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PROSOCIAL BEHAVIOR:

**THE ROLE OF PARENTING, COPARENTING, AND TEMPERAMENT ON THE
DEVELOPMENT OF CHILDREN'S PROSOCIAL BEHAVIOR**

A Thesis in

Psychology

by

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ABSTRACT

During toddlerhood, prosocial behavior begins to emerge in children's interactions with family members and peers (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Research suggests that, in particular, parenting is an important predictor of children's prosocial behavior (Cook, Schoppe-Sullivan, Buckley, & Davis, 2009; Hastings, McShane, Parker, & Ladha, 2007; Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009). In addition to parenting, research has suggested that the coparenting relationship interacts with parenting, as well as independently influences children's social development (Feinberg, 2003; Gable, Crnic, & Belsky, 1994; Van Egeren & Hawkins, 2004). Children's temperament may be an important influence on the development of prosocial behavior (Hay & Cook, 2007; Rothbart, 2007; Rothbart & Bates, 2006; Young, Fox, & Zahn-Waxler, 1999). Utilizing data from the Toddlers Into Kindergarteners Emotion Study (TIKES), the current study examined the effects of parenting, coparenting, and children's temperament on children's emerging prosocial behavior. Results revealed a pattern in which coparenting cooperation was positively associated with children's prosocial behavior. This pattern highlights the important role of a cooperative coparenting subsystem, above and beyond the parenting subsystem, in influencing children's emerging prosocial behavior within the family. Significant interactions between positive parenting practices and cooperative coparenting behaviors also emerged. These results highlight the importance of the association between positive parenting practices and children's prosocial development within the context of cooperative coparenting behaviors. Overall, this study demonstrates the importance of understanding family processes, beyond the parenting relationship, that contribute to children's prosocial development.

TABLE OF CONTENTS

List of Tables.....	v
List of Figures.....	vi
Introduction.....	1
Method.....	24
Results.....	35
Discussion.....	48
References.....	58
Appendix A: Tables.....	68
Appendix B: Figures.....	81

LIST OF TABLES

Table 1. Unstandardized Means, Standard Deviations, and Range for Key Study Measures.....	68
Table 2. Bivariate Correlations for Key Study Measures.....	69
Table 3. Regressions predicting 4-year prosocial behavior from 42-month observed coparenting cooperation, competition, child vs. parent centeredness, and 24-month mother-reported parenting.....	70
Table 4. Regressions predicting 4-year prosocial behavior from 42-month reported coparenting cooperation, triangulation conflict composite, and 24-month mother-reported parenting.....	71
Table 5. Regressions predicting 4-year prosocial behavior from 42-month observed coparenting cooperation, competition, child vs. parent centeredness, and 42-month observed mother reasoning.....	72
Table 6. Regressions predicting 4-year prosocial behavior from 42-month reported coparenting cooperation, triangulation conflict composite, and 42-month observed mother reasoning.....	73
Table 7. Regressions predicting 4-year prosocial behavior from 42-month observed coparenting cooperation, competition, child vs. parent centeredness, and temperament.....	74
Table 8. Regressions predicting 4-year prosocial behavior from 42-month observed coparenting cooperation, competition, child vs. parent centeredness, and temperament.....	75
Table 9. Regressions predicting 4-year prosocial behavior from 42-month reported coparenting cooperation and temperament.....	76
Table 10. Regressions predicting 4-year prosocial behavior from 42-month reported coparenting triangulation conflict composite and temperament.....	77
Table 11. Regressions predicting 4-year prosocial behavior from 24-month reported parenting reasoning and temperament.....	78
Table 12. Regressions predicting 4-year prosocial behavior from 24-month reported parenting nonreasoning and temperament.....	79
Table 13. Regressions predicting 4-year prosocial behavior from 42-month observed parenting reasoning and temperament.....	80

LIST OF FIGURES

Figure 1. Observed Coparenting Cooperation x Mother Report of Reasoning.....	81
Figure 2. Observed Coparenting Competition x Observed Reasoning.....	82
Figure 3. Mother Report Cooperation x Observed Reasoning.....	83
Figure 4. Observed Reasoning x Exuberant Temperament.....	84

Introduction

Children's early development of prosocial behavior is important for promoting positive social relationships later in life (Alessandri, Caprara, Eisenberg, & Steca, 2009; Eisenberg, Fabes, & Spinrad; 2006; Ensor, Spencer, & Hughes, 2009; Knafo & Plomin, 2006; Hay, Hudson, & Liang, 2010). Children who engage in low levels of prosocial behavior are less socially competent with their peers and are more likely to experience peer rejection, associate with deviant peer groups, and engage in antisocial behaviors in early and middle childhood (Castle, Davies, & Demetriou, 1999; Ensor et al., 2009; Lansford et al., 2006; Vitaro, Gagnon, & Tremblay, 1990; Weidman & Strayhorn, 1992; Wojslawowicz, Rubin, & Burgess, 2006). Prosocial behavior is defined as voluntary behavior that is intended to benefit another person (Eisenberg et al., 1999; Eisenberg et al., 2006; Findlay, Girardi, & Coplan, 2006; Hastings, Utendale, & Sullivan, 2007). During early childhood, predominant prosocial behaviors include, but are not limited to the following: comforting, helping, sharing, cooperating, and being considerate to others (Hastings et al., 2007; McCoy, Cummings, & Davies, 2009). It is well established that an important context for young children's socialization is their family relationships. There is emerging evidence that children's development of prosocial behavior happens first and foremost within their family context and is influenced by multiple family processes that include the parenting and coparenting relationships, as well as children's individual characteristics, such as temperament.

Research suggests that, in particular, parenting is an important predictor of children's socioemotional adjustment and prosocial behavior (Cook, Schoppe-Sullivan, Buckley, & Davis, 2009; Hastings, McShane, Parker, & Ladha, 2007; Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009). In addition to parenting, the coparenting relationship has been found to

independently affect, as well as interact with the parenting relationship, to influence children's social development (Feinberg, 2003; Gable, Crnic, & Belsky, 1994; Van Egeren & Hawkins, 2004). While evidence indicates that the coparenting relationship has been linked to children's socioemotional adjustment (particularly externalizing behavior problems) in preschool (e.g., Schoppe, Mangelsdorf, and Frosch, 2001), research has yet to examine the link between coparenting and children's prosocial behavior or the potential interactive contributions of the coparenting and parenting relationships influencing children's prosocial behavior. Children's temperament has also been linked with their prosocial development in early and middle childhood (Sanson, Hemphill, & Smart, 2004; Young, Fox, & Zahn-Waxler, 1999). Taken together, research is needed that investigates how the parenting and coparenting relationships and children's temperament interact to influence children's emerging prosocial behavior.

The Development of Prosocial Behavior Across Early Childhood

It is well established that children begin to engage in prosocial behavior early in life. Specific examples of prosocial behavior seen when children are toddlers include attempting to comfort and soothe others in need by bringing them objects, sharing toys or food items with others, and helping someone pick up or point out dropped items (Dunn & Munn, 1986; Hay & Cook, 2007; Svetlova, Nichols, & Brownell; 2010). Over childhood, children's prosocial behaviors take on various meanings according to their age, motivations, and social-cognitive competency (Ensor, Spencer, & Hughes, 2009; Hay & Cook, 2007; Svetlova et al., 2010). For example, the act of bringing someone an object may be motivated by the understanding of goal-directed behavior or by cognitively and affectively taking the perspective of the person in need's situation. By 12 to 14 months of age, children are able to engage in instrumental prosocial behaviors, which can be defined as assisting another in achieving an action-based goal (Svetlova

et al., 2010). Within the family environment, this early helping behavior may be motivated by the enjoyment of interacting with a family member or through the understanding of goals and goal-directed behaviors (Svetlova et al., 2010). During the end of the first year and beginning of the second year, children's social and emotional understanding increases and as a result, they are able to differentiate themselves as separate beings from others (Dunn & Munn, 1986; Eisenberg, Fabes, & Spinrad, 2006; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Due in part to the recognition of self and other, children's prosocial behaviors, such as responding to an individual's emotional distress or showing concern for an individual in pain, can be motivated by prosocial emotions such as empathy and sympathy (Eisenberg et al., 2006; Svetlova et al., 2010). Empathic prosocial behaviors result from self- and other-awareness and the ability to cognitively and affectively understand what another person is experiencing (Freeman, 1984; Svetlova et al., 2010). Toddlers also develop the verbal ability to comfort and soothe others, as well as gain the physical capability to actively help another individual, such as retrieving an object out of reach or bringing an object to an individual (Zahn-Waxler et al., 1992). Across early childhood, research has demonstrated links between children's social-cognitive, emotional, verbal, and physical capabilities and their developing prosocial behavior, which is important for promoting positive social relationships later in life.

Research has provided contrasting views about the developmental trajectory of children's prosocial behavior. More specifically, some research has shown that children begin to display prosocial behavior during the toddler years which may then remain relatively stable across childhood and into adolescence (Castle, Davies, & Demetriou, 1999; Eisenberg, Fabes, & Spinrad, 2006; Hay, Hudson, & Liang, 2010; McCoy, Cummings, & Davies, 2009; Svetlova, Nichols, & Brownell, 2010). Research also exists, however, that indicates that children's

prosocial behavior increases across early and middle childhood (Eisenberg, Fabes, & Spinrad, 2006; Hastings, Utendale, & Sullivan, 2007). This discrepancy between the developmental trajectory of children's prosocial behavior throughout childhood may in part be accounted for by children's varying contexts, particularly the nature of the benefactor-recipient relationship during an interaction that calls for prosocial behavior (Eisenberg, 1983; Ensor, Spencer, & Hughes, 2009; Hastings, Utendale, & Sullivan, 2007; Hay & Cook, 2007). Once children acquire the repertoire of abilities to engage in prosocial behavior (i.e., cognitive, affective, verbal, physical), research has shown that children do not engage in prosocial behavior equally across contexts (Eisenberg, 1983; Ensor et al., 2009). For example, a child's relationship with the recipient (e.g., family member, friend, stranger, disliked peer), the characteristics of the recipient (e.g., familiarity, age, sex, social class), and the child's individual characteristics (e.g., temperament, social competence, moral reasoning ability) may influence whether or not the child acts prosocially.

It is within the family environment that children first experience and learn about affective relationships with others and consequently most toddlers become responsive primarily to the emotional distress of their family members (Dunn & Munn, 1985). For example, toddlers were found to show concern towards and provide help to their mothers during their mothers' simulation of respiratory distress, pain, listlessness, and sadness both within the home and laboratory environments (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Additionally, 12-month-olds have been shown to be more likely to share objects with their own mothers than with their peers' mothers (Young & Lewis, 1979) and similarly, toddlers have been shown to be generally more likely to share objects with their parents than with unfamiliar adults (Hay & Cook, 2007; Rheingold, Hay, & West, 1976). Outside of the home environment and

across childhood, it has been made evident that children's differentiation of those in need of help vary with age and internalized social and moral principles, as young children rely more on the recipient's characteristics (e.g., family member, friend, disliked individual, person from a different country, criminal) than do older children and adolescents who are more developmentally advanced in their moral reasoning ability (Eisenberg, 1983). For instance, within the preschool setting, children have been observed to act more prosocially towards their peers in distress when the peer in need is a friend (Farver & Branstetter, 1994). There appears to be a developmental shift from favoring to help immediate family members and people children like to incorporating moral reasoning when deciding whether or not to engage in prosocial acts. Even though prosocial behavior has been shown to emerge during the toddler years and change in meaning across childhood depending on children's age and social-cognitive competency, its origins and underlying mechanisms are not fully understood (Farver & Branstetter, 1994; Svetlova, Nichols, & Brownell, 2010). When exploring the initial influential factors on children's prosocial behavior, it is therefore important to take into account the family environment in which these behaviors first emerge.

In addition to context-specific factors, child characteristics have been linked to children's tendency to engage in prosocial behavior. One of the most commonly reported correlates of prosocial behavior is gender. In general, girls tend to engage in more prosocial than boys (Hastings, McShane, Parker, & Ladha, 2007; Hastings, Utendale, & Sullivan, 2007; Hay & Cook, 2007). Gender differences in prosocial behavior may, to some extent, be due to how prosocial behavior is measured (Hastings et al., 2007b; Hay, Hudson, & Liang, 2010). Studies that utilized parent, teacher, and peer questionnaire reports tend to show consistent gender differences, however, when prosocial behavior is measured through observations there are fewer gender

differences between girls and boys (Farver & Branstetter, 1994; Hastings et al., 2007b). For example, in a study examining preschool children's prosocial skills within the classroom setting, it was found that teachers reported that girls were more prosocial than boys (Hay et al., 2010). Also, in an examination of children's prosocial behavior in middle childhood, girls were nominated by their peers to engage in higher levels of prosocial behavior than boys (Eisenberg et al., 1996a). In contrast to these example studies describing gender differences, Vaish, Carpenter, and Tomasello (2010) found through observation that regardless of gender, toddler girls and boys selectively avoided helping adults who caused or intended to cause others harm. Similarly, no gender differences were found in toddlers' observed instrumental, empathic, or altruistic helping behavior towards an adult actor within the laboratory setting (Svetlova, Nichols, & Brownell, 2010). These results suggest that gender differences found in reported prosocial behavior may reflect people's conceptions of how boys and girls are supposed to act within society, as opposed to how they actually behave (Eisenberg, Fabes, & Spinrad, 2006). Gender differences in prosocial behavior may vary depending on how prosocial behavior is measured and it is therefore necessary to take into consideration how prosocial behavior is measured when examining the developmental course of prosocial behavior.

Children's temperament is another individual characteristic that has been linked to children's tendency to engage in prosocial behavior. Temperament has been defined as constitutionally based individual differences in reactivity and self-regulation that remain relatively stable across development (Buss, Davidson, Kalin, & Goldsmith, 2004; Rothbart, 2007; Rothbart & Bates, 2006; Sanson, Hemphill, & Smart, 2004). Research has shown the importance of individual differences, as well as links between temperament and important childhood social behaviors including social competence, conscience, empathy, and prosocial

behavior (Calkins & Fox, 2002; Hay & Cook, 2007; Rothbart, 2007; Rothbart & Bates, 2006; Young, Fox, & Zahn-Waxler, 1999). Several dimensions of temperament have been examined that describe children's typical style of emotional, motor, and attentional responses across contexts. Two temperament dimensions that are often linked with children's social adjustment are approach and inhibition (Nigg, 2000; Stifter, Putnam, & Jahromi, 2008; Young et al., 1999). High approach is characterized by being highly sociable and low in shyness, readily participating in social activities, and approaching novel people and situations (Eisenberg, Fabes, & Spinrad, 2006; Rothbart & Bates, 2006). Children high in approach are proposed to have a biological predisposition for social contact and have generally been shown to be more likely to engage in helping behavior than are children who are not high in approach (Eisenberg et al., 2006). For example, Farver and Branstetter (1994) found that preschoolers rated as having an easy temperament (characterized as adaptive, positive in mood, and high in approach) exhibited a significantly higher proportion of prosocial responses (i.e., comforting) to their peers' distress in comparison to children who rated as having a slow to warm up temperament (characterized as a tendency to shy away from peer contact).

In comparison to high approach, behavioral inhibition characterizes a child's consistent behavioral pattern of displaying anxiety, distress, or wariness towards novel people, objects, or situations (Hastings, Rubin, & DeRose, 2005). Children categorized as inhibited are characteristically shy and withdrawn in novel social situations and are proposed to have a lower threshold for physiological reactivity which may predispose them to be fearful. In response to new environments, inhibited children may demonstrate prolonged latencies to approach stimuli, remain by their mothers' sides for extended periods of time, and display negative affect in their facial and vocal expressions (Young, Fox, & Zahn-Waxler, 1999). This tendency to shy away

from social contact may limit socially inhibited children's opportunities to positively experience social interactions and may hinder the development of skills needed to identify, interpret, and respond prosocially towards others in need. It may also be the case that socially inhibited children are just as likely as socially uninhibited children to empathize with another's distress and recognize situations that call for prosocial behavior, but are unable to overcome their fearful arousal to engage prosocially. For example, in their longitudinal study of the relations between toddlers' temperament and empathic expression, Young and colleagues (1999) found that both inhibited and uninhibited toddlers showed and expressed concern towards their mothers, but only the inhibited toddlers were relatively unlikely to show empathic expression or engage in helping behavior towards the adult experimenter. These results suggest that when interacting with their mothers, as opposed to an unfamiliar adult, fearful arousal was not activated in the inhibited toddlers. Mothers represent safe and familiar contexts and inhibited toddlers were therefore able to act prosocially without being hindered by a fear response. Similarly, it was found that more fearful children developed a greater conscience than less fearful children over the preschool years (Kochanska, Aksan, & Joy, 2007; Rothbart, 2007). Conscience has been proposed to act as an internalized guide that directs children's moral and social decisions in the absence of external influences (e.g., parenting), which as explored above, is incorporated into the decision making process when choosing whether or not to act prosocially (Kochanska et al., 2007; Rothbart, 2007). These findings suggest that inhibited children may or may not differ from uninhibited children in their cognitive understanding and affective experience of another individual's situation, but they may be less likely to approach an individual in need and follow through with the prosocial behavior needed. Overall, there is research to suggest that children's temperament influences their prosocial development and that children's willingness to engage in prosocial

behavior may change depending on their inherent tendency to actively approach social situations or to draw away from social situations.

Parenting and Prosocial Behavior

Children's prosocial behavior first emerges within the context of their relationships with their parents and it is, in large part, through the ongoing exchanges between the parent-child dyad that prosocial development transpires (Ensor, Spencer, & Hughes, 2009; Hastings, Utendale, & Sullivan, 2007; Hay & Cook, 2007). While a great amount of research has examined links between the influential role of parenting and children's emerging prosocial behavior, research in this area has also been somewhat limited in scope as researchers have mainly focused their efforts on the mother-child dyad and one broad dimension of parenting (Hastings et al., 2007; Maccoby, 2007).

Most of the research that has examined the role of parenting in promoting prosocial development has focused on parenting style. Parenting style is a global dimension in which a parent's attitude toward the child defines the emotional climate in which specific parenting behaviors unfold. Its two stylistic aspects are warmth/responsiveness and control (Baumrind, 1991; Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007; Eisenberg & Murphy, 1995). Responsive parents are nurturing, focused on their children, have high and reasonable expectations for their children, and tend to have close, interpersonal relationships with their children (Carlo et al., 2007; Morris, Silk, Steinberg, Myers, & Robinson, 2007). Control refers to providing structure and discipline, and effectively communicating expectations for age-appropriate social behavior (Carlo et al., 2007; Cowan, Powell, & Cowan, 1998). When parents are responsive to their children and set high behavioral standards for their children, children are

more likely to have positive social adjustment outcomes, such as internalized moral values, sympathy, and prosocial tendencies (Carlo et al., 2007).

Parents who express high levels of warmth/responsiveness and age-appropriate levels of control are said to engage in an authoritative parenting style (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). Authoritative parents have been shown to foster close, interpersonal relationships with their children, thereby potentially enabling children to be more receptive to their parents' socialization goals (Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007; Hastings, Rubin, & DeRose, 2005). Based predominantly on correlational, single-time point studies, it has been found that parents who adhere to an authoritative parenting style have children who are more prosocial (Eisenberg, Fabes, & Murphy, 1996; Hastings et al., 2005; Hastings, Utendale, & Sullivan, 2007). For example, authoritative parenting has been found to be predictive of children's turn-taking and sharing behaviors with peers. Longitudinal studies that have been conducted also generally support authoritative parents' ability to foster children's prosocial behavior. For example, in a longitudinal study examining 4-and 5-year-old-children's concern for others, results showed that mothers who had an authoritative parenting style had children who were more empathic and prosocial (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). In contrast to the authoritative parenting style, authoritarian parents utilize more controlling parenting techniques that discourage children's developing autonomy and may lead children to reject the socialization efforts of their parents (Baumrind, 1966; Hastings et al., 2005). For example, in the same longitudinal study above, mothers who had an authoritarian parenting style had preschoolers who were more likely to show disregard and less concern for others (Hastings et al., 2000). It has been suggested that while parenting style is associated with children's prosocial behavior, it has conceptual and methodological limitations. Parenting style

is a complex and multifaceted construct that is composed of specific parenting practices and within a given parenting style, parents may engage in different parenting practices. Additionally, depending on the context and the parents' socialization goal within that context, parents may vary on which parenting practices they choose to implement.

It has been suggested that parenting style provides the emotional context of the parent-child relationship and the specific parenting practices serve as the processes by which parents communicate their socialization messages and facilitate children's development of prosocial behavior (Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007; Cowan, Powell, & Cowan, 1998; Hastings, Utendale, & Sullivan, 2007). In a study addressing parenting styles and practices associated with prosocial behavior in adolescents, results revealed no direct associations between parenting styles and prosocial behavior; parenting practices (e.g., use of social rewards and experiential learning), however, were significantly associated with prosocial behavior (Carlo et al., 2007). Given that parenting practices may provide the mechanism through which parenting socialization efforts promote the development of children's prosocial behavior, more work is needed investigating the relations between parenting practices and children's prosocial behavior.

Parenting socialization practices that have been examined as correlates of children's prosocial behavior include: control and discipline as well as inductive reasoning. Control and discipline refer to specific behavioral and psychological control practices implemented by parents. Behavioral control encompasses parents' management of their children's behavior and includes regulations, directives, supervision, and nonphysical and corporal punishment (Hastings, Utendale, & Sullivan, 2007). Psychological control encompasses parents' management of their children by manipulating their emotions and attitudes (Hastings et al., 2007). It has been found

that parents who use a high degree of behavioral control and psychological control that is not age-appropriate assert authority over their children which demonstrates a lack of support for their children's developing autonomy and has consequently been negatively associated with children's prosocial behavior (Eisenberg, Wolchik, Goldberg, & Engel, 1992; Hastings et al, 2007; Sparks, Thornburg, Ispa, & Gray, 1984). It can be proposed that stifling children's autonomy may negatively influence their growing sense of self and confidence in their ability to independently engage in social situations, as well as discourage children from tuning in to their parents' socialization messages. This would therefore limit their opportunity to experience positive social situations, as well as their opportunity to engage in prosocial behavior. For example, in a longitudinal study examining parents' childrearing values and toddlers' prosocial development, results showed that parental emphasis of child compliance (e.g., following rules and obedience) was negatively associated with children's prosocial behavior with peers (Eisenberg et al., 1992). Similarly, mothers' use of simple prohibitive statements (e.g., "Stop that!") in response to toddlers' aggression were not associated with children's prosocial behavior towards their mothers and other familiar individuals (Zahn-Waxler, Radke-Yarrow, & King, 1979). Parental overuse of behavioral and psychological control and discipline is negatively correlated with children's prosocial behavior as it may impinge upon children's developing autonomy, discourage their valuing of parental socialization messages, and hinder opportunities to be proactive in their relationships with others.

In contrast to parental control and discipline, it has been proposed that inductive reasoning is a highly influential parenting practice that influences children's prosocial development (Hastings, Utendale, & Sullivan, 2007). In fact, to encourage prosocial behaviors in children, it has been recommended that parents utilize inductive reasoning (McGrath, Wilson,

& Frassetto, 1995). Inductive reasoning is when parents inform their children of societal norms and principles, explain why rules are necessary, underscore the needs and well-being of others, and make clear the effects of their actions (Hastings et al., 2007). Inductive reasoning is comprised of cognitive and affective elements (Eisenberg, Fabes, & Spinrad, 2006; McGrath et al., 1995). The cognitive elements of inductive reasoning may be focused on the potential recipient of the prosocial act, the socializing agent (i.e., parent), or the child herself. The affective elements of inductive reasoning may involve the child expecting to feel positive emotions (e.g., happiness, pride) or expecting to feel negative emotions (e.g., sadness, anger) as a result of acting prosocially. McGrath and colleagues (1995) investigated the effects of these cognitive and affective elements of inductive reasoning in a sample of 7- and 8-year-old students. In terms of cognitive inductive reasoning, their results revealed that children were more likely to donate a toy to other children in need when the induction focused on the recipients as opposed to the unfamiliar socializing agent (i.e., adult experimenter). In terms of affective inductive reasoning, children were more likely to donate a toy if the induction was positive in affect, as opposed to negative. During the toddler years when children are cognitively differentiating themselves from others, parental use of inductive reasoning helps explain to children another person's situation and guides children's perspective taking abilities (Zahn-Waxler, Radke-Yarrow, & King, 1979). Explaining others' perspectives to young children helps highlight cause-and-effects relations, which may not yet be clearly understood (Hastings et al., 2007; Zahn-Waxler et al., 1979). Children may then be better able to cognitively and affectively understand and show concern for another individual's situation. For example, when a child transgresses or when a parent is drawing the child's attention to specific social situations, parental use of inductive reasoning moderately arouses the child and enables the child to orient

her/his attention to the parent (Ensor, Spencer, & Hughes, 2009). The child is therefore not overaroused by the fear or anger that harsh/punitive approaches might evoke and can therefore attend to the parent's socialization message. Instead of focusing on her/himself and how the situation is affecting her/him, the child is able to actively reflect on the parent's socialization message and is more likely to internalize the message. Mothers' use of inductive reasoning has predicted toddler's reparative actions after their transgressions and spontaneous helping months later (Zahn-Waxler et al., 1979). Inductive reasoning has also been positively associated with children's prosocial behavior during the school years (Belsky, 1984). More specifically, parental inductive reasoning as a form of discipline was positively associated with middle school children's decision to donate money to a charity (Krevans & Gibbs, 1996). Overall, the research suggests that when parents use inductive reasoning, they foster children's developing cognitive and affective perspective taking skills which promotes children's ability to understand another individual's perspective and engage in prosocial behavior.

While research has focused on the influential role of parenting on the development of children's prosocial behavior, it is important to note that children's individual characteristics, such as temperament, influence how they respond to their parents' socialization messages. Even though research has demonstrated links between parenting and children's prosocial behavior, as well as children's temperament and their prosocial behavior, little research has explored the associations between parenting, children's temperament, and children's prosocial behavior. The research that has been conducted in this area generally shows that authoritative parents are more likely to have less inhibited children who are more prosocial, and in comparison, authoritarian parents are more likely to have more inhibited children who are less prosocial (Hastings, Rubin, & DeRose, 2005). It can be proposed that parenting style and corresponding parenting practices

interact with children's temperament to influence their emerging prosocial behavior. For example, a longitudinal investigation of the links between toddlers' behavioral inhibition, parenting (authoritative, authoritarian, and protective parenting), and children's prosocial behavior, revealed that children's behavioral inhibition moderated the link between parenting and children's prosocial behavior such that less behaviorally inhibited girls who had authoritative mothers were more helpful toward an unfamiliar experimenter in comparison to behaviorally inhibited girls who had authoritative mothers (Hastings et al., 2005). Additionally, Stanhope, Bell, and Parker-Cohen's (1987) study of children's temperament (assessed as high and low sociability) and preschooler's helping behavior toward an unfamiliar adult produced results that suggested children's temperament moderated the relationship between parenting and children's helping behavior. Specifically, associations showed that mothers who reported using more inductive reasoning to encourage helpfulness and whose children were observed to be more helpful, had children who were rated as being higher in sociability. In comparison, mothers who reported using punitive strategies to encourage helpfulness and whose children were observed to be less helpful, had children who were rated as being lower in sociability. Finally, Kochanska, Aksan, and Joy (2007) found that fearful children who received sensitive and nonpunitive parenting from their parents developed a greater conscience than fearful children whose parents implemented punitive strategies. More exuberant children who had positive relations with their parents developed a greater conscience than exuberant children who did not have as positive a relationship with their parents. Individual differences in children's reactions to parenting and their ability to regulate their emotional, attentional, and behavioral reactions affect the process of social development (Sanson, Hemphill, & Smart, 2004).

Taken together, research has shown that the association between parenting style and practices and children's developing prosocial behavior changes depending on children's temperamental differences. Children who are less behaviorally inhibited and more inclined to act prosocially may benefit from maternal use of parenting practices that support their perspective taking skills as well as their autonomous actions. Conversely, it may be more detrimental for children who are more behaviorally inhibited and less inclined to act prosocially to have mothers who utilize nonreasoning and punitive strategies because it stifles children's autonomy which could further curb their ability to independently engage in social situations. Considering the influence of this association, more work is needed to further examine how the parenting relationship interacts with children's temperament to influence children's prosocial development within the family context.

Even though the link between parenting practices and children's development of prosocial behavior has been shown, little is known about how the parenting relationship interacts with other family relationships to influence children's prosocial behavior. In order to gain a more comprehensive understanding of the family influence on children's prosocial behavior, work is needed that examines the various family relationships on children's development.

Family Systems Perspective

In order to understand children's developing prosocial tendencies, researchers would benefit from working within a broad perspective on the whole family and focus on the dynamic, regulating interactions between the families' subsystems, and not just the mother-child dyad (Cox & Paley, 1997; 2003; McHale, Kuersten-Hogan, & Rao, 2004; Schoppe, Mangelsdorf, & Frosch, 2001). An approach to understanding children's socialization within the family context is family systems theory (Cox & Paley, 2003). From this perspective, children are a part of a

larger family system and are significantly affected by their interactions with their family members (Minuchin, 1985). Specifically, family systems theory proposes that the family is a dynamic, interacting unit in which each of the members is affected by and affects the other members. The organized family unit is made up of multiple subsystems (i.e., individual, dyadic, and triadic) that include, but are not limited to the following: individual family members, the marital relationship, the parenting relationship, the coparenting relationship, and the sibling relationship (Minuchin, 1985). Family systems theory thus establishes that studying children within the context of the broader family would provide a more informed picture of their social development (Cox and Paley, 1997; Minuchin, 1985). Children's socioemotional development is influenced by interactions among the multiple levels of the family's subsystems (Cox and Paley, 2003; Minuchin, 1974).

Since children are part of and influenced by multiple subsystems and since relationships of one subsystem cannot be equated with another, focusing solely on the mother-child relationship limits the understanding of the multiple family influences on children's socialization. Little is known about how the child (individual), parenting (dyadic) and coparenting (triadic) subsystems interact to influence children's emerging prosocial behavior. In addition to examining the individual child and parenting subsystems, a goal of this study was to also investigate the coparenting subsystem and its impact on children's developing prosocial behaviors.

Coparenting and Prosocial Behavior

The majority of studies exploring families and child development have not given attention to the influence of the coordination, or lack thereof, between adults who share the caregiving responsibilities of raising a child (Gable, Crnic, & Belsky, 1994; McHale, Kuersten-

Hogan, & Rao, 2004). Coparenting is a complex construct that refers to the ways in which parents work together in their parental roles (Bronte-Tinkew, Horowitz, & Carrano, 2010; Cook, Schoppe-Sullivan, Buckley, & Davis, 2009; Feinberg, 2003; Schoppe, Mangelsdorf, & Frosch, 2001; Van Egeren & Hawkins, 2004). Emerging research in this area suggests that within the dynamic family system, the coparenting relationship plays an influential role in children's socioemotional development above and beyond the other subsystems in the family, even the marital and parenting relationships (Cook et al., 2009; Feinberg, 2003; McHale et al., 2004; Schoppe et al., 2001; Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009). The coparenting relationship is proposed to be more proximal to interactions with children, more so than the marital relationship, and is therefore more closely linked to child outcomes (Feinberg, 2003; Schoppe et al., 2001). For example, in their investigation of the influences of the parenting and coparenting relationships on toddler's behavioral inhibition, Belsky, Putnam, and Crnic (1996) found that even though both the parenting and coparenting relationships influenced toddler's behavioral inhibition, undermining coparenting behavior explained additional variance beyond parenting behaviors. This highlights the notion that taking a whole-family perspective and examining the coparenting relationship, in addition to the parent-child relationship, enhances the study of child development.

Coparenting is a multifaceted construct that is characterized by several distinct dimensions including: support, undermining, childrearing agreements, division of childcare labor, and joint family management (Feinberg, 2003; Van Egeren & Hawkins, 2004). Supportive coparenting behaviors include, but are not limited to the following: affirmation of each other's competency in parenting behavior, acknowledging and respecting each other's ideas, and upholding the other's parenting decisions. Accordingly, supportive coparenting relationships

provide consistently high levels of support both in the presence and absence of their child (Bronte-Tinkew et al., 2010; McHale, Kuersten-Hogan, & Rao, 2004). Observing supportive coparenting behaviors may promote a sense of family security for young children and may foster their ability to focus on their own emotions, the emotions of others, and their social behavior (Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009). In contrast, non-supportive or undermining coparenting behaviors include: a lack of cooperation, overt or covert opposition of the other parent's ideas and role as a parent, criticizing or blaming the other parent, competing with the other parent for their child's attention, and verbally demeaning the other partner (Feinberg, 2003; McHale & Kuersten-Hogan, 2004; Van Egeren & Hawkins, 2004). It is proposed that children's needs of physical and emotional security are threatened when coparents exchange in unsupportive behaviors which may then negatively influence their socioemotional adjustment (Gable, Crnic, & Belsky, 1994; Schoppe, Mangelsdorf, & Frosch, 2001). Children exposed to unsupportive coparenting interactions are also proposed to develop an attention bias to negatively emotional events and express more aggression and hostility in their peer relationships (Gable, Crnic, & Belsky, 1994).

Even though research has yet to link coparenting and children's prosocial behavior, there is evidence demonstrating a link between coparenting and other socioemotional outcomes. How much support or competition each parent provides the other in their role as parents are two dimensions that have been examined as important determinants of children's socioemotional development (e.g., internalizing and externalizing behavior problems, deficits in self-regulation, positive peer relationships, increased self-regulatory capabilities) (Bronte-Tinkew, Horowitz, & Carrano, 2010; Cox & Paley, 2003; Feinberg, 2003; Gable, Crnic, & Belsky, 1994; Schoppe, Mandelsdorf, & Frosch, 2001; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007). In

general, the degree of unsupportive, undermining behavior between coparents has been linked to children's concurrent and later socioemotional and behavioral problems, particularly internalizing and externalizing behavior problems and deficits in self-regulation in early and middle childhood. For example, 8- to 11-month-old infants who had parents who were observed to engage in high levels of competition were rated by their teachers three years later to be more likely to have anxiety problems and were more likely to be rated by their parents as high in aggressive behaviors (McHale & Rasmussen, 1998). The degree of supportive coparenting behavior has been linked with children's positive peer relationships and increased self-regulatory abilities (Feinberg, 2003; McHale & Kuersten-Hogan, 2004; Schoppe-Sullivan et al., 2007, Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009). For example, Schoppe, Mangelsdorf, and Frosch (2001) found that parents who engaged in high levels of undermining coparental behavior and negative affect had four-year-old children who demonstrated more externalizing behavior problems than children of parents with high levels of coparental support. Similarly, four-year-old children whose parents engaged in more warm and cooperative coparenting behaviors were observed to engage in more positive peer relationships in the school setting in comparison to children whose parents engaged in low levels of supportive behaviors (McHale, Johnson, & Sinclair, 1999). The burgeoning research examining coparenting influences on children's social development has focused on children's socioemotional adjustment and further work is needed that examines the potential influences on children's positive social adjustment, such as prosocial behavior.

Given the links between coparenting and children's socioemotional development, supportive and unsupportive coparenting behaviors can also be posited to play an important role in children's prosocial development. The coparenting relationship becomes a model of adult

social interaction and demonstrates how adults share affection, accomplish child-related goals, and resolve conflict (Cox and Paley, 1997; Gable, Crnic, & Belsky, 1994; Minuchin, 1985).

Observing these particular dynamics may influence children's growing understanding of social relationships as a setting for mutual cooperation or as a setting for independent action without helping the other coparent (Gable et al., 1994). These observations may then affect how children approach their own social relationships and whether they act cooperatively or independently in their interactions with others.

In addition to independently contributing to children's socioemotional development, the coparenting relationship is proposed to interact with the parenting subsystem to influence children's socioemotional development (Gable, Crnic, & Belsky, 1994). Traditionally, research on the link between coparenting behaviors and child adjustment has focused on direct effects (Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009). Therefore, the mechanisms through which the coparenting and parenting subsystems interact and influence children's social adjustment are unclear (Feinberg, 2003). The coparenting relationship can be viewed as a context in which parenting practices are taking place. For example, the association between parents' perceptions of their parenting skills, their self-efficacy in raising their child, the effectiveness of parent-child interactions, and children's subsequent socioemotional adjustment changes depending on characteristics of the coparenting relationship (Feinberg, 2003). Experiencing self-efficacy in parenting skills is linked to confident, sensitive, problem-solving, and focused parent-child relationships (Feinberg, 2003). Coparenting relationships characterized by undermining and unsupportive behaviors may negatively influence the link between parents' self-efficacy in parent-child interactions and children's socioemotional adjustment (Schoppe, Mangelsdorf, & Frosch, 2001).

Taking into consideration that the coparenting relationship has close associations with child outcomes and that children's temperament has been shown to moderate the link between parenting style and practices and children's prosocial behavior, by extension, it can be suggested that children's temperament also moderates the association between the coparenting relationship and children's prosocial behavior. The association between coparenting behaviors and children's prosocial behavior may change depending on the characteristics of the child (McHale, Kuersten-Hogan, & Rao, 2004). For example, in their investigation of the interactive role between the coparenting relationship and children's effortful control, Schoppe-Sullivan et al.'s (2009) results revealed that 4-year-old children with low levels of effortful control showed increases in externalizing behavior at age 5 when their parents were low in supportive coparenting behavior. Additionally, supportive coparenting behavior served as a protective buffer for children with low effortful control, such that in families with a cooperative coparenting subsystem, young children were not at an increased risk for developing externalizing behavior. Given that work has not been conducted in this area, research is needed that examines these influential links.

Existing research has assessed coparenting using an array of measures that tap into perceived coparenting, personal coparenting, and observed coparenting behaviors. Since the coparenting relationship encompasses both private and public displays of supportive and undermining behavior, a supportive coparenting relationship is one in which both partners engage in supportive coparenting behaviors both in the presence of their partner, as well as in their absence (McHale, Kuersten-Hogan, & Rao, 2004). It is therefore important to utilize both observational and self-report measures in order to fully comprehend this complex relationship (McHale et al., 2004). Examining the coparenting relationship through a multimethod approach

would further add to the understanding of the underlying processes by which children develop prosocial behavior.

Current Study

Using a longitudinal approach, the current study examined how the parenting and coparenting relationships and children's temperament are associated with children's prosocial behavior and how they may interact to predict children's prosocial behavior. By examining multiple subsystems within the family, the study expands on previous research in which the mother-child dyad has been the predominant focus. The first aim of the study was to investigate how maternal parenting practices, specifically inductive reasoning and nonreasoning/prohibitive statements, are associated with children's prosocial behavior. It was hypothesized that rates of reasoning would be positively associated with children's prosocial behavior and that nonreasoning/prohibitive statements would be negatively associated with children's prosocial behavior. The second aim was to examine how dimensions of the coparenting relationship (specifically cooperation, coparental warmth, competition, triangulation, verbal sparring, and child vs. parent centeredness) are associated with children's prosocial behavior. It was hypothesized that high levels of cooperative behavior and coparental warmth would be positively associated with children's prosocial behavior and that competitive behavior, triangulation, and verbal sparring would be negatively associated with children's prosocial behavior. The third aim of the study was to explore how the parenting and coparenting relationships interact to influence children's prosocial behavior. It was hypothesized that high levels of parenting reasoning in combination with high levels of coparenting cooperation would be associated with higher levels of prosocial behavior and that high levels of parenting nonreasoning/prohibitive statements in combination with high levels of coparenting competition would be associated with lower levels

of prosocial behavior. The fourth aim of the study was to investigate the influence of children's temperament classification (fearful, exuberant, and average) on the associations between the parenting and coparenting relationships and prosocial behavior. It was hypothesized that there would be no temperament differences in children's reported levels of prosocial behavior. It was also hypothesized that exuberant and fearful children whose mothers utilized inductive reasoning would be more prosocial than exuberant and fearful children whose mothers utilized nonreasoning/prohibitive statements.

Method

Participants

The current study utilized data from the Toddlers Into Kindergarteners Emotion Study (TIKES) and the Health and Positivity in the Preschools Years (HAPPY) project. TIKES is an ongoing longitudinal study exploring the development of children's emotions from toddlerhood through the beginning of the kindergarten year. The study began in 2006 with screening questionnaires sent to parents when prospective children were 18-months-old and consists of laboratory and questionnaire follow-ups across early childhood. Taking place as part of the TIKES 42-month laboratory visit, the HAPPY project began in 2008 and included preschoolers and their mothers and fathers to explore the relation between temperament and health.

Participating families were recruited from 16 counties in central Pennsylvania: Allegheny, Beaver, Bedford, Blair, Cambria, Centre, Chester, Cumberland, Dauphin, Huntingdon, Indiana, Lycoming, Mifflin, Snyder, Somerset, and York. Several methods of recruitment were used including: newspaper birth announcements, flyers posted at daycares, a Newswire listserv posting through the Pennsylvania State University, and the Families Interested In Research Studies (FIRSt) database. The FIRSt Families database is affiliated with The Pennsylvania State

University and connects university researchers with families in central Pennsylvania who are interested in participating in research studies. Families were sent a recruitment letter and families that expressed interest in the study were sent a screening questionnaire packet when their child was 18-months-of-age. One of the overarching goals of TIKES is to identify early risk factors for children's development of anxiety and the study therefore oversampled for highly fearful children. Though, this is not a focus of the current study.

From the 125 children enrolled in the study, a subset of 58 children and their parents were selected for this study. Families were included in this study based on the criteria that the child, mother, and father were all present at the 42-month laboratory assessment (described below), and that both parents participated in the tasks designed to examine parenting and coparenting behaviors. The subset of families whose data was utilized in this study was not significantly different from the larger sample on any child, parent or family demographic characteristics, except for average household income. There was a significant difference between the subset of 58 families and the overall 125 families enrolled in the study, such that families whose fathers participated in the 42-month laboratory assessment had a higher average household income than families whose fathers did not participate in the assessment (M for overall sample = 5.66, M for subset = 6.29, $t = -2.70$, $p < .05$). With respect to key study variables, children whose fathers participated in the 42-month laboratory assessment versus those who did not participate did not differ in their rated levels of prosocial behavior at age 18-months, mother-reported reasoning/explanation or nonreasoning/punitive parenting strategies at age 2, or mother- and father-reports of coparenting cooperation, conflict, or triangulation. Families did differ, however, on children's level of prosocial behavior at age 4, such that children of fathers who did participate in the assessment were significantly higher in prosocial behavior than those

whose fathers did not participate (M for children of fathers who did not participate = 1.13, M for children of fathers who did participate = 1.26, $t = -2.09$, $p = .04$).

With regard to the characteristics of the 58 participating families at the 42-month assessment, children (35 girls) were an average 42-months-old ($SD = .76$). Mothers were an average 34-years-old ($SD = 4.87$) and fathers were an average 36-years-old ($SD = 5.72$). Based on family demographic data collected at the 18-month assessment, the majority of the children were Caucasian ($N = 52$, 89.7%) and the remaining children were Asian American ($N = 3$, 5.2%), non-Caucasian Hispanic ($N = 2$, 3.4%), and American Indian ($N = 1$, 1.7%). The majority of mothers were Caucasian ($N = 54$, 93.1%) and the remaining mothers were Asian American ($N = 3$, 5.2%), and non-Caucasian Hispanic ($N = 1$, 1.7%). Of the fathers, the majority were Caucasian ($N = 55$, 94.8%) and the remaining fathers were American Indian ($N = 1$, 1.7%), non-Caucasian Hispanic ($N = 1$, 1.7%) and mixed/other ($N = 1$, 1.7%). Based on family demographic data collected at the 4-year assessment, out of the 46 families that responded, 53.4% of the families had an average household income above \$60,000. Of the 49 families that responded, mothers had an average of 15.92 years of formal schooling ($SD = 2.67$) and fathers had an average of 16.84 years of formal schooling ($SD = 2.45$).

With regard to children's classification of temperament, 17 children were classified as fearful, 19 children were classified as exuberant, and 22 children who did not meet the criteria for the other two groups were identified as average.

Procedure

Overview. The current study utilized data from the large battery of assessments collected during the 18-month, 24-month, 42-month, and 4-year assessments. At the 18-month screening and 24-month assessment, questionnaire packets were mailed home for parents to

complete and return. The current study utilized parent-report at these two time points to assess toddlers' temperament and prosocial behavior and perceptions of parenting practices. At the 42-month assessment, children and their parents visited the Child Study Center at The Pennsylvania State University. During the visit, children participated in several tasks designed to elicit emotional and behavioral reactions. The current study examined several laboratory-based parent-child and triadic interaction tasks: a mother-child teaching task and three triadic interaction tasks with the mother, father, and child. The tasks took place in an observational room that was furnished with a child-sized table, two chairs, and other specific items provided for the tasks. Each task was videotaped using a video camera through a one-way mirror looking into the observational room. Videotapes were retained for behavioral coding of individual and family behaviors.

The *mom teaching task* was intended to identify specific behaviors that mothers use with their children. Mothers and their children were led into the observational room containing a puzzle or tub of legos and a hop scotch mat or a small gymnastics mat for performing jumping jacks on. Each of the activities was selected to be slightly challenging for children at this age in order to elicit a wide range of mom teaching behaviors. The puzzles and legos were categorized as a low intensity activity and the hop scotch and jumping jacks were categorized as a high intensity activity. The puzzles or legos and hop scotch or jumping jack activities were counterbalanced across families. Mothers were told they would have five minutes to teach the child both activities and that they could do them in the order they wanted. The experimenter then left the room.

The *family triadic interaction tasks* were intended to identify the behaviors parents use to facilitate interactions with their children. Parents and their children were brought into the

observational room containing numerous age appropriate toys that included: a bowling set, cash register, shopping cart, play food, coloring books, crayons and colored pencils, cardboard building blocks, stuffed animals, dolls, cars and trucks, dinosaurs, a doctor's set, and a four-square ball. The three tasks were 5-minute each and were conducted in the following order: family free-play, structured free-play, and clean-up. During the free-play task, families were instructed to play with any and all of the toys in the room however they normally would. During the structured free-play task, the experimenter entered the room and brought in Jenga, a tower block game. The experimenter instructed the parents to try and play the game with their child if they were inclined to do so. During the clean-up task, the experimenter entered the room and placed several plastic bins around the room. Each bin had a photograph on it depicting the toys that were designated for that bin. The experimenter instructed the parents to get their child to clean-up the toys however they normally would, but to not actually clean-up the toys themselves.

In order to assess parenting and coparenting behaviors, the current study utilized behavioral coding from the mom teaching task and family triadic interaction tasks. In addition to observational data, questionnaire data from the 24-month assessment and 42-month laboratory visit was incorporated to examine the parenting and coparenting relationships. At the 4-year assessment, questionnaire packets were mailed to and sent back from the participating families that included a questionnaire that was used to assess children's prosocial behavior.

Measures

Parenting Practices. Parenting practices were assessed using mother-report data at the 24-month assessment from the Parenting Practices Questionnaire (PPQ; Robinson, Mandlco, Olsen, & Hart, 1995). The PPQ is designed to assess the specific parenting practices that occur within the context of specific parenting styles. It is comprised of 62 items and is rated on a 5-

point scale (1 = Never, 2 = Once in a while, 3 = About half of the time, 4 = Very often, 5 = Always). The PPQ consists of three subscales that measure parenting style: authoritative parenting (27 items), authoritarian parenting (20 items), and permissive parenting (15 items). The three parenting style subscales are comprised of specific parenting practices subscales. The authoritative parenting subscale includes: warmth and involvement (11 items), reasoning/induction (7 items), democratic participation (5 items), and good natured/easy going (4 items). The authoritative parenting subscale includes: verbal hostility (4 items), corporal punishment (6 items), nonreasoning, punitive strategies (6 items), and directiveness (4 items). The permissive parenting subscale includes: lack of follow through (6 items), ignoring misbehavior (4 items), and self-confidence (5 items). Examples of reasoning/induction include, “Gives child reasons why rules should be obeyed,” “Helps child to understand the impact of behavior by encouraging child to talk about the consequences of (his) (her) own actions,” and “Talks it over and reasons with child when the child misbehaves.” Examples of nonreasoning, punitive strategies include, “Punishes by putting child off somewhere alone with little if any explanation,” “When two children are fighting, disciplines children first and asks questions later,” and “When child asks why (he) (she) has to conform, states: because I said so, or I am your parent and I want you to.” Internal consistency in the study’s sample for the authoritative, authoritarian, and permissive parenting subscales were good, Cronbach’s α s = .82, .87, and .71, respectively. Internal consistency in the study’s sample for reasoning/induction and nonreasoning, explanation were acceptable, Cronbach’s α s = .84 and .67, respectively.

Parenting practices were also coded during the *mom teaching task*. The codes were mutually exclusive and coders chose the predominant behavior in each 10 second interval. Behaviors coded were: reasoning/explanation, prohibitive statement, introduction of task,

attention-grabbing, verbal command, physical redirection, negotiation, redirection, on-task/maintenance, and inactive/off-task. The reasoning/explanation and prohibitive statement behaviors were utilized in the current study. Reasoning/explanation was coded when mothers gave an explanation of why or why not the children could or could not engage in a given behavior (e.g., “We need to look at the puzzle right now because the girl asked us to, but you can play with that in a little bit.”). Prohibitive statement reflected when mothers told their children not to do a certain behavior. These phrases usually started with “don’t” or “no” (e.g., “Don’t play with that.”).

Correlation analyses examined the convergent validity of each of the parenting variables. The mother-reported reasoning/explanation and observed reasoning/explanation variables were not significantly correlated ($r = .07, p = .65$) and were therefore utilized separately in analyses. Mother-reported nonreasoning, punitive strategies and observed prohibitive statement variables were not significantly correlated ($r = -.12, p = .43$) and were therefore utilized separately in analyses.

Coparenting. Mother- and father-reports of coparenting were assessed at the 42-month assessment using the Coparenting Questionnaire (CQ; Margolin, Gordis, & John, 2001). The CQ is made up of 14 items on a 5-point scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Usually, 5 = Always) designed to assess certain aspects of the coparenting relationship. The CQ consists of three subscales: cooperation (5 items), conflict (5 items), and triangulation (4 items). An example of a cooperation item is, “My spouse asks my opinion on issues related to parenting.” An example of a conflict item is, “My spouse argues with me about this child.” An example of a triangulation item is, “My spouse uses this child to get back at me.” Internal consistency of mother-reported cooperation, conflict, and triangulation was good, Cronbach’s $\alpha = .74, .74,$

and .76, respectively. Internal consistency of father-reported cooperation ($\alpha = .70$), conflict ($\alpha = .80$), and triangulation ($\alpha = .64$) was also good. Mother-reports of triangulation and conflict were significantly positively correlated ($r = .52, p < .001$) and a triangulation conflict composite variable was created. Father-reports of triangulation and conflict were significantly positively correlated ($r = .56, p < .001$) and a triangulation conflict composite variable was created. The mother and father triangulation conflict composite variables were significantly positively correlated ($r = .53, p < .001$) and were therefore combined to create an overall triangulation conflict composite variable. Mother- and father-reports of cooperation were not significantly correlated ($r = .17, p = .23$) and analyses utilized these variables separately.

Coparenting behaviors were also coded during the *family triadic interaction tasks*.

Coparenting coding was based on McHale, Kuersten-Hogan, & Lauretti's 2001 coding scheme. Global codes for each of the 5-minute intervals were given for five different coparenting characteristics: (1) competition, (2) cooperation, (3) verbal sparring, (4) coparental warmth, and (5) child vs. parent centeredness. The codes for competition, cooperation, verbal sparring, and coparental warmth were rated on a 5-point scale (1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high). Child vs. parent centeredness was rated on a 5-point scale (1 = adult centered, 2 = primarily adult centered, 3 = equal balance, 4 = primarily child centered, 5 = child centered).

Competition. Competition was coded as the degree to which parents try to outdo or compete with each other for the child's attention. Competition included both verbal and non-verbal behavior. Examples include: one parent suggesting changing the current game or activity when the child is already engaged with the other parent and one parent physically picking up and moving the child closer to her/him. *Cooperation.* Cooperation was coded as the degree to which parents overtly cooperate during play with their child. Cooperation included parroting and

supportive statements, and active facilitation and building of the interaction to facilitate play with their child. Both verbal and non-verbal behaviors were included. Examples include: one parent gives an additional directive that explicitly follows up on the directive just given by the other parent and introducing novel elements of play that build on the other parent's goals. *Verbal sparring*. Verbal sparring was coded as conflict between parents that included disagreements, sarcasm, and insults. Both verbal and non-verbal behaviors were included (e.g., tone of voice, eye movement). Examples include: kidding, ribbing, and playful insulting behavior that is unclear in its intent. *Coparental warmth*. The coparental warmth code captured the amount of warm, positive connectedness and humor expressed between parents in reference to their child. Examples include: genuinely warm moments, heartfelt laughs after the child does something amusing, truly connecting glances, and affectionate touches. *Child vs. parent centeredness*. This code captured who was driving the interaction during the session, the parents or the child. It measured parents' awareness of their child's fluctuating interest levels and attention span and ability to structure the session in a way that accommodates their child's variability. Examples include: foregoing the prescribed order of tasks in the event that the child expresses boredom and moving on to an activity that is of interest to the child.

To achieve reliability, the secondary coder was required to achieve the criterion of a kappa of .80 or above for each of the five coparenting codes with the primary coder. Throughout the training and coding time periods, weekly coding meetings were held with all coders to discuss coparenting behaviors and coding, review difficult videotapes, resolve any questions or concerns, and evaluate any issues not addressed in the coding manual. Out of the 58 videotapes (i.e., 58 participating families), 22% of the tasks were randomly selected (35 tasks) to calculate inter-rater reliability. Reliability for each of the five codes was high (competition adjusted κ

= .96, cooperation adjusted $\kappa = .88$, verbal sparring adjusted $\kappa = .81$, coparental warmth adjusted $\kappa = .85$, and child vs. parent centeredness adjusted $\kappa = .86$).

Competition scores for the family free-play, structured free-play, and clean-up tasks were positively correlated (correlations ranged from .24 to .53). The three task scores were averaged to create a competition composite variable. Cooperation scores across the three tasks were positively correlated (correlations ranged from .51 to .71). The three task scores were averaged to create a cooperation composite variable. Child vs. parent centeredness scores across the three tasks were marginally positively correlated (correlations ranged from .08 to .25). The three task scores were averaged to create a child vs. parent centeredness composite variable. The frequency of observed verbal sparring and coparental warmth was very low and were therefore not included in any additional analyses.

Correlation analyses examined the convergent validity of each of the coparenting variables. The observed coparenting cooperation composite variable and mother- and father-reported cooperation variables were not significantly correlated ($r = -.04, p = .76$ and $r = .07, p = .62$, respectively) and were therefore analyzed separately. The observed coparenting competition composite variable and mother and father triangulation conflict composite variables were not significantly correlated ($r = .17, p = .21$) and were therefore analyzed separately.

Temperament. Mother-report of children's fearful temperament at the 18-month screening was assessed using the *Infant Toddler Social Emotional Assessment* (ITSEA; Briggs-Gowan & Carter, 1998) and *Toddler Wariness Questionnaire* (TWQ; created specifically for this study). The ITSEA is a parent-report measure designed to assess children's social-emotional problems and competencies. Children were classified as high in fear if they scored at least 1 *SD* above the published means on the ITSEA Internalizing composite or scored 1 *SD* above the

published mean on two of the ITSEA subscales (General Anxiety, Separation Distress, and Inhibition to Novelty), in addition to scoring at least 1 *SD* above the mean on the first 100 cases on the TWQ. The General Anxiety subscale is made up of 12 items on a 3-point scale (0 = not true/rarely, 1 = somewhat true/sometimes, 2 = very true/often). An example of an item is, “Seems nervous, tense or fearful”. The Separation Distress subscale is made up of 6 items on the same 3-point scale. An example of an item is, “Cries or hangs onto you when you try to leave”. The Inhibition to Novelty subscale is made up of 5 items on the same 3-point scale. An example of an item is, “Takes a while to feel comfortable in new places”.

The TWQ is a parent-report wariness screening questionnaire that assesses children’s fearfulness in novel situations that most children find fun and engaging. The 6-items on the scale are on a 7-point scale (1 = extremely untrue, 2 = quite true, 3 = slightly true, 4 = neither true nor untrue, 5 = slightly true, 6 = quite true, 7 = extremely true, NA = not applicable). Examples of items include, “My child is wary in situations where most children are not,” “My child is wary in situations that are typically fun for children,” and “My child actively avoids meeting new people or playing with new things”.

Children’s exuberant temperament was also classified using the ITSEA and its measures of positive emotions (reverse score of depression items), inhibition to novelty (reverse scored), and activity level/impulsivity. Children were identified as exuberant if they met two of the three following criteria: scored a 2 on the Depression subscale, scored 1 *SD* below the mean on the Inhibition to Novelty subscale, and scored 1 *SD* above the mean on the Activity/Impulsivity subscale. The Depression subscale is composed of 9-items and is on a 3-point scale (0 = not true/rarely, 1 = somewhat true/sometimes, 2 = very true/often). An example of an item is, “Seems very unhappy, sad or depressed”. The Inhibition to Novelty subscale was

described above. The Activity level/Impulsivity subscale is composed of 6-items and is on the same 3-point scale. An examples of an item is, “Is restless and can’t sit still”.

Prosocial Behavior. When children were 18-months-old, mothers completed the *Infant Toddler Social Emotional Assessment (ITSEA; Briggs-Gowan & Carter, 1998)*. The Prosocial Peer Relations subscale was used in the current study. The subscale is made up of 5 items on a 3-point scale (0 = not true/rarely, 1 = somewhat true/sometimes, 2 = very true/often). Examples of items include, “Takes turns when playing with others” and “Asks for things nicely when playing with children.” Responses were averaged across items to create a single score with higher scores indicating higher levels of prosocial behavior. Internal consistency was good, Cronbach’s $\alpha = .72$. At the 4-year assessment mothers completed the MacArthur Health and Behavior Questionnaire (HBQ; Armstrong, Goldstein, & The MacArthur Working Group on Outcome Assessment, 2003). The HBQ is a parent-report measure designed to measure mental health symptoms, physical health, and academic and social functioning in children younger than 9 years of age. The Prosocial Behavior Scale was utilized in the current study. This subscale consists of 20 items and is rated on a 3-point scale (0 = Rarely applies, 1 = Applies somewhat, 2 = Certainly applies). Items assess a range of sharing, helping, and empathy-related behaviors and examples of items include, “Will try to help someone who has been hurt,” “Shares candies and extra food,” and “Comforts a child who is crying or upset.” Responses were averaged across items to create a single score with higher scores indicating higher levels of prosocial behavior. Internal consistency was excellent, Cronbach’s $\alpha = .88$.

Results

Data analysis was conducted in several steps. First, patterns of missing data were examined to determine whether the missing data should be imputed. Next, preliminary analyses

of the distribution normality of all study variables, stability of prosocial behavior, and potential gender and temperament differences in prosocial behavior were conducted. Finally, a series of hierarchical regression equations were computed to examine the direct and combined effects of parenting, coparenting, and children's temperament on children's developing prosocial behavior.

Missing Data. The pattern of missingness in the data was assessed using Little's MCAR $X^2 = 32.51, p = .214$. Results revealed that none of the key study variables were missing more than 26% of data (Parenting Practices Questionnaire, 25.9%; Coparenting Questionnaire Father Cooperation, 10.3%; Coparenting Questionnaire Mother Cooperation, 6.9%; Coparenting Questionnaire Father Triangulation Conflict composite, 10.3%; Coparenting Questionnaire Mother Triangulation Conflict composite, 6.9%; MacArthur Health and Behavior Questionnaire, 15.5%). The results indicated that there was no identifiable pattern existing within the missing data and it was concluded that missing data were likely missing at random. Thus, missing data for the 58 families included in this study was imputed using the expectation/maximization (EM) algorithm.

Preliminary Analyses. The parenting, coparenting, and prosocial behavior variables were checked for distribution normality, skewness, outliers, and were transformed where appropriate prior to the main analyses. For the parenting variables, frequency of mothers' observed reasoning/explanation was low and prohibitive statements were very low. Therefore, prohibitive statements were not included in any additional analyses. Reasoning/explanation was dichotomized such that 0 = mother did not use reasoning/explanation and 1 = mother used reasoning/explanation. For the coparenting variables, frequency of observed coparental warmth and verbal sparring were very low and were therefore not included in any additional analyses.

To examine the stability of prosocial behavior from 18-months to 4-years of age, the correlation between the two prosocial behavior measures was conducted and revealed that prosocial behavior at 18-months was not significantly associated with prosocial behavior at 4-years, $r = .13, p = .40$. Given that prosocial behavior at 18-months was not correlated with prosocial behavior at 4-years, it was not included in any additional analyses. To examine whether prosocial behavior differed for boys and girls in the sample, an independent t-test examining mean-level gender differences was conducted and revealed no differences between girls and boys in prosocial behavior at age 4, $t(56) = .205, p = .84$. To examine whether prosocial behavior differed depending on children's temperament in the sample, a one-way ANOVA examining temperament differences was conducted and revealed no differences between children's temperament classification and prosocial behavior, $F(2, 55) = 1.43, p = .25$.

The means, standard deviations and range for (unstandardized) key variables are presented in Table 1. Correlations for all study variables are presented in Table 2.

Regression Analyses. The study's four specific aims were to (1) investigate how maternal parenting practices, specifically reasoning and nonreasoning, are associated with children's prosocial behavior, (2) examine how dimensions of the coparenting relationship, specifically cooperation, competition, and child vs. parent centeredness, are associated with children's prosocial behavior, (3) explore how the parenting and coparenting relationships interact to influence children's prosocial development, (4) and investigate the influence of children's temperament (fearful, exuberant, and average) on the links between the parenting and coparenting relationships and prosocial behavior. To examine these specific aims, regression analyses were used. Due to the relatively small sample size there were limitations on the number of variables that could be included in each individual analysis, therefore 27 separate hierarchical

regression models were conducted to examine the unique and interactive contribution of parenting, coparenting, and temperament in predicting children's prosocial behavior. The two-way interactions between the parenting and coparenting relationships, temperament and parenting relationships, and temperament and coparenting relationships were examined to assess how the three subsystems operate together in their associations with children's prosocial behavior.

In the analyses, all continuous variables were centered in order to make the regression equations more meaningful and interpretable. Significant interactions were probed according to the recommendations of Aiken and West (1991). Specifically, interactions were plotted at low ($-1 SD$), mean, and high ($+1 SD$) levels of the moderating variable. Utilizing the interaction utility set forth by Preacher, Curran, and Bauer (2006), simple slopes were calculated to determine whether the slope of each plotted simple regression line was significantly different from zero. At each step in the model, change in R^2 was examined to determine each variable's unique contribution and contribution within the context of the variables to the overall fit of the model. Given that there were no significant gender differences in children's 4-year prosocial behavior, gender was not entered in the regression models as a control variable because the analyses would not be differentially influenced by gender.

Coparenting and parenting predicting prosocial behavior. In order to investigate the direct and interactive contributions of the coparenting and parenting relationships to children's prosocial behavior, a series of hierarchical regression equations were computed.

The first regression model included observed coparenting cooperation behavior and reported parenting behavior. The variables were entered in the following order: (Step 1) mother report of reasoning and nonreasoning, (Step 2) observed coparenting cooperation, (Step 3) the

two-way interactions of observed coparenting cooperation x mother report of reasoning and observed coparenting cooperation x mother report of nonreasoning. The overall model was marginally significant, $F(5, 52) = 2.33, p = .06, R^2 = .18$ (Table 3). Cooperation was approaching significance, $\beta = .23, p = .08$. Furthermore, a significant cooperation x reasoning interaction emerged, $\beta = -.31, p = .04$. Follow-up analyses of this interaction revealed that the slope of the low observed cooperation plotted simple regression line was significantly different from zero (simple slope = $.29, t = 2.67, p = .01$). As can be seen in Figure 1, under low observed coparenting cooperation, there was a positive association between mother-reported reasoning and children's prosocial behavior. Children whose parents engaged in low levels of observed coparenting cooperation and who had mothers who reported using low levels of reasoning were lower in prosocial behavior than children whose parents engaged in low levels of observed coparenting cooperation and who had mothers who reported using high levels of reasoning. At high levels of observed coparenting cooperation, mother report of reasoning and children's prosocial behavior were not significantly related (simple slope = $-.11, t = -.83, p = .41$).

For the model that included observed coparenting competition and maternal reports of parenting behavior, variables were entered in the following order: (Step 1) mother report of reasoning and nonreasoning, (Step 2) observed coparenting competition, (Step 3) the two-way interactions of observed coparenting competition x mother report of reasoning and observed coparenting competition x mother report of nonreasoning. The overall model was not significant, $F(5, 52) = 1.33, p = .27, R^2 = .11$ and there were no significant effects (Table 3).

Observed child vs. parent centeredness and maternal reports of parenting behavior were included in the next model. The variables were entered in the following order: (Step 1) mother report of reasoning and nonreasoning, (Step 2) observed child vs. parent centeredness, (Step 3)

the two-way interactions of observed child vs. parent centeredness x mother report of reasoning and observed child vs. parent centeredness x mother report of nonreasoning. The overall model was not significant, $F(5, 52) = .84, p = .53, R^2 = .08$ and there were no significant effects (Table 3).

In the next model, maternal and paternal report of coparenting cooperation and maternal reports of parenting behavior were included. The variables were entered in the following order: (Step 1) mother report of reasoning and nonreasoning, (Step 2) mother report of cooperation and father report of cooperation, (Step 3) the two-way interactions of mother report of cooperation x mother report of reasoning, father report of cooperation x mother report of reasoning, mother report of cooperation x mother report of nonreasoning, and father report of cooperation and mother report of nonreasoning. The overall model was not significant, $F(8, 49) = .94, p = .50, R^2 = .13$ and there were no significant results (Table 4).

For the next model, maternal and paternal composite report of coparenting triangulation conflict and maternal report of parenting behavior were included. The variables were entered in the following order: (Step 1) mother report of reasoning and nonreasoning, (Step 2) mother and father triangulation conflict composite, (Step 3) the two-way interactions of triangulation conflict composite x mother report of reasoning and triangulation conflict composite x mother report of nonreasoning. The overall model was not significant, $F(5, 52) = .97, p = .44$ and there were no significant effects (Table 4).

Observed coparenting cooperation and observed maternal parenting behavior were included in the next model. The variables were entered in the following order: (Step 1) observed reasoning, (Step 2) observed coparenting cooperation, (Step 3) the two-way interaction of

observed cooperation x observed reasoning. The overall model was not significant, $F(3, 54) = 1.12, p = .35$. Observed cooperation was approaching significance, $\beta = .27, p = .08$ (Table 5).

The next model included observed coparenting competition and observed maternal parenting behavior. The variables were entered in the following order: (Step 1) observed reasoning, (Step 2) observed coparenting competition, (Step 3) the two-way interaction of observed competition x observed reasoning. The overall model was not significant, $F(3, 54) = 2.02, p = .12$. A significant coparenting competition x reasoning interaction was significant, $\beta = .36, p = .03$ (Table 5). Follow-up analyses of this interaction revealed that the slopes for low and high observed competition regression lines were not significantly different from zero (Figure 2; low simple slope = $-.20, t = -1.50, p = .14$; high simple slope = $.19, t = 1.56, p = .12$). Even though the simple slopes for low and high observed competition were not significantly different from zero, the significant interaction between observed coparenting cooperation and observed reasoning indicates that the two groups differed from each in terms of the association between observed reasoning and prosocial behavior.

For the model that included observed child vs. parent centeredness and observed maternal parenting behavior, variables were entered in the following order: (Step 1) observed reasoning, (Step 2) observed coparenting child vs. parent centeredness, (Step 3) the two-way interaction of observed child vs. parent centeredness x observed reasoning. The overall model was not significant, $F(3, 54) = 1.04, p = .38$ and there were no significant effects (Table 5).

Maternal and paternal reports of coparenting cooperation and observed maternal parenting behavior were included in the next model. Variables were entered in the following order: (Step 1) observed reasoning, (Step 2) mother report of cooperation and father report of cooperation, (Step 3) the two-way interactions of mother report of cooperation x observed

reasoning and father report of cooperation x observed reasoning. The overall model was significant, $F(5, 52) = 2.65, p = .03$ (Table 6). Furthermore, a significant mother report of cooperation x observed reasoning interaction was revealed, $\beta = .44, p = .004$. Further analyses of this interaction determined that the slopes of the low reported mother cooperation plotted simple regression line was significantly different from zero (Figure 3; simple slope = $-.34, t = -2.61, p = .01$). Under low levels of mother reported coparenting cooperation, there was a negative association between observed parenting and children's prosocial behavior. Children whose mothers reported engaging in low levels of coparenting cooperation and children whose mothers were observed to engage in low levels of reasoning were higher in prosocial behavior than children whose mothers reported in engaging in low levels of coparenting cooperation and whose mothers were observed to engage in high levels of reasoning. At high levels of reported mother cooperation, observed reasoning and children's prosocial behavior were not significantly related (simple slope = $.21, t = 1.60, p = .12$).

For the next model, maternal and paternal composite report of triangulation conflict and observed maternal parenting behavior were included. The variables were entered in the following order: (Step 1) observed reasoning, (Step 2) mother and father report of triangulation and conflict composite, (Step 3) the two-way interaction of triangulation and conflict composite x observed reasoning. The overall model was not significant, $F(3, 54) = .15, p = .93$ and there were no significant effects (Table 6).

Coparenting and children's temperament predicting prosocial behavior. In order to investigate the direct and interactive contributions of the coparenting relationship and children's temperament to children's prosocial behavior, a series of hierarchical regression equations were

computed. The models were computed separately with children classified as average being the reference group, as well as children classified as fearful being the reference group.

For the model that included observed coparenting cooperation and fearful and exuberant temperament, the variables were entered in the following order: (Step 1) observed coparenting cooperation, (Step 2) fearful temperament and exuberant temperament, (Step 3) the two-way interactions of fearful temperament x observed coparenting cooperation and exuberant temperament x observed coparenting cooperation. The overall model was not significant, $F(5, 52) = 1.38, p = .25$ and there were no significant effects (Table 7).

Observed coparenting competition and fearful and exuberant temperament were included in the next model. The variables were entered in the following order: (Step 1) observed coparenting competition, (Step 2) fearful temperament and exuberant temperament, (Step 3) the two-way interactions of fearful temperament x observed coparenting competition and exuberant temperament x observed coparenting competition. The overall model was not significant, $F(5, 52) = .84, p = .53$ and there were no significant effects (Table 7).

The next model included observed coparenting child vs. parent centeredness and fearful and exuberant temperament. The variables were entered in the following order: (Step 1) observed coparenting child vs. parent centeredness, (Step 2) fearful temperament and exuberant temperament, (Step 3) the two-way interactions of fearful temperament x observed coparenting child vs. parent centeredness and exuberant temperament x observed coparenting child vs. parent centeredness. The overall model was not significant, $F(5, 52) = 1.04, p = .40$ and there were no significant effects (Table 7).

For the model that included observed coparenting cooperating and average and exuberant temperament, the variables were entered in the following order: (Step 1) observed coparenting

cooperation, (Step 2) average temperament and exuberant temperament, (Step 3) the two-way interactions of average temperament x observed coparenting cooperation x and exuberant temperament x observed coparenting cooperation. The overall model was not significant, $F(5, 52) = 1.38, p = .25$ and there were no significant effects (Table 8).

The next model included observed coparenting competition and average and exuberant temperament. The variables were entered in the following order: (Step 1) observed coparenting competition, (Step 2) average temperament and exuberant temperament, (Step 3) the two-way interactions of average temperament x observed coparenting competition and exuberant temperament x observed coparenting competition. The overall model was not significant, $F(5, 52) = .84, p = .53$ and there were no significant effects (Table 8).

Observed coparenting child vs. parent centeredness and average and exuberant temperament were included in the next model. The variables were entered in the following order: (Step 1) observed coparenting child vs. parent centeredness, (Step 2) average temperament and exuberant temperament, (Step 3) the two-way interactions of average temperament x observed coparenting child vs. parent centeredness and exuberant temperament x observed coparenting child vs. parent centeredness. The overall model was not significant, $F(5, 52) = 1.04, p = .40$ and there were no significant effects (Table 8).

The next model included maternal and paternal report of cooperation and fearful and exuberant temperament. The variables were entered in the following order: (Step 1) mother reported cooperation and father reported cooperation, (Step 2) fearful temperament and exuberant temperament, (Step 3) the two-way interactions of fearful temperament x mother reported cooperation, fearful temperament x father reported cooperation, exuberant temperament x mother reported cooperation and exuberant temperament x father reported cooperation. The

overall model was not significant, $F(8, 49) = 1.06, p = .41$ and there were no significant effects (Table 9).

For the model that included maternal and paternal report of cooperation and average and exuberant temperament, the variables were entered in the following order: (Step 1) mother reported cooperation and father reported cooperation, (Step 2) average temperament and exuberant temperament, (Step 3) the two-way interactions of average temperament x mother reported cooperation, average temperament x father reported cooperation, exuberant temperament x mother reported cooperation, and exuberant temperament x father reported cooperation. The overall model was not significant, $F(8, 49) = 1.06, p = .41$. Father report of coparenting cooperation was significant, $\beta = .52, p = .05$ (Table 9).

Maternal and paternal composite report of triangulation conflict and fearful and exuberant temperament were included in the next model. The variables were entered in the following order: (Step 1) mother and father reported triangulation conflict composite, (Step 2) fearful temperament and exuberant temperament, (Step 3) the two way interactions of fearful temperament x triangulation conflict composite and exuberant temperament x triangulation conflict composite. The overall model was not significant, $F(5, 52) = .74, p = .60$ and there were no significant effects (Table 10).

The next model included maternal and paternal composite report of triangulation conflict and average and exuberant temperament. The variables were entered in the following order: (Step 1) mother and father reported triangulation conflict composite, (Step 2) average temperament and exuberant temperament, (Step 3) the two way interactions of average temperament x triangulation conflict composite and exuberant temperament x triangulation

conflict composite. The overall model was not significant, $F(5, 52) = .74, p = .60$ and there were no significant effects (Table 10).

Parenting and children's temperament predicting prosocial behavior. In order to investigate the direct and interactive contributions of the parenting relationship and children's temperament to children's prosocial behavior, a series of hierarchical regression equations were computed. The models were computed separately with children classified as average being the reference group, as well as children classified as fearful being the reference group.

For the model that included maternal report of parenting reasoning and fearful and exuberant temperament, the variables were entered in the following order: (Step 1) mother report of reasoning, (Step 2) fearful temperament and exuberant temperament, (Step 3) the two-way interactions of mother report of reasoning x fearful temperament and mother report of reasoning x exuberant temperament. The overall model was not significant, $F(5, 52) = 1.24, p = .31$. Maternal report of reasoning was approaching significance, $\beta = .42, p = .08$ (Table 11).

The next model included maternal report of parenting reasoning and average and exuberant temperament. The variables were entered in the following order: (Step 1) mother report of reasoning, (Step 2) average temperament and exuberant temperament, (Step 3) the two-way interactions of average temperament x mother report of reasoning and exuberant temperament x mother report of reasoning. The overall model was not significant, $F(5, 52) = 1.24, p = .31$ and there were no significant effects (Table 11).

For the next model, maternal report of parenting nonreasoning and fearful and exuberant temperament, the variables were entered in the following order: (Step 1) mother report of nonreasoning, (Step 2) fearful temperament and exuberant temperament, (Step 3) the two-way interactions of fearful temperament x mother report of nonreasoning and exuberant temperament

x mother report of nonreasoning. The overall model was not significant, $F(5, 52) = .92, p = .47$ and there were no significant effects (Table 12).

For the model that included maternal report of parenting nonreasoning and average and exuberant temperament, the variables were entered in the following order: (Step 1) mother report of nonreasoning, (Step 2) average temperament and exuberant temperament, (Step 3) the two-way interactions of average temperament x mother report of nonreasoning and exuberant temperament mother report of nonreasoning. The overall model was not significant, $F(5, 52) = .92, p = .47$ and there were no significant effects (Table 12).

Observed maternal parenting reasoning and fearful and exuberant temperament were included in the next model. The variables were entered in the following order: (Step 1) observed reasoning, (Step 2) fearful temperament and exuberant temperament, (Step 3) the two-way interactions of fearful temperament x observed reasoning and exuberant temperament x observed reasoning. The overall model was not significant, $F(5, 52) = 1.27, p = .29$. The reasoning x exuberant temperament interaction was approaching significance, $\beta = -.37, p = .09$ (Table 13). Further analyses of simple slopes revealed that both the regression lines for exuberant and average temperament (reference group) were not significantly different from zero (Figure 4; exuberant slope = $-.59, t = -1.74, p = .09$; average slope = $-.19, t = -1.25, p = .22$).

In the final model, observed maternal parenting reasoning and average and exuberant temperament were included. The variables were entered in the following order: (Step 1) observed reasoning, (Step 2) average temperament and exuberant temperament, (Step 3) the two-way interactions of average temperament x observed reasoning and exuberant temperament x observed reasoning. The overall model was not significant, $F(5, 52) = 1.27, p = .29$ and there were no significant effects (Table 13).

Discussion

Children's ability to engage in prosocial behavior is important for promoting positive social relationships later in life (Alessandri, Caprara, Eisenberg, & Steca, 2009; Eisenberg, Fabes, & Spinrad; 2006; Ensor, Spencer, & Hughes, 2009; Knafo & Plomin, 2006; Hay, Hudson, & Liang, 2010). Early in the second year of life, children begin to engage in prosocial behaviors such as helping, comforting, and sharing within the family context (Eisenberg et al., 2006; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Even though research has demonstrated that family and child factors are linked to children's socioemotional outcomes, little is known about how parenting and coparenting relationships and children's temperament interact to influence children's emerging prosocial behavior during the preschool years. Given these gaps in the existing literature, the current study expands our understanding of children's prosocial development by focusing on both parenting and family-level processes. Specifically, the study examined the direct and combined associations of parenting and coparenting relationships and children's exuberant and fearful temperament on children's prosocial behavior during early childhood. One important contribution of the current study was the use of a family systems perspective to examine whether relationships within the family, beyond the mother-child dyad, were associated with children's prosocial behavior. Overall, an overarching pattern developed in which coparenting cooperation was positively associated with children's prosocial behavior. This pattern highlights the important role of a cooperative coparenting subsystem, above and beyond the parenting subsystem, in influencing children's emerging prosocial behavior within the family environment.

Parenting practices and children's prosocial behavior. The hypothesis that maternal inductive reasoning would be associated with children's prosocial behavior was partially

supported. Specifically, when mothers reported that they used more inductive reasoning with their 24-month-old children in daily interactions, children were reported to engage in higher levels of prosocial behavior when they were four-years-old. This is consistent with existing literature that has linked parents' use of inductive reasoning with children's prosocial behavior (Krevans & Gibbs, 1996; Zahn-Waxler, Radke-Yarrow, & King, 1979). Maternal use of inductive reasoning is thought to influence children's prosocial behavior through fostering their perspective taking skills and ability to cognitively and affectively understand another's situation. In contrast, mother reports of nonreasoning when children were 24-months-old, (e.g., punishing a child by sending her/him to time-out without an explanation or stating "Because I said so" when a child asks a question) were not associated with children's levels of prosocial behavior at four-years-of-age. This is inconsistent with existing literature that has found that parents who use these strategies exert authority over their children, thereby demonstrating a lack of support for children's developing autonomy, which is negatively associated with children's prosocial behavior (Eisenberg, Wolchik, Goldberg, & Engel, 1992; Hastings et al, 2007; Sparks, Thornburg, Ispa, & Gray, 1984). Even though a link was not found between observations of maternal reasoning when children were 42-months-old and children's prosocial behavior at age four, this may be due, in part, to the fact that the interactions that the mother and child participated in during the laboratory visit was a general teaching task and not specific to prosocial behavior. However, given the study's focus on other family processes it may be the case that the link between parenting practices and prosocial behavior could be moderated by coparenting or children's temperamental characteristics. Taken together, these findings highlight the importance of positive parenting practices during mother-child interactions that may foster

children's developing perspective taking skills, thereby promoting children's ability to understand another individual's perspective and engage in prosocial behavior.

Coparenting and children's prosocial behavior. As hypothesized, it was found that when mothers and fathers reported at the 42-month assessment that they engaged in more cooperative coparenting behaviors, (e.g., affirmation of each other's competency in parenting behavior, acknowledging and respecting each other's ideas, and upholding the other's parenting decisions) children had higher levels of prosocial behavior at age four. These patterns of findings are consistent with the existing literature that shows that supportive coparenting behavior has been linked with children's positive peer relationships and increased self-regulatory abilities (Feinberg, 2003; McHale & Kuersten-Hogan, 2004; Schoppe-Sullivan et al., 2007, Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009). Parents who engage in supportive coparenting behaviors may promote a sense of family security for young children (Schoppe-Sullivan et al., 2009), as well as influence children's developing understanding of social relationships as a setting for mutual cooperation (Gable, Crnic, & Belsky, 1994). This research further underscores the value in not relying exclusively on mother-reports of cooperative coparenting behaviors and also including father-reports when examining links between the coparenting relationship and children's prosocial behavior. Moreover, this research demonstrates the importance of understanding family processes, beyond the parenting relationship, that contribute to children's prosocial development.

Coparenting, parenting, and children's prosocial behavior. To further examine the complex associations among multiple family subsystems and children's prosocial behavior, the study examined whether coparenting behaviors moderated the association between parenting practices and children's prosocial behavior. Partial support was found for the hypothesis that

high levels of maternal reasoning within a context of high levels of coparenting cooperation would be associated with higher levels of children's prosocial behavior. Specifically, children whose parents engaged in low levels of observed cooperation at the 42-month laboratory visit and whose mothers reported low use of inductive reasoning when children were 24-months-old were lower in their prosocial behavior at age four in comparison to children whose parents engaged in low levels of observed coparenting cooperation and whose mothers reported high use of inductive reasoning. This finding highlights the importance of the association between positive parenting practices, such as the use of inductive reasoning, and children's prosocial development within the context of cooperative coparenting behaviors.

Similarly, results also indicated that mother-report of cooperation at the 42-month laboratory visit and mothers' observed use of inductive reasoning, also at the 42-month laboratory visit, influenced children's prosocial behavior at age four. While this association involved the same coparenting and parenting constructs as the association described above, it suggests different parenting and family-level processes leading to children's prosocial behavior. Specifically, children whose mothers reported engaging in low levels of coparenting cooperation and children whose mothers did not utilize observed inductive reasoning were higher in prosocial behavior than children whose mothers reported engaging in low levels of coparenting cooperation and whose mothers utilized observed inductive reasoning. This association is contrary to the association found between observed coparenting cooperating and mother-report of inductive reasoning. This discrepancy can potentially be explained through the differing information provided from the varying types of measurement employed. In one case, coparenting cooperation was rated by observers from 15 minutes of triadic family interactions and parenting inductive reasoning was self-reported by mothers. Whereas in the second case,

coparenting cooperation was self-reported by mothers and parenting inductive reasoning was rated by observers from five minutes of a mother-child interaction task. The first association is more consistent with the existing literature that shows direct links between coparenting cooperation, parenting inductive reasoning, and children's prosocial behavior. The low frequency of mothers' use of observed inductive reasoning could potentially be attributed to the relatively short time period of five minutes, as well as the fact that this general teaching task was not explicitly related to prosocial behavior. Presumably, one of the main reasons why mothers used inductive reasoning during this task could have been to explain why the two activities (low and high intensity) needed to be completed before the experimenter returned to the laboratory room. The task did not necessarily pull for mothers to use inductive reasoning in order to inform their children of societal norms, underscore the needs and well-being of others, or make clear the effects of their actions. It could therefore be the case that mother-reported use of inductive reasoning was better able to more thoroughly measure maternal use of inductive reasoning since mothers were able to report on their general day-to-day use of inductive reasoning. Future work would benefit from including a mother-child task that is more directly related to prosocial behavior in order to assess mothers' use of inductive reasoning to help guide children's perspective taking skills and engage prosocially. Overall, these findings showcase the coparenting relationship as a moderating context between the parenting relationship and children's development of prosocial behavior.

Finally, results indicated that observed coparenting competition at the 42-month laboratory visit moderated the association between observed mother inductive reasoning, also at the 42-month laboratory visit, and children's prosocial behavior at age four. More specifically, when parents engaged in more competition, (e.g., criticizing or blaming the other parent,

competing with the other parent for their child's attention, and verbally demeaning the other parent) children of mothers who did not utilize observed inductive reasoning were lower in prosocial behavior than children whose parents also engaged in high observed coparenting competition but whose mothers engaged in observed inductive reasoning. This finding further highlights the complexity underlying parent and family-level processes that influence children's prosocial development. Competitive coparenting behaviors moderated the relationship between mothers' use of inductive reasoning and children's prosocial behavior which places importance on the coparenting relationship as context in which parenting practices unfold. Examining coparenting relationship behaviors from a family systems perspective aids in understanding children's prosocial development from a more holistic framework.

While findings shed particular light on the associations between observed and reported coparenting cooperation, observed coparenting competition behaviors, and children's prosocial behavior, several of the other coparenting behaviors assessed were not found to have an association with children's prosocial behavior. These associations support existing literature that has determined how much support or competition each coparent provides the other are important determinants of children's socioemotional development, as opposed to other dimensions of the coparenting relationship such as child vs. parent centeredness (Bronte-Tinkew, Horowitz, & Carrano, 2010; Cox & Paley, 2003; Feinberg, 2003; Gable, Crnic, & Belsky, 1994; Schoppe, Mandelsdorf, & Frosch, 2001; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007). Observed coparenting child vs. parent centeredness was not associated with children's emerging prosocial behavior. Given that this dimension of coparenting reflects who is driving the interactions between parents and their children, as well as parents' ability to tune into their children's varying attention spans, it is likely that this dimension is removed from or unrelated to

children's prosocial behavior because it does not directly demonstrate prosocial behaviors. Overall, supportive and competitive coparenting behaviors surfaced as the most influential coparenting dimensions in influencing children's development of prosocial behavior.

Child characteristics and prosocial behavior. Child gender and as hypothesized, child temperament, were not directly associated with levels of prosocial behavior at age four. Given that the literature is mixed on whether or not there are gender differences in early emerging prosocial behavior, the current study provides support for existing findings that suggest that during early childhood, children's engagement in prosocial behavior is not significantly different for girls and boys (Hastings, Utendale, & Sullivan, 2007; Svetlova, Nichols, & Brownell, 2010; Vaish, Carpenter, & Tomasello, 2010). Additionally, children's fearful and exuberant temperaments were not associated with reported levels of prosocial behavior. Even though child temperament was not directly associated with their mother-reported levels of prosocial behavior, children's temperament was relevant for understanding prosocial behavior when considered along with mother's observed use of inductive reasoning. The association between mothers' use of, or lack of, observed inductive reasoning during the five minute mother-child interaction task and children's prosocial behavior differed depending on children's temperament classifications of fearful, exuberant, and average. With the exception of the association between observed inductive reasoning and children's temperament, none of the other examined associations—between observed and reported parenting practices, observed and reported coparenting behaviors, and children's prosocial behavior—revealed temperament classification as a moderating link. This may be the case, in part, because the current measure of temperament was restricted to maternal report at one time point. Children's temperament classification relied on mother-report when their children were 18-months-old. Given that temperament is a complex construct that

encompasses children's individual differences in reactivity and self-regulation across varying contexts and across development, a single measure of temperament may not be sufficient in characterizing these individual differences (Buss, Davidson, Kalin, & Goldsmith, 2004). A more thorough assessment would therefore include observations across multiple contexts, across multiple reporters, and across physiological systems (e.g., cardiovascular system and neuroendocrine hypothalamic-pituitary-adrenocortical (HPA) system). Future work examining children's temperament as a moderator between the parenting and coparenting relationships and children's prosocial development would therefore be strengthened by using a multi-method approach to assessing children's temperament.

Limitations. This study represents one of the first investigations utilizing a family systems perspective to investigate the development of children's prosocial behavior in early childhood. Although notable findings emerged, several limitations of this study are worth noting.

The largest limitation of the study was the relatively small sample size. Due to the low sample size, missing data for the subset of 58 families was imputed. Imputing data only for the subset of families, as opposed to the entire sample of 125 participants, was a conservative approach that aimed to include complete data for fathers. Even with the small sample size, meaningful associations between the coparenting and parenting relationships and children's prosocial behavior were found. This suggests that there are robust findings that can be replicated with larger samples. Additionally, potential differences in reported and observed mother and father parenting practices of inductive reasoning and nonreasoning were not examined, as the study was limited to self-reported and observed mother parenting practices. Future work would benefit from including multiple measures of father parenting practices and examining how the links between parental use of inductive reasoning and nonreasoning and children's prosocial

behavior may differ between mothers and fathers. Also, findings from the current study may not apply to ethnic minority families, or families that do not consist of two, heterosexual, married, or cohabitating coparents in examining the coparenting relationship. It would therefore be productive for future work to explore the dynamics of other coparenting configurations. Finally, even though the focus of this study was on the associations between coparenting behaviors, parenting practices, children's temperament, and children's prosocial behavior, the study did not take into account heritability estimates of prosocial behavior. It should be noted that parenting practices, and by extension coparenting behaviors, have been shown to be influenced by genes and that parents' behavior is influenced by their own genetic make-up (Gregory, Light-Häusermann, Rijdsdijk, & Eley, 2009). Typically, early childhood twin studies have shown substantial shared environmental and modest genetic influences on prosocial behavior (Eisenberg, Fabes, & Spinrad, 2006; Gregory et al., 2009; Hay & Cook, 2007; Knafo & Plomin, 2006). Results from genetically informed studies tend to report that in early childhood shared environmental effects (e.g., parenting and family environment) have a stronger influence on children's prosocial behavior and that across childhood and into adolescence, shared environmental effects decrease and genetic influences become increasingly influential on children's prosocial behavior. It is also important to note that what children are inheriting from their parents remains unclear, but it has been proposed that the link between children's genetic make-up and prosocial behavior is mediated by their temperament (Gregory et al., 2009). Given the complex environmental and genetic processes underlying children's development of prosocial behavior, future work would benefit from incorporating family systems and genetically informed perspectives, thereby contributing to a more holistic framework of children's prosocial development.

Despite these caveats, this study contributes to the study of children's early development of prosocial behavior in the family environment and is coupled with several strengths. By utilizing a family systems perspective, this study expands on the mother-child dyad that has traditionally been the dominant focus in the literature and includes dynamics of the coparenting relationship as well as children's temperament. This study also pulled multiple measures from a large battery of assessments across several time points. Utilizing multiple perspectives on the parenting and coparenting relationships strengthens the study's ability to more thoroughly measure the constructs and sheds light on how best to measure these constructs in future work. By assessing individual and family relationships longitudinally, family processes were examined that are associated with children's development of prosocial behavior during early childhood. The present study makes an important contribution to the family literature on how the parenting, coparenting, and child subsystems within the family contribute to children's early development of prosocial behavior by demonstrating several processes through which these individual and family subsystems contribute to children's emerging prosocial behavior. Given the importance of children's prosocial behavior in helping establish positive social relationships later in life, further uncovering the family and individual factors that interact across time to influence children's prosocial behavior should remain a significant goal for future investigations.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Newbury Park, London, Sage.
- Alessandri, G., Caprara, G. V., Eisenberg, N., & Steca, P. (2009). Reciprocal relations among self-efficacy beliefs and prosociality across time. *Journal of Personality*, 77 (4), 1229-259. doi: 10.1111/j.1467-6494.2009.00580.x
- Armstrong, J.M., Goldstein, L. H., & The MacArthur Working Group on Outcome Assessment (2003). *Manual for the MacArthur Health and Behavior Questionnaire (HBQ 1.0)*. MacArthur Foundation Research Network on Psychopathology and Development. Pittsburgh: University of Pittsburgh Press.
- Baumrind, D. (1966). Effects of parental control on child behavior. *Child Development*, 37(4), 887-907.
- Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance abuse. *Journal of Early Adolescence*, 11, 56-95.
- Belsky, J. (1984). The determinants of parenting: A process model. *Child Development*, 55, 83-96.
- Belsky, J., Putnam, S., & Crnic, K. (1996). Coparenting, parenting, and early emotional development. *New Directions for Child Development*, 74, 45-55.
- Briggs-Gowan, M. J., & Carter, A. S. (1998). Preliminary acceptability and psychometrics of the infant-toddler social and emotional assessment (ITSEA): A new adult-report questionnaire. *Infant Mental Health Journal*, 19(4), 422-445.

- Bronte-Tinkew, J., Horowitz, A., Carrano, J. (2010). Aggravation and stress in parenting: Associations with coparenting and father engagement among resident fathers. *Journal of Family Issues, 31*(4), 525-555. doi: 10.1177/0192513X09340147
- Buss, K. A., Davidson, R. J., Kalin, N. H., & Goldsmith, H. H. (2004). Context-specific freezing and associated physiological reactivity as a dysregulated fear response. *Developmental Psychology, 40*(4), 583-594. doi: 10.1037/0012-1649.40.4.583
- Calkins, S. D., & Fox, N. A. (2002). Self-regulatory processes in early personality development: A multilevel approach to the study of childhood social withdrawal and aggression. *Development and Psychopathology. Special Issue: Multiple levels of analysis, 14*(3), 477-498.
- Carlo, G., McGinley, M., Hayes, R., Batenhorst, C., & Wilkinson, J. (2007). Parenting styles or practices? Parenting, sympathy, and prosocial behaviors among adolescents. *The Journal of Genetic Psychology, 168*(2), 147-176.
- Castle, J., Davies, L., & Demetriou, H. (1999). Prosocial action in very early childhood. *Journal of Child Psychology and Psychiatry, 40*(6), 905-916.
- Cook, J. C., Schoppe-Sullivan, S. J., Buckley, C. K., & Davis, E. F. (2009). Are some children harder to coparent than others? Children's negative emotionality and coparenting relationship quality. *Journal of Family Psychology, 23*(4), 606-610. doi: 10.1037/a0015992
- Cowan, P. A., Powell, D., & Cowan, C. P. (1998). Parenting interventions: A family systems perspective. In W. Damon (Ed.), *Handbook of Child Psychology: Vol. 4. Child Psychology in Practice* (pp. 3-72). New York: John Wiley & Sons, Inc.
- Cox, M. J. & Paley, B. (1997). Families as systems. *Annual Review of Psychology, 48*, 243-267.

- Cox, M. J., & Paley, B. (2003). Understanding families as systems. *Current Directions in Psychological Science*, 12(5), 193-196. Retrieved from <http://www.jstor.org/stable/20182875>
- Dunn, J., & Munn, P. (1985). Becoming a family member: Family conflict and the development of social understanding in the second year. *Child Development*, 56(2), 480-492. Retrieved from <http://www.jstor.org/stable/1129735>
- Dunn, J., & Munn, P. (1986). Siblings and the development of prosocial behavior. *International Journal of Behavioral Development*, 9, 265-284. doi: 10.1177/016502548600900301
- Eisenberg, N. (1983). Children's differentiations among potential recipients of aid. *Child Development*, 54(3), 594-602. Retrieved from <http://www.jstor.org/stable/1130046>
- Eisenberg, N., Fabes, R. A., Karbon, M., Murphy, B. C., Wosinski, M., Polazzi, L., Carlo, G., & Juhnke, C. (1996a). The relations of children's dispositional prosocial behavior to emotionality, regulation, and social functioning. *Child Development*, 67, 974-992.
- Eisenberg, N., Fabes, R. A., & Murphy, B. C. (1996b). Parents' reactions to children's negative emotions: Relations to children's social competence and comforting behavior. *Child Development*, 67, 2227-2247.
- Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of Child Psychology: Vol. 3, Social, Emotional, and Personality Development* (6th ed.) (pp. 646-718). Hoboken, NJ, US: John Wiley & Sons Inc.
- Eisenberg, N., Guthrie, I. K., Murphy, B. C., Shepard, S. A., Cumberland, A., & Carlo, G. (1999). Consistency and development of prosocial dispositions: A longitudinal study. *Child Development*, 70 (6), 1360-1372. Retrieved from <http://www.jstor.org/stable/1132312>

- Eisenberg, N., & Murphy, B. (1995). Parenting and children's moral development. In M. H. Bornstein (Ed.), *Handbook of Parenting* (Vol. 4, pp. 227-257). Mahwah, NJ: Erlbaum.
- Eisenberg, N., Wolchik, S. A., Goldberg, L., & Engel, I. (1992). Parental values, reinforcement, and young children's prosocial behavior: A longitudinal study. *Journal of Genetic Psychology, 153*(1), 19-36.
- Ensor, R., Spencer, D., & Hughes, C. (2009). 'You feel sad?' Emotion understanding mediates effects of verbal ability and mother-child mutuality on prosocial behaviors: Findings from 2 years to 4 years. *Social Development, 20*(1), 93-110. doi: 10.1111/j.1467-9507.2009.00572.x
- Farver, J. M., & Branstetter, W. H. (1994). Preschoolers' prosocial responses to their peers' distress. *Developmental Psychology, 30* (3), 334-341.
- Feinberg, M. E. (2003). The internal structure and ecological context of coparenting: A framework for research intervention. *Parenting: Science and Practice, 3*(2), 95-131. doi: 10.1207/S15327922PAR0302_01
- 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. doi:10.1016/j.ecresq.2006.07.009
- Freeman, E. B. (1984). The development of empathy in young children: On search of a definition. *Child Study Journal, 13*(4), 235-245.
- Gable, S., Crnic, K., & Belsky, J. (1994). Coparenting within the family system: Influences on children's development. *Family Relations, 43*(4), 380-386.

- Gregory, A. M., Light-Häusermann, J. H., Rijdsdijk, F., & Eley, T. C. (2009). Behavioral genetic analyses of prosocial behavior in adolescents. *Developmental Science, 12*(1), 165-174. doi: 10.1111/j.1467-7687.2008.00739.x DOI: 10.1111/j.1467-7687.2008.00739.x
- Hastings, P. D., McShane, K., Parker, R., & Ladha, F. (2007a). Ready to make nice: Parental socialization of young sons' and daughters' prosocial behaviors with peers. *The Journal of Genetic Psychology, 168*(2), 177-200.
- Hastings, P. D., Rubin, K. H., & DeRose, L. (2005). Links among gender, inhibition, and parental socialization in the development of prosocial behavior. *Merrill-Palmer Quarterly, 51*(4), 467-493.
- Hastings, P. D., Utendale, W. T., & Sullivan, C. (2007b). The socialization of prosocial development. In J. E. Grusec, & P. D. Hastings (Eds.), *Handbook of Socialization: Theory and Research* (pp. 638-664). New York, NY: Guilford Press.
- 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*(5), 531-546. doi: 10.1037//0012-1649.36.5.531
- Hay, D. F., & Cook, K. V. (2007). The transformation of prosocial behavior from infancy to childhood. In C. A. Brownell, & C. B. Kopp (Eds.), *Socioemotional Development in the Toddler Years: Transitions and Transformations*. (pp.100-131). New York, NY, US: Guilford Press.
- Hay, D. F., Hudson, K., & Liang, W. (2010). Links between preschool children's prosocial skills and aggressive conduct problems: The contribution of ADHD symptoms. *Early Childhood Research Quarterly*. doi:10.1016/j.ecresq.2010.01.003

- Knafo, A., & Plomin, R. (2006). Prosocial behavior from early to middle childhood: Genetic and environmental influences on stability and change. *Developmental Psychology, 42* (5), 771-786. doi: 10.1037/0012-1649.42.5.771
- Kochanska, G., Aksan, N., & Joy, M. E. (2007). Children's fearfulness as a moderator of parenting in early socialization: Two longitudinal studies. *Developmental Psychology, 43*, 222-237.
- Krevans, J., & Gibbs, J. C. (1996). Parents' use of inductive discipline: Relations to children's empathy and prosocial behavior. *Child Development, 67*, 3263-3277.
- Lansford, J., Putallaz, M., Grimes, C., Schiro-Osman, K., Kupersmidt, J., & Coie, J. (2006). Perceptions of friendship quality and observed behaviors with friends: How do sociometrically rejected, average, and popular girls differ? *Merrill-Palmer Quarterly, 52*, 694-720.
- Maccoby, E. (2007). Historical overview of socialization research and theory. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of Socialization: Theory and Research*, pp. 13-41.
- Margolin, G., Gordis, E. B., & John, R. S. (2001). Coparenting: A link between marital conflict and parenting in two-parent families. *Journal of Family Psychology, 15*(1), 3-21. doi: 10.1037//0893-3200.15.1.3
- McCoy, K., Cummings, E. M., & Davies, P. T. (2009). Constructive and destructive marital conflict, emotional security and children's prosocial behavior. *Journal of Child Psychology and Psychiatry, 50*, 270-279. doi:10.1111/j.1469-7610.2008.01945.x
- McGrath, M. P., Wilson, S. R., & Frassetto, S. J. (1995). Why some forms of induction are better than others at encouraging prosocial behavior. *Merrill-Palmer Quarterly, 41*(3), 347-360.

- McHale, J. P., Johnson, D., & Sinclair, R. (1999). Family dynamics, preschoolers' family representations, and preschool peer relationships. *Early Education & Development, 10*(3), 373-401.
- McHale, J. P., & Kuersten-Hogan, R. (2004). Introduction: The dynamics of raising children together. *Journal of Adult Development, 11*(3), 163-164. doi: 1068-0667/04/0700-0163/0
- McHale, J. P., Kuersten-Hogan, R., & Lauretti, A. (2001). Evaluation coparenting and family-level dynamics during infancy and early childhood: The coparenting and family rating system. In J. P. McHale, R. Kuersten-Hogan, & A. Lauretti (Eds.), *Family Observational Coding Systems: Resources for Systemic Research*, pp. 151-170.
- McHale, J. P., Kuersten-Hogan, R., & Rao, N. (2004). Growing points for coparenting theory and research. *Journal of Adult Development, 11*(3), 221-234.
- McHale, J. P., & Rasmussen, J. L. (1998). Coparental and family group-level dynamics during infancy: Early family precursors of child and family functioning during preschool. *Development and Psychopathology, 10*, 39-59.
- Minuchin, P. (1985). Families and individual development: Provocations from the field of family therapy. *Child Development, 56*, 289-302. Retrieved from <http://www.jstor.org/stable/1129720>
- Minuchin, S. (1974). *Families and family therapy*. Cambridge, MA: Harvard University Press.
- Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L.R. (2007). The role of the family context in the development of emotion regulation. *Social Development, 16*, 361-388. doi: 10.1111/j.1467-9507.2007.00389.x

- Nigg, J. T. (2000). On inhibition/disinhibition in developmental psychopathology: View from cognitive and personality psychology and a working inhibition taxonomy. *Psychological Bulletin, 126*, 220-246.
- Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437-448.
- Rheingold, H. L., Hay, D. F., & West, M. (1976). Sharing in the second year of life. *Child Development, 47*, 1148-1159.
- Robinson, C. C., Mandleco, B., Olsen, S. F., & Hart, C. H. (1995). Authoritative, authoritarian, and permissive parenting practices: Development of a new measure. *Psychological Reports, 77*, 819-830.
- Rothbart, M. K. (2007). Temperament, development, and personality. *Current Directions in Psychological Science, 16*(4), 207-212.
- Rothbart, M. K., & Bates, J. E. (2006). Temperament. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of Child Psychology: Social, Emotional, and Personality Development*, pp. 99-166. Hoboken, NJ: Wiley.
- Sanson, A., Hemphill, S. A., & Smart, D. (2004). Connections between temperament and social development: A review. *Social Development, 13*(1), 142-170.
- Schoppe, S. J., Mangelsdorf, S. C., & Frosch, C. A. (2001). Coparenting, family process, and family structure: Implications for preschoolers' externalizing behavior problems. *Journal of Family Psychology, 15*(3), 526-545. doi: 10.1037//0893-3200.15.3.526

- Schoppe-Sullivan, S. J., Mangelsdorf, S. C., Brown, G. L., & Sokolowski, M. S. (2007). Goodness-of-fit in family context: Infant temperament, marital quality, and early coparenting behavior. *Infant Behavior & Development, 30*, 82-96.
- Schoppe-Sullivan, S. J., Weldon, A. H., Cook, J. C., Davis, E. F., & Buckley, C. K. (2009). Coparenting behavior moderates longitudinal relations between effortful control and preschool children's externalizing behavior. *The Journal of Child Psychology and Psychiatry, 50*(6), 698-706. doi:10.1111/j.1469-7610.2008.02009.x
- Sparks, A. D., Thornburg, K. R., Ispa, J. M., & Gray, M. M. (1984). Prosocial behaviors of young children related to parental childrearing attitudes. *Early Child Development and Care, 15*, 291-297.
- Stanhope, L., Bell, R. Q., & Parker-Cohen, N. Y. (1987). Temperament and helping behavior in preschool children. *Developmental Psychology, 23*(3), 347-353.
- Stifter, C. A., Putnam, S., & Jahromi, L. (2008). Exuberant and inhibited toddlers: Stability of temperament and risk for problem behavior. *Development and Psychopathology, 20*, 401-421. doi: 10.1017/S0954579408000199
- Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From instrumental to empathic to altruistic helping. *Child Development, 81*(6), 1814-1827.
- Vaish, A., Carpenter, M., & Tomasello, M. (2010). Young children selectively avoid helping people with harmful intentions. *Child Development, 81*(6), 1661-1669.
- Van Egeren, L. A., & Hawkins, D. P. (2004). Coming to terms with coparenting: Implications of definition and measurement. *Journal of Adult Measurement, 11*(3), 165-178. doi: 10.68-0667/04/0700-0165/0

- Vitaro, F., Gagnon, C., & Tremblay, R. (1990). Predicting stable peer rejection from kindergarten to grade one. *Journal of Clinical Child Psychology, 19*, 257–264.
- Weidman, C. S., & Strayhorn, J. M. (1992). Relationships between children's prosocial behaviors and choices in story dilemmas. *Journal of Psychoeducational Assessment, 10*, 330-341. doi: 10.1177/073428299201000403
- Wojslawowicz Bowker, J. C., Rubin, K. H., & Burgess, K. B. (2006). Behavioral characteristics associated with stable and fluid best friendship patterns in middle childhood. *Merrill-Palmer Quarterly, 52*(4), 671-693.
- Young, S. K., Fox, N. A., & Zahn-Waxler, C. (1999). The relations between temperament and empathy in 2-year-olds. *Developmental Psychology, 35*(5), 1189-1197.
- Young, G., & Lewis, M. (1979). Effects of familiarity and maternal attention on infant peer relations. *Merrill-Palmer Quarterly, 25*, 105-119.
- Zahn-Waxler, C., Radke-Yarrow, M., & King, R. A. (1979). Child rearing and children's prosocial initiation 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*(1), 126-136.

Appendix A: Tables

Table 1

Unstandardized Means, Standard Deviations, and Range for Key Study Measures

Measures	Mean	(SD)	Range
<u>24-month-assessment</u>			
1. Reasoning reported	3.9	.54	2.57 – 5.00
2. Nonreasoning reported	1.44	.32	1.00 – 2.33
<u>42-month-assessment</u>			
3. Mom Cooperation reported	4.18	.61	2.60 – 5.00
4. Dad Cooperation reported	4.39	.48	2.80 – 5.00
5. Triangulation Conflict reported	1.58	.34	1.00 – 2.70
6. Cooperation observed	3.10	.77	1.33 – 4.67
7. Conflict observed	1.70	.56	1.00 – 3.00
8. Observed Child vs. Parent observed	4.34	.38	3.67 – 5.00
9. Reasoning* observed			
<u>4-year-assessment</u>			
10. HBQ Prosocial Behavior	1.26	.04	.55 – 1.95

Note. *Measure was dichotomized, 0 = Mother did not use reasoning, 1 = Mother use reasoning.

Table 2

Bivariate Correlations for Key Study Measures

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Reasoning reported	---									
2. Nonreasoning reported	-.11	---								
3. Reasoning observed	.03	-.09	---							
4. Mom Cooperation reported	.31*	.08	-.02	---						
5. Dad Cooperation reported	.09	-.11	.27*	.17	---					
6. Triangulation Conflict reported	-.21	.07	.05	-.60**	-.31*---					
7. Cooperation observed	.03	.24†	.16	-.04	.07	.10	---			
8. Conflict observed	.07	-.01	.09	.04	.17	.17	.16	---		
9. Child vs. Parent Centeredness observed	-.21	-.18	-.12	-.26*	-.17	.08	-.22	-.48**---		
10. Prosocial Behavior reported	.17	.17	.03	.04	.21	-.04	.23†	.13	-.15	---

Note. † $p < .10$, * $p < .05$, ** $p < .01$.

Table 3

Regressions predicting 4-year prosocial behavior from 42-month observed coparenting cooperation, competition, child vs. parent centeredness, and 24-month mother-reported parenting

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Cooperation</u>							
1. Reasoning	.09	.08	.15	.26			
Nonreasoning	.16	.13	.17	.22	.06	1.89	(2, 55)
2. Cooperation	.09	.05	.23	.08†	.03	1.95	(3, 54)
3. Cooperation x Reasoning	-.26	.12	-.31	.04*			
Cooperation x Nonreasoning	.03	.17	.02	.88	.09	2.33	(5, 52)

Note. Total $R^2 = .18$.
 † $p < .10$, * $p < .05$.

<u>Competition</u>							
1. Reasoning	.10	.08	.17	.23			
Nonreasoning	.16	.13	.17	.22	.06	1.89	(2, 55)
2. Competition	.07	.07	.13	.34	.01	1.51	(3, 54)
3. Competition x Reasoning	-.16	.15	-.16	.26			
Competition x Nonreasoning	.19	.30	.09	.53	.04	1.33	(5, 52)

Note. Total $R^2 = .11$
 No significant effects were found.

<u>Child vs. Parent Centeredness</u>							
1. Reasoning	.11	.08	.18	.20			
Nonreasoning	.14	.14	.15	.33	.06	1.89	(2, 55)
2. Child vs. Parent Centeredness	-.06	.12	-.07	.60	.01	1.36	(3, 54)
3. Reasoning x Child vs. P	.05	.16	.04	.79			
Nonreasoning x Child vs. P	-.14	.33	-.06	.67	.01	.84	(5, 52)

Note. Total $R^2 = .08$.
 No significant effects were found.

Table 4

Regressions predicting 4-year prosocial behavior from 42-month reported coparenting cooperation, triangulation conflict composite, and 24-month mother-reported parenting

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Mom and Dad Cooperation</u>							
1. Reasoning	.13	.09	.22	.19			
Nonreasoning	.20	.16	.20	.24	.06	1.89	(2, 55)
2. Mom Cooperation	-.03	.09	-.07	.72			
Dad Cooperation	.13	.10	.21	.17	.05	1.74	(4, 53)
3. Mom Coop x Reasoning	-.03	.18	-.02	.88			
Dad Coop x Reasoning	-.12	.19	-.10	.54			
Mom Coop x Nonreasoning	.25	.34	.12	.46			
Dad Coop x Nonreasoning	-.04	.33	-.02	.90	.02	.94	(8, 49)

Note. Total $R^2 = .12$.

No significant effects were found.

<u>Mom and Dad Triangulation Conflict Composite</u>							
1. Reasoning	.13	.08	.22	.12			
Nonreasoning	.18	.13	.18	.19	.06	1.89	(2, 55)
2. MDTC	-.00	.12	-.00	.99	.00	1.24	(3, 54)
3. MDTC x Reasoning	.25	.24	.14	.31			
MDTC x Nonreasoning	-.07	.34	-.03	.85	.02	.97	(5, 52)

Note. MDTC = Mom Dad Triangulation Conflict Composite.

Total $R^2 = .09$.

No significant effects were found.

Table 5

Regressions predicting 4-year prosocial behavior from 42-month observed coparenting cooperation, competition, child vs. parent centeredness, and 42-month observed mother reasoning

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Cooperation</u>							
1. Reasoning	.01	.10	.02	.91	.00	.06	(1, 56)
2. Cooperation	.11	.06	.27	.08†	.05	1.51	(2, 55)
3. Cooperation x Reasoning	-.08	.13	-.09	.54	.01	1.12	(3, 54)
<i>Note:</i> Total $R^2 = .06$.							
† $p < .10$							
<u>Competition</u>							
1. Reasoning	-.00	.09	-.00	.98	.00	.06	(1, 56)
2. Competition	-.04	.09	-.08	.63	.02	.45	(2, 55)
3. Competition x Reasoning	.35	.15	.36	.03*	.08	2.02	(3, 54)
<i>Note:</i> Total $R^2 = .10$.							
* $p < .05$							
<u>Child vs. Parent Centeredness</u>							
1. Reasoning	-.01	.10	-.01	.92	.00	.06	(1, 56)
2. Child vs. Parent Centeredness	-.04	.12	-.05	.72	.02	.61	(2, 55)
3. Child vs. Parent x Reasoning	-.38	.28	-.21	.18	.03	1.04	(3, 54)
<i>Note:</i> Total $R^2 = .06$.							
No significant effects were found.							

Table 6

Regressions predicting 4-year prosocial behavior from 42-month reported coparenting cooperation, triangulation conflict composite, and 42-month observed mother reasoning

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Mom and Dad Cooperation</u>							
1. Reasoning	-.07	.11	-.09	.54	.00	.06	(1, 56)
2. Mom Cooperation	-.11	.07	-.22	.14			
Dad Cooperation	.14	.09	.22	.12	.04	.83	(3, 54)
3. Mom Coop x Reasoning	.46	.15	.44	.00**			
Dad Coop x Reasoning	.25	.28	.14	.38	.16	2.65	(5, 52)

Note: Total $R^2 = .20$.

** $p < .01$.

<u>Mom and Dad Triangulation Conflict Composite</u>							
1. Reasoning	.03	.10	.04	.77	.00	.06	(1, 56)
2. MDTC	-.01	.14	-.01	.94	.00	.08	(2, 55)
3. MDTC x Reasoning	-.17	.33	-.08	.61	.01	.15	(3, 54)

Note: MDTC = Mom Dad Triangulation Conflict Composite.

Total $R^2 = .01$.

No significant effects found.

Table 7

Regressions predicting 4-year prosocial behavior from 42-month observed coparenting cooperation, competition, child vs. parent centeredness, and temperament

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Cooperation</u>							
1. Cooperation	.02	.09	.04	.85	.05	3.07	(1, 56)
2. Fearful	-.13	.10	-.20	.18			
Exuberant	-.13	.10	-.19	.19	.04	1.92	(3, 54)
3. Cooperation x Fearful	.08	.12	.12	.53			
Cooperation x Exuberant	.15	.13	.20	.27	.02	1.38	(5, 52)
<i>Note.</i> Total $R^2 = .12$.							
Average group is reference group.							
No significant effects were found.							
<u>Competition</u>							
1. Competition	-.02	.15	-.04	.90	.02	.90	(1, 56)
2. Fearful	-.12	.10	-.18	.23			
Exuberant	-.15	.10	-.23	.12	.05	1.26	(3, 54)
3. Competition x Fearful	.13	.18	.17	.48			
Competition x Exuberant	.08	.22	.07	.71	.01	.84	(5, 52)
<i>Note.</i> Total $R^2 = .07$.							
Average group is reference group.							
No significant effects were found.							
<u>Child vs. Parent Centeredness</u>							
1. Child vs. Parent Centeredness	-.11	.18	-.14	.55	.02	1.22	(1, 56)
2. Fearful	-.11	.10	-.16	.30			
Exuberant	-.15	.10	-.23	.13	.05	1.29	(3, 54)
3. Child vs. Parent x Fearful	-.15	.26	-.11	.57			
Child vs. Parent x Exuberant	.17	.27	.11	.53	.02	1.04	(5, 52)
<i>Note.</i> Total $R^2 = .09$.							
Average group is reference group.							
No significant effects were found.							

Table 8

Regressions predicting 4-year prosocial behavior from 42-month observed coparenting cooperation, competition, child vs. parent centeredness, and temperament

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Cooperation</u>							
1. Cooperation	.10	.09	.24	.28	.05	3.07	(1, 56)
2. Average	.13	.10	.21	.18			
Exuberant	.01	.10	.01	.95	.04	1.92	(3, 54)
3. Cooperation x Average	-.08	.12	-.12	.53			
Cooperation x Exuberant	.07	.13	.09	.61	.02	1.38	(5, 52)
<i>Note.</i> Total $R^2 = .12$.							
Fearful group is reference group.							
No significant effects were found.							
<u>Competition</u>							
1. Competition	.11	.10	.20	.27	.02	.90	(1, 56)
2. Average	.12	.10	.19	.23			
Exuberant	-.03	.10	-.05	.77	.05	1.26	(3, 54)
3. Competition x Average	-.13	.18	-.12	.48			
Competition x Exuberant	-.05	.18	-.05	.78	.01	.84	(5, 52)
<i>Note.</i> Total $R^2 = .07$.							
Fearful group is reference group.							
No significant effects were found.							
<u>Child vs. Parent Centeredness</u>							
1. Child vs. Parent Centeredness	-.26	.19	-.32	.17	.02	1.22	(1, 56)
2. Average	.12	.10	.17	.30			
Exuberant	-.04	.10	-.07	.68	.05	1.29	(3, 54)
3. Child vs. Parent x Average	.15	.26	.11	.57			
Child vs. Parent x Exuberant	.32	.27	.21	.25	.02	1.04	(5, 52)
<i>Note.</i> Total $R^2 = .09$.							
Fearful group is reference group.							
No significant effects were found.							

Table 9

Regressions predicting 4-year prosocial behavior from 42-month reported coparenting cooperation and temperament

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Fearful & Exuberant</u>							
1. Mom Cooperation	-.12	.15	-.23	.45			
Dad Cooperation	.15	.18	.24	.39	.04	1.25	(2, 55)
2. Fearful	-.08	.10	-.12	.42			
Exuberant	-.14	.10	-.21	.17	.04	1.18	(4, 53)
3. Mom Coop x Fearful	.04	.19	.05	.82			
Dad Coop x Fearful	.18	.24	.15	.46			
Mom Coop x Exuberant	.20	.18	.25	.29			
Dad Coop x Exuberant	-.15	.22	-.15	.49	.07	1.06	(8, 49)
<i>Note.</i> Total $R^2 = .15$.							
Average group is reference group.							
No significant effects were found.							

<u>Average & Exuberant</u>							
1. Mom Cooperation	-.07	.12	-.14	.55			
Dad Cooperation	.33	.17	.52	.05*	.04	1.25	(2, 55)
2. Average	.08	.10	.13	.42			
Exuberant	-.06	.11	-.09	.60	.04	1.18	(4, 53)
3. Mom Coop x Average	-.04	.19	-.04	.82			
Dad Coop x Average	-.18	.24	-.15	.46			
Mom Coop x Exuberant	.15	.16	.19	.34			
Dad Coop x Exuberant	-.33	.21	-.34	.12	.07	1.06	(8, 49)
<i>Note.</i> Total $R^2 = .15$.							
* $p < .05$.							
Fearful group is reference group.							

Table 10

Regressions predicting 4-year prosocial behavior from 42-month reported coparenting triangulation conflict composite and temperament

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Fearful & Exuberant</u>							
1. MDTC	-.23	.26	-.26	.37	.00	.10	(1, 56)
2. Fearful	-.12	.10	-.17	.26			
Exuberant	-.15	.10	-.23	.14	.05	.95	(3, 54)
3. MDTC x Fearful	.28	.32	.20	.39			
MDTC x Exuberant	.27	.33	.18	.41	.02	.74	(5, 52)

Note. MDTC = Mom Dad Triangulation Conflict Composite.

Total $R^2 = .07$.

Average group is reference group.

No significant effects were found.

<u>Average & Exuberant</u>							
1. MDTC	.04	.19	.05	.82	.00	.10	(1, 56)
2. Average	.12	.10	.18	.26			
Exuberant	-.03	.11	-.05	.75	.05	.95	(3, 54)
3. MDTC x Average	-.28	.32	-.15	.39			
MDTC x Exuberant	-.00	.28	-.00	.99	.02	.74	(5, 52)

Note. MDTC = Mom Dad Triangulation Conflict Composite.

Total $R^2 = .07$.

Fearful group is reference group.

No significant effects were found.

Table 11

Regressions predicting 4-year prosocial behavior from 24-month reported parenting reasoning and temperament

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Fearful & Exuberant</u>							
1. Reasoning	.24	.13	.42	.08 [†]	.03	1.71	(1, 56)
2. Fearful	-.13	.10	-.19	.22			
Exuberant	-.15	.10	-.23	.13	.05	1.52	(3, 54)
3. Reasoning x Fearful	-.21	.19	-.21	.27			
Reasoning x Exuberant	-.21	.19	-.22	.27	.03	1.24	(5, 52)

Note. Total $R^2 = .11$.

[†] $p < .10$.

Average group is reference group.

<u>Average & Exuberant</u>							
1. Reasoning	.03	.13	.05	.83	.03	1.71	(1, 56)
2. Average	.13	.10	.20	.22			
Exuberant	-.03	.10	-.04	.81	.05	1.52	(3, 54)
3. Reasoning x Average	.21	.19	.21	.27			
Reasoning x Exuberant	.00	.19	.00	1.0	.03	1.24	(5, 52)

Note. Total $R^2 = .11$.

Fearful group is reference group.

No significant effects were found.

Table 12

Regressions predicting 4-year prosocial behavior from 24-month reported parenting nonreasoning and temperament

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Fearful & Exuberant</u>							
1. Nonreasoning	.22	.18	.22	.23	.03	1.61	(1, 56)
2. Fearful	-.12	.10	-.17	.27			
Exuberant	-.15	.10	-.23	.13	.05	1.44	(3, 54)
3. Nonreasoning x Fearful	-.21	.32	-.12	.52			
Nonreasoning x Exuberant	-.05	.33	-.03	.87	.01	.92	(5, 52)

Note. Total $R^2 = .08$.

Average group is reference group.

No significant effects were found.

<u>Average & Exuberant</u>							
1. Nonreasoning	.01	.27	.01	.98	.03	1.61	(1, 56)
2. Average	.12	.10	.18	.27			
Exuberant	-.04	.11	-.05	.74	.05	1.44	(3, 54)
3. Nonreasoning x Average	.21	.32	.16	.52			
Nonreasoning x Exuberant	.16	.38	.08	.68	.01	.92	(5, 52)

Note. Total $R^2 = .08$.

Fearful group is reference group.

No significant effects were found.

Table 13

Regressions predicting 4-year prosocial behavior from 42-month observed parenting reasoning and temperament

Variable(s) entered at each step	<i>B</i>	S.E. <i>B</i>	β	Sig.	ΔR^2	<i>F</i>	d.f.
<u>Fearful & Exuberant</u>							
1. Reasoning	.22	.17	.30	.21	.00	.06	(1, 56)
2. Fearful	-.12	.11	-.17	.31			
Exuberant	-.07	.11	-.10	.56	.05	1.00	(3, 54)
3. Reasoning x Fearful	-.10	.24	-.09	.67			
Reasoning x Exuberant	-.40	.23	-.37	.09 [†]	.06	1.27	(5, 52)

Note. Total $R^2 = .11$.

[†] $p < .10$.

Fearful group is reference group.

<u>Average & Exuberant</u>							
1. Reasoning	.12	.16	.16	.49	.00	.06	(1, 56)
2. Average	.12	.11	.19	.31			
Exuberant	.05	.12	.08	.66	.05	1.00	(3, 54)
3. Reasoning x Average	.10	.24	.08	.67			
Reasoning x Exuberant	-.30	.23	-.27	.19	.06	1.27	(5, 52)

Note. Total $R^2 = .11$.

Fearful group is reference group.

No significant effects were found.

Appendix B: Figures

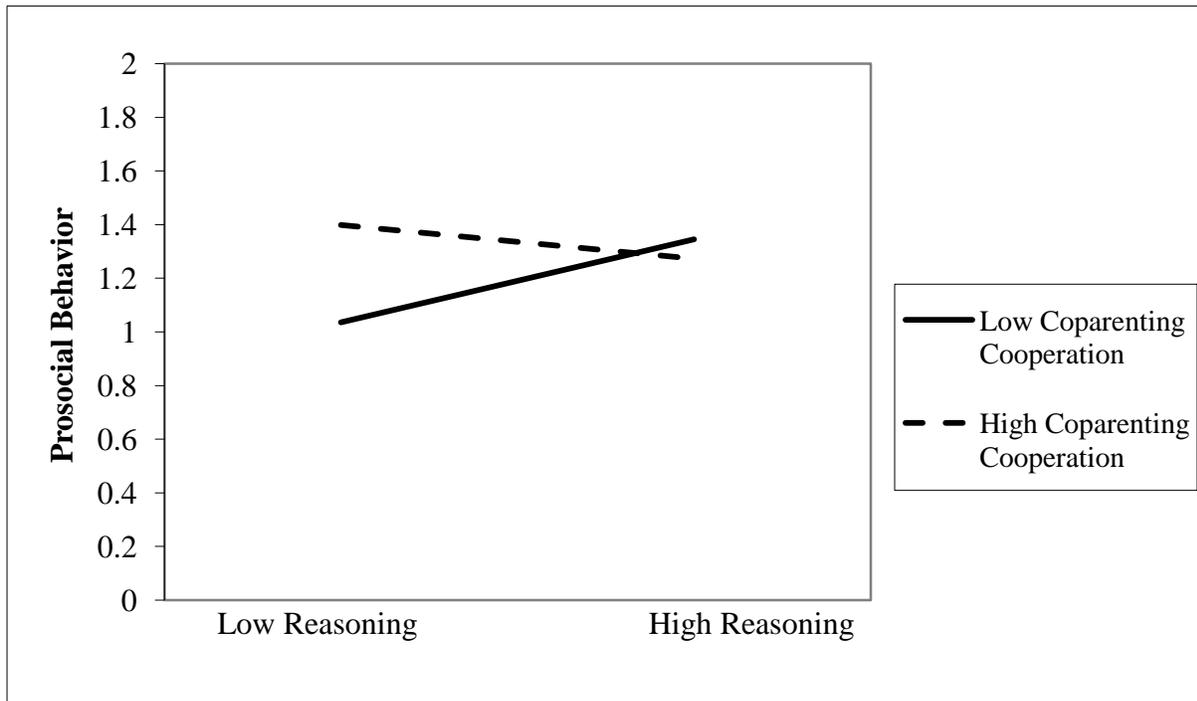


Figure 1. Observed Coparenting Cooperation x Mother Report of Reasoning

Note: $\beta = -.31$, $t = -.2.17$, $p < .05$.

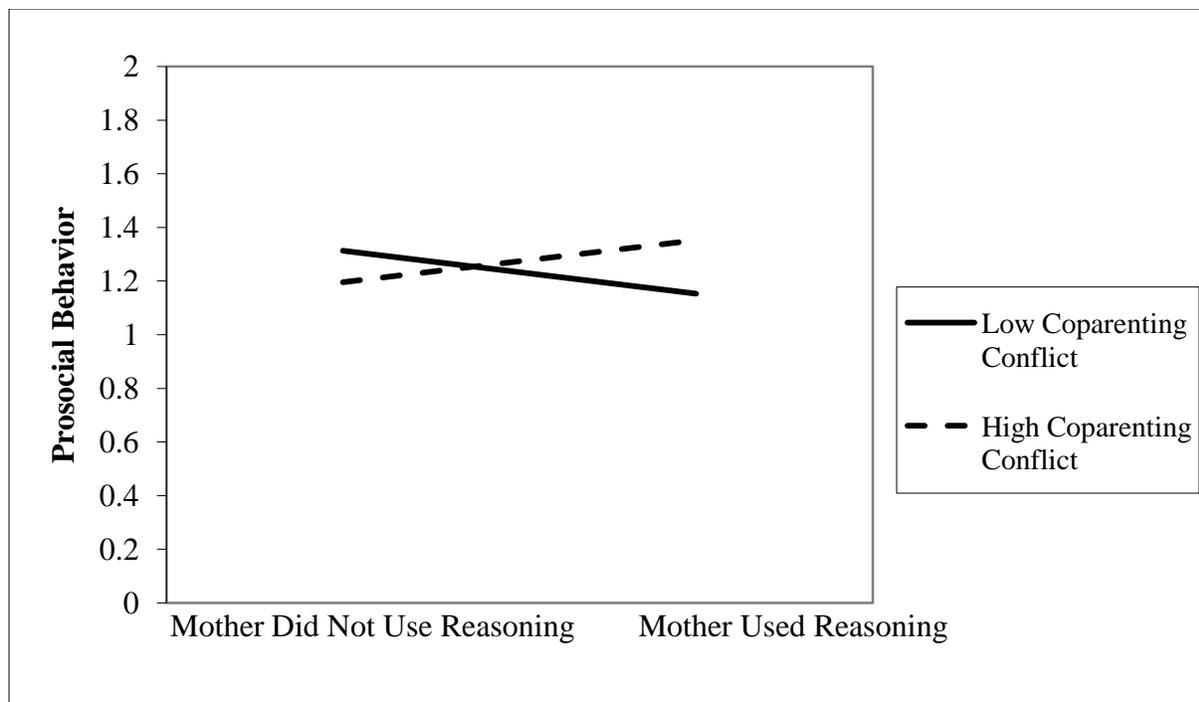


Figure 2. Observed Coparenting Competition x Observed Reasoning

Note: $\beta = .36, t = 2.25, p < .05$.

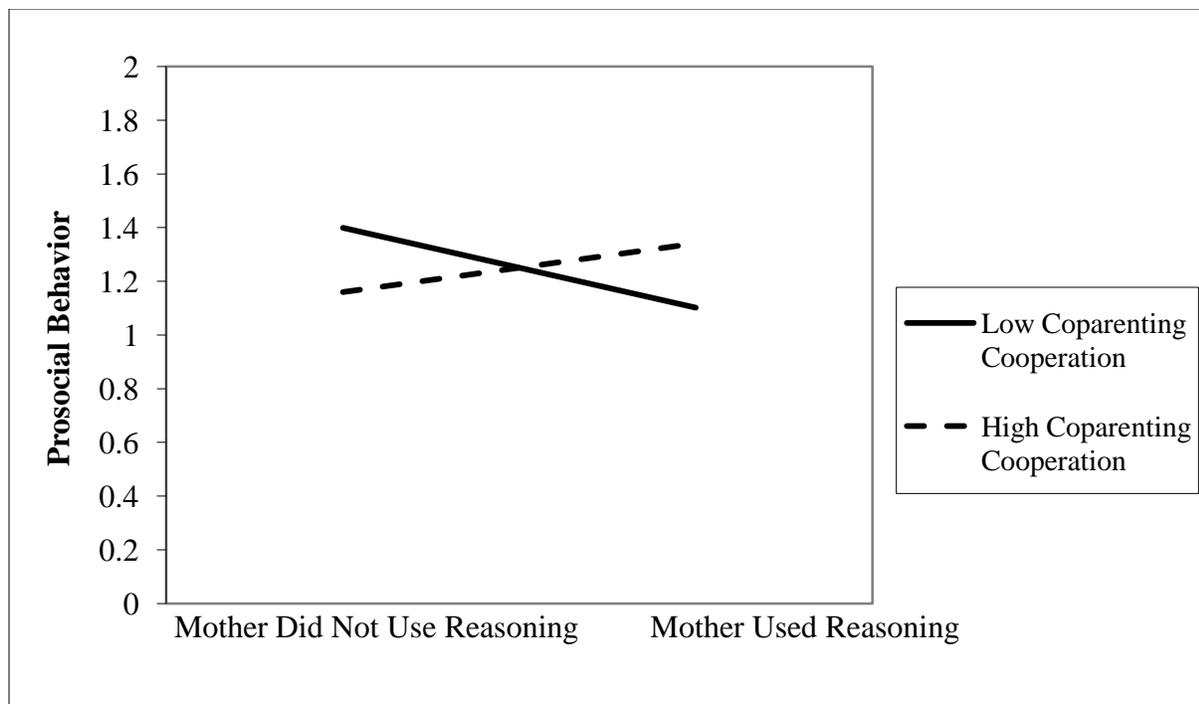


Figure 3. Mother Report Cooperation x Observed Reasoning

Note: $\beta = .44$, $t = 3.05$, $p < .01$.

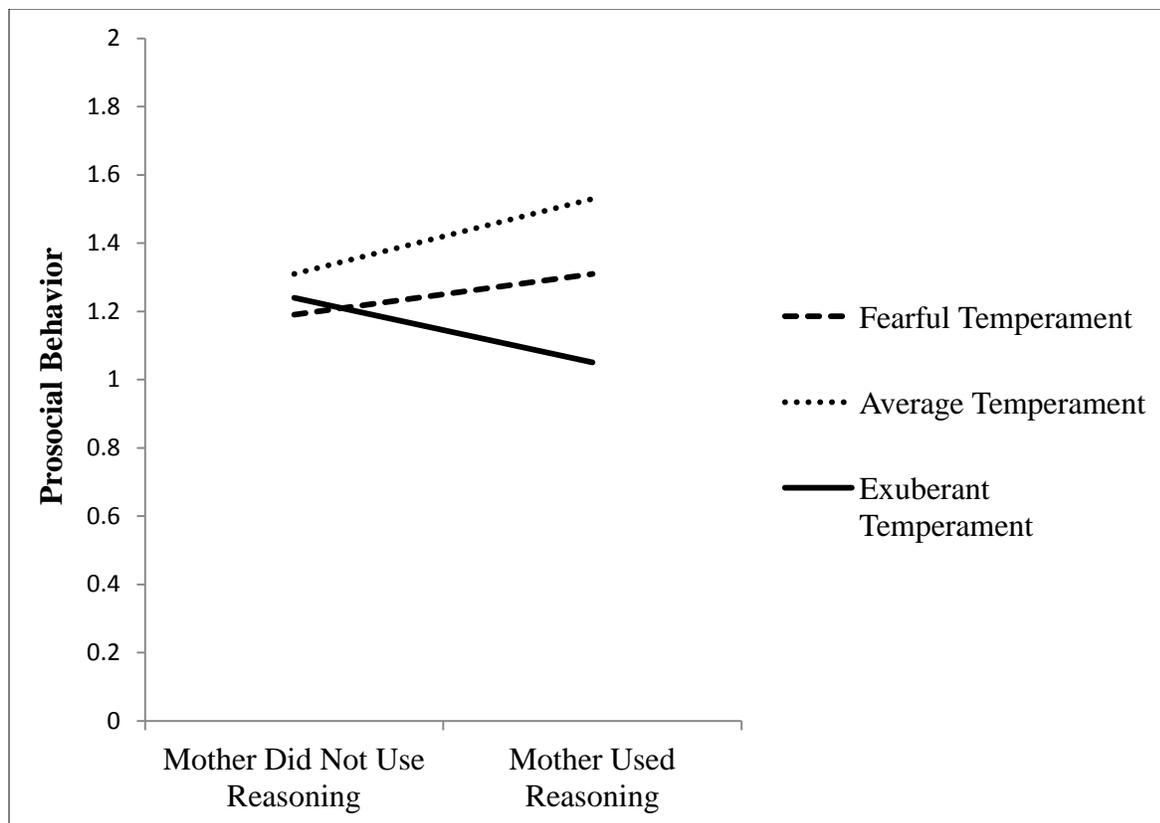


Figure 4. Observed Reasoning x Exuberant Temperament

Note: Average temperament as reference group.

$B = -.37, t = -1.73, p < .10.$