2000). Eisenberg and colleagues have also obtained similar findings in a sample of Chinese children. For example, Zhou et al. (2004) found that effortful control moderated the relation between anger/frustration and social functioning. In that sample, children with higher levels of anger/frustration were more vulnerable to problem behaviors and/or low social functioning only if they also were low in effortful control. Children with high levels of effortful control scored higher in social functioning regardless of their levels of anger/frustration.

There is also evidence to suggest an interaction effect between regulation and negative emotion in predicting empathy-related responding and prosocial behavior. Eisenberg and colleagues (see Eisenberg, Spinrad, et al., 2006) reasoned that if children are able to regulate their emotions (both positive and negative), they are better able to focus their attention on another person's need or distress instead of on their own over-arousal, and are thus more likely to be sympathetic. Consistent with this argument, children who are higher in effortful control have been reported to have fewer feelings of personal distress and higher levels of sympathy when confronted with others in need or distress (Valiente et al., 2004). In examining this interaction between regulation and general

emotional intensity (EI) in predicting sympathy, Eisenberg, Fabes, Murphy, et al. (1996) found that children who were low in regulation were low in sympathy, regardless of their level of EI. Conversely, children who were moderately to highly regulated increased in sympathy as their level of EI increased. Eisenberg, Fabes, et al (1998) found similar results in a 2-year follow up of this sample. They found that boys who were low in EI were low in sympathy regardless of level of regulation. However, boys who were average or high in EI were low in sympathy if regulation was low, but increased in sympathy as regulation increased. In examining this same sample of children, Eisenberg, Fabes, et al. (1997) found that children who were high in regulation and negative emotion (which included EI and general negative emotionality) were moderately high in social functioning, a composite that included social competence and prosocial behavior.

In Eisenberg and Fabes' (1992) heuristic model, people high in their intensity of negative emotion who also are not well regulated are especially likely to withdraw in social situations. They may desire to interact, but behavior is inhibited due to aversive negative emotion. However, these people may also be experiencing an intense amount of distress, which would lead them to be self-focused without a desire to interact in social situations (i.e., these people would experience personal distress). Internalizing negative emotions (such as sadness) have been associated with shyness (Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998). It is important that children who experience intense or frequent sadness be well-regulated or they may experience social withdrawal, shyness, and

more intense internalizing problems. In support of Eisenberg and Fabes' (1992) model, negative emotionality has been positively related to shyness for children low in attention shifting, a component of regulation (Eisenberg, Shepard, et al., 1998). One would expect sad children to be more prone to shyness and less likely to perform prosocial behaviors, especially if they are not well regulated. In addition, sad children may also become overwhelmed by another's distress, which would lead to those children to experience personal distress, and thus, these children would also be less likely to engage in prosocial behaviors.

Hypotheses

The aim of the proposed study was to examine the relations of children's dispositional sadness to their sympathy, personal distress, and prosocial behavior, and to examine whether effortful control moderated the relation between sadness and empathy-related responding. Based on the literature, children's dispositional sadness was predicted to relate positively to prosocial behavior, as mediated by sympathy, but only when children were moderate to high in effortful control. In addition, children's dispositional sadness was expected to negatively predict prosocial behavior, as mediated by personal distress, especially if children were low in effortful control.

The expected positive relation of sadness to sympathy and prosocial behavior was based on two premises. The first premise comes from clinical research on psychopathy. Psychopathy is a disorder that is characterized, in part, by a lack of empathy (and perhaps more specifically, sympathy) and reduced responsiveness to the expression of sadness (Blair, 1995). Therefore, it seems reasonable to hypothesize that there may be a positive relation between sadness and sympathy and that this relation would predict behavioral outcomes that are different (namely, sympathy and prosocial behavior) than those produced by psychopathy (e.g., lack of empathy, engagement in antisocial behavior). That is, if a person lacks sympathy in response to another's sadness, that person could potentially be at risk for antisocial behavior, whereas a person who was able to experience sympathy and respond to sadness in an appropriate way may be more likely to engage in prosocial behavior. It would then be reasonable to expect that

a person who is dispositionally sad would be able to experience more sympathy toward a distressed person, and thus engage in more prosocial behavior than someone who is not prone to experience sadness. However, as is discussed below, this may be true only for some individuals.

The second reason to expect some role of dispositional sadness in the occurrence of prosocial behavior relates to the general definition of empathy as involving the experience of emotion due to exposure to another person who is experiencing the same emotion or exposure to another's situation that is likely to elicit a similar emotion (Staub, 1978; Eisenberg, Fabes, et al., 2006). It is hypothesized that those individuals who are dispositionally susceptible to sadness are well acquainted with the emotion of sadness. It seems likely that when exposed to an empathy-eliciting task or situation, particularly one designed to elicit empathic sadness, those individuals high in dispositional sadness would take the perspective of the distressed/needy other more readily and respond more empathically (i.e., with more empathy and sympathy, which would be expected to lead to prosocial behavior) than someone who was not considered dispositionally sad. Because children who are dispositionally sad would be more familiar with the emotion of sadness, it would be expected that they would understand better what someone experiencing sadness was going through.

It is important that a person regulate the intensity of his or her emotional response so that he or she does not have an aversive reaction (i.e., experience personal distress) to the other person's expression of emotion and is able to respond with other-oriented, prosocial behavior. The intensity with which a

person experiences an emotional response, as well as a person's ability to regulate the response, may be predictive of whether that person will respond with sympathy or personal distress. For this reason, it is important to examine effortful control as a moderator of the hypothesized relation between sadness and sympathy (or personal distress). If a person experiences sadness that is intense and not well regulated, that person would be expected to be susceptible to over-arousal, which is likely to lead to personal distress rather than sympathy. If the individual does engage in prosocial behaviors, those behaviors are likely to be self-oriented in an attempt to relieve his or her own distress. That is, when effortful control is low, sadness is expected to positively predict personal distress and negatively predict sympathy. In this case it would be expected that personal distress would either negatively predict or be unrelated to prosocial behavior. However, when effortful control is moderate to high, sadness is expected to positively predict sympathy and negatively predict personal distress and in turn, sympathy would be expected to positively predict prosocial behavior. In sum, sadness is expected to positively predict prosocial behavior, but this relation was expected to be mediated by sympathy. Sadness was expected to negatively predict prosocial behavior when the relation was mediated by personal distress. Moreover, the relation between sadness and sympathy or personal distress was expected to be moderated by children's effortful control.

Additionally, sex will be looked at as a covariate of constructs that it is correlated with. Based on the literature, there are likely to be sex differences in many of the constructs. Girls tend to experience and express sadness (including

crying) more frequently (Chaplin, Cole, & Zahn-Waxler, 2005; Fuchs & Thelen,1988; Perry-Parish & Zeman, 2011; Shipman et al., 2003; Zeman & Garber,1996); therefore, it is hypothesized that girls will be higher in sadness than boys. In terms of empathy-related responding, there are often mixed findings for boys and girls. Eisenberg, Spinrad, et al. (2006) mention that relying on children's facial expressions for measures of empathy, sympathy, and personal distress often fail to distinguish between boys and girls. However, other researchers, including Eisenberg and colleagues, have found that girls tend to be higher than boys in indices of empathy-related responding (e.g., Eisenberg & Fabes, 1998; Eisenberg et al., 1989; Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). It is hypothesized that there may be less pronounced sex effects for empathy-related responding, although girls may trend toward being slightly higher than boys. Sex differences in prosocial behavior may be more difficult to differentiate, especially at these early ages. Girls often, but not always, show more prosocial behaviors than boys, but these differences may depend on the ages of the children and whether prosocial behaviors are measured with reports versus observations (Eisenberg & Fabes, 1998; Eisenberg, Fabes, et al., 2006). Because the children in this study are quite young, sex differences in prosocial behavior may not be prominent in this study. However, both observed and reported measures of prosocial behavior were used in this study, and they were kept separate; therefore, sex differences may be more likely to show up.

The goal of this research project was to fill the gap in the literature by examining the relation of the specific negative emotion of sadness to sympathy,

personal distress, and prosocial behavior, as well as by assessing the role of effortful control as a possible moderator of the relation between sadness and empathy-related responding. Children's dispositional sadness, sympathy, personal distress, and prosocial behavior were assessed at 18, 30, and 42 months of age. Measures of children's dispositional sadness were based on reports from mothers and non-parental caregivers, sympathy and personal distress were assessed during an observed laboratory task, and prosocial behaviors were assessed via mother, father, and caregiver reports, as well as during an observed laboratory task. Children's effortful control was assessed at 18 months via mother and caregiver reports and one observational, laboratory task.

Method

Data were collected from a normative sample of children and the data were examined at three time points, Time 1 (T1) when the children were 18 months of age, Time 2 (T2) at 30 months, and Time 3 (T3) at 42 months. Children at ages 18, 30, and 42 months were included in this study because prosocial/helping behaviors typically emerge around 18 to 30 months (Zahn-Waxler, Radke-Yarrow, & King, 1979). In addition, it was important to include all three time points in order to examine change and stability of prediction of children's emotionality on their sympathy, personal distress, and prosocial behavior, as well as to test the mediated effects of empathy-related responding across time. Because there are assumed to be individual differences in when prosocial behavior emerges, a secondary goal was to determine how sadness is related to the development of empathy-related responding and prosocial behavior across time.

Participants

T1 sample characteristics.

At T1, 256 children participated either in the laboratory assessment and/or by questionnaire assessments completed by their mother (9 families participated by mail-in questionnaires only). In addition, 176 of the children's caregivers and 201 of the children's fathers participated in the questionnaire assessment (mainly by mail; 60 fathers completed questionnaires during the lab visit). At T1, the sample included 141 boys and 115 girls (*M* age = 17.79 months, *SD* = .52). At the T1 laboratory assessment, 80.5% of children were Caucasian, 5.1% were

African American, 2.3% were Asian, 4.3% were Native American, 2.4% were rated as another race, and 5.5% were unknown. As for ethnicity, 77% of the children were not Hispanic/Latino and 23% were Hispanic/Latino. 92.1% of children lived in a two-parent household, whereas 7.9% lived in a single-parent household. Parents' education ranged from the completion of grade school to the completion of a Ph.D., J.D., or M.D., but on average parents had completed some college or received a 2-year degree (34.6% of mothers and 36.9% of fathers). Annual family income ranged from less than $15,000 to more than $100,000, but the average family income was $45,000 - $65,000.

T2 sample characteristics.

At T2, 230 children participated either in the laboratory assessment and/or by questionnaire assessments completed by their mother (14 families participated by mail-in questionnaires only). In addition, 153 of the children's caregivers and 161 of the children's fathers participated in the mail-in questionnaire assessment. The T2 sample included 128 boys and 102 girls (*M* age = 29.77 months, *SD* = .65). At the T2 laboratory assessment, 80.4% of children were Caucasian, 5.7% were African American, 3.0% were Asian, 3.9% were Native American, 2.1% were rated as another race, and 4.8% were unknown. As for ethnicity, 77.4% of the children were not Hispanic/Latino and 22.6% were Hispanic/Latino. 89.7% of children lived in a two-parent household, whereas 10.3% lived in a single-parent household. Parents' education ranged from the completion of grade school to the completion of a Ph.D., J.D., or M.D., but on average parents had completed some college or received a 2-year degree (39.7% of fathers) or were 4-year college

graduates (37.8% of mothers). Annual family income ranged from less than $15,000 to more than $100,000, but the average family income was $45,000 - $65,000.

T3 sample characteristics.

At T3, 209 children participated either in the laboratory assessment and/or by questionnaire assessments completed by their mother (18 families participated by mail-in questionnaires only). In addition, 151 of the children's caregivers and 136 of the children's fathers participated in the mail-in questionnaire assessment. The T3 sample included 116 boys and 93 girls (*M* age = 41.75 months, *SD* = .65). At the T3 laboratory assessment, 82.3% of children were Caucasian, 3.3% were African American, 1.0% were Asian, 2.9% were Native American, 6.7% were rated as another race, and 3.8% were unknown. As for ethnicity, 84.2% of the children were not Hispanic/Latino and 11.4% were Hispanic/Latino (ethnicity data were missing for 4.3% of the children). 86.3% of children lived in a two-parent household, whereas 13.7% lived in a single-parent household. Parents' education ranged from the completion of grade school to the completion of a Ph.D., J.D., or M.D., but on average parents had completed some college or received a 2-year degree (35.8% of fathers) or were 4-year college graduates (36.8% of mothers). Annual family income ranged from less than $15,000 to more than $100,000, but the average family income was $45,000 - $65,000.

Attrition analyses.

Based on the availability of mother-report data, from T1 to T2, 33 families (9.3%) dropped out; from T2 to T3, 18 families (8%) dropped out. In order to

examine attrition from T1 to T3 (i.e., T1 to T2, T2 to T3, and T1 to T3), MANOVAs (for continuous variables) or χ^2 difference tests (for categorical variables) were computed for demographic variables and all study variables (described in the Measures section). There was one significant χ^2 difference test, which showed that families who attrited from T1 to T2 were more likely to have mothers that were Hispanic/Latino: $\chi^2(1) = 5.25$, $p = .02$. No other demographic or study variables showed a difference between participants who attrited and those who did not.

Procedure

The mothers and children that were included in this study were recruited from three hospitals in the Phoenix metropolitan area at the time of the children's birth by distributing informational forms to mothers in the postpartum ward. All the children that were recruited were born full term (> 37 weeks), healthy, and without complications. Parents were asked to come into the laboratory with their child for the observational assessments when their child was approximately 18-, 30-, 42-, and 54-months-old (in addition to a home visit when the children were 72-months-old). In the present study, only the data from the 18-, 30-, and 42-month laboratory assessments were analyzed. The mothers were asked for their voluntary consent to participate in the study and after the consent form was signed, the child and mother were brought into a university laboratory assessment room. The mothers filled out a packet of questionnaires, which included measures of their child's sadness, prosocial behavior, and effortful control. While the mothers were filling out the questionnaires, the children participated in tasks

that assessed measures of children's regulation, empathy-related responding, and prosocial behavior as part of a larger study. Fathers and caregivers received questionnaires by mail. Families and caregivers received a modest payment for their participation and children received two small toys at the end of the laboratory session.

Measures

Sadness.

Questionnaire measures assessing sadness were used because questionnaires are likely to tap dispositional characteristics (Zhou et al., 2004). Mothers and caregivers assessed children's dispositional sadness at T1 and T2 on a 7-point scale (1 = *never* and 7 = *always*) with items from the Early Childhood Behavior Questionnaire (ECBQ; Putnam, Gartstein, & Rothbart, 2006). Mothers and caregivers rated 12 items for sadness (e.g., "During everyday activities, how often did your/this child become sad or blue for no apparent reason"); Cronbach's alphas (αs) = .81 and .87, for mothers and caregivers, respectively, at T1, and αs = .82 and .79, for mothers and caregivers, respectively, at T2. At T3 mothers and caregivers assessed children's dispositional sadness with items from the Children's Behavior Questionnaire (CBQ; Rothbart, et al., 2001). The CBQ is similar in format to the ECBQ, but is designed and intended for children aged 3 to 7 years old. Mothers and caregivers rated 13 items for sadness (e.g., "Is sad when a favorite possession gets lost or broken") on a 7-point scale (1 = *extremely untrue of your/this child* and 7 = *extremely true of your/this child*); αs = .77 and .74, for

mothers and caregivers, respectively. See Appendix for items for all reported measures.

Sympathy.

Experimenter hurt (E Hurt; T1, T2, and T3; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992).

During this task, the experimenter entered the room, dropped a box of toys on her foot, and enacted pain and distress for one minute (during the one minute, the experimenter said things like "ouch, my toe really hurts" every 15 seconds, and displayed body movements such as rocking back and forth and rubbing the injured foot). The task was coded for hypothesis testing (i.e., the child's attempts to label or understand the problem; perhaps an indication of sympathy or concern for the other) every 10 seconds on a 3-point scale (1 = *no hypothesis testing,* 2 = *mild hypothesis testing* [e.g., looking from the experimenter to her injured foot with either mild or no body movement], 3 = *sustained or a clear act of hypothesis testing* [e.g., bending over, approaching foot, 3 or more looks from the experimenter to her injured foot]). Inter-rater reliabilities (i.e., Pearson *r*s[Intraclass correlations (ICCs)]; based on 101, 68, and 75 observations at T1, T2, and T3, respectively) were .67[.65], .75[.70], and .63[.63] at T1, T2, and T3, respectively.

In addition, the task was coded for intensity of concerned attention (e.g., eyebrows down and forward over nose, head forward, lower face relaxed, eyes may squint) every 10 seconds on a 4-point scale (1 = *no concern,* 2 = *low or vague indication of concern* [e.g., eye squinting or facial sadness], 3 = *moderate*

indication of concern [i.e., quick flash or brief indication], 4 = *intense indication of concern* [i.e., concern during the majority of the epoch being coded]). Inter-rater reliabilities (i.e. Pearson *r*s[ICCs]; based on 101, 68, and 75 observations at T1, T2, and T3, respectively) were .68[.68], .70[.70], and .34[.32] for concern at T1, T2, and T3, respectively. The low reliability of T3 concern is likely due to low frequency/occurrence of this behavior (67.2% of children had no occurrence of concern; 22% of children had the next highest score of 1.17). The range of concern at T3 was from 1.00 to 2.17 (based on a 1-4 scale), thus, hypothesis testing and concerned attention were combined at each time. Inter-rater reliabilities (i.e., Pearson *r*s [ICCs] based on 101, 68, and 75 observations at T1, T2, and T3, respectively) were .73[.71], .80[.74], and .62[.62] for the composite of hypothesis testing and concerned attention at T1, T2, and T3, respectively.

Personal distress.

E hurt.

Two measures were used to assess personal distress (i.e., self-comforting and seeking comfort from the mother). Self-comforting (i.e., any manipulation of body, clothing, or material on chair) was coded every 10 seconds on a 4-point scale (1 = *no self-comforting,* 2 = *low self-comforting* [i.e., one self-comforting behavior], 3 = *moderate self-comforting* [i.e., two short or brief actions, or a less distinct but sustained action], 4 = *intense self-comforting* [i.e., three or more behaviors, and/or distinct behavior that is sustained for the majority of the interval]). Inter-rater reliabilities (i.e., Pearson *r*s[ICCs]; based on 101, 68, and 75 observations at T1, T2, and T3, respectively) were .75[.70], .87[.56], and .85[.77]

at T1, T2, and T3, respectively. The low ICC for T2 self-comforting is likely due to a low occurrence of this behavior (72.1% of children had no occurrence of self-comforting; 9.3% of children had the next highest score of 1.17).

Seeking comfort from the child's mother (i.e., actively seeking comfort from the child's mother, such as touching or lifting arms to be picked up) was coded every 10 seconds on a 4-point scale (1 = *no comfort seeking,* 2 = *low intensity comfort seeking* [i.e., touching mom], 3 = *moderate comfort seeking* [i.e., reaching for mom], 4 = *intense comfort seeking* [i.e., climbing on mom]). Inter-rater reliabilities (i.e., Pearson *r*s[ICCs]; based on 101, 68, and 75 observations at T1, T2, and T3, respectively) were .93[.93], .91[.90], and .66[.65] at T1, T2, and T3, respectively.

Prosocial behavior.

Dispositional prosocial behavior.

Mothers, fathers, and caregivers assessed children's dispositional prosocial behavior at T1, T2, and T3 on a 3-point scale (1 = *not true,* 2 = *somewhat true or sometimes true,* 3 = *very true or often true*) with 4 items from the empathy subscale of the Infant-Toddler Social and Emotional Assessment (ITSEA; Carter & Briggs-Gowan, 1999). These four items were chosen from the empathy subscale as they were most likely to reflect prosocial behavior rather than empathy ("Tries to make you feel better when you are upset", "Tries to "make up" after misbehaving", "Tries to help when someone is hurt; for example, gives a toy", and "Jokes or gives you things to make you smile or laugh"). Cronbach's αs = .67, .65, and .74, for mothers, fathers, and caregivers,

respectively, at T1, αs = .63, .63, and .65, for mothers, fathers, and caregivers, respectively, at T2, and αs = .57, .66, and .73, for mothers, fathers, and caregivers, respectively, at T3.

Situational prosocial behavior.

E hurt.

In order to assess children's prosocial behaviors, children's spontaneous behavioral efforts to intervene on behalf of the experimenter, to change the situation, or to alleviate the 'pain' of the experimenter were coded (i.e., the child kissing, hugging, or patting the experimenter, as well as the child offering the experimenter a toy or other object intended to soothe) during the E Hurt task. Children's prosocial behaviors and prosocial verbalizations were coded every 10 seconds on a 4-point scale (1 = *none,* 2 = *one or a vague indication,* 3 = *two times or a clear act,* 4 = *three times, or intense, prolonged, or sustained behavior or vocalizations*). Inter-rater reliabilities (i.e., Pearson *r*s[ICCs]; based on 101, 68, and 75 observations, at T1, T2, and T3, respectively) were 1.0[1.0], could not be computed (96% overlap), and .76[.68], for prosocial behaviors at T1, T2 and T3, respectively and .93[.93] and .93[.62], for prosocial verbalizations at T2 and T3, respectively (prosocial verbalizations were not coded at T1).

Effortful control.

Because it has been shown that EC remains relatively stable across time, EC was examined only at T1 in order to focus on the effect of foundational EC on the relation between sadness and sympathy (or personal distress).

Dispositional effortful control.

Mothers and caregivers rated children's effortful control at T1 on a 7-point scale (1 = *never* and 7 = *always*) with items from the attentional focusing, attentional shifting, and inhibitory control subscales from the ECBQ (see Appendix for a list of all effortful control scales/items).

Attentional focusing.

Mothers and caregivers rated 12 items on the ECBQ for attentional focusing (e.g., "When engaged in play with his/her favorite toy, how often did your/this child play for more than 10 minutes"); αs = .76 and .79, for mothers and caregivers, respectively.

Attentional shifting.

Mothers and caregivers rated 12 items on the ECBQ for attentional shifting (e.g., "After having been interrupted, how often did your/this child return to a previous activity"); αs = .69 and .76, for mothers and caregivers, respectively.

Inhibitory control.

Mothers and caregivers rated 12 items on the ECBQ for inhibitory control (e.g., "When asked to do so, how often was your/this child able to stop an ongoing activity"); αs = .81 and .90, for mothers and caregivers, respectively.

Situational effortful control.

Snack delay (T1; Kochanska, Murray, & Harlan, 2000).

During this task, children were seated at a table and instructed to place their hands on the table and wait until a bell was rung to get a cracker or a piece of candy from under a clear cup. There were four trials (with delays of 10, 20, 30, and 15 seconds for each of the respective trials). Half-way through each of the

trials (Part 1), the experimenter would exaggerate picking up the bell, acting as if she might ring it. However, the bell was not rung until the trial was over (i.e., after the delay; Part 2). Children's total self-restraint was rated on a 7-point scale (1/2 = *child eats snack during Part 1/Part 2,* 3/4 = *child touches snack during Part 1/Part 2,* 5/6 = *child touches the cup during Part 1/Part 2,* 7 = *child waits for snack until the bell is rung*) for each trial and scores were averaged across each trial. Children also received 1 or 2 additional points to their total score if they kept their hands on the table during the entire Part 1 or during the entire Part 2 (1 point) or if they kept their hands on the table during the entire time, during both Parts 1 and 2 (2 points). Inter-rater reliabilities (i.e., Pearson *r*[ICC]; based on 72 observations at T1) was .98[.98].

Results

For each of the constructs (i.e., sadness, sympathy, personal distress, observed prosocial behavior, reported prosocial behavior), the relations of the measures were examined both within and across time. Within-time relations among the measures of T1 effortful control (EC) were also examined. In addition, Confirmatory Factor Analyses (CFAs) were conducted for each of the constructs (excluding EC) in order to determine the factor structure of each construct across time. M*plus* 6.1 (Muthén & Muthén, 1998-2010) was used for the CFAs. Described below, path analyses (including models in which mediation and moderation were tested), were also conducted using M*plus* 6.1. Means and standard deviations of all measures are presented in Table 1.

Relations of Sadness Within and Across Time

At T1 and T2, the measures of sadness were the mother and caregiver reports from the ECBQ. At T3, the measures of sadness were the mother and caregiver reports from the CBQ. At T1, mother and caregiver reports were significantly correlated, $r(154) = .27$, $p = .001$. At T2 the correlation between mother reports and caregiver reports was marginal, $r(143) = .14$, $p = .09$. At T3, the correlation between mother reports and caregiver reports was significant, $r(145) = .21$, $p = .01$.

Mother-reported sadness was significantly correlated across time, rs(188-207) = .22 - .58, ps = .003 to < .001. Caregiver reports of sadness also were significantly correlated across all three time points, rs(106-115) = .19 - .44, ps =

.05 to < .001. Correlations among measures of sadness within and across time can be seen in Table 2.

Relations of Sympathy Within and Across Time

At T1, T2, and T3, the measures of sympathy were concerned attention and hypothesis testing during the E Hurt task. At each time point, hypothesis testing and concerned attention were significantly correlated, *r*s(192-240) = .29 - .43, *p*s < .001. Concerned attention was not significantly correlated across time. Hypothesis testing was only significantly correlated across T2 and T3, *r*(189) = .25, *p* < .001. Relations among measures of sympathy can be seen in Table 3.

Relations of Personal Distress Within and Across Time

At all three time points, the only measures of personal distress were self-comforting and seeking comfort from the mother during the E Hurt task. The only significant correlation between these measures was at T1, *r*(243) = .15, *p* = .02. The correlations between these measures at T2 and T3 were not significant.

Self-comforting was significantly correlated across T2 and T3, *r*(189) = .15, *p* = .04, but not across any other time points. Seeking comfort was significantly correlated across T1 and T2, as well as T2 and T3, *r*s(207 and 189) = .14 and .23, *p*s = .05 and .002. The correlation of seeking comfort at T1 and T3 was marginal, *r*(183) = .13, *p* = .08. The relations among these measures can be seen in Table 4.

Relations of Prosocial Behavior Within and Across Time

At T1, the measures of prosocial behavior were mother, father, and caregiver reports (4 items each from the ITSEA), as well as observed prosocial

behavior during the E Hurt task. There was only one correlation among these measures that was significant, the correlation between mother and father reports, $r(197) = .34$, $p = .001$. The correlation between mother reports and observed prosocial behavior was negative and marginal, $r(231) = -.12$, $p = .08$. All of the other correlations were not significant. Interestingly, most of the other correlations between the reports and the observed measure of prosocial behavior at T1 were also negative, although not significant.

At T2, the measures of prosocial behavior were the three reported measures and the observed measure (as described above), along with a measure of observed prosocial verbalizations during the E Hurt task. The correlation between mother reports and father reports, as well as the correlation between father reports and caregiver reports were significant, rs(110 and 215) = .23 and .35, ps = .01 and < .001. The correlation between mother reports and observed prosocial verbalizations was marginal, $r(208) = .12$, $p = .09$. In addition, there were some correlations between the reported and observed measures that were negative, albeit not significant, although not nearly as many as at T1. However, like at T1, all of the correlations between the reports and observed measures of prosocial behavior were either marginal or not significant.

At T3 the measures of prosocial behavior were identical to those at T2 (3 reports and 2 observed measures). The correlations of mother reports with father reports, caregiver reports, and observed prosocial behavior, along with the correlation between observed prosocial behavior and observed prosocial verbalizations, were significant, rs(134-192) = .18 to .36, ps = .01 to < .001.

Although there was no clear pattern among the non-significant correlations, there were still some negative correlations among the reported and observed measures of prosocial behavior.

Mother reports were significantly correlated across all three time points, *r*s(191-209) = .35 - .57, *p*s < .001. Similarly, father reports also were significantly correlated across all three time points, *r*s(121-143) = .30 - .38, *p*s < .001. Caregiver reports were significantly correlated between T1 and T2, *r*(124) = .38, *p* < .001 and T2 and T3, *r*(118) = .46, *p* < .001, although the correlation was marginal between T1 and T3, *r*(111) = .16, *p* = .09. None of the across-time correlations among observed prosocial behavior were significant. Observed prosocial verbalizations were significantly correlated across the two time points it was assessed (T2 and T3), *r*(189) = .37, *p* < .001.

Although the T1 caregiver-reported measure of prosocial behavior was not related to either mother or father reports, it was included in order to have the same three reported measures across time. The relations among measures of prosocial behavior can be seen in Table 5.

Relations of Effortful Control Within Time

EC at T1 was examined as a potential moderator of the relation between sadness and sympathy (or personal distress) from T1 to T2 and T2 to T3. Based on the analyses of Spinrad et al. (2007), three different components of EC were examined. In that study, the attentional components (i.e., attention shifting and focusing) of EC were kept separate from the inhibitory control component, and these two components (i.e., attentional control and inhibitory control) became

indicators of the latent factor of EC, along with an observed measure of Snack Delay. The measures used in the current analyses were mother- and caregiver-reported attention shifting, attention focusing, and inhibitory control (12 items per subscale from the ECBQ), as well as the "total restraint score" during the Snack Delay task (a score based on a 7-point scale of whether the child ate the snack or waited).

Mother- and caregiver-reported attention shifting and attention focusing were significantly correlated within reporter, *r*s(237 and 160) = .29 and .43, *p*s < .001. Mother-and caregiver-reported attention shifting and attention focusing were also significantly related to inhibitory control, within reporter, *r*s(158-238) = .25 to .49, *p*s < .001. As far as the across-reporter correlations, correlations of mother-reported attention focusing with caregiver-reported attention shifting and attention focusing were significant, *r*s(153 and 159) = .18 and .24, *p*s = .03 and .002. In addition, the Snack Delay score was significantly correlated with caregiver-reported inhibitory control and mother-reported attention shifting, *r*s(160 and 222) = .26 and .17, *p*s = .001 and .01. Correlations of caregiver-reported attention focusing with mother-reported attention shifting and inhibitory control were marginal, *r*s(156 and 157) = .14 and .15, *p*s = .09 and .06. Although the attentional measures were significantly related to inhibitory control for both reporters, the decision was made to combine the components of EC in a similar way as Spinrad et al. (2007); that is, attention shifting and attention focusing were combined within reporter to create separate composites of mother- and caregiver-reported attentional control, then the composites were averaged across reporter to

create a single measure of adult-reported attentional control. In addition, mother and caregiver reports of inhibitory control were averaged to create a composite of adult- reported inhibitory control. The adult-reported attentional control, inhibitory control, and Snack Delay measures were then standardized and averaged to create a single measure of EC (based on all of these components significantly loading on the latent construct of EC in the Spinrad et al., 2007 study). Snack Delay was significantly correlated with adult-reported inhibitory control, $r(234) = .14$, $p = .03$ and was marginally correlated with adult-reported attentional control, $r(234) = .11$, $p = .10$. The two adult-reported measures (attentional control and inhibitory control) were significantly correlated, $r(251) = .36$, $p < .001$. The relations among the individual measures of EC can be seen in Table 6, whereas the relations among the composite measures of EC can be seen in Table 7.

Confirmatory Factor Analyses

CFAs were performed separately on each construct (sadness, sympathy, personal distress, and prosocial behavior), and then with all constructs in one CFA together (one for sympathy and one for personal distress). It was discovered that there was no inherent factor structure due to the reduced number of measures. That is, for most of the constructs there were only 1 or 2 indicators (i.e., measures) per factor, which led to problems with identification in the models. Prosocial behavior was the only construct that had more than two indicators; however, it was discovered that the reported and observed measures of prosocial behavior did not coalesce. The pattern of the correlations among reported and

observed measures of prosocial behavior (i.e., not significant and not consistently in the same direction) suggested that they could not be combined into one latent factor.

Measured variables were averaged into composites for each of the constructs of interest (see Table 7 for correlations of constructs [composite measures] across time). Sadness consisted of an average of mother and caregiver reports at each time point. Sympathy was composed of an average of E Hurt hypothesis testing and concerned attention at each time point. Personal distress was an average of E Hurt self-comforting and seeking comfort. Prosocial behavior was split into reports and observed behaviors. Reported prosocial behavior consisted of an average of mother, father, and caregiver reports at T1, T2, and T3. Observed prosocial behavior was composed of E Hurt prosocial behavior at T1 and an average of E Hurt prosocial behavior and prosocial verbalizations at T2 and T3 (there was no measure of prosocial verbalizations at T1). However, if a latent factor is going to have only one indicator, it cannot be an observed variable because the error variance cannot be set for that variable. In order to set the error variance, the formula 1-α*variance must be used (Jöreskog & Sörbom, 1982), but this formula cannot be used to set the error variance for an observed variable because there is no α associated with the variable (i.e., only a correlation, ICC, or Kappa is used for the reliability of an observed variable). Therefore, it is difficult to ascertain the "true" reliability of the observed variables, so it is likely that the error variance of those variables is being poorly estimated, which results in model misspecification.

Due to problems with identification and model misspecification, potentially due to the fact that there was no inherent factor structure, path analysis was chosen as the best alternative. A latent model (CFA) is accounting for error, but the current CFA was not doing a very good job of accounting for error because there was often only one estimated measured variable per factor (which error variance could not be set, as described above). Therefore, path analysis with only composites of measured variables was explored. Reported and observed prosocial behavior were included in the same path models, but they were not combined. Separate path models were run with sympathy and personal distress as the mediator, discussed below.

Relations of Study Variables with Sex

Sex was only significantly correlated with three of the main individual variables. Sex was significantly correlated with T2 E Hurt concerned attention, $r(214) = -.14$, $p = .05$; T3 mother-reported sadness, $r(199) = .23$, $p = .001$; and T3 father-reported prosocial behavior, $r(131) = .19$, $p = .03$. Sex was marginally correlated with T2 E Hurt prosocial verbalizations, $r(215) = -.13$, $p = .05$. Correlations were also run with the composite measures of variables that were used in the path analyses, in order to use sex as a covariate in these models. Sex was significantly correlated only with T3 sadness, $r(203) = .18$, $p = .01$. However, sex was marginally correlated with T1 personal distress, $r(214) = .13$, $p = .06$; T3 reported prosocial behavior, $r(204) = -.12$, $p = .10$; and T2 observed prosocial behavior, $r(215) = -.12$, $p = .09$. Sex was used as a covariate (i.e., predictor) of constructs that it was significantly or marginally correlated with.

Path Models

Sympathy as a potential mediator of the relation between sadness and prosocial behavior.

The initial hypothesized path model with sympathy as the mediator between sadness and prosocial behavior (both reports and observed) is presented in Figure 1. Because of the correlations with sex, sex was added as a covariate of T2 observed prosocial behavior, T3 sadness, and T3 reported prosocial behavior. The hypothesized model was run in M*plus* and initially fit the data well: $\chi^2(43) = 56.10$, $p = .09$; *CFI* = .95; *RMSEA* = .04 (90% Confidence Interval [CI] = .00 - .06); *SRMR* = .05. The modification indices (MIs; Jöreskog & Sörbom, 1979) for this model suggested that the fit of the model could be improved by adding a path from T2 sympathy to T3 sadness. The fit of the model did improve considerably with the addition of this path: $\chi^2(42) = 42.95$, $p = .43$; *CFI* = .996; *RMSEA* = .01 (CI = .00 - .05); *SRMR* = .05. Sex was a significant, positive predictor of T3 sadness ($p = .001$), which suggests that boys were higher in sadness than girls. However, sex was not a significant predictor of T2 observed prosocial behavior or T3 reported prosocial behavior (*p*s = .13 and .14, respectively), which suggests that there were no differences between boys and girls in reported or observed prosocial behavior. This final path model can be seen in Figure 2, which shows the significant, marginal, and non-significant autoregressive and across-time paths, as well as the paths with sex as a predictor.

The following autoregressive paths were significant: T1 to T2 sadness, T2 to T3 sadness, T2 to T3 sympathy, T1 to T2 reported prosocial behavior, and T2

to T3 reported prosocial behavior (all autoregressive paths were positive, *p*s = .01 to < .001). The autoregressive path from T1 to T2 observed prosocial behavior was marginal and positive ($p = .06$), as was the autoregressive path from T2 to T3 observed prosocial behavior ($p = .07$). The autoregressive path from T1 to T2 sympathy was positive, although not significant.

The following cross-lagged paths were significant: T2 sadness to T3 sympathy, T2 sympathy to T3 reported prosocial behavior, T2 sympathy to T3 observed prosocial behavior, and the path based on the MIs from T2 sympathy to T3 sadness (*p*s = .01 to < .001). The cross-lagged path from T1 sadness to T2 sympathy was marginal ($p = .08$), as was the cross-lagged path from T1 sympathy to T2 reported prosocial behavior ($p = .097$). The cross-lagged path from T1 sympathy to T2 observed prosocial behavior was not significant. All cross-lagged paths were positive, except for the path from T1 sympathy to T2 observed prosocial behavior, which was negative (although not significant)

In addition, there were only three within time correlations among the constructs that were significant: T2 sadness with T2 sympathy (completely standardized $\beta = -.19$, $p = .01$), T2 sympathy with T2 observed prosocial behavior (completely standardized $\beta = .24$, $p < .001$), and T3 sympathy with T3 observed prosocial behavior (completely standardized $\beta = .19$, $p = .01$). The correlation between T1 sadness and T1 reported prosocial behavior was marginal (completely standardized $\beta = -.13$, $p = .06$), as were the correlations between T2 reported prosocial behavior and T2 observed prosocial behavior (completely standardized $\beta = .12$, $p = .09$.) and T3 reported prosocial behavior and T3 observed prosocial

behavior (completely standardized β = .13, *p* = .08). All other within time correlations were not significant. Significant and marginal within time correlations can be seen in Figure 2 (all within time relations among these constructs, regardless of significance, can be seen in Table 8). It is important to note that the correlations between these constructs actually represent correlations among the disturbances (i.e., residual variances) of the constructs because they are all endogenous variables (except for the T1 constructs which are exogenous variables, thus the relation between these constructs represents an actual correlation between constructs).

Next, the mediated effect of T2 sympathy was tested by using MODEL INDIRECT in M*plus* to ascertain whether T2 sympathy mediated the relation between sadness at T1 and prosocial behavior (both reports and observed measures) at T3. Bootstrapping was used to create 1000 samples in order to calculate standard errors (SEs) for the model. The model fit the data well: $\chi^2(40) = 42.73$, $p = .36$; *CFI* = .99; *RMSEA* = .02 (CI = .00 - .05); *SRMR* = .05 (see Figure 3). The direct paths from T1 sadness to both observed and reported prosocial behavior at T3 were not significant (*p*s = .84 and .78, respectively). As for the mediated effect of T2 sympathy, the indirect effect of T1 sadness to T3 prosocial behavior was also not significant (unstandardized betas = .01 and .003, ps = .16 and .15, for reported and observed prosocial behavior, respectively).

Personal distress as a potential mediator of the relation between sadness and prosocial behavior.

The initial hypothesized path model with personal distress as the mediator between sadness and prosocial behavior (both reports and observed) can be seen in Figure 4. Because of the correlations with sex, sex was added as a covariate of T1 personal distress, T2 observed prosocial behavior, T3 sadness, and T3 reported prosocial behavior. The hypothesized model was run in M*plus* and fit the data well: $\chi^2(42) = 45.07$, $p = .35$; *CFI* = .99; *RMSEA* = .02 (CI = .00 - .05); *SRMR* = .05. This path model, with both the significant, marginal, and non-significant autoregressive and across-time paths, can be seen in Figure 5.

All of the autoregressive paths were significant and positive (*p*s = .04 to < .001), except for the autoregressive path from T1 to T2 observed prosocial behavior, which was marginal and positive ($p = .08$). Most of the cross-lagged paths were negative and not significant, with the exception of the path from T1 personal distress to T2 reported prosocial behavior (which was marginal and positive, $p = .07$) and the path from T2 sadness to T3 personal distress (which was positive, but not significant). In addition, sex was a significant, positive predictor of T3 sadness ($p = .001$) and marginally, positively predicted T1 personal distress ($p = .06$), which suggests that boys were significantly higher in sadness than girls, and marginally higher in personal distress. However, sex was not a significant predictor of T2 observed prosocial behavior or T3 reported prosocial behavior (*p*s = .12 and .14, respectively), which suggests that there were no differences between boys and girls in reported or observed prosocial behavior.

In addition, there were only two within time correlations among the constructs that were significant: T3 sadness with T3 personal distress (completely

standardized β = -.16, p = .01) and T3 reported prosocial behavior with T3 observed prosocial behavior (completely standardized β = .15, p =.03). The following correlations were marginal: T1 sadness with T1 reported prosocial behavior (completely standardized β = -.13, p = .06), T1 personal distress with T1 reported prosocial behavior (completely standardized β = -.12, p = .08), T2 reported prosocial behavior with T2 observed prosocial behavior (completely standardized β = .12, p = .08), and T3 sadness with T3 observed prosocial behavior (completely standardized β = .14, p = .06). All other within time correlations were not significant. Significant and marginal within time correlations can be seen in Figure 5 (all within time relations among these constructs, regardless of significance, can be seen in Table 9). It is important to note that the correlations between these constructs actually represent correlations among the disturbances (i.e., residual variances) of the constructs because they are all endogenous variables (except for the T1 constructs which are exogenous variables, thus the relation between these constructs represents an actual correlation between constructs). Mediation analyses were not pursued for personal distress, because the paths from T1 sadness to T2 personal distress, and T2 personal distress to T3 prosocial behavior (observed and reported) were not significant.

Moderation by Effortful Control

In order to examine the moderated effect of T1 EC on the paths of sadness predicting sympathy (or personal distress), the standardized composite of T1 EC was mean centered in SPSS version 19. In addition, T1 and T2 sadness were also

mean centered in SPSS. Interactions of T1 EC (centered) with both T1 and T2 sadness (both centered) were computed in M*plus*. The original path models (i.e., examining sadness, sympathy [or personal distress], reported prosocial behavior, and observed prosocial behavior; Figures 2 and 5) were then used as a base model for the moderation analyses. Analyses differed from the final path models only in that T1 EC and the interactions between T1 EC and sadness (both at T1 and T2) were added as predictors of T2 or T3 sympathy (or personal distress). That is, T1 EC and the interaction between T1 EC and T1 sadness were used as predictors of T2 sympathy and personal distress; T1 EC and the interaction between T1 EC and T2 sadness were used as predictors of T3 sympathy and personal distress. All autoregressive and cross-lagged paths were the same as the final path models for both sympathy and personal distress (see Figures 2 and 5; also see Figures 6 and 7 showing the set-up of the moderation models). In addition, sex was only used as a covariate of T2 and T3 sympathy (or personal distress) in the moderation analyses.

Path model with sympathy as mediator and EC as moderator.

The moderated effects of T1 EC on the path from T1 sadness to T2 sympathy and the path from T2 sadness to T3 sympathy were examined. The model is described below, but to clarify, the steps taken for the moderation analysis were: (a) the moderation analysis was run in M*plus* and one of the moderated effects was marginal and the other was significant (b) the significant moderation was probed in M*plus*, however the model did not fit well (c) Due to poor model fit in M*plus*, the moderation was tested in SPSS version 19 using a

regression (d) the significant interaction effect from M*plus* became marginal in SPSS (e) the marginal moderation from SPSS was probed in SPSS, in order to compare to the same moderated effect that was significant in M*plus*.

The initial moderation analysis was run in M*plus* using bootstrapped SEs. The model did not fit well: $\chi^2(69) = 132.41$, $p < .001$; *CFI* = .74; *RMSEA* = .07 (CI = .05 - .08); *SRMR* = .07. From T1 to T2, there was a marginal moderated effect of EC (i.e., T1 EC marginally, and negatively, [unstandardized $\beta = -.06$, $p = .09$] moderated the path from T1 sadness to T2 sympathy). The main effects of T1 EC and T1 sadness predicting T2 sympathy were not significant. From T2 to T3, there was a significant moderated effect of EC (i.e., T1 EC negatively moderated the path from T2 sadness to T3 sympathy [unstandardized $\beta = -.05$, $p = .04$). In addition, the main effect of T1 EC predicting T3 sympathy was not significant, although the main effect of T2 sadness predicting T3 sympathy was significant (unstandardized $\beta = .04$, $p = .01$). Sex was not a significant predictor of either T2 or T3 sympathy, which suggested that there were no differences between boys and girls in T2 or T3 sympathy.

Because the fit of the model was so poor and M*plus* does not produce MIs with bootstrapping, the above model was run without the bootstrapped SEs in order to see where the problem in fit was. The MIs suggested that the T1 and T2 interactions may need to be correlated, but this posed a problem. The interactions could not be correlated because although they both included the T1 measure of EC, one included T1 sadness whereas the other included T2 sadness. In addition, the MIs suggested including sex as a predictor of T3 sadness. When this

modification was added to the model, sex was a significant predictor of T3 sadness (unstandardized $\beta = .28$, $p < .001$; such that boys were higher in T3 sadness than girls), but was still a non-significant predictor of T2 and T3 sympathy. In addition, the fit of the model was not improved by adding this modification: $\chi^2(68) = 120.00$, $p < .001$; *CFI* = .78; *RMSEA* = .06 (CI = .04 - .08); *SRMR* = .07.

The standard deviation of T1 EC (+/- .701) was obtained in order to compute simple slopes (Aiken & West, 1991) for the significant moderation of T1 EC on the path from T2 sadness to T3 sympathy. The simple slopes of sadness predicting sympathy were then computed at the mean of EC, as well as one standard deviation above and below the mean of EC. For computing the simple slopes one standard deviation below the mean of EC, at the mean of EC, and one standard deviation above the mean of EC, the unstandardized regression coefficients were obtained for T2 sadness predicting T3 sympathy (unstandardized βs = .08, .04, and .01, *p*s = .002, .01, and .66, respectively), in addition to the intercepts of T3 sympathy. The simple slopes were then plotted in order to show how the regression of T3 sympathy on T2 sadness varies across different levels of EC (see Figure 8). T2 sadness was a significant, positive predictor of T3 sympathy (i.e., higher sadness associated with higher sympathy) for children with average and low levels of EC at T1; the same was not true for children with high levels of EC at T1.

The moderated effects of T1 EC on the paths from sadness to sympathy also were further examined by regression analysis in SPSS. The SPSS result of

the moderated effect of T1 EC on the path from T1 sadness to T2 sympathy was the same as in the M*plus* analysis: the main effect of sex was not significant, the main effects of sadness and EC were not significant and the interaction of sadness and EC was marginal and negative (unstandardized β = -.06, p = .09). The SPSS result of the moderated effect of T1 EC on the path from T2 sadness to T3 sympathy was similar to results obtained in M*plus*: the main effect of sex was not significant, the main effect of sadness was significant (unstandardized β = .04, p = .05), the main effect of EC was not significant, and the interaction between T1 EC and T2 sadness was marginal and negative (unstandardized β = -.05, p = .06; the interaction was significant and negative in M*plus*).

The marginal moderated effect of T1 EC on the path from T2 sadness to T3 sympathy was further probed in SPSS because this moderated effect was significant in M*plus*. Probing of the interaction was done in a similar way to the M*plus* analysis, by calculating the simple slopes of T2 sadness predicting T3 sympathy (i.e., at the mean of EC and one standard deviation above and below the mean of EC). For the moderation at the mean, one standard deviation above the mean, and one standard deviation below the mean, of EC, the unstandardized regression coefficients for T2 sadness predicting T3 sympathy (unstandardized βs = .04, .01, and .07, ps = .05, .81, and .01, respectively), as well as the intercept of T3 sympathy were obtained. The results were the same as the M*plus* results: T2 sadness was a significant predictor of T3 sympathy (i.e., higher sadness associated with higher sympathy) for children with average and low levels of EC at T1;

sadness was not a significant predictor of sympathy for children with high levels of EC.

Path model with personal distress as mediator and EC as moderator.

The moderated effects of EC on the path from T1 sadness to T2 personal distress and the path from T2 sadness to T3 personal distress were examined. The model was run in M*plus* using bootstrapped SEs. The model did not fit well: $\chi^2(58) = 102.38$, $p < .001$; *CFI* = .78; *RMSEA* = .06 (CI = .04 - .08); *SRMR* = .06. There was no significant moderated effect of T1 EC at either T1 or T2 for the paths from sadness to personal distress at the following time point. The main effect of T1 sadness marginally predicted T2 personal distress ($p = .10$), although the main effect of T1 EC was not significant. At T2, the main effects of T1 EC and sadness did not predict T2 personal distress. Because the fit of the model was poor and M*plus* does not produce MIs with bootstrapping, the model was re-run similarly to the sympathy model (without the bootstrapped SEs). Again, the MIs suggested that the T1 and T2 interactions may need to be correlated, but this solution was not possible. Therefore, there was nothing that could be resolved in terms of the poor fit of the moderated personal distress model. In addition, the simple slopes were not computed because the moderated effect of T1 EC was not significant at either time point.

Similarly to the sympathy model with EC as a moderator, regressions were run in SPSS in order to examine the moderated effect of EC on the paths from sadness to personal distress, due to the fact that the M*plus* models fit poorly. There was no significant moderated effect of T1 EC at either T1 or T2 for the

paths from sadness to personal distress at the following assessment. The main effect of T1 sadness predicting T2 personal distress was marginal and negative (p = .09) and the main effect of T1 EC was not significant. The main effects of T2 sadness and T1 EC predicting T3 personal distress were also not significant. Because neither of the moderated effects was significant, the interaction was not probed in SPSS.

To summarize the findings, constructs in the sympathy path model (i.e., sadness, sympathy, reported and observed prosocial behavior) were relatively stable across time. T1 sadness marginally, positively predicted T2 sympathy, and T2 sympathy was a significant, positive predictor of both reported and observed prosocial behavior at T3. T1 sympathy was a marginal, positive predictor of T2 reported prosocial behavior, but did not significantly predict T2 observed prosocial behavior. T2 sadness was a significant, positive predictor of T3 sympathy. In addition, modification indices during analyses suggested that a path from T2 sympathy to T3 sadness be added; this path was significant and positive. Because T1 sadness was a marginal predictor of T2 sympathy, and T2 sympathy significantly predicted both reported and observed prosocial behavior, mediation analyses were pursued for T2 sympathy. However, the indirect effect of T1 sadness on T3 reported and observed prosocial behavior, through T2 sympathy, was not significant. Additionally, T1 EC was examined as a potential moderator of the two paths of sadness predicting sympathy. T1 EC marginally moderated the path from T1 sadness to T2 sympathy; the main effects of EC and sadness were not significant. T1 EC significantly moderated the path from T2 sadness to

T3 sympathy; only the main effect of sadness was significant. This significant moderation was probed, both in *M*plus and SPSS. Results suggested that T2 sadness was a significant, positive predictor of T3 sympathy (i.e., higher sadness associated with higher sympathy) for children with average and low levels of EC; this relation did not hold for children high in EC (the results were significant in M*plus*, but marginal in SPSS).

Results were quite different for personal distress. Constructs in the personal distress path model (i.e., sadness, personal distress, reported and observed prosocial behavior) were relatively stable across time. T1 personal distress was a marginal, positive predictor of T2 reported prosocial behavior; this path was the only across-time path that neared significance. All the other across-time paths were not significant (i.e., T1 sadness → T2 personal distress, T2 sadness → T3 personal distress, T1 personal distress → T2 observed prosocial behavior, T2 personal distress → reported and observed prosocial behavior). Because T1 sadness did not significantly predict T2 personal distress, and T2 personal distress did not significantly predict either reported or observed prosocial behavior at T3, mediation analyses were not pursued for T2 personal distress. However, T1 EC was still examined as a potential moderator of the two paths from sadness predicting personal distress. No moderated effect of T1 EC was found.

Discussion

The goals of this research project were to examine the relations among sadness, sympathy and personal distress, and prosocial behavior across three time points (18, 30, and 42 months). Specifically, the main goals were to examine whether sadness was a predictor of prosocial behavior and whether sympathy and personal distress were mediators of the relation between sadness and prosocial behavior. A secondary goal of this research project was to determine if effortful control was a moderator of the relation between sadness and sympathy/personal distress.

The moderation analyses for the path model of sadness predicting prosocial behavior with sympathy as a mediator produced an unexpected, albeit interesting, finding. The moderated effect of T1 EC was significant for the path from T2 sadness to T3 sympathy, such that at low and average levels of EC, sadness was a significant, positive predictor of sympathy. That is, higher sadness was related to higher sympathy, but only for those children who were low to average in EC. Contrary to expectations, sadness was not a significant predictor of sympathy at high levels of EC. The slope for high EC children was not significant because well-regulated children were relatively high in sympathy regardless of their level of sadness. If children are well-regulated, it may be particularly difficult for adults to detect and report on children's overall level of dispositional sadness. This is consistent with research done by Hourigan, Goodman, and Southam-Gerow (2011) which suggests that children tend to report inhibiting emotions (i.e., keeping them "inside") such as sadness, which provided

a discrepancy with parents' reports. These authors suggested that parents cannot report on behavior or emotion that they cannot directly observe. In the previously mentioned study, children were aged 7 to 12 years old; sadness may be even harder to detect in a sample of 1.5- to 3.5-year olds (such as in the current study). Perhaps sadness is easier to detect in children who are lower in regulatory abilities. In addition, well-regulated children may be able to modulate their level of sadness to an optimal level, even if it is high in intensity. The aforementioned pattern of findings suggests that sadness may have an important role in the development of sympathy for children who are average to low in EC, at least in the preschool years. Nonetheless, given the fact that the moderation was found on only one of two paths from sadness to sympathy, the pattern of results may not be reliable and should be replicated in other samples. Additionally, EC was measured at 18 months, when it is not well developed (Kochanska, Murray, & Coy, 1997). This could mean that there is very little difference between high, average, and low levels of EC in children at this age. Kochanska and colleagues (e.g., Kochanska et al, 1997) have found that EC is fairly stable over time, such that children remain in relatively the same position when measured longitudinally (e.g., children who are average in EC tend to remain average in EC over time, in relation to other children). Therefore, moderation results could have been significant for both paths tested in the current study if EC had been measured at a later age when it is more developed.

In path analysis, sadness was found to be a positive predictor of sympathy across time; T1 sadness marginally predicted T2 sympathy and T2 sadness

significantly predicted T3 sympathy. This was noteworthy because it was hypothesized that sadness would positively predict sympathy only for those children who were at least moderate in their regulatory abilities. However, as suggested above, this relation seems to hold true only for children who were average to low in EC at T1.

Based on modifications indices in the path model, a path was added from T2 sympathy predicting T3 sadness. This suggests that the relation between sadness and sympathy becomes stronger over time and that these constructs may mutually influence each other as children develop. Perhaps children's perspective-taking and emotion understanding skills help them to better identify emotions within themselves and others (Eisenberg, Spinrad, et al., 2006). If these children are prone to experiencing sadness, they may feel more sympathy for someone else who is sad (perhaps because they are able to recognize that emotion more easily, take the perspective of the sad other more readily, and share a similar emotional state and feel concern for the individual experiencing the particular emotional state; Eisenberg & Fabes, 1998). In addition, as children develop in their social skills, they may be more willing to show concern and engage with a needy other (e.g., someone who may not be familiar to the child). However, this depends on whether the child experiences shyness and inhibition. Numerous researchers have shown that shy, inhibited, and/or withdrawn children are much less likely to show empathy and sympathy for others, as well as less likely to engage in prosocial behaviors (Eisenberg & Fabes, 1990; Stanhope, Bell, & Parker-Cohen, 1987; Wichmann, Coplan, & Daniels, 2004; Young et al., 1999).

This is not to say that shy children are not *motivated* to help others, just that they may be too apprehensive to initiate such social interactions; they may have difficulty expressing sympathy and prosocial motives, but may not have difficulty in experiencing them (Asendorpf, 1990; Findlay, Girardi, & Coplan, 2006).

As children have more experiences with sympathy and situations in which they are exposed to others in need, or other sad people, perhaps they become more aware of their own sadness and thus, experience more sadness (perhaps empathic sadness) and sympathy over time. However, in the current study, children's sadness was assessed by mother and caregiver reports. Therefore, there is likely to be some inaccuracies in children's actual experienced emotion. Instead of gathering information about children's actual experience of emotion, it is likely that the measures used in the current study reflect (to a degree) adults' perceptions of whether the child is sad or not. In addition, adults may see (and consequently report) a sympathetic child to be more sensitive and sad.

The pattern of zero-order, within-time correlations between sadness and sympathy was not consistent with the pattern of model-estimated correlations in the path model. The model-estimated within-time correlation between sadness and sympathy was significant only for T2 measures and it was negative. However, in zero-order correlations, within-time relations between T1 and T2 measures of sadness and sympathy were not significant. At T3, the correlation between sadness and sympathy was positive and significant. In addition, the significant across-time correlations (zero-order) between T2 sadness and T3 sympathy, as well as T3 sadness and T2 sympathy, were positive. The marginal

zero-order correlation between T1 sadness and T2 sympathy was also positive. The discrepancy between model-estimated and zero-order correlations was rather strange and could be due to model inaccuracies that should be further investigated in other samples.

In path models, T1 sympathy did not predict T2 prosocial behavior (either reports or observed), which was contrary to expectations. However, T2 sympathy did positively predict T3 prosocial behavior (both reports and observed; this relation was significant even after controlling for stability in reported and observed prosocial behavior). The difference did not seem to be due to differences in variability for either sadness or sympathy at T1 compared to T2 or T3 (see Table 1). This may suggest that 18 months is relatively early to begin looking at these relations, simply due to children's budding abilities in other-oriented concern and prosocial behaviors, although some other investigators have found relations between prosocial behavior and sympathy in the 2nd year of life (e.g., Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008; Vaish, Carpenter, & Tomasello, 2009; Van der Mark et al., 2002; Zahn-Waxler et al., 1992). This pattern of relations is also mirrored in the mediation analysis, in which T1 sadness was not a significant predictor of T2 sympathy, but T2 sympathy was a significant predictor of both reported and observed prosocial behavior at T3. Although some researchers have found relations between sympathy and prosocial behavior in very young children (i.e., less than about 3 years of age; see Eisenberg, Fabes, et al., 2006; Roth-Hanania, Davidov, & Zahn-Waxler, 2011), many more researchers have found that sympathy and prosocial

tendencies increase over time; therefore, the relation between sympathy and prosocial behavior may become more evident as children develop. Infants younger than 2 years of age may show rudimentary sympathetic concern and egoistic prosocial behaviors (e.g., giving the other person something that the child finds comforting; Hoffman, 2000; Zahn-Waxler & Radke-Yarrow, 1982), but children may not experience sympathy and altruistic prosocial behaviors in some contexts until their cognitive abilities have become further developed (e.g., perspective taking, self-other differentiation; Hoffman, 2000).

Mediation analyses were not significant when testing sympathy as the mediator between sadness and prosocial behavior. However, T2 sympathy did significantly, positively predict T3 prosocial behavior (both reports and observed; T1 sympathy only marginally predicted T2 reported prosocial behavior). This suggests that future researchers may want to focus on the mediating role of sympathy in the relation between sadness and prosocial behavior at older ages.

Sadness was expected to positively predict personal distress for children who were low in EC because it was hypothesized that children who could not regulate their sadness may become overwhelmed by their emotion and thus, experience distress. However, sadness did not significantly predict personal distress either from T1 to T2 or T2 to T3. In the path model with personal distress, model-estimated correlations between sadness and personal distress at T3 were significant and negative. Zero-order correlations between sadness and personal distress were generally not significant, although T1 personal distress and T3 sadness were marginally, positively correlated. Also of interest in models

including personal distress was that T1 personal distress was a positive (albeit marginal) predictor of T2 reported prosocial behavior. This could be due to children's prosocial behaviors stemming from their own distress. That is, in order to be rid of an aversive stimulus (i.e., someone else's distress which is in turn causing one's own distress) the child may engage in prosocial behaviors because there is no option to avoid the stimulus (Bandstra, Chambers, McGrath, & Moore, 2011; Batson, 1991; Eisenberg, Fabes, et al., 2006).

Mediation was not pursued with personal distress models because T1 sadness did not significantly predict T2 personal distress, and T2 personal distress did not significantly predict T3 reported or observed prosocial behavior. Zero-order correlations between sadness and personal distress were largely unrelated. Perhaps dispositional measures of sadness do not reflect similarities that occur in situationally experienced distress. Additionally, it may be that situational empathic sadness (i.e., sadness experienced in empathy-inducing situations) tends to be related to personal distress, whereas more general, dispositional measures of sadness do not. This would be an avenue for further research. Moderation analyses of the effect of EC on the relation between sadness and personal distress were not significant. This suggests that EC does not affect the relation between sadness and personal distress.

Reports and observed measures of prosocial behavior were not able to be combined in an initial latent factor model. This suggests that dispositional and situational measures are tapping different characteristics of constructs, and perhaps researchers should look separately at the prediction to and from trait

versus state measures. For instance, this investigation used dispositional measures of sadness, but only situational measures of sympathy and personal distress. An avenue for future research would be to examine dispositional and situational measures of sadness, sympathy, and personal distress in order to determine if there would be differential prediction based on context. Very young children may be less likely to display prosocial acts in an observed laboratory setting because the experimenter is unfamiliar. In this study, the dispositional measure of prosocial behavior used was composed of only four items (for each of three reporters) from the ITSEA empathy subscale (those that were most likely to reflect prosocial behavior rather than empathy). The items tended to ask about children's prosocial tendencies toward their mothers, fathers, and caregivers; the items did not reflect children's prosocial behaviors toward unfamiliar others. Therefore, it seems that the observed measures of prosocial behavior reflected prosocial behaviors toward an unfamiliar person, whereas the dispositional measure reflected prosocial behaviors toward people in the children's lives that they were more familiar with, which may explain why observed and reported measures of prosocial behavior were not correlated in this study.

According to research done by Stanhope et al (1987), children's sociability (i.e., preferring to be alone or with others) may affect whether children are more helpful in laboratory situations, with unfamiliar people, or at home with familiar people. These authors also found that there was no difference between shy and outgoing children on helping behaviors performed toward the mother in the home, which suggests that the difference may lie in whether the needy other is

familiar or unfamiliar (and perhaps whether the setting is familiar or unfamiliar), not just whether the child is shy or not. Stanhope et al. (1987) also proposed that children who are shy or unsociable may not engage in prosocial behaviors because they are less likely to notice and understand the needs of strangers, which likely stems from their lack of experience interacting with people in general. This may also be true for very young children, such as in the current study, who may not have had many opportunities to interact with other people, especially strangers. Similarly, Puig et al. (1999), in a sample of Jamaican and African-American children, found that teachers' reports (of problem behaviors) were significantly higher than observers' ratings, and they hypothesize that this could be due to the teachers having more personally involved and lengthy experiences with the children than observers, and thus having more biases that these experiences create. This may obviously map on to the current study, with mothers having more involvement with their children, and more biases toward their children than the experimenters who record the children's behaviors over a relatively short amount of time (Robinson, Zahn-Waxler, & Emde, 2001). Results of the previous studies are also consistent with findings from Knafo et al. (2008), in which they found that 14- to 36-month-old children performed more prosocial acts toward their mothers than toward an unfamiliar examiner. This was also true for hypothesis testing (a cognitive component of empathy) although it was not true for concern (an affective component of empathy), which was in contrast to Young et al's (1999) finding that 24-month-old children showed higher concern toward mothers than unfamiliar experimenters.

Based on autoregressive paths for each construct, most of the constructs tended to be consistent across time. Autoregressive paths for sadness, personal distress, and reported prosocial behavior were all positive and significant across time. Observed prosocial behavior was less consistent across time – autoregressive paths in the model with sympathy were positive and marginal across time. However, in the model with personal distress, the autoregressive path from T2 to T3 observed prosocial behavior was positive and significant. This discrepancy may suggest that observed prosocial behavior becomes more consistent with time. Further longitudinal investigation would need to be done in order to determine if this is the case. The autoregressive path from T1 to T2 sympathy was not significant, whereas the autoregressive path from T2 to T3 sympathy was positive and significant. Similar to measures of observed prosocial behavior, sympathy may become more consistent as children develop.

Effortful control was significantly positively related to reported prosocial behavior, but unrelated to observed prosocial behavior, perhaps indicative of the difference between observed and reported measures of prosocial behavior. Additionally, effortful control was unrelated to sympathy but significantly negatively related to sadness. Effortful control has generally been found to be positively related to sympathy in other studies (e.g., Eisenberg, Fabes, Murphy et al, 1994; Eisenberg et al., 2007; Guthrie et al., 1997; see also Eisenberg, Fabes et al., 2006); therefore, not finding a relation between these constructs was unexpected. However, many of these studies have found relations with children who were older than the children in the current sample (e.g., Eisenberg et al.,

2007; Valiente et al., 2004). Additionally, the measures of sympathy used in the current study were situational, and studies have tended to find stronger relations with dispositional measures of sympathy and weak relations with situational measures of sympathy (e.g., Eisenberg, Fabes, et al., 1994; Valiente et al, 2004).

This study provides some interesting findings, particularly in terms of the relation between sadness and sympathy as moderated by EC. Although findings were contrary to predictions, they do show that sadness might play an important role in sympathy, even though the direct or indirect effect of sadness on prosocial behavior was not found.

As with many research endeavors, this investigation does have its limitations. A relatively young and narrow age range was explored. As children continue to develop cognitively, behaviorally, and emotionally throughout preschool and childhood, it would be of interest to continue to investigate the stability and change in individual negative emotions and their relations to empathy-related responding and prosocial behavior. In addition, another limitation was the relatively small sample size, which, as with many longitudinal studies, tended to become smaller over time due to attrition. The sample used in this project was also not extremely diverse; families included in this project tended to be Caucasian, middle-class (as reflected by household income), and parents tended to be somewhat educated (most parents had college experience); therefore, these results may not generalize to samples with more ethnic and socioeconomic diversity.

Even with these limitations, this project had numerous strengths. The longitudinal nature of this project is one of its greatest strengths. Additionally, the use of both dispositional and observational measures, as well as the use of multiple raters in the dispositional measures, contributed to the strengths of the study. Although future studies should be expanded longitudinally, one strength of the current study was the use of such young children in order to examine the emergence and development of constructs, particularly sympathy, personal distress, and prosocial behavior.

Results from this research project suggest that it may be important to extend the longitudinal nature of similar projects to children that are older than 42 months. The meditational effects of sympathy and personal distress on the relation between sadness and prosocial behavior seem to emerge as children get older, and perhaps may be significant when examined in children older than 42 months. In addition, both dispositional and situational measures of all the constructs used in this study should be examined. Dispositional and situational measures were mixed in this study and an investigation should be conducted to determine whether dispositional measures of constructs are more likely to predict dispositional measures of other constructs, and whether situational measures tend to predict other situational measures. The use of multiple measures (i.e., dispositional and situational) of each construct would further enhance future research on these relations and provide a stronger index of the constructs examined in the current study. The next step in this project would be to examine the relation of empathy-related responding and prosocial behavior with other

individual negative emotions – such as fear and anger – in order to compare and contrast the results for sadness. Examining similar models for sadness, fear, and anger (and perhaps other negative emotions) would bring the research full-circle in answering the question of whether different negative emotions relate in different ways to empathy-related responding and prosocial behavior.

The current study provides some initial support for the hypothesis that sadness may have a positive side and be associated with positive behavior. This work is interesting and exciting because it provides some evidence that sadness may be different that other negative emotions in regard to predicting sympathy and prosocial behavior. This work has implications for parents and practitioners in that sadness should not always be looked at 'negatively,' although it has been classified as a negative emotion. Children who may be dispositionally sad have the capacity to be caring, sensitive, and prosocial and this may be especially true for children who are not extremely high in emotional regulation (or younger children who may have yet to develop sophisticated emotional regulatory capacities).

References

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

Asendorpf, J. B. (1990). Beyond social withdrawal: Shyness, unsociability and peer avoidance. *Human Development, 33,* 250-259.

Bandstra, N. F., Chambers, C. T., McGrath, P. J., & Moore, C. (2011). The behavioral expression of empathy to others' pain versus others' sadness in young children. *Pain, 152,* 1074-1082.

Bates, J. E. (1989). Concepts and measures of temperament. In G. A. Kohnstamm, J. E. Bates, & Klevjord, M. (Eds.), *Temperament in childhood* (pp. 3-26). Oxford, England: John Wiley & Sons.

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

Belsky, J., Friedman, S.L, & Hsieh, K. (2001). Testing a core emotion-regulation prediction: Does early attentional persistence moderate the effect of infant negative emotionality on later development? *Child Development, 72,* 123-133.

Biglan, A., Rothlind, J., Hops, H., & Sherman, L. (1989). Impact of distressed and aggressive behavior. *Journal of Abnormal Psychology, 98,* 218-228.

Blair, R.J.R. (1995). A cognitive developmental approach to morality: Investigating the psychopath. *Cognition, 57,* 1-29.

Buss, K.A., & Goldsmith, H.H. (1998). Fear and anger regulation in infancy: Effects on the temporal dynamics of affective expression. *Child Development, 69,* 359-374.

Buss, K.A. & Kiel, E.J. (2004). Comparison of sadness, anger, and fear facial expressions when toddlers look at their mothers. *Child Development, 75,* 1761-1773.

Carlson, M. & Miller, N. (1987). Explanation of the relation between negative mood and helping. *Psychological Bulletin, 102,* 91-108.

Carter, A. & Briggs-Gowan, M. (1999). The Infant-Toddler Social & Emotional Assessment (ITSEA). Unpublished measure.

Chaplin, T. M., Cole, P. M., & Zahn-Waxler, C. (2005). Parental socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion, 5,* 80-88.

Cialdini, R. B., Kenrick, D. T., & Baumann, D. J. (1982). Effects of mood on prosocial behavior in children and adults. In N. Eisenberg (Ed.), *The development of prosocial behavior* (pp. 339-359). Orlando FL: Academic Press.

Cole, P. M., Martin, S. E., & Dennis, T. A. (2004). Emotion regulation as a scientific construct: Methodological challenges and directions for child development research. *Child Development, 75,* 317-333.

Denham, S. A., Blair, K. A., DeMulder, E., Levitas, J., Sawyer, K., et al. (2003). Preschool emotional competence: Pathways to social competence. *Child Development, 74,* 238-256.

Denham, S.A., Mason, T., & Couchoud, E. A. (1995). Scaffolding young children's prosocial responsiveness: Preschoolers' responses to adult sadness, anger, and pain. *International Journal of Behavioral Development, 18,* 489-504.

Diener, M. L. & Kim, D. (2004). Maternal and child predictors of preschool children's social competence. *Applied Developmental Psychology, 25,* 3-24.

Dodge, K.A., Coie, J.D., & Lynam, D. (2006). Aggression and antisocial behavior in youth. In W. Damon & R.M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6th ed., pp. 719-788). New York: Wiley.

Eisenberg, N. (1991). Meta-analytic contributions to the literature on prosocial behavior. *Personality and Social Psychology Bulletin, 17,* 273-282.

Eisenberg, N., Cumberland, A., Spinrad, T.L., Fabes, R.A., Shepard, S.A., Reiser, M., et al. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development, 72,* 1112-1134.

Eisenberg, N., Eggum, N. D., Sallquist, J., & Edwards, A. (2010). Relations of self-regulatory/control capacities to maladjustment, social competence, and emotionality. In R. H. Hoyle (Ed.), *Handbook of personality and self-regulation* (pp. 21-46). New York: Wiley-Blackwell.

Eisenberg, N., & Fabes, R. A. (1990). Empathy: Conceptualization, measurement, and relation to prosocial behavior. *Motivation and Emotion, 14,* 131-149.

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

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, R. A., Bernzweig, J., Karbon, M., Poulin, R., & Hanish, L. (1993). The relations of emotionality and regulation to preschoolers' social skills and sociometric status. *Child Development, 64,* 1418-1438.

Eisenberg, N., Fabes, R.A., Guthrie, I.K., Murphy, B.C., Maszk, P., Holmgren, R., et al. (1996). The relations of regulation and emotionality to problem behavior in elementary school children. *Development and Psychopathology, 8,* 141-162.

Eisenberg, N., Fabes, R.A., Guthrie, I.K., & Reiser, M. (2000). Dispositional emotionality and regulation: Their role in predicting quality of social functioning. *Journal of Personality and Social Psychology, 78,* 136-157.

Eisenberg, N., Fabes, R. A., Murphy, B., Karbon, M., Maszk, P., et al. (1994). The relations of emotionality and regulation to dispositional and situations empathy-related responding. *Journal of Personality and Social Psychology, 66,* 776-797.

Eisenberg, N., Fabes, R.A., Murphy, B.C., Karbon, M., Smith, M., & Maszk, P. (1996). The relations of children's dispositional empathy-related responding to their emotionality, regulation and social functioning. *Developmental Psychology, 32,* 195-209.

Eisenberg, N., Fabes, R. A., Murphy, B., Maszk, P., Smith, M., & Karbon, M. (1995). The role of emotionality and regulation in children's social functioning: A longitudinal study. *Child Development, 66,* 1360-1384.

Eisenberg, N., Fabes, R. A., Schaller, M., & Miller, P. A. (1989). Sympathy and personal distress: Development, gender differences, and interrelations of indexes. *New Directions for Child Development, 44,* 107-126.

Eisenberg, N., Fabes, R.A., Shepard, S.A., Murphy, B.C, Guthrie, I.K., Jones, S., et al. (1997). Contemporaneous and longitudinal prediction of children's social functioning from regulation and emotionality. *Child Development, 68,* 642-664.

Eisenberg, N., Fabes, R.A., Shepard, S.A., Murphy, B.C., Jones, S., & Guthrie, I.K. (1998). Contemporaneous and longitudinal prediction of children's sympathy from dispositional regulation and emotionality. *Developmental Psychology, 34,* 910-924.

Eisenberg, N., Fabes, R.A., & Spinrad, T.L. (2006). Prosocial development. In W. Damon & R.M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology*: *Vol. 3. Social, emotional, and personality development* (6th ed., pp. 646-718). New York: Wiley.

Eisenberg, N., Guthrie, I.K., Fabes, R.A., Reiser, M., Murphy, B.C., Holmgren, R., et al. (1997). The relations of regulation and emotionality to resiliency and competent social functioning in elementary school children. *Child Development, 68,* 295-311.

Eisenberg, N., Guthrie, I. K., Fabes, R. A., Shepard, S., Losoya, S., Murphy, B. C., et al. (2000). Prediction of elementary school children's externalizing problem behaviors from attentional and behavioral regulation and negative emotionality. *Child Development, 71,* 1367-1382.

Eisenberg, N., McCreath, H., and Ahn, R. (1988). Vicarious emotional responsiveness and prosocial behavior: Their interrelations in young children. *Personality and Social Psychology Bulletin, 14,* 298-311.

Eisenberg, N., Michalik, N., Spinrad, T. L., Hofer, C., Kupfer, A., et al. (2007). The relations of effortful control and impulsivity to children's sympathy: A longitudinal study. *Cognitive Development, 22,* 544-567.

Eisenberg, N. & Okun, M.A. (1996). The relations of dispositional regulation and emotionality to elders' empathy-related responding and affect while volunteering. *Journal of Personality, 64,* 157-183.

Eisenberg, N., Sadovsky, A., Spinrad, T.L., Fabes, R.A., Losoya, S.H., Valiente, C., et al.(2005). The relations of problem behavior status to children's negative emotionality, effortful control, and impulsivity: Concurrent relations and prediction of change. *Developmental Psychology, 41,* 193-211.

Eisenberg, N., Shepard, S.A., Fabes, R.A., Murphy, B.C., & Guthrie, I.K. (1998). Shyness and children's emotionality, regulation and coping: Contemporaneous, longitudinal, and across-context relations. *Child Development, 69,* 767-790.

Eisenberg, N. & Spinrad, T. L. (2004). Emotion-related regulation: Sharpening the definition. *Child Development, 75,* 334-339.

Eisenberg, N., Spinrad, T. L., & Sadovsky, A. (2006). Empathy-related responding in children. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 517-549). Mahwah, NJ: Lawrence Erlbaum.

Ekman, P., Levenson, R. W., & Friesen, W. V. (1983). Autonomic nervous system activity distinguishes among emotions. *Science, 221,* 1208-1210.

Findlay, L. C., Girardi, A., & Coplan, R. J. (2006). Links between empathy, social behavior, and social understanding in early childhood. *Early Childhood Research Quarterly, 21,* 347-359.

Fuchs, D. & Thelen, M. H. (1988). Children's expected interpersonal consequences of communicating their affective state and reported likelihood of expression. *Child Development, 59,* 1314-1322.

Garside, R.B., & Klimes-Dougan, B. (2002). Socialization of discrete negative emotions: Gender differences and links with psychological distress. *Sex Roles, 47,* 115-128.

Goldsmith, H. H., Buss, K. A., & Lemery, K. S. (1997). Toddler and childhood temperament: Expanded content, stronger genetic evidence, and new evidence for the importance of environment. *Developmental Psychology, 33,* 891-905.

Goosens, F. A., Bokhorst, K., Bruinsma, C. & van Boxtel, H. W. (2002). Judgements of aggressive, withdrawn and prosocial behavior: Perceived control, anger, pity, and sympathy in young Dutch children. *Journal of School Psychology, 40,* 309-327.

Guthrie, I.K., Eisenberg, N., Fabes, R.A., Murphy, B.C., Holmgren, R., Mazsk, P., et al. (1997).The relations of regulation and emotionality to children's situational empathy-related responding. *Motivation and Emotion, 21,* 87-108.

Hastings, P. D., Zahn-Waxler, C., Robinson, J., Usher, B., & Bridges, D. (2000). The development of concern for others in children with behavior problems. *Developmental Psychology, 36,* 531-546.

Hay, D. F. & Pawlby, S. (2003). Prosocial development in relation to children's and mothers' psychological problems. *Child Development, 74,* 1314-1327.

Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice.* New York: Cambridge.

Hourigan, S. E., Goodman, K. L., & Southam-Gerow, M. A. (2011). Discrepancies in parents' and children's reports of child emotion regulation. *Journal of Experimental Child Psychology, 110,* 198-212.

Jenkins, J. M. & Ball, S. (2000). Distinguishing between negative emotions: Children's understanding of the social-regulatory aspects of emotion. *Cognition & Emotion, 14,* 261-282.

Jöreskog, K. G. & Sörbom, D. (1979). *Advances in factor analysis and structural equation models.* New York: University Press of America.

Jöreskog, K. & Sörbom, D. (1982). Recent developments in structural equation modeling. *Journal of Marketing Research, 19,* 404-416.

Keltner, D., Moffitt, T.E., & Stouthamer-Loeber, M. (1995). Facial expressions of emotion and psychopathology in adolescent boys. *Journal of Abnormal Psychology, 104*, 644-652.

Kim, G., Walden, T., Harris, V., Karrass, J., & Catron, T. (2007). Positive emotion, negative emotion, and emotion control in the externalizing problems of school-aged children. *Child Psychiatry & Human Development, 37,* 221-239.

Knafo, A., Zahn-Waxler, C., Van Hulle, C., Robinson, J. L., & Rhee, S. H. (2008). The developmental origins of a dispositional toward empathy: Genetic and environmental contributions. *Emotion, 8,* 737-752.

Kochanska, G., Murray, K., & Coy, K. C. (1997). Inhibitory control as a contributor to conscience in childhood: From toddler to early school age. *Child Development, 68,* 263-277.

Kochanska, G., Murray, K. T., & Harlan, E. T. (2000). Effortful control in early childhood: Continuity and change, antecedents, and implications for social development. *Developmental Psychology, 36,* 220-232.

Lagattuta, K. H. & Wellman, H. M. (2002). Differences in early parent-child conversations about negative versus positive emotions: Implications for the development of psychological understanding. *Developmental Psychology, 38,* 564-580.

Levenson, R. W. (1992). Autonomic nervous system differences among emotions. *Psychological Science, 3,* 23-27.

Liew, J., Eisenberg, N., Spinrad, T. L., Eggum, N. D., Haugan, R. G., et al. (2011). Physiological regulation and fearfulness as predictors of young children's empathy-related reactions. *Social Development, 20,* 111-134.

Marsh, A. A. & Ambady, N. (2007). The influence of the fear facial expression on prosocial responding. *Cognition & Emotion, 21,* 225-247.

Marsh, A. A., Kozak, M. N., & Ambady, N. (2007). Accurate identification of fear facial expressions predicts prosocial behavior. *Emotion, 7,* 239-251.

Martini, T.S., Root, C.A., & Jenkins, J.M. (2004). Low and middle income mothers' regulation of negative emotion: Effects of children's temperament and situational emotional responses. *Social Development, 13,* 515-530.

Murphy, B.C., Eisenberg, N., Fabes, R.A., Shepard, S.A., & Guthrie, I.K. (1999). Consistency and change in children's emotionality and regulation: A longitudinal study. *Merrill-Palmer Quarterly, 45,* 413-444.

Muthén, L. K. & Muthén, B. O. (1998-2010). Mplus User's Guide. Sixth Edition. Los Angeles, CA: Muthén & Muthén.

Perry-Parrish, C. & Zeman, J. (2011). Relations among sadness regulation, peer acceptance, and social functioning in early adolescence: The role of gender. *Social Development, 20,* 135-153. doi: 10.1111/j.1467-9507.2009.00568.x

Puig, M., Lambert, M. C., Rowan, G. T., Winfrey, T., Lyubansky, M., Hannah, S. D., & Hill, M. F. (1999). Behavioral and emotional problems among Jamaican and African American children, ages 6 to 11: Teacher reports versus direct observations. *Journal of Emotional and Behavioral Disorders, 7,* 240-250.

Putnam, S.P., Gartstein, M.A., & Rothbart, M.K. (2006). Measurement of fine-grained aspects of toddler temperament: The Early Childhood Behavior Questionnaire. *Infant Behavior & Development, 29,* 386-401.

Roberts, W. & Strayer, J. (1996). Empathy, emotional expressiveness, and prosocial behavior. *Child Development, 67,* 449-470.

Robinson, J. L., Zahn-Waxler, C., & Emde, R. N. (2001). Relationship context as a moderator of sources of individual difference in empathic development. In R. N. Emde & J. K. Hewitt (Eds.), *Infancy to early childhood: Genetic and environmental influences on developmental change* (pp.23-31). New York: Oxford University Press.

Roth-Hanania, R., Davidov, M., & Zahn-Waxler, C. Empathy development from 8 to 16 months: Early signs of concern for others. *Infant Behavior & Development, 34,* 447-458.

Rothbart, M. K., Ahadi, S. A., & Hershey, K. L. (1994). Temperament and social behavior in childhood. *Merrill-Palmer Quarterly, 40,* 21-39.

Rothbart, M.K., Ahadi, S.A., Hershey, K.L., & Fisher, P. (2001). Investigations of temperament at three to seven years: The Children's Behavior Questionnaire. *Child Development, 72,* 1394-1408.

Rothbart, M.K. & Bates, J.E. (2006). Temperament. In W. Damon & R.M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6th ed., pp. 99-166.) New York: Wiley.

Rubin, K. H., Burgess, K. B., & Hastings, P. D. (2002). Stability and social-behavioral consequences of toddlers' inhibited temperament and parenting behaviors. *Child Development, 73,* 483-495.

Rubin, K. H., Coplan, R. J., Fox, N. A., & Calkins, S. D. (1995). Emotionality, emotion regulation, and preschoolers' social adaptation. *Development and Psychopathology, 7,* 49-62.

Rydell, A., Berlin, L., & Bohlin, G. (2003). Emotionality, emotion regulation, and adaptation among 5- to 8-year-old children. *Emotion, 3,* 30-47.

Saarni, C. (1988). Children's understanding of the interpersonal consequences of dissemblance of nonverbal emotional-expressive behavior. *Journal of Nonverbal Behavior, 12,* 275-294.

Saarni, C., Campos, J.J., Camras, L.A., & Witherington, D. (2006). Emotional development: Action, communication, and understanding. In W. Damon & R.M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology*: *Vol. 3. Social, emotional, and personality development* (6th ed., pp. 646-718). New York: Wiley.

Serrano, J. M., Iglesias, J., & Loeches, A. (1995). Infants' responses to adult static facial expressions. *Infant Behavior & Development, 18,* 477-482.

Shipman, K. L., Zeman, J., Nesin, A. E., & Fitzgerald, M. (2003). Children's strategies for displaying anger and sadness: What works with whom? *Merrill-Palmer Quarterly, 49,* 100-122.

Spinrad, T. L., Eisenberg, N., Cumberland, A., Fabes, R. A., Valiente, C., Shepard, S. A…& Guthrie, I. K. (2006). Relation of emotion-related regulation to children's social competence: A longitudinal study. *Emotion, 6,* 498-510.

Spinrad, T. L., Eisenberg, N., Gaertner, B., Popp, T., Smith, C. L., Kupfer, A…& Hofer, C. (2007). Relations of maternal socialization and toddlers' effortful control to children's adjustment and social competence. *Developmental Psychology, 43,* 1170-1186.

Spinrad, T. L., & Stifter, C. A. (2006). Toddlers' empathy-related responding to distress: Predictions from negative emotionality and maternal behavior in infancy. *Infancy, 10,* 97-121.

Springer, U. S., Rosas, A., McGetrick, J., & Bowers, D. (2007). Differences in startle reactivity during the perception of angry and fearful faces. *Emotion, 7,* 516-525.

Stanhope, L., Bell, R. Q., & Parker-Cohen, N. Y. (1987). Temperament and helping behavior in preschool children. *Developmental Psychology, 23,* 347-353.

Staub, E. (1978). *Positive social behavior and morality: Social and personal influences (Vol. 1).* New York: Academic Press.

Stemmler, G., Aue, T. & Wacker, J. (2007). Anger and fear. Separable effects of emotion and motivational direction on somatovisceral responses. *International Journal of Psychophysiology, 66,* 141-153.

Stocker, C. & Dunn, J. (1990). Sibling relationships in childhood: Links with friendships and peer relations. *British Journal of Developmental Psychology, 8,* 227-244.

Strayer, J. & Roberts, W. (2004a). Empathy and observed anger and aggression in five-year-olds. *Social Development, 13,* 1-13.

Strayer, J. & Roberts, W. (2004b). Children's anger, emotional expressiveness, and empathy: Relations with parents' empathy, emotional expressiveness, and parenting practices. *Social Development, 13,* 229-254.

Vaish, A., Carpenter, M., & Tomasello, M. (2004). Sympathy through affective perspective taking and its relation to prosocial behavior in toddlers. *Developmental Psychology, 45,* 534-543.

Valiente, C., Eisenberg, N., Fabes, R.A., Shepard, S.A., Cumberland, A., & Losoya, S.H. (2004). Prediction of children's empathy-related responding from their effortful control and parents' expressivity. *Developmental Psychology, 40,* 911-926.

van der Mark, I. L., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2002). Development of empathy in girls during the second year of life: Associations with parenting, attachment, and temperament. *Social Development, 11,* 451-468.

Volling, B. L., Herrera, C., & Poris, M. P. (2004). Situational affect and temperament: Implications for sibling caregiving. *Child Development, 13,* 173-183.

Wentzel, K. R. & McNamara, C. C. (1999). Interpersonal relationships, emotional distress, and prosocial behavior in middle school. *The Journal of Early Adolescence, 19,* 114-125.

Wichmann, C., Coplan, R. J., & Daniels T. (2004). The social cognitions of socially withdrawn children. *Social Development, 13,* 377-392.

Young, S. K., Fox, N. A., & Zahn-Waxler, C. (1999). The relations between temperament and empathy in 2-year-olds. *Developmental Psychology, 35,* 1189-1197.

Zahn-Waxler, C. & Radke-Yarrow, M. (1982). The development of altruism: Alternative research strategies. In N. Eisenberg-Berg (Ed.), *The development of prosocial behavior.* New York: Academic Press.

Zahn-Waxler, C., Radke-Yarrow, M., & King, R.A. (1979). Child rearing and children's prosocial initiations toward victims of distress. *Child Development, 50,* 319-330.

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental Psychology, 28,* 126-136.

Zahn-Waxler, C. Robinson, J. L., & Emde, R. N. (1992). The development of empathy in twins. *Developmental Psychology, 28,* 1038-1047.

Zeman, J. & Garber, J. (1996). Display rules for anger, sadness, and pain: It depends on who is watching. *Child Development, 67,* 957-973.

Zeman, J., Penza, S., Shipman, K., & Young, G. (1997). Preschoolers as functionalists: The impact of social context on emotion regulation. *Child Study Journal, 27,* 41-67.

Zhou, Q., Eisenberg, N., Wang, Y., & Reiser, M. (2004). Chinese children's effortful control and dispositional anger/frustration: Relations to parenting styles and children's social functioning. *Developmental Psychology, 40,* 352-366.

Table 1

Means and Standard Deviations of Study Variables

	T1	T2	T3
Sadness			
Mother-reported	3.19 (*.85*)	3.18 (*.84*)	3.84 (*.75*)
Caregiver-reported	2.80 (*.98*)	2.81 (*.82*)	3.77 (*.77*)
Sympathy			
Experimenter hurt – hypothesis testing	1.23 (*.32*)	1.29 (*.38*)	1.15 (*.26*)
Experimenter hurt – concerned attention	1.09 (*.24*)	1.13 (*.26*)	1.09 (*.16*)
Personal Distress			
Experimenter hurt – self comforting	1.12 (*.45*)	1.18 (*.41*)	1.19 (*.41*)
Experimenter hurt – seek comfort from mom	1.27 (*.47*)	1.12(*.31*)	1.07 (*.28*)
Prosocial Behavior			
Mother-reported	2.16 (*.48*)	2.40 (*.42*)	2.50 (*.39*)
Father-reported	2.09 (*.47*)	2.36 (*.41*)	2.43 (*.43*)
Caregiver-reported	1.97 (*.54*)	2.26 (*.48*)	2.28 (*.48*)
Experimenter hurt – prosocial behavior	1.02 (*.10*)	1.02 (*.13*)	1.02 (*.12*)
Experimenter hurt – prosocial verbalizations	--	1.07 (*.23*)	1.04 (*.11*)
Effortful Control			
Mother-reported Attention Shifting	4.53 (*.64*)	--	--
Mother-reported Attention Focusing	3.95 (*.73*)	--	--
Mother-reported Inhibitory Control	3.56 (*.86*)	--	--
Caregiver-reported Attention Shifting	4.74 (*.76*)	--	--

Caregiver-reported Attention Focusing	4.04 (*.86*)	--	--
Caregiver-reported Inhibitory Control	4.41 (*1.11*)	--	--
Snack Delay – total restraint score	2.60 (*1.74*)	--	--

Note. Standard deviations presented in parentheses.

Table 2

Correlations Among Measures of Sadness

	T1		T2		T3	
	(1)	(2)	(1)	(2)	(1)	(2)
T1						
1. Mother-reported	--	.27**	.58**	.12	.22**	-.07
2. Caregiver-reported		--	.13	.44**	.06	.19*
T2						
1. Mother-reported	--	--	--	.14+	.36**	.11
2. Caregiver-reported		--	--	--	.18*	.30**
T3						
1. Mother-reported	--	--	--	--	--	.21*
2. Caregiver-reported		--	--	--	--	--

Note. ** $p < .01$; * $p < .05$; + $p < .10$

Table 3

Correlations Among Measures of Sympathy

	T1		T2		T3	
	(1)	(2)	(1)	(2)	(1)	(2)
T1						
1. E Hurt: Hypothesis Testing	--	.29**	.10	-.03	.05	-.01
2. E Hurt: Concerned Attention		--	-.03	-.09	-.07	-.001
T2						
1. E Hurt: Hypothesis Testing	--	--	--	.43**	.25**	.03
2. E Hurt: Concerned Attention		--	--	--	.05	.04
T3						
1. E Hurt: Hypothesis Testing	--	--	--	--	--	.33*
2. E Hurt: Concerned Attention		--	--	--	--	--

Note. ** $p < .01$; * $p < .05$; + $p < .10$

Table 4

Correlations Among Measures of Personal Distress

	T1		T2		T3	
	(1)	(2)	(1)	(2)	(1)	(2)
T1						
1. E Hurt: Self Comforting	--	.15*	.03	.08	-.02	.11
2. E Hurt: Seeking Comfort		--	.04	.20**	-.03	.13+
T2						
1. E Hurt: Self Comforting	--	--	--	.10	.15*	.08
2. E Hurt: Seeking Comfort		--	--	--	.06	.24**
T3						
1. E Hurt: Self Comforting	--	--	--	--	--	.02
2. E Hurt: Seeking Comfort		--	--	--	--	--

Note. ** $p < .01$; * $p < .05$; + $p < .10$

Table 5

Correlations Among Measures of Prosocial Behavior

	T1				T2					T3				
T1	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
1. E Hurt: Prosocial Behavior	--	-.12^{+}	-.06	.07	.003	.15*	-.05	-.19*	-.05	-.03	.03	-.03	.02	.08
2. Mother-reported	--	--	.34**	.07	-.02	-.03	.51**	.33**	.24**	-.05	.01	.35**	.13	.08
3. Father-reported	--	--	--	.14	.004	.000	.19*	.32**	.07	-.02	-.03	.21**	.30**	.12
4. Caregiver-reported	--	--	--	--	.04	.12	-.10	.15	.38**	-.09	-.01	.06	.16	.16^{+}
T2														
1. E Hurt: Prosocial Behavior	--	--	--		--	.04	.02	-.09	-.08	-.03	.12^{+}	.10	-.01	.09
2. E Hurt: Prosocial Verbalizations	--	--	--		--	--	.12^{+}	.10	.06	-.03	.37**	.19**	.02	.14^{+}
3. Mother-reported	--	--	--		--	--	--	.35**	.12	-.02	.17*	.57**	.32**	.04
4. Father-reported	--	--	--		--	--	--	--	.26**	-.19*	.05	.27**	.38**	.06
5. Caregiver-reported	--	--	--		--	--	--	--	--	-.18*	.09	.09	-.01	.46**
T3														
1. E Hurt: Prosocial Behavior	--	--	--		--	--	--	--	--	--	.18*	.08	.14	-.03
2. E Hurt: Prosocial Verbalizations	--	--	--		--	--	--	--	--	--	--	.22**	-.05	.13
3. Mother-reported	--	--	--		--	--	--	--	--	--	--	--	.36**	.27**
4. Father-reported	--	--	--		--	--	--	--	--	--	--	--	--	.14
5. Caregiver-reported	--	--	--		--	--	--	--	--	--	--	--	--	--

Note. ** $p < .01$; * $p < .05$; $^{+}$ $p < .10$

Table 6

The Relations of Effortful Control Measures at T1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Mother-reported Attention Shifting	--	.29**	.25**	.06	.14+	.004	.17*
2. Mother-reported Attention Focusing	--	--	.31**	.18*	.24**	.04	-.01
3. Mother-reported Inhibitory Control	--	--	--	.06	.15+	.06	.03
4. Caregiver-reported Attention Shifting	--	--	--	--	.43**	.49**	.11
5. Caregiver-reported Attention Focusing	--	--	--	--	--	.34**	.10
6. Caregiver-reported Inhibitory Control	--	--	--	--	--	--	.26**
7. Snack Delay - total restraint score	--	--	--	--	--	--	--

Note. ** $p < .01$; * $p < .05$; + $p < .10$

Table 7

Correlations Among Main Composite Measures

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. T1 Sadness	.51**	.17*	-.000	.13+	.02	.02	-.10	.02	-.12+	-.10	-.03	-.003	.04	.03	-.39***
2. T2 Sadness		.37***	-.002	-.09	.15*	.06	-.05	.11	-.05	-.08	-.07	-.01	.02	-.06	-.19**
3. T3 Sadness			.01	.19**	.14*	.14+	.07	-.09	.13+	.17*	.12+	-.08	.05	.09	-.10
4. T1 Sympathy				.04	.03	-.04	-.06	.11	-.01	.10	.04	-.03	-.03	-.05	-.09
5. T2 Sympathy					.17*	-.02	-.03	-.13+	.003	.09	.21**	.03	.25***	.24**	-.03
6. T3 Sympathy						-.010	-.03	.04	.04	.10	.15*	.13+	.12	.22**	-.02
7. T1 Personal Distress							.14*	.07	-.12+	.06	.02	-.09	-.07	-.12	.04

8. T2 Personal Distress	.23**	-.08	.04	-.05	-.04	-.04	-.07	-.01
9. T3 Personal Distress		-.08	-.02	-.06	-.04	.07	-.08	-.08
10. T1 Prosocial Behavior-Reported			.42***	.28***	-.05	.04	-.08	.26***
11. T2 Prosocial Behavior-Reported				.43***	-.11	.10	-.03	.13+
12. T3 Prosocial Behavior-Reported					.04	.17*	.14+	.12+
13. T1 Prosocial Behavior-						.13+	.001	.05

Observed															
14. T2 Prosocial Behavior-Observed													.21**	-.09	
15. T3 Prosocial Behavior-Observed														-.09	
16. T1 Effortful Control															

Note. *** = $p < .001$; ** = $p < .01$; * = $p < .05$; + = $p < .10$. T1 Prosocial Behavior-Reported includes caregiver reports, in addition to mothers and fathers, even though caregivers were not used in analyses.

Table 8

Relations Among Constructs Within Time – Path Model with Sympathy as Mediator

	Sad	Symp	PS-R	PS-O
T1				
Sad		-.04 (.61) -.01 (.61)	*-.13 (.06)* *-.04 (.06)*	.01 (.92) .001 (.92)
Symp			.01 (.89) .001 (.89)	-.04 (.59) -.001 (.59)
PS-R				-.04 (.55) -.002 (.55)
PS-O				
T2				
Sad		**-.19 (.01)** **-.03 (.01)**	-.05 (.49) -.01 (.49)	.01 (.87) .001 (.87)
Symp			.11 (.11) .01 (.11)	**.24 (< .001)** **.01 (.001)**
PS-R				*.12 (.09)* *.01 (.09)*
PS-O				
T3				
Sad		.06 (.46) .01 (.46)	.05 (.52) .01 (.52)	.09 (.21) .004 (.22)
Symp			.07 (.35) .003 (.36)	**.19 (.01)** **.003 (.01)**
PS-R				*.13 (.08)* *.003 (.08)*
PS-O				

Note. Fully standardized estimates (correlations) are presented first, unstandardized estimates (covariances) are presented underneath; p-values for estimates are presented in parentheses. T2 and T3 estimates reflect the standardized correlations or unstandardized covariances among the *disturbances* of the constructs. Significant estimates are presented in bold; marginal estimates are presented in italics. Sad = Sadness; Symp = Sympathy; PS-R = Reported Prosocial Behavior; PS-O = Observed Prosocial Behavior.

Table 9

Relations Among Constructs Within Time – Path Model with Personal Distress as Mediator

	Sad	PD	PS-R	PS-O
T1				
Sad		.03 (.70) .01 (.70)	*-.13 (.06)* *-.04 (.07)*	.01 (.91) .001 (.91)
PD			*-.12 (.08)* *-.02 (.09)*	-.07 (.30) -.003 (.30)
PS-R				-.04 (.55) -.002 (.55)
PS-O				
T2				
Sad		-.001 (.98) .000 (.98)	-.05 (.48) -.01 (.48)	.01 (.84) .001 (.84)
PD			.06 (.41) .01 (.41)	-.02 (.80) -.001 (.80)
PS-R				*.12 (.08)* *.01 (.09)*
PS-O				
T3				
Sad		**-.18 (.01)** **-.02 (.02)**	.10 (.15) .02 (.16)	*.14 (.06)* *.01 (.06)*
PD			-.06 (.45) -.004 (.45)	-.08 (.26) -.002 (.27)
PS-R				**.16 (.03)** **.004 (.03)**
PS-O				

Note. Fully standardized estimates (correlations) are presented first, unstandardized estimates (covariances) are presented underneath; p-values for estimates are presented in parentheses. T2 and T3 estimates reflect the standardized correlations or unstandardized covariances among the *disturbances* of the constructs. Significant estimates are presented in bold; marginal estimates are presented in italics. Sad = Sadness; PD = Personal Distress; PS-R = Reported Prosocial Behavior; PS-O = Observed Prosocial Behavior.

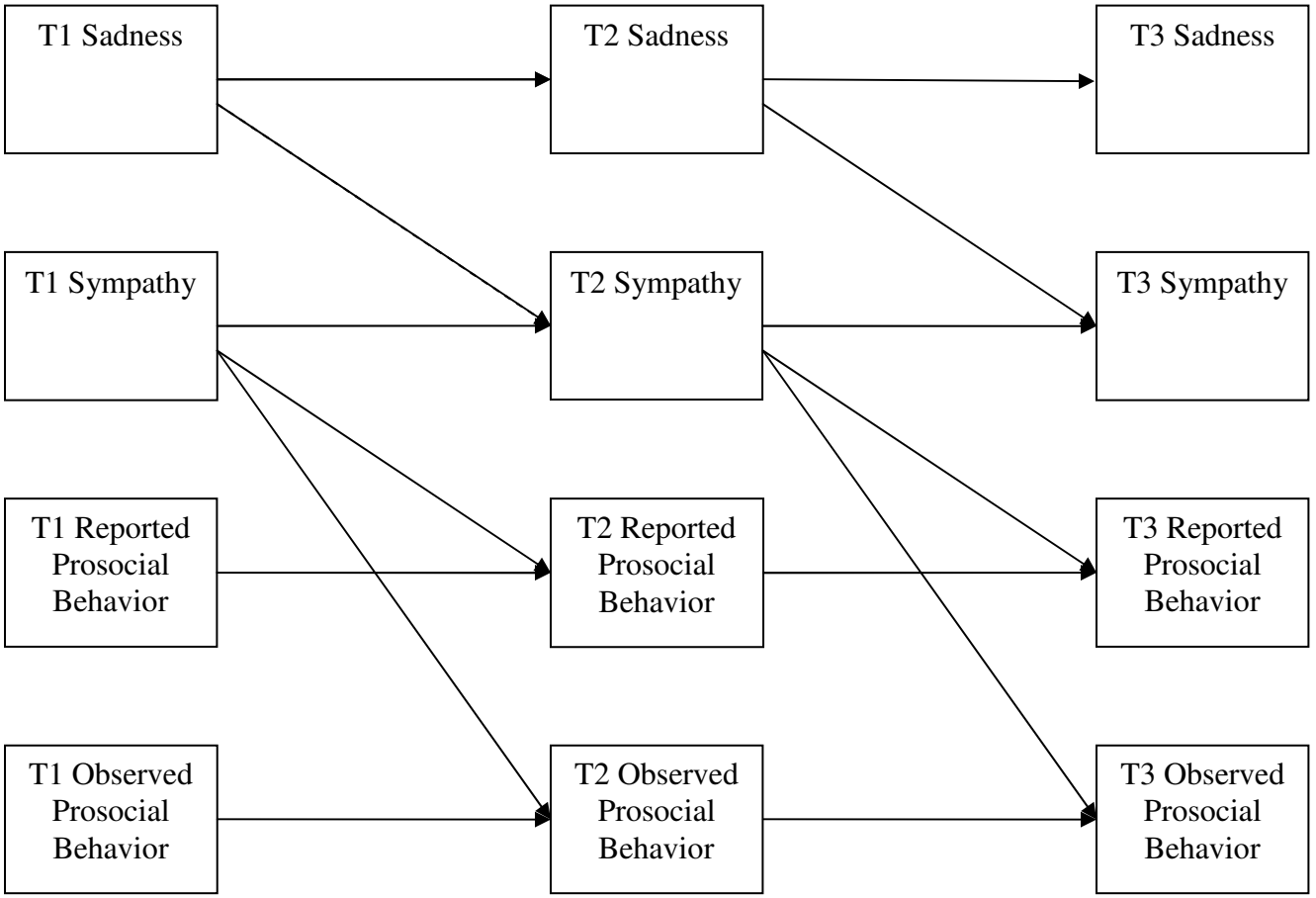

Figure 1. Hypothesized sympathy path model. Solid lines represent significant hypothesized regression paths.

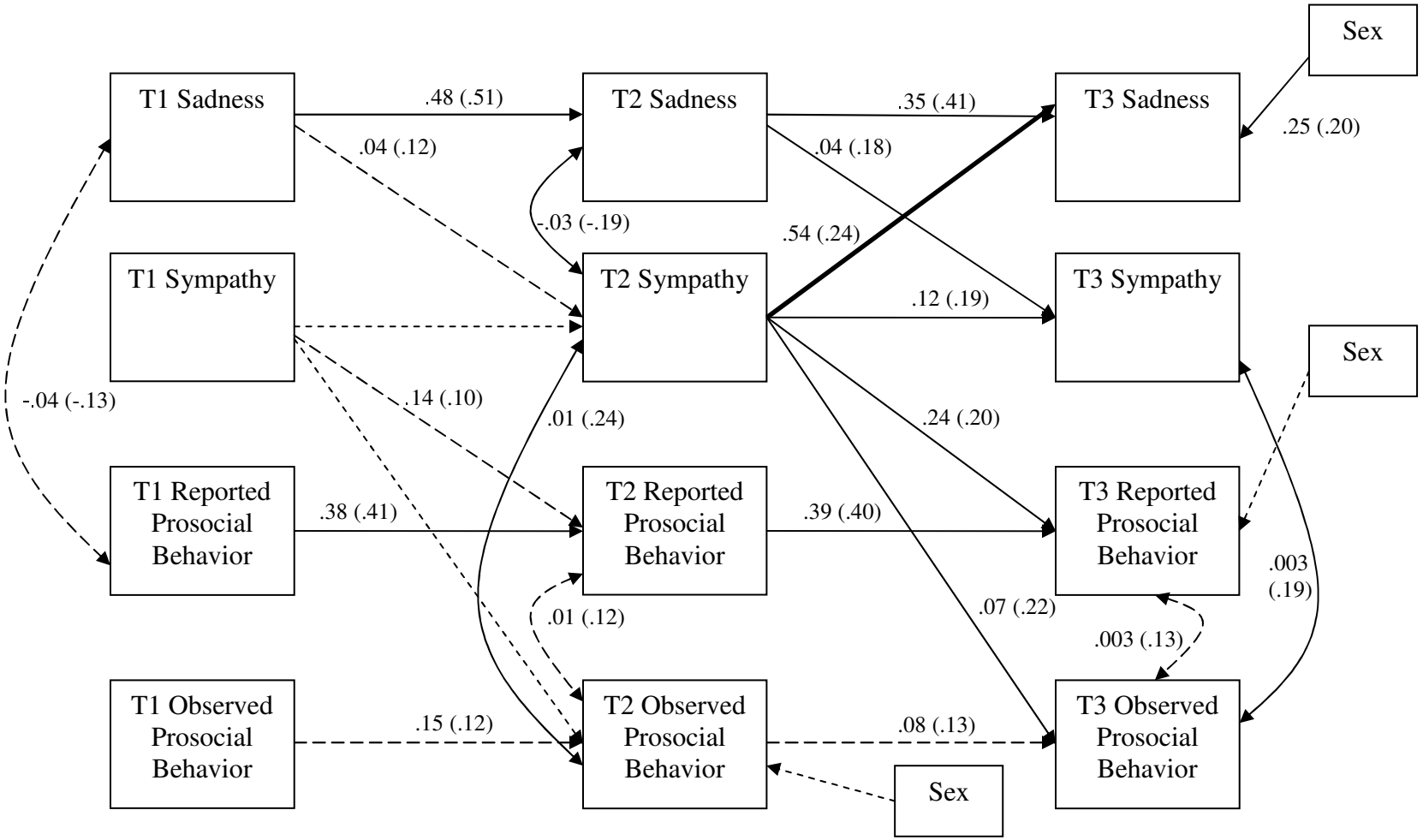

Figure 2. Final sympathy path model. Solid lines represent significant regression paths; long dashed lines represent marginal regression paths; short dashed lines represent non-significant hypothesized regression paths; bold solid line represents significant non-hypothesized regression path; curved lines represent significant (solid lines) or marginal (long dashed lines) correlations among constructs within time. Unstandardized estimates are presented first, fully standardized estimates are presented in parentheses.

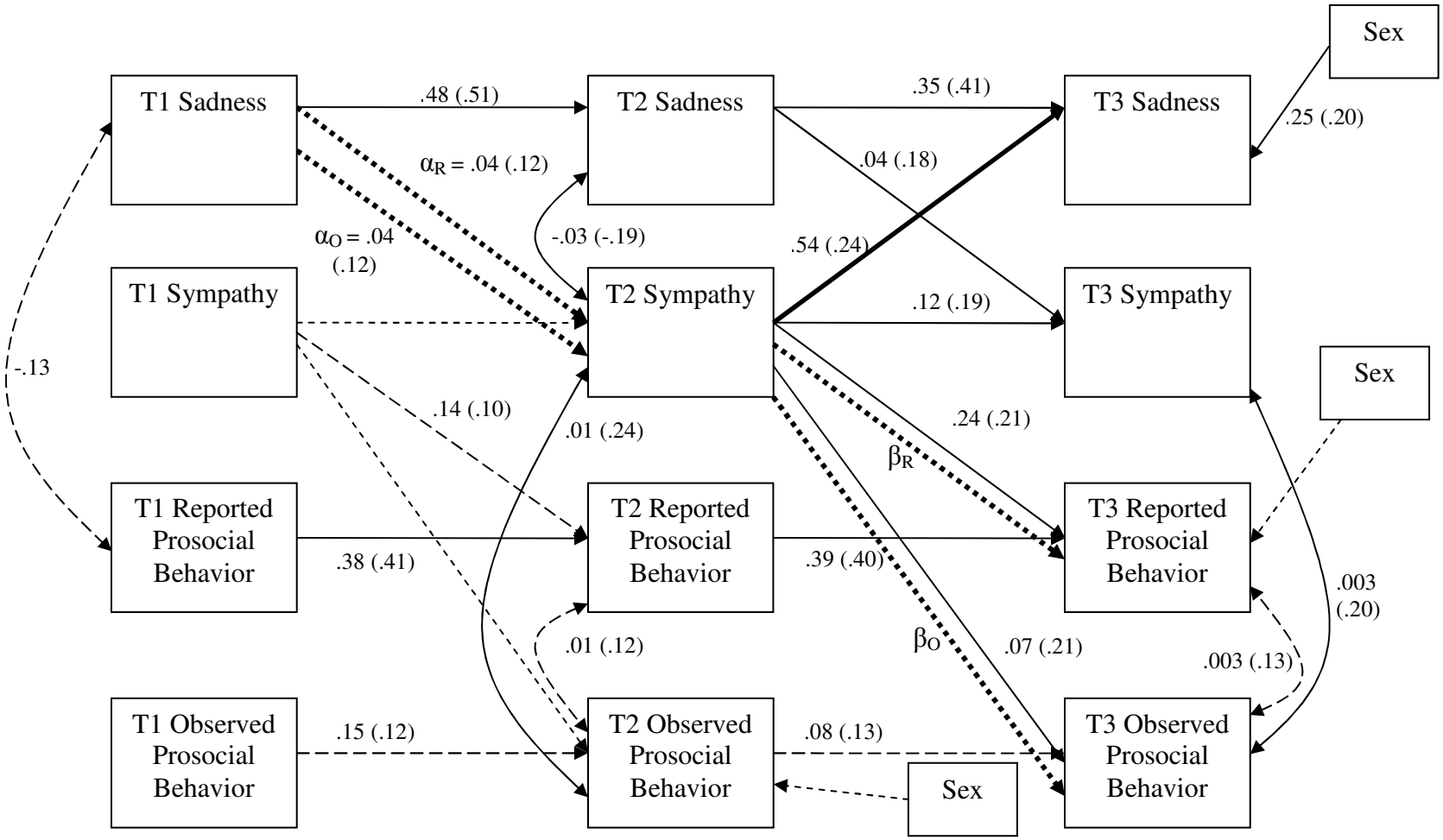

Figure 3. Final sympathy path model with mediation. Solid lines represent significant regression paths; long dashed lines represent marginal regression paths; bold, short dotted lines represent the non-significant indirect mediated effect, as indicated by α and β (R is for reported prosocial behavior; O is for observed prosocial behavior); short dashed lines represent non-significant hypothesized regression paths; bold solid line represents significant non-hypothesized regression path; curved lines represent significant (solid lines) or marginal (long dashed lines) correlations among constructs within time. Unstandardized estimates are presented first; fully standardized estimates are presented in parentheses.

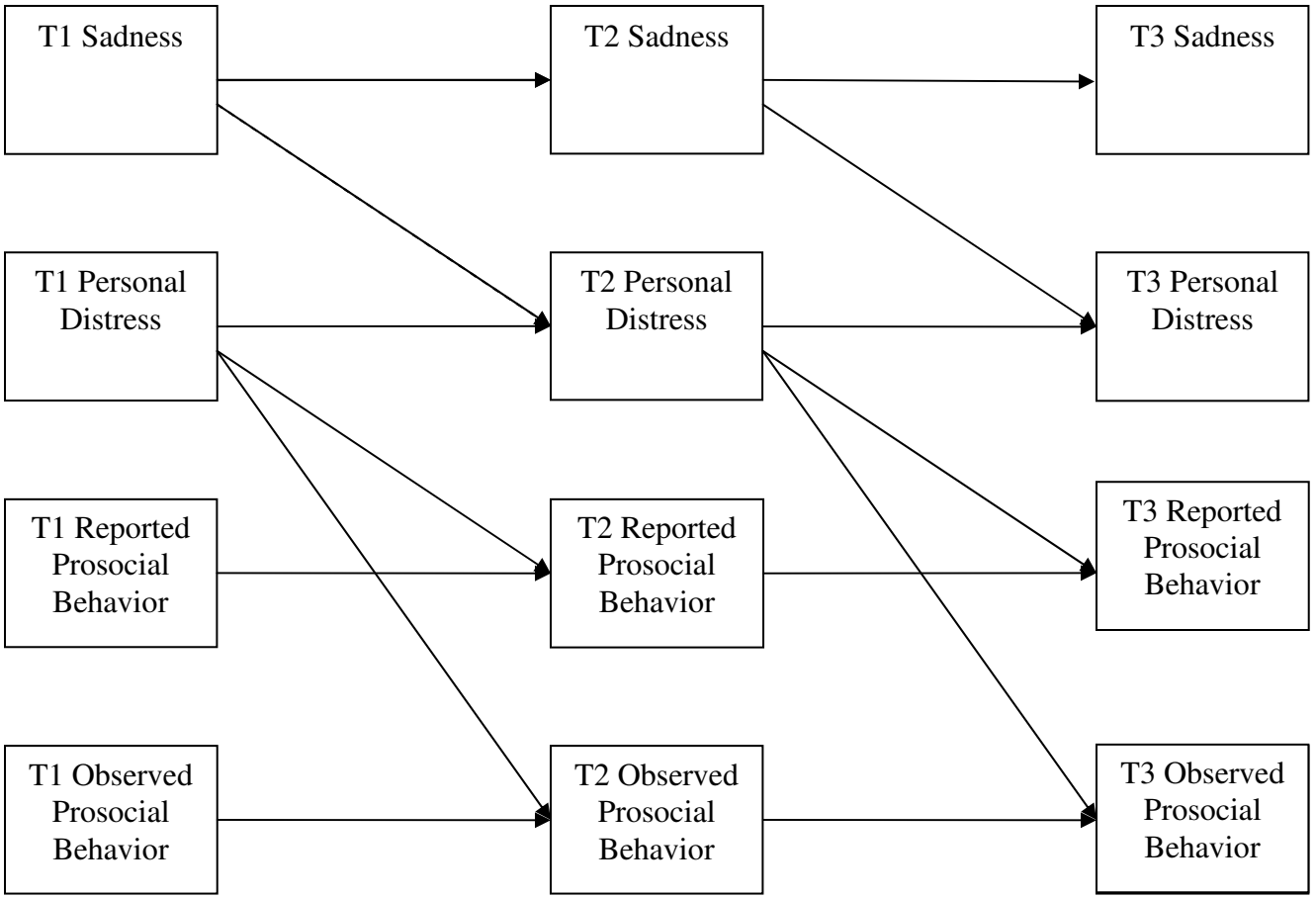

Figure 4. Hypothesized personal distress path model. Solid lines represent significant hypothesized paths.

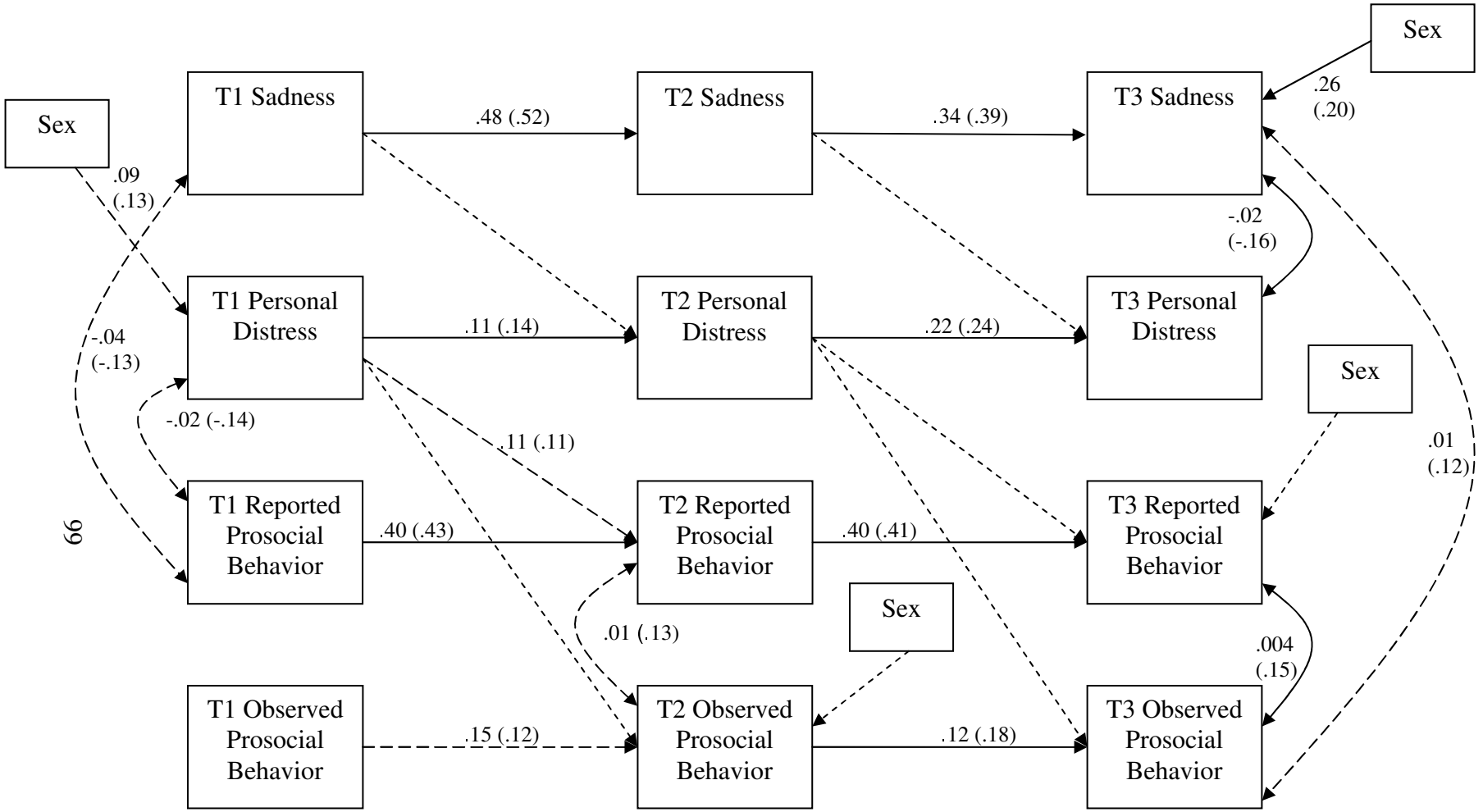

Figure 5. Final personal distress path model. Solid lines represent significant regression paths; long dashed lines represent marginal regression paths; short dashed lines represent non-significant hypothesized regression paths; Curved lines represent significant (solid lines) or marginal (long dashed lines) correlations among constructs within time. Unstandardized estimates are presented first; fully standardized estimates are presented in parentheses.

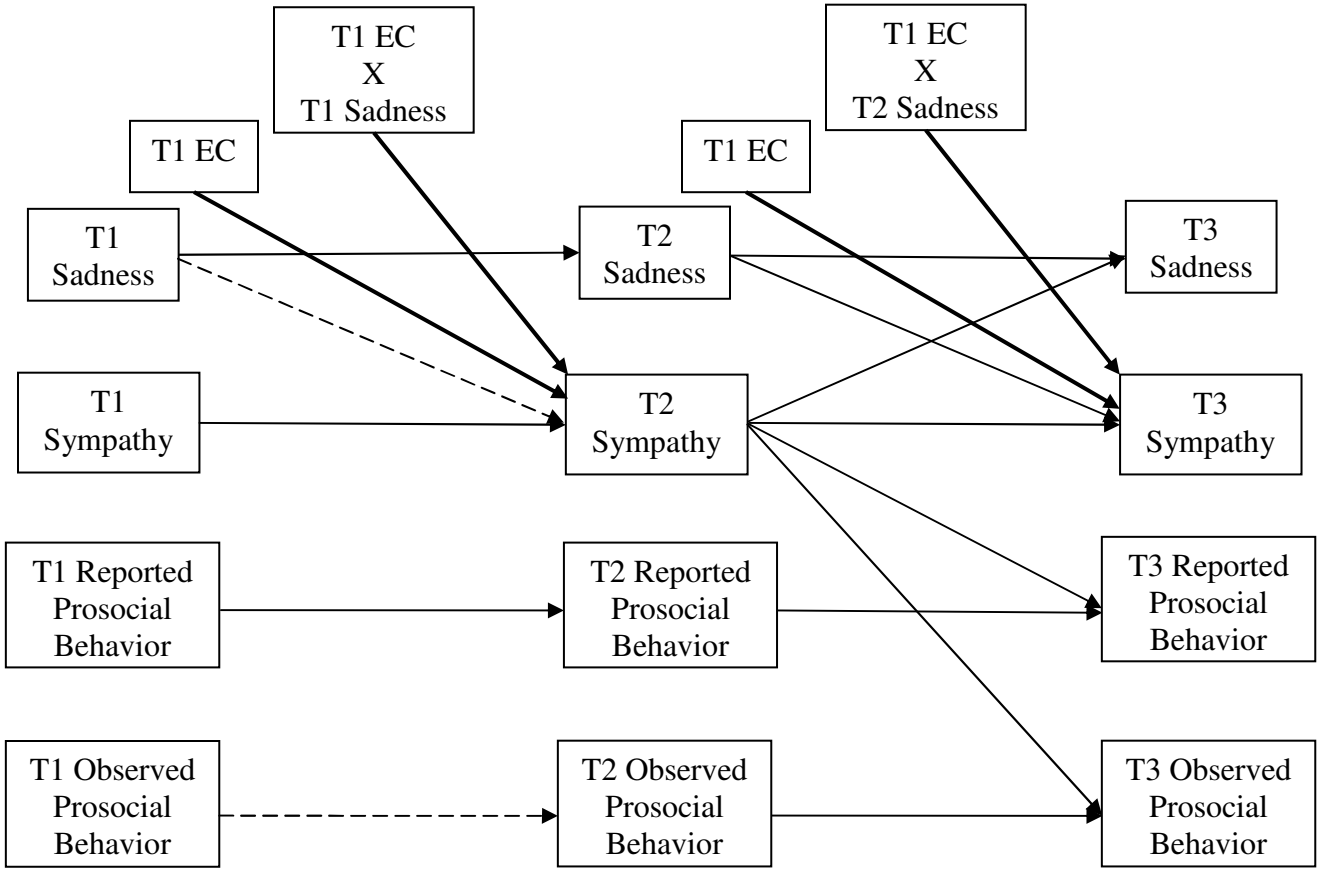

Figure 6. Set-up of moderated model with sympathy as mediator. Solid lines represent significant regression paths; long dashed lines represent marginal regression paths; bold, solid lines represent hypothesized regression paths for the moderated effects.

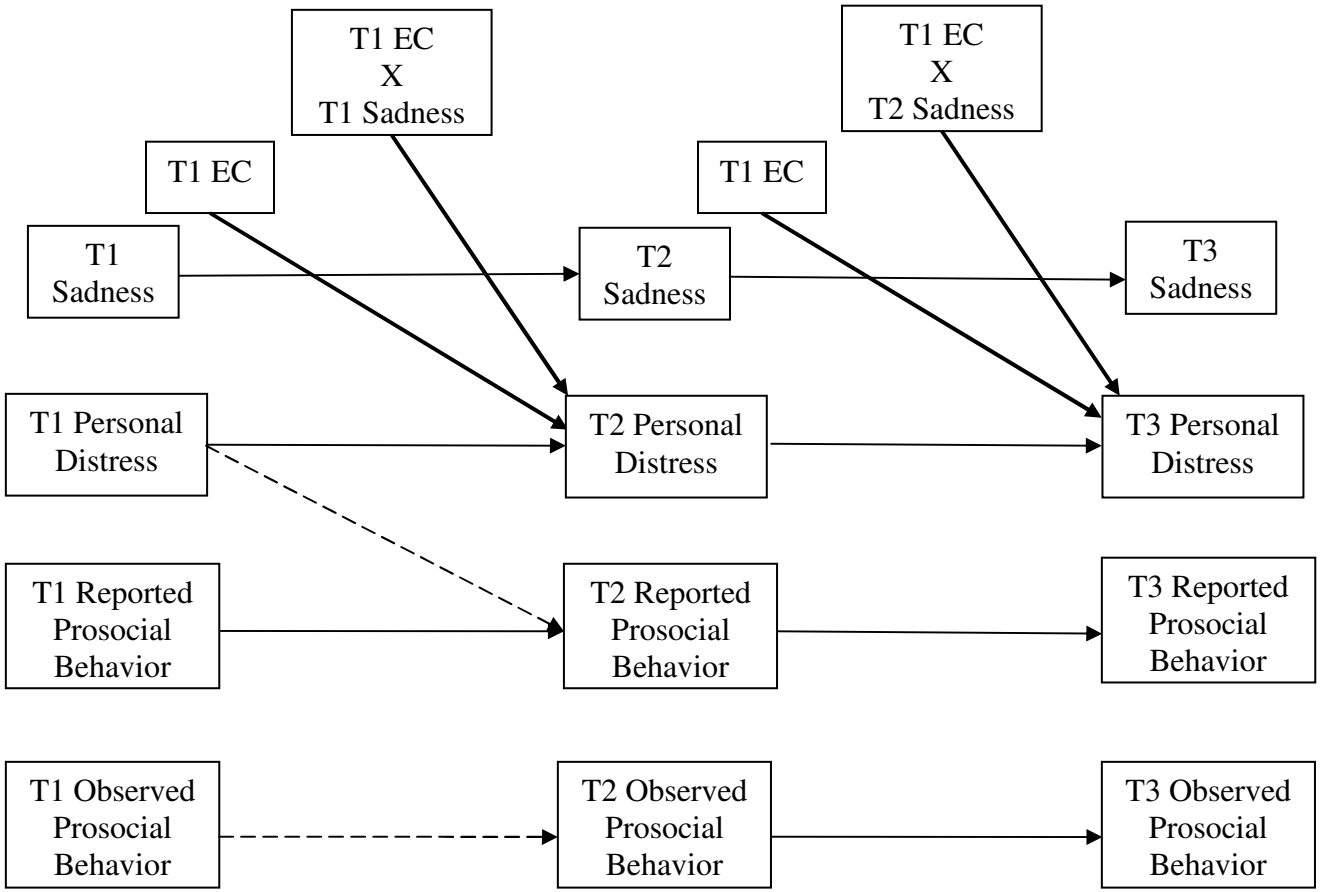

Figure 7. Set-up of moderated model with personal distress as mediator. Solid lines represent significant regression paths; long dashed lines represent marginal regression paths; bold, solid lines represent hypothesized regression paths for the moderated effects.

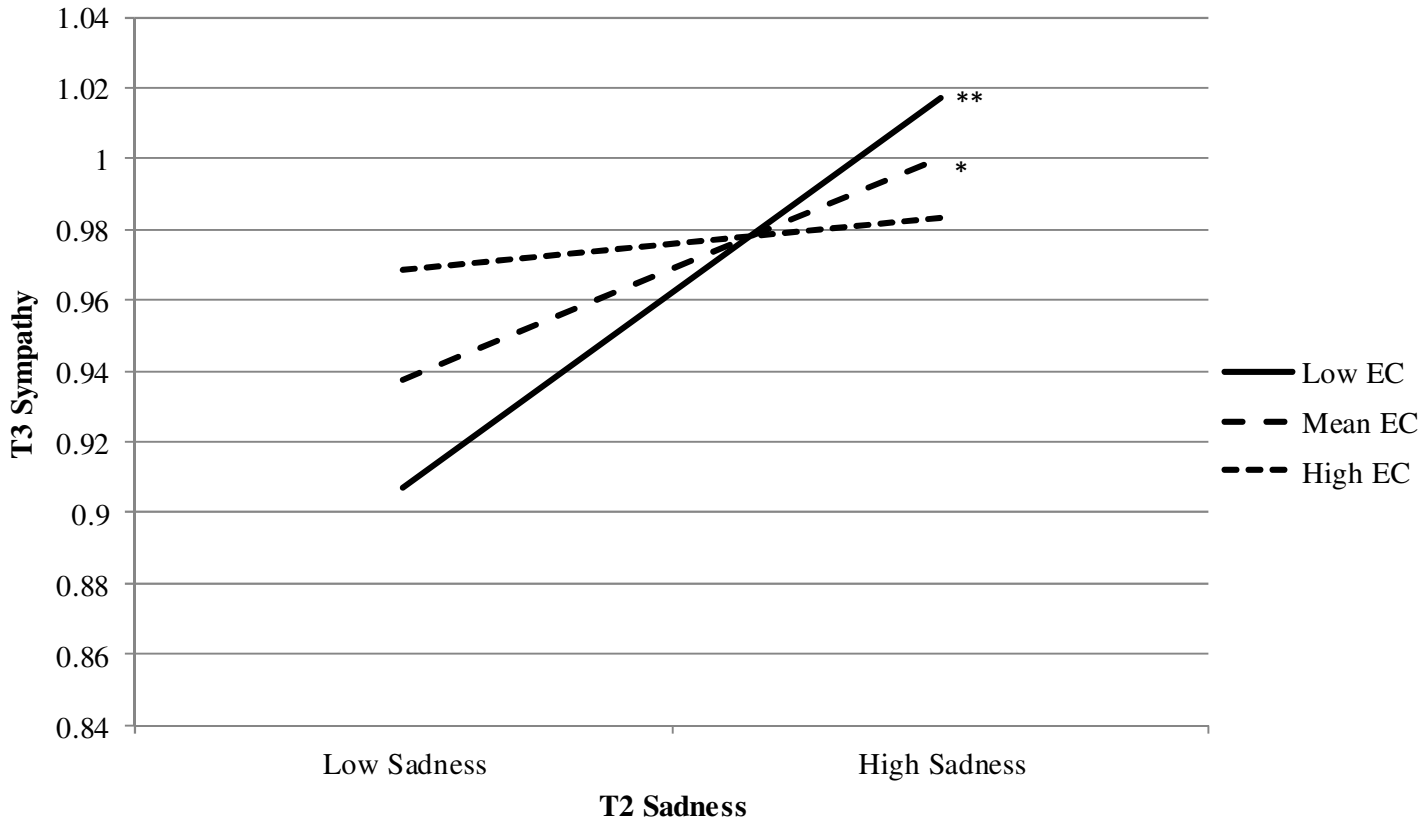

Figure 8. Sadness predicting sympathy as moderated by EC. $^{*}p = .01$; $^{**}p = .002$

APPENDIX

Early Childhood Behavior Questionnaire:

Instructions and Rating Scale

As you read each description of your (this) child's behavior below, please indicate how often the child did this during the last two weeks by bubbling in the appropriate answer. The "Does Not Apply" column (NA) is used when you did not see the child in the situation described during the last two weeks. "Never" is used when you saw the child in the situation but the child never engaged in the behavior mentioned in the last two weeks.

Never	Very Rarely	Less than Half the Time	About Half the Time	More than Half the Time	Almost Always	Always	(NA)
O	O	O	O	O	O	O	O

Early Childhood Behavior Questionnaire: Sadness Items

1. While have trouble completing a task (e.g., building, drawing, dressing), how often did your child become sad?
2. During everyday activities, how often did your child become sad or blue for no apparent reason?

   When another child took away his/her favorite toy, how often did your child:
3. Sadly cry?
4. Not react with sadness? REVERSED
5. When told "no", how often did your child become sadly tearful?

   Following an exciting activity or event, how often did your child:
6. Seem to feel down or blue?
7. Become sadly tearful?
8. When s/he asks for something, and you say "no", how often did your child become sad?
9. When asked to wait for a desirable item (such as ice cream or a treat), how often did your child whimper and cry?
10. When you removed something s/he should not have been playing with, how often did your child become sad?
11. When you mildly criticized or corrected her/his behavior, how often did your child have hurt feelings?

12. When your child was asked to share his/her toys, how often did your child become sad?

Early Childhood Behavior Questionnaire: Attention Focusing Items

When engaged in play with his/her favorite toy, how often did your child:

1. Play for 5 minutes or less? REVERSED
2. Play for more than 10 minutes?

When engaged in an activity requiring attention, such as building with blocks, how often did your child:

3. Move quickly to another activity? REVERSED
4. Stay involved for 10 minutes or more?
5. Tire of the activity relatively quickly? REVERSED

When playing alone, how often did your child:

6. Become easily distracted? REVERSED
7. Play with a set of objects for 5 minutes or longer at a time?
8. Move from one task or activity to another without completely any? REVERSED
9. Have trouble focusing on a task without help? REVERSED

While looking at picture books on his/her own, how often did your child:

10. Stay interested in the book for 5 minutes or less? REVERSED
11. Stay interested in the book for more than 10 minutes at a time?
12. Become easily distracted? REVERSED

Early Childhood Behavior Questionnaire: Attention Shifting Items

1. When playing outdoors, how often did your child look immediately when you pointed at something?
2. When engaged in play with his/her favorite toy, how often did your child continue to play while at the same time responding to your remarks or questions?

   After having been interrupted, how often did your child:

3. Return to a previous activity?
4. Have difficulty returning to the previous activity? REVERSED

   During everyday activities, how often did your child:

5. Pay attention to you right away when you called to him/her?
6. Stop going after a forbidden object (such as a VCR) when you used a toy to distract him/her

   During everyday activities, how often did your child seem able to:

7. Easily shift attention from one activity to another?
8. Do more than one thing at a time (such as playing with a toy while watching TV)?

   When interrupted during a favorite TV show, how often did your child:

9. Immediately return to watching the TV program?
10. Not finish watching the program?
11. While you were talking with someone else, how often did your child easily switch attention from speaker to speaker?

12. When you were busy, how often did your child find another activity to do when asked?

Early Childhood Behavior Questionnaire: Inhibitory Control Items

When asked NOT to, how often did your child:

1. Run around your house or apartment anyway? REVERSED
2. Touch an attractive item (such as an ornament) anyway? REVERSED
3. Play with something anyway? REVERSED

When told "no", how often did your child:

4. Stop an activity quickly?
5. Stop the forbidden activity?
6. Ignore your warning? REVERSED

When asked to wait for a desirable item (such as ice cream), how often did your child:

7. Seem unable to wait for as long as 1 minute? REVERSED
8. Go after it anyway? REVERSED
9. Wait patiently?

When asked to so sow, how often was your child able to:

10. Stop an ongoing activity?
11. Lower his or her voice?
12. Be careful with something breakable?

Child Behavior Questionnaire:

Instructions and Rating Scale

On the next pages you will see a set of statements that describe children's reactions to a number of situations. We would like you to tell us what your child's reaction is likely to be in those situations. Use the following scale to indicate how well a statement describes your child

Extremely Untrue	Quite Untrue	Slightly Untrue	Neither True or False	Slightly True	Quite True	Extremely True
O	O	O	O	O	O	O

Child Behavior Questionnaire: Sadness Items

1. Sometimes appears downcast for no reason.
2. Tends to become sad if the family's plans don't work out.
3. Seems to feel depressed when unable to accomplish some task.
4. Becomes upset when loved relative or friends are getting ready to leave following a visit
5. Rarely tears up when he or she hears a sad story. REVERSED
6. Seems to feel sorry for himself/herself when things are going badly.
7. Tends to feel "down" at the end of an exciting day.
8. Does not usually feel down when tired. REVERSED
9. Her/his feelings are easily hurt by what parents say.
10. Becomes sad when told to do something she/he does not want to do.
11. Rarely becomes upset when watching a sad event in a TV show. REVERSED
12. Is sad when a favorite possession gests lost or broken.
13. Rarely becomes discouraged when he or she has trouble making something work. REVERSED