Pathways from Child Maltreatment to Peer Functioning: Examining the Roles of Aggression, Withdrawal, and Prosocial Behavior

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Adrienne M. Banny

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Abstract

The goals of the present study were to (1.) examine maltreated children's functioning at multiple levels of the peer ecology; (2.) identify mechanisms underlying the link between child maltreatment and peer functioning; (3.) investigate gender-specific pathways to peer functioning; and (4.) explore the moderating role of prosocial behavior. Participants included 167 maltreated children and 173 demographically-matched nonmaltreated children ages 6–14 (M = 10.35, SD = 1.60) who attended a summer day camp research program designed for school-aged, low-income children. Counselor-, peer-, and self-reports of social behaviors and peer functioning were obtained. Path analysis showed that, among boys, maltreatment predicted low levels of prosocial behavior, which, in turn, increased risk for peer rejection, relational victimization, and physical victimization. In addition, physical aggression mediated the association between maltreatment and peer rejection among boys. For girls, maltreatment indirectly predicted relational victimization via deficient prosocial behavior. Finally, analysis of moderated mediation showed that maltreatment predicted elevated levels of physical aggression, which in turn, predicted low levels of relational victimization among maltreated boys who displayed high levels of prosocial behavior. Overall, findings suggest that maltreatment disrupts behavioral development, increasing risk for impaired peer functioning.

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Introduction

Child maltreatment confers considerable risk for maladaptation across diverse psychological and biological domains of development (Cicchetti & Toth, 2005). Deprived of many of the experiences believed to promote adaptive functioning across the lifespan, maltreated children traverse a probabilistic pathway characterized by an increased likelihood for compromised resolution of stage-salient developmental tasks (Cicchetti & Lynch, 1995; Cicchetti & Valentino, 2006; Trickett & McBride-Chang, 1995). Beginning in early childhood, the establishment of healthy peer relationships emerges as a central task that increases in importance throughout middle childhood and adolescence (Waters & Sroufe, 1983). During this period, peers gradually eclipse parents with regard to time spent and emotional support (Buhrmester & Furman, 1986). Consistent with the theme of pervasive adaptational failure, maltreated children have been shown to experience a broad range of peer-related difficulties (see Cicchetti, Lynch, Shonk, & Manly, 1992; Mueller & Silverman, 1987).

Clarifying the link between maltreatment and peer relations is important for a number of reasons. First, peer relationships provide a unique context for the acquisition and development of various social and emotional competencies (Hartup, 1992). Second, research in normative populations has identified childhood peer relations as a robust predictor of concurrent and future mental health (Parker & Asher, 1987; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006). Problematic peer relationships could play an exacerbating role in the disrupted development of maltreated children. Finally, a developmental psychopathology approach (Cicchetti, 1984; Cicchetti, 1993; Sroufe &

Rutter, 1984) suggests that the study of maltreated children's peer relationships may inform the study of peer relationships in normative populations, and vice versa. Because maltreatment exists at the extreme end of the continuum of caretaking casualty (Sameroff & Chandler, 1975), research on maltreated children's peer relationships may enrich developmental theory about peer relations by providing a useful paradigm for investigating under which conditions normative social development does not occur, and which components of the environment are crucial for healthy peer relationships.

Although the association between child maltreatment and peer-related difficulties is well-established, a number of limitations exist. First, much of this research has focused on social status, an indicator of group attitudes toward the individual (i.e., acceptance, rejection). Less attention has been dedicated to understanding the effect of maltreatment on other aspects of peer functioning, such as friendship quality and peer victimization. Research and theory suggest that status, friendship, and peer victimization represent distinct relational systems that make unique contributions to individual development (Asher, Parker, & Walker, 1996; Bagwell, Newcomb, & Bukowski, 1998; Bukowski & Hoza, 1989; Ladd, Kochenderfer, & Coleman, 1997). Consistent with this perspective, the current study examined maltreated children's functioning at multiple levels of the peer ecology (i.e., peer rejection, friendship quality, physical victimization, relational victimization). Such an approach may reveal areas of deficits, as well as areas of potential resilience, that otherwise might be masked by a unidimensional assessment of peer adjustment.

Second, less is known about the mechanisms by which maltreatment impacts peer functioning. Exposed to a pathogenic relational environment, maltreated children may enter the peer domain with a limited behavioral repertoire. For instance, research indicates that maltreated children actively withdraw from social interactions with their peers (Cicchetti et al., 1992). When they do interact, maltreated children display more aggressive behaviors and fewer prosocial behaviors than nonmaltreated children (Cicchetti et al., 1992). This disrupted pattern of behavior, in turn, likely evokes negative reactions from peers; however, the extent to which these social behaviors account for variation in the association between maltreatment and peer functioning is not yet clear. Therefore, the current study tested physical aggression, relational aggression, social withdrawal, and prosocial behavior as potential mediators of the link between maltreatment and peer-related difficulties.

Third, recent research has called for a gender-informed approach to the study of child maltreatment (Cullerton-Sen et al., 2008). Cullerton-Sen and colleagues (2008) argued that researchers interested in the sequelae of child maltreatment should test models that incorporate gender-balanced predictors and outcomes. In support of their position, they highlight evidence that etiological risk factors can initiate gender-specific developmental trajectories (e.g., Crick & Zahn-Waxler, 2003). Furthermore, they suggest that boys and girls may differ in the way that they internalize the experience of maltreatment, resulting in gender-relevant outcomes. Thus, the current study investigated gender differences in the processes that underlie the association between maltreatment and peer functioning. Consistent with this aim, assessments of social behaviors and peer

experiences that are salient to both boys and girls (i.e., physical aggression and victimization, relational aggression and victimization) were included. In addition, gender moderation was tested in order to ascertain whether maltreated boys and girls traverse gender-specific pathways to peer functioning outcomes.

Finally, a developmental psychopathology approach emphasizes that it is equally informative to understand the mechanisms that promote resilient functioning as it is to investigate pathways to psychopathology and maladaptation (Cicchetti, 1993; Cicchetti & Rogosch, 2007; Masten, 2001). Research conducted within this framework has demonstrated that not all maltreated children experience negative adjustment outcomes. Thus, the current study examined under which conditions maltreatment initiates pathways to impaired peer functioning.

Maltreatment and Peer Functioning: Theoretical Perspectives

Three prominent theoretical perspectives propose mechanisms that help to explain the association between maltreatment and deficits in peer functioning. According to attachment theory, continuity and coherence in relational functioning are derived from early caregiving experiences (Bowlby, 1969; Sroufe & Fleeson, 1986). Within the context of the parent-child relationship, children develop attitudes and expectations regarding the self, others, and relationships, which are subsequently applied to later social interactions (Bowlby, 1969; Sroufe & Fleeson, 1986). Infants who receive sensitive and responsive caregiving develop secure attachments to their caregivers. They internalize a sense of self as worthy of love, a sense of others as responsive to their needs, and an expectation that relationships are satisfying. Furthermore, securely attached infants

derive a sense of felt security from the parent-child relationship that inspires confidence and the use of the primary caregiver as a secure base from which to explore. Exploration, in turn, facilitates social mastery by increasing opportunities to gain experiences and skills necessary for future interactions. Empirical research in normative populations consistently shows that secure attachment to primary caregivers in infancy predicts later social competence in childhood and adolescence (Sroufe, 1983; Sroufe, 2005).

Exposed to insensitive and inconsistent caregiving, maltreated children likely develop negative expectations regarding the availability and trustworthiness of others, as well as mental representations of the self as incompetent and unworthy (Cicchetti et al., 1992; Cicchetti & Toth, 1998). A considerable body of research indicates that maltreated children develop insecure and anxious attachment relationships (e.g., Cicchetti & Barnett, 1991; Crittenden, 1985; Egeland & Sroufe, 1981; Lamb, Gaensbauer, Malkin & Schultz, 1985). Maltreated children are especially at risk for developing disorganized attachments (i.e., Type D; see Cyr, Euser, Bakermans-Kranenburg, & van IJzendoorn, 2010), characterized by inconsistent and disorganized strategies for coping with separation from and reunion with the caregiver (Hesse & Main, 2006), as well as bizarre and contradictory behaviors directed toward the attachment figure (e.g., approach parent with head averted; Hesse & Main, 2006). From an attachment perspective, it is hypothesized that maltreated children's negative internal working models lead to the selection and structuring of later social interactions, such that familiar relationship patterns are recreated and validated (Sroufe & Fleeson, 1986). Consistent with the theme of continuity in relational functioning, maladaptive patterns of relatedness and social

interaction acquired in early caregiving relationships are thought to be carried forward into the peer realm, disrupting the formation of healthy peer relationships.

Similar to attachment theory, social learning theory posits that children develop representations of the self, other, and relationships—or "relational schemas"—within the context of early caregiving experiences. These relational schemas influence the cognitive processing of social information, ultimately guiding interactions with peers (Dodge, Pettit, Bates, & Valente, 1995). Exposed to aggressive models of behavior, maltreated children may develop a repertoire of aggressive responses that that are easily accessible from memory, a belief that aggressive behavior leads to desired outcomes, and a sense of self-efficacy for aggression. These mental mechanisms have been integrated into a model of social information processing that includes six stages of parallel processing: encoding of internal and external cues, interpretation of cues, clarification of goals, response access, response decision, and enactment (Crick & Dodge, 1994). Hypotheses informed by this model posit that socializing experiences acquired in the maltreating home will lead to perturbations in social information processing that promote the enactment of aggressive behaviors toward peers.

Finally, social network theory provides an alternative perspective regarding the influence of maltreatment on later peer functioning (Lewis & Schaeffer, 1981; Mueller & Silverman, 1989). Unlike attachment theory and social learning theory, social network theory proposes a relative independence between the quality of early parent-child relationships and the quality of subsequent relationships with peers (Mueller & Silverman, 1989). Rather, social network theory suggests two pathways by which

parents influence their children's peer functioning. The first is through the provision of peer contact. Accordingly, parents promote healthy social development by ensuring adequate peer experiences. If caregivers fail or neglect to facilitate appropriate peer contact, children become deprived of the opportunity to learn important social skills relevant for future peer group functioning. Indeed, maltreating parents tend to be socially isolated from their communities and extended family members (Garbarino & Gilliam, 1980; Salzinger, Kaplan, & Artemyeff, 1983). They have smaller peer networks and spend less time with their networks (Salzinger et al., 1983). Parents' social isolation, in turn, may extend to their children—either through active restriction of peer contact or through less availability of peer contact (Mueller & Silverman, 1989).

The second pathway proposed by social network theory involves generalized fear (Lewis & Schaeffer, 1981; Mueller & Silverman, 1989). Because of inappropriate and threatening parental behaviors, maltreated children may develop a generalized fear of others, leading them to shy away from peer contact. Again, it is the lack of peer contact, rather than a set of internalized expectations, that precludes adaptive social development (Mueller & Silverman, 1989). Fearful children who avoid peer interactions will fail to acquire core social skills.

Attachment theory, social learning theory, and social network theory are not necessarily mutually exclusive. In fact, it is unlikely that a single theoretical framework can capture the complex nature of the processes by which early caregiving experiences impact later peer functioning. Therefore, the current investigation adopted a developmental psychopathology approach (Cicchetti, 1984; Sroufe & Rutter, 1984),

which advocates for the integration of contributions from different disciplines and theoretical perspectives (Cicchetti & Cohen, 1995).

Developmental psychopathology stresses coherence in development. According to this perspective, development may be conceptualized as a series of reorganizations, during which previously developed structures become incorporated into subsequently emerging ones via a process of hierarchical integration (Cicchetti, 1993; Cicchetti & Schneider-Rosen, 1986; Sroufe & Rutter, 1984). In this way, competence at one stage prepares a child for adaptive functioning at the next stage (Sroufe & Rutter, 1984). Conversely, maladaptation may be carried forward, disrupting the development of later competencies (Cicchetti & Schneider-Rosen, 1986). Consistent with this approach, it has been theorized that the negative relational patterns acquired in a maltreating environment become incorporated into the structures that are pertinent for successful peer relations (Cicchetti et al., 1992).

Research on the Peer Functioning of Maltreated Children

Peer rejection. Peer rejection is one of the most traditionally studied variables in peer relations research (Asher & Coie, 1990; Bierman, 2004) and it is often the focus of research on the peer relations of maltreated children (Cicchetti et al., 1992). Although variations exist, the most common method used to assess rejection involves asking children to nominate the peers they "like most" and the peers they "like least" (Cillessen, 2009; Coie, Dodge, Coppotelli, 1982). From these nominations, categorical sociometric groups (i.e., popular, rejected, neglected, controversial, average) or continuous sociometric dimensions (e.g., acceptance, rejection) may be derived. Sometimes social

preference scores are calculated by subtracting rejection from acceptance. In the categorical approach, rejected children are those who received many "least liked" nominations and few "most liked" nominations. Alternatively, the number of negative nominations a child receives from their peers can be totaled to generate a dimensional measure of peer rejection.

Existing research indicates maltreated children are more likely than nonmaltreated children to be rejected by their peers (Anthonysamy & Zimmer-Gembeck, 2007; Bolger & Patterson, 2001; Bolger, Patterson, & Kupersmidt, 1998; Dodge, Pettit, & Bates, 1994; Rogosch & Cicchetti, 1994; Rogosch, Cicchetti, & Aber, 1995; Salzinger, Feldman, Hammer, & Rosario, 1993, Salzinger, Feldman, Ng-Mak, Mojica, & Stockhammer, 2001; Shields, Ryan, & Cicchetti, 2001). The link between maltreatment and peer rejection is particularly alarming given substantial research in nonmaltreated populations implicating peer rejection as a risk factor for serious adjustment problems across the lifespan, including low school achievement, criminality, and psychopathology (e.g., Coie & Cillessen, 1993; Parker & Asher, 1987).

Maltreated children experience peer rejection as early as the preschool years (Anthonysamy & Zimmer-Gembeck, 2007). Anthonysamy & Zimmer-Gembeck (2007) found that maltreatment was positively associated with peer rejection in early childhood (ages 4 to 8 years); however, maltreatment was not associated with peer acceptance. Due to the nature of limited peer nominations, many children—both maltreated and nonmaltreated—receive few "liked most" nominations. On the other hand, maltreated

children appear to be overtly disliked by their peers, and consequently, are more likely to be singled out as "liked least."

Peer rejection continues beyond preschool and into elementary school. In a study by Dodge and colleagues (1994), physically abused school-age children (grades K through 5) received significantly lower social preference scores (i.e., acceptance – rejection) than the nonmaltreated group. In addition, children were dichotomously classified into rejected and nonrejected sociometric status groups; twice as many maltreated children as nonmaltreated children reached criteria for socially rejected status according to this method. Moreover, longitudinal analyses indicated that the degree of maltreated children's peer rejection intensified over five years of elementary school, with the magnitude of difference between maltreated and nonmaltreated children growing over time. By Grade 4, nearly half of all physically abused children met criteria for inclusion in the socially rejected group.

Bolger, Patterson, and Kupersmidt (1998) found that chronically maltreated children are particularly at risk for peer rejection during the elementary and middle school years (i.e., grades 2-7). Maltreatment chronicity significantly predicted social preference scores; the more chronic the maltreatment, the less popular a child was likely to be, regardless of maltreatment subtype and severity. In a follow-up study, Bolger & Patterson (2001) found that chronic maltreatment not only increased risk for peer rejection at a single time point—it increased the likelihood that a child would be repeatedly rejected over time. In other words, the longer maltreatment continued, the

more likely a child was to experience chronic (i.e., at least 2 of 4 study years), as opposed to more transitory, peer rejection.

Once rejected by the peer group, maltreated children likely become deprived of interactions with socially competent peers, hindering the development of social and cognitive skills typically acquired in the peer group (Dodge et al., 2003). Maltreated children may be left to associate with other rejected peers who reinforce negative behaviors. Ultimately, maladaptive behavioral problems acquired in the maltreating home may escalate and become more problematic within the social context of peer rejection. From an attachment perspective, the experience of peer rejection likely serves to confirm negative representational models of others as unresponsive and of relationships as unsatisfying, contributing to continuity and coherence in relational functioning (Shields et al., 2001).

Friendship. Developmental theory suggests that friendship reflects a distinct relational system that makes unique contributions to adjustment above and beyond the effect of peer group acceptance (Asher et al., 1996; Bagwell et al., 1998; Bukowski & Hoza, 1989; Ladd et al., 1997). Whereas the peer group is an important context for learning skills necessary for cooperation, competition, and compromise, friendships promote the mastery of skills related to perspective-taking, empathic support, and altruistic concern (Buhrmester & Furman, 1986). If children fail to establish meaningful friendships, then they may become deprived of the opportunity to master key social competencies pertinent for concurrent and future adjustment (Buhrmester & Furman, 1986). Consistent with the principles of an organizational perspective, failure to form

key relationships at one developmental stage leaves children ill-equipped for developing subsequent stage-salient relationships (Buhrmester & Furman, 1986).

Much less is known about maltreated children's friendships compared to their social status in the group; however, existing research indicates that maltreated children exhibit a number of difficulties related to friendship formation. (Bolger et al., 1998; Howes, 1984; Lynch & Cicchetti, 1991; Oates, Forrest, & Peacock, 1985; Salzinger et al., 1993). Maltreated children perceive themselves as having fewer friends and report spending less time with friends compared to nonmaltreated children (Oates et al., 1985). Research by Bolger and colleagues (1998) indicated that maltreated children have fewer reciprocated best friendships compared to nonmaltreated children. Moreover, maltreated children appear to be actively disliked by those they nominate as friends (Salzinger et al., 1993). Salzinger et al. (1993) found that maltreated children were more likely than nonmaltreated children to receive nominations of "least liked" from children who they considered to be a friend.

In another study, however, Parker and Herrera (1996) found that the friendships of maltreated children and nonmaltreated children did not differ with respect to reciprocity (i.e., agreement on whether friend is a best friend, close friend, or casual friend), time spent, or length of friendship. Nearly all target abused children in their study (87.5%) considered their participating friend to be a best friend, and friends' perceptions mirrored these results: 87.5% of the invited partners of abused children considered the target child a best friend. Studies of friendship adjustment in nonmaltreated populations, however, suggest that most children are able to identify at

least one friend (Parker & Asher, 1993). Hence, in addition to asking if maltreated children have friends, it is also important to assess the quality of their friendships and the identity of their friends in order to fully comprehend peer adjustment at the dyadic level (Hartup, 1992; Hartup & Stevens, 1997).

With regard to friendship quality, maltreated children tend to report lower levels of positive qualities (e.g., caring, validation, satisfaction, affection; Bolger et al., 1998; Howe & Parke, 2001) and higher levels of conflict and betrayal in their friendships compared to nonmaltreated children (Bolger et al., 1998; Howe & Parke, 2001; McCloskey & Stuewig, 2001; Parker & Herrera, 1996). Maltreated children report feeling dissatisfied with the degree of closeness with their best friends—even when they endorse positive feelings regarding the emotional quality of their best friendships (Lynch & Cicchetti, 1991). Longitudinal analyses show that, for chronically physically abused children, friendship quality decreases over time (Bolger et al., 1998).

In an observational setting, Parker and Herrera (1996) found that friendship dyads containing a physically abused adolescent displayed more conflict and less intimacy than dyads without an abused adolescent. Abused children and their friends disclosed less personal information to one another, and their conversations were characterized by less discussion of thoughts, feelings, personal experiences, and close relationships. Interestingly, dyads with an abused child were significantly less on-task during a segment that required them to discuss features of their friendship with one another—perhaps the most intimate of all of the study tasks. It is possible that difficulty staying on task during the friendship discussion reflects abused children's relational difficulties and discomfort

with frank, intimate discussions of this nature (Parker & Herrera, 1996). From an attachment perspective, avoidance of intimacy may stem from internal working models of relationship partners as being emotionally unavailable. Due to histories of unresponsive and insensitive caregiving, maltreated children may not view close relationships as a safe place to elicit help or to share personal information (Parker & Herrera, 1996).

Although most studies emphasize differences between maltreated and nonmaltreated children's friendships, some evidence of similarities between the two groups exists. In a study conducted by Howe and Parke (2001), maltreated and nonmaltreated children (M age = 8.7 years) did not report significant differences in their perceived levels of help, guidance, companionship, recreation, conflict resolution, or intimate exchange with friends. Parker and Herrera (1996) also observed similarities in the ways that maltreated and nonmaltreated adolescents interact with their friends. Maltreated and nonmaltreated adolescents and their friends demonstrated similar levels of competiveness, physical proximity, and partner synchrony (i.e., extent to which partners successfully assume complementary roles; Parker & Herrera, 1996). Evidence of similarities between maltreated and nonmaltreated children with regard to dyadic-level adjustment suggests that maltreated children may not demonstrate sweeping deficits in peer functioning. Furthermore, observed similarities reinforce the necessity of evaluating maltreated children's adjustment at multiple levels of the peer ecology. Comprehensive assessment may facilitate identification of areas of weakness, in addition to areas of potential resilience.

Peer victimization. Peer victimization is a form of peer relations that is thought to be distinct from peer group acceptance and friendship (Ladd et al., 1997). Defined as a relationship in which children are exposed to chronic aggression from peers (Ostrov, 2010), peer victimization significantly impacts child development (for review, see Hawker & Boulton, 2000).

Research on the peer relations of maltreated children has predominately focused on their role as the perpetrator, as opposed to the target, of peer aggression. Attachment theory, however, conceptualizes relationships as wholes that are internalized and carried forward into later social interactions (Sroufe & Fleeson, 1986). As such, maltreated children are expected to develop representations of relationships that include the roles of both the victim and the victimizer. Consistent with this perspective, research shows that adults with a history of child maltreatment become victims and perpetrators of domestic violence (Browne & Finkelhor, 1986; Dutton, Van Ginkel, & Starzomski, 1995; Egeland, Jacobvitz, & Papatola, 1987). Individuals with a history of abuse, rejection, and parental insensitivity may continue to seek out relationships that confirm their relational expectations, revisiting patterns of victimization.

Four studies have identified child maltreatment as a risk factor for peer victimization (Banny, Cicchetti, Rogosch, Oshri, & Crick, 2013; Schwartz, Dodge, Pettit, & Bates, 1997; Schwartz, Dodge, Pettit, & Bates, 2000; Shields & Cicchetti, 2001). In the first study, Schwartz and colleagues (1997) demonstrated that abusive family treatment predicted boys' status as aggressive victims in third and fourth grade. This study was instrumental in showing that maltreated children experience heightened levels

of peer victimization; however, it was limited in its exclusion of girls and in its focus on victims who were concurrently aggressive. This assessment strategy likely failed to identify a group of victims characterized by passive and submissive behaviors.

In a subsequent investigation, Schwartz et al. (2000) showed that maltreatment in the preschool years predicted peer victimization in third and fourth grade, regardless of gender or aggressor status. Shields and Cicchetti (2001) replicated these findings in their investigation of bullying and peer victimization. Results indicated that maltreatment placed children at considerable risk for being victimized by their peers. Moreover, gender did not act as a moderator, suggesting that maltreated boys and girls experienced similar levels of peer victimization (Shields & Cicchetti, 2001).

Recent research indicates that maltreatment also heightens risk for relational forms of peer victimization (Banny et al., 2013). Whereas physical victimization inflicts harm via verbal threats and physically aggressive behavior (e.g., name calling, hitting, pushing), relational victimization damages relationships and threatens feelings of inclusion (e.g., exclusion, rumor spreading, threats to withdraw friendship; Crick & Grotpeter, 1996; Crick et al., 2001). Although conflicting findings exist regarding gender differences in exposure to relational victimization (e.g., Crick & Bigbee, 1998; Crick & Grotpeter, 1996; Cullerton-Sen & Crick, 2005; Paquette & Underwood, 1999; Prinstein, Boergers, & Vernberg, 2001; Putallaz et al., 2007; Schäfer, Werner, & Crick, 2002), research is consistent in showing that assessment of relational victimization results in the identification of significantly more victimized girls than does focusing on physical victimization alone (Crick & Bigbee, 1998; Crick, Casas, & Nelson, 2002). Like

physical victimization, relational victimization increases risk for social and psychological adjustment problems (Crick & Grotpeter, 1996). Furthermore, relational victimization makes unique contributions to development, beyond the effects of physical victimization (Crick & Grotpeter, 1996). Thus, assessment of both forms of peer victimization can enhance our understanding of maltreated children's peer experiences and associated developmental outcomes.

Mediators of the Association between Maltreatment and Peer Functioning

Despite the well-documented connection between child maltreatment and peer difficulties, the mediating processes remain poorly understood. Elucidating the mechanisms by which maltreatment impacts peer functioning may contribute to developmental theory regarding the influence of early caregiving experiences on peer relationships, as well as inform prevention and intervention efforts for maltreated youth. Evidence from typically developing populations indicates that there are multiple pathways to impaired peer functioning. Drawing from this body of research, the present study investigated four potential mediators of the association between maltreatment and peer functioning: physical aggression, relational aggression, withdrawal, and prosocial behavior.

Physical aggression. Developmental research has clearly delineated aggression as a predictor of several peer relationship problems, including peer rejection, poor friendship quality, and peer victimization (for reviews, see Coie, Dodge, & Kupersmidt, 1990; Heilbron & Prinstein, 2008; Newcomb, Bukowski, & Pattee, 1993). In addition to this body of work, a robust finding in the literature indicates that aggression may be a

consequence of experiencing child maltreatment. Indeed, numerous studies employing multi-method assessments (e.g., observation, report by parents, teachers, peers) have shown that maltreated children are more verbally and physically aggressive compared to their nonmaltreated counterparts (e.g., Alink, Cicchetti, Kim, & Rogosch, 2012; Anthonysamy & Zimmer-Gembeck, 2007; Cullerton-Sen et al., 2008; Dodge, Bates, & Pettit, 1990; George & Main, 1979; Klimes-Dougan & Kistner, 1990; Lansford et al., 2002; Salzinger et al., 1993; Shaffer, Yates, & Egeland, 2009; Shields & Cicchetti, 2001; Teisl & Cicchetti, 2008; Teisl, Rogosch, Oshri, & Cicchetti, 2012; Rogosch & Cicchetti, 1994). The maltreatment-aggression link appears to be particularly strong for physically abused children compared to children exposed to other maltreatment subtypes (i.e., neglect, sexual abuse, emotional abuse; Alink et al., 2012; Hoffman-Plotkin & Twentyman, 1984; Manly, Kim, Rogosch, & Cicchetti, 2001; Prino & Peyrot, 1994; Rogosch & Cicchetti, 1994; Smith & Thornberry, 1995; Trickett & McBride-Chang, 1995). In addition, chronic, as opposed to more transitory maltreatment, predicts physical aggression (Bolger & Patterson, 2001; Ethier, Lemelin, & Lacharite, 2004; Graham et al., 2010; Manly, Cicchetti, & Barnett, 1994).

Only a few studies have directly tested physical aggression as a mediator of the association between maltreatment and peer functioning. For instance, research by Bolger and Patterson (2001) demonstrated that physical aggression accounted for 23% of the variance in the association between chronic maltreatment and peer rejection during early elementary school (i.e., second grade). Anthonysamy & Zimmer-Gembeck (2007) extended this finding to preschool-aged children, indicating that the process linking

maltreatment to peer rejection via aggression occurs early upon school entry. Similarly, Salzinger et al. (1993) found that maltreated children's social behaviors (i.e., leadership, sharing, and aggression) accounted for 45% of the variance in the association between maltreatment and social preference (e.g., acceptance – rejection) in a stepwise multiple regression in which the dependent variable was the portion of the maltreatment status variance attributable to social status. Although the conclusion drawn from the Salzinger et al. (1993) study supports related mediational findings (Anthonysamy & Zimmer-Gembeck, 2007; Bolger & Patterson 2001), Salzinger et al., (1993) did not test mediation in the traditional sense (e.g., Baron & Kenny, 1987; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Taken together, findings suggest that engagement in physical aggression may be an important mechanism underlying the association between maltreatment and peer functioning. Maltreated children's heightened tendency to behave aggressively likely evokes negative reactions from their peers, making them vulnerable to a host of adverse peer experiences, including rejection, victimization, and difficulties with forming high quality friendships.

Relational aggression. The majority of theoretical and empirical work regarding the association between maltreatment and aggression has been limited to the examination of physical forms of aggression typical of males, to the exclusion of relational forms of aggression more salient to females (Cullerton-Sen et al., 2008). Whereas physical aggression inflicts harm via threats of or actual physical damage (e.g., hitting, kicking), relational aggression utilizes relationships to inflict harm (Crick & Grotpeter, 1995). Relational aggression includes acts aimed to manipulate and damage relationships, such

as gossip, exclusion, the silent treatment, and threats to withdraw friendship (Crick & Grotpeter, 1995).

Despite significant intercorrelations between relational and physical aggression (i.e., r = .5-.7; Card, Stucky, Sawalani, & Little, 2008), results from factor analyses suggest that relational and physical aggression are distinct constructs (Crick, 1996; Crick & Grotpeter, 1995). Furthermore, each form of aggression makes unique contributions to children's psychosocial adjustment (Crick & Grotpeter, 1995). Existing research shows that relational aggression is associated with a host of negative peer functioning outcomes, including rejection, negative friendship quality, and peer victimization (for review, see Heilbron & Prinstein, 2008). With regard to gender differences in relational aggression, research has yielded mixed findings; however, it is well-established that girls are more likely to use relational aggression than physical aggression when they are aggressive (for meta-analysis, see Card et al., 2008). Thus, failure to assess relational aggression in maltreated populations may result in the under-identification of aggressive children, particularly girls, who are at risk for developing associated adjustment problems.

Preliminary findings suggest that maltreated children exhibit significantly higher levels of relational aggression compared to their nonmaltreated peers (Cicchetti & Rogosch, 2005; Cullerton-Sen et al., 2008). Furthermore, Cullerton-Sen and colleagues (2008) showed that gender moderates the association between maltreatment and relational aggression. In their study, maltreated girls exhibited significantly higher levels of relational aggression compared to maltreated boys and nonmaltreated children. Boys, on the other hand, demonstrated higher levels of physical aggression than all other

groups. Examining the specific effects of maltreatment subtype revealed that maltreated girls who had been sexually abused were particularly at risk for elevated levels of relational aggression (Cullerton-Sen et al., 2008).

Given evidence of heightened relational aggression among maltreated children, as well as extensive research demonstrating the deleterious effects of relational aggression on social adjustment, it is conceivable that relational aggression constitutes a pathway linking maltreatment with peer difficulties. No research to date has directly tested this hypothesis. Thus, the current investigation examined relational aggression as a potential mediator of the association between maltreatment and peer functioning.

Social withdrawal/avoidance. Another potential pathway between maltreatment and poor peer functioning is via social withdrawal. Indeed, withdrawn social behavior represents one of the strongest predictors of rejection and victimization in nonmaltreated samples (Rubin, Coplan, & Bowker, 2009). Furthermore, social withdrawal has emerged as a prominent and widely-cited theme in the literature regarding the peer relationships of maltreated children (Alink et al., 2012; Anthonysamy & Zimmer-Gembeck, 2007; Camras & Rappaport, 1993; Cicchetti & Rogosch, 1997; Dodge, Pettit, & Bates, 1994; Ethier et al., 2004; George & Main, 1979; Haskett & Kistner, 1991; Hoffman-Plotkin & Twentyman, 1984; Jacobson & Straker, 1982; Kaufman & Cicchetti, 1989; Klimes-Dougan & Kistner, 1990; Manley et al., 2001; Rogosch & Cicchetti, 1994; Salzinger et al., 2002; Shaffer et al., 2009).

George and Main (1979) were among the first researchers to systematically study and observe maltreated children's social avoidance of peers. In a sample of one- to three-

year-old infants and toddlers (10 maltreated, 10 nonmaltreated) within a daycare setting, George and Main observed maltreated children engaging in an interesting combination of approach and avoidance behaviors directed toward peers. In response to friendly gestures from peers, maltreated children were noted to approach from the side or the rear, or to approach with their head averted. George and Main (1979) attributed this approach/avoidance behavior to past experiences with caregivers. They argued that mutual attention of any kind—even positive, friendly attention—may be perceived as threatening because past interactions with maltreating parents have often ended with unpleasant, and sometimes dangerous, outcomes. Approach/avoidance behaviors may function to maintain proximity to the attending social partner, while at the same time serving to regulate aroused fear and anger. Momentarily directing visual attention away from the attending partner—by turning the head in approach, for example—reduces arousal of negative emotions. Control over disorganizing, negative emotions, in turn, reduces the likelihood of expressed anger or fear, both of which could arouse anger and potential aggression in the partner directed toward the child. Although the regulating quality of approach/avoidance behaviors likely serves an adaptive function in the maltreating home, these behaviors preclude the formation of healthy peer relationships when generalized to other settings.

Subsequent research has replicated the finding of social withdrawal among maltreated children as assessed by parents, teachers, and peers, and has extended the finding to early and middle childhood samples (i.e., up to age 12 years; Kaufman & Cicchetti, 1989). Furthermore, some suggest that neglect, as opposed to physical abuse,

more strongly predicts withdrawal (Hoffman-Plotkin & Twentyman, 1984; Kaufman & Cicchetti, 1989; Manly et al., 2001; Prino & Peyrot, 1994). Perhaps the extreme lack of responsiveness by caregivers contributes to a lack of personal efficacy, leading neglected children to invest minimal effort in interpersonal relationships and to withdraw from peers (Cicchetti, et al., 1992). Others have suggested that neglected children who are undernourished may withdraw from social interactions as a means of maintaining low activity levels and conserving energy (Bolger et al., 1998; Pollitt et al., 1996). Findings highlight that different maltreatment experiences may result in different patterns of social behavior with peers.

Only two studies to date have tested social withdrawal as a mediator of the association between maltreatment and peer functioning. In the first study, Bolger & Patterson (2001) failed to support an indirect effect of maltreatment on peer rejection via social withdrawal among elementary school-aged children. They attributed this finding, in part, to limitations in their measurement of withdrawal. Specifically, they used a composite of peer ("Who avoids other people?"), teacher ("Child is withdrawn or shy."), and self-reports of withdrawal ("I keep from getting involved with others."). They noted that these items showed low agreement, especially in comparison to the aggression composite. An additional weakness includes equating shyness with social withdrawal. Research with nonmaltreated children suggests that shyness does not necessarily predict adjustment problems (Rubin et al., 2009). Some children prefer solitary-passive play, which is relatively benign in comparison to socially reticent behavior (Rubin et al., 2009). It is the socially reticent children—who watch their peers from afar and remain

unoccupied—who are particularly at risk for socioemotional difficulties (Rubin et al., 2009).

Similarly, in a sample of preschool-aged children, Anthonysamy & Zimmer-Gembeck (2007) found that social withdrawal did not mediate the association between maltreatment and peer rejection. Findings did indicate, however, that social withdrawal mediated the association between maltreatment and low peer acceptance. In other words, withdrawn maltreated children received few "liked most" nominations. It is possible that disruptive, overt behaviors like physical aggression are more influential than withdrawal when evaluating dislike. On the other hand, it may be that withdrawn children, who have few interactions with their peers, are less salient when peers evaluate likeability. Perhaps withdrawn maltreated children are neglected by their peers, such that they receive few "liked most" and few "liked least" nominations.

Prosocial behavior. Prosocial behavior is defined as voluntary actions intended to benefit others (Eisenberg & Fabes, 1998). Assessments of prosociality often include items describing helping, sharing, cooperation, inclusion, and leadership (e.g., Children's Social Behavior Scale; Crick, 1996). Prosocial behavior promotes the formation and stability of friendships among school-aged children (Hartup & Stevens, 1997). Lack of prosocial behavior, on the other hand, predicts peer rejection and low peer acceptance (Crick, 1996). Furthermore, assessment of prosocial behavior provides unique information regarding future social adjustment, above and beyond the effects of aggression (Crick, 1996).

Research on the social functioning of maltreated children has tended to focus on maladaptive behaviors (e.g., aggression, withdrawal), with considerably less attention to the development of prosocial behavior. The maltreating home likely provides few opportunities for children to learn and practice prosocial skills. Indeed, abusive parents show a low degree of reciprocity during parent-child interactions and are less responsive to their children (Cicchetti & Valentino, 2006). Furthermore, the social isolation typical of maltreating families may limit children's exposure to nonparental models of social competence (Salzinger et al., 1983). Existing empirical evidence indicates that maltreated children do, in fact, show deficits in prosocial behavior. Both peers and teachers rate maltreated children lower than nonmaltreated children on indicators of prosocial behavior such as cooperation, leadership, and sharing (Alink et al., 2012; Anthonysamy & Zimmer-Gembeck, 2007; Kaufman & Cicchetti, 1989; Manly et al., 1994; Manly et al., 2001; Prino & Peyrot, 1994; Salzinger et al., 1993; Salzinger et al., 2002).

Moreover, research suggests that it may be important to examine prosocial behavior in conjunction with aggression and withdrawal among maltreated children. For example, a discriminant analysis conducted by Prino and Peyrot (1994) showed that, when considered in isolation, indicators of aggression, withdrawal, and prosocial behavior failed to sufficiently distinguish physically abused, neglected, and nonmaltreated groups from one another. Accuracy of group classification was significantly enhanced when all three behavioral indices were included in the analysis. Thus, the current study simultaneously examined physical aggression, relational

aggression, withdrawal, and prosocial behavior as potential mediators of the association between maltreatment and indicators of peer functioning.

Moderated Mediation: Aggression in the Absence of Prosocial Behavior

Although aggression may constitute a developmental pathway from maltreatment to impaired peer functioning, evidence from nonmaltreated samples suggests that not all aggressive children experience peer difficulties. In fact, aggressive behavior enacted in conjunction with prosocial behavior may contribute to social success in the peer group (Bukowski, 2003; Hawley, Little, & Rodkin, 2007). Existing research indicates that prosociality and other peer-valued characteristics may compensate for the negative effects of aggression, protecting a subset of aggressive children from peer-related difficulties (Hawley, 2003a; Hawley, 2003b; Hawley, Little, & Card, 2007; Hawley, Little, & Pasupathi, 2002; Rodkin, Farmer, Pearl, & Van Acker, 2000; Vaillancourt & Hymel, 2006). Furthermore, the combination of aggressive and prosocial strategies appears to promote the development of social status and even friendship quality (Hawley et al., 2002; Hawley, 2003a; Hawley, 2003b; Hawley, Little, & Card, 2007; Rodkin et al., 2000). For example, Rodkin et al. (2000) identified two distinct groups of aggressive boys who differed with respect to their degree of social skills. "Toughs," who combined aggression with prosocial behavior, were perceived as popular by their teachers and peers. On the other hand, "Troubled" aggressive boys lacked prosocial skills, and thus, were perceived as unpopular. Similarly, Hawley and colleagues (2003a, 2003b) identified a group of "bistrategic controllers" who implemented both prosocial and aggressive strategies (i.e., relational and physical) to achieve status in the peer group.

Bistrategic controllers appear to be well-liked by their peers and participate in high quality friendships (Hawley 2003a; Hawley, 2003b; Hawley et al., 2002; Hawley, Little, & Card, 2007).

Conversely, a behavioral profile characterized by high levels of aggression and low levels of prosocial behavior heightens a child's risk for psychosocial adjustment difficulties (Coie et al., 1982; Crick, 1996; Ladd et al., 1990). Thus, for maltreated children, it may not be aggression, per say, that heightens their risk for peer-related difficulties, but rather, their failure to compensate for aggressive behavior with redeeming, prosocial qualities. Deprived of opportunities to engage in interactions that promote the acquisition of prosocial skills in the home, maltreated children may be particularly at risk for developing a behavioral profile characterized by high levels of aggression and low levels of prosocial behavior. Such a limited behavioral repertoire leaves maltreated children ill-equipped for entering the peer domain, increasing the likelihood of peer rejection, victimization, and unsuccessful friendship formation.

The Moderating Role of Gender

Another goal of the current study involved investigating gender differences in the underlying processes linking child maltreatment to peer functioning. Within the hypothesized mediational model, gender was expected to moderate pathways from maltreatment to relational and physical aggression, eventuating in gender-specific manifestations of aggressive behavior (i.e., relational for girls, physical for boys). Similarly, given observed gender differences in physical and relational victimization (Crick et al., 2002), it was expected that maltreatment would heighten risk for gender-

relevant forms of peer victimization. Finally, it has been suggested that physical aggression, relational aggression, withdrawal, and prosocial behaviors result in different social consequences for boys and girls (Rose & Rudolph, 2006). Thus, the pathways that link the proposed mediators (i.e., physical aggression, relational aggression, withdrawal, prosocial behavior) to peer functioning outcomes (i.e., rejection, friendship quality, relational victimization, physical victimization) were also hypothesized to vary by gender.

First, maltreated boys and girls are expected to engage in gender-typical forms of aggression (Cullerton-Sen et al., 2008). As discussed above, research by Cullerton-Sen and colleagues (2008) demonstrated that maltreatment predicted physical aggression for boys and relational aggression for girls. Findings are consistent with Ostrov and Godleski's (2010) gender-linked model of aggressive behavior, which posits that children engage in aggression that is consistent with their gender schemas. Accordingly, when girls are aggressive, they are more likely to engage in relational aggression than physical aggression, and when boys are aggressive, they are more likely to engage in physical aggression than relational aggression. Moreover, this model suggests that risk factors may result in gender-specific manifestations of aggressive behavior. Thus, as a result of gender schemas, maltreatment is expected to be associated with relationally aggressive strategies among girls and with physically aggressive strategies among boys.

Second, maltreated boys and girls may experience different social ramifications as a result of their behaviors in the peer group. For example, given the relatively low base rate of physical aggression among girls, peers may be less likely to tolerate this behavior.

Thus, girls who exhibit high levels of physical aggression may be viewed by their peers as gender nonnormative and suffer greater peer impairment (Crick, 1997). Relational aggression also has been found to be closely linked to girls' adjustment in the peer group (e.g., Zimmer-Gembeck, Geiger, & Crick, 2005). On the other hand, some studies have shown that the association between relational aggression and peer functioning among boys is either nonsignficant or weaker than it is among girls (e.g., Crick, 1996; Rys & Bear, 1997; Zimmer-Gembeck et al., 2005).

The implications of social withdrawal and prosocial behavior also may vary by gender. Specifically, shyness and withdrawal appear to be less socially acceptable for boys than for girls, perhaps because these behaviors violate gender norms related to male social assertion and dominance (Rubin & Coplan, 2004). Empirical research has shown that, beginning in early childhood, withdrawn boys are more likely to experience peer rejection and other peer-related difficulties compared to withdrawn girls (Rubin et al., 2009). Prosocial behavior, on the other hand, appears to be particularly central to the social development of girls. Previous research has shown that gender moderates the association between prosocial behavior and peer acceptance, such that the association is stronger for girls than it is for boys (Crick, 1996; Zimmer-Gembeck, Geiger, & Crick, 2005). Given that girls engage in higher levels of prosocial behavior than boys, peers may be more likely to attend to and expect these behaviors among girls because they are consistent with their gender schemas (Rose & Rudolph, 2006). Peers may consider other, more gender salient behaviors, such as instrumental dominance, when considering the likeability of boys.

The Present Study: Goals & Hypotheses

The reviewed literature collectively indicates that maltreated children's peer relations differ significantly from the peer relations of nonmaltreated children. Although this effect has been well established, it is important to investigate potential mediators and moderators in order to better understand the mechanisms by which maltreated children either traverse or avert pathways to poor peer functioning. Thus, the present study evaluated a moderated mediation model in which social behaviors (i.e., physical aggression, relational aggression, social withdrawal, prosocial behavior) were tested as mediators of the association between maltreatment and peer functioning outcomes (i.e., peer rejection, friendship quality, physical victimization, relational victimization). In addition, the moderating role of prosocial behavior on aggression (i.e., physical, relational) and the moderating role of gender were examined.

The following hypotheses were tested:

1. Maltreated children will exhibit deficits in peer functioning at multiple levels of the peer ecology. Specifically, maltreatment status will be positively associated with peer rejection, physical victimization, and relational victimization, as well as negatively associated with friendship quality.
2. Physical aggression, relational aggression, social withdrawal, and prosocial behavior will mediate the association between maltreatment and peer functioning. Specifically, maltreated children will demonstrate deficits in prosocial behavior, as well as heightened levels of physical aggression, relational aggression, and

social withdrawal, which in turn, will predict low friendship quality, high rejection, and elevated levels of physical and relational peer victimization.

3. Gender is expected to moderate specific pathways of the proposed model (Figure 1). First, gender is expected to moderate the association between maltreatment and physical aggression, as well as the association between maltreatment and relational aggression. Based on existing theory and research (Cullerton-Sen et al., 2008), maltreatment status will positively predict physical aggression among boys and relational aggression among girls. Second, gender will moderate the pathways linking social behaviors with peer functioning. Specifically, the strength of the association between physical aggression and poor peer functioning is expected to be stronger for girls than for boys (Crick, 1997). Social withdrawal will be associated with impaired peer functioning among boys, but not girls (Rubin et al., 2009). Consistent with previous research (e.g., Zimmer-Gembeck et al., 2005), the positive association between prosocial behavior and peer functioning will be stronger among girls compared to boys. In addition, the negative association between relational aggression and peer functioning is expected to be stronger among girls compared to boys (e.g., Zimmer-Gembeck et al., 2005).
4. Prosocial behavior will moderate associations between aggressive behaviors (i.e., physical, relational) and peer functioning outcomes. It is expected that aggressive behaviors will be associated with poor peer functioning (i.e., high rejection, high

relational and physical victimization, low friendship quality) at low levels of prosocial behavior.

5. Gender will moderate physical aggression X prosocial and relational X prosocial interaction effects. Because physical aggression violates girls' gender norms (Crick, 1997; Rose & Rudolph, 2006), physical aggression is expected to predict poor peer functioning among girls, regardless of their degree of prosocial behavior. For boys, on the other hand, physical aggression will only predict poor peer functioning at low levels of prosocial behavior. Among boys and girls, relational aggression will predict poor peer functioning at low levels of prosocial behavior.
6. Prosocial behavior will moderate the indirect effect of maltreatment on peer functioning via aggression. In other words, mediation by aggression will be conditional upon the level of prosocial behavior. Significant mediation will only occur at low levels of prosocial behavior. Specifically, maltreatment is expected to predict high levels of physical aggression and relational aggression, which in turn, will predict low peer functioning for maltreated children with low levels of prosocial behavior. Put differently, it is not aggression, per say, that is expected to lead to poor peer functioning among maltreated children, but rather, aggression in the absence of prosocial behavior.

Methods

Participants

Participants included 340 children ages 6–14 (M = 10.35, SD = 1.60) who attended a summer day camp research program designed for school-aged, low income children. The sample was composed of both maltreated children (n = 167) and nonmaltreated children (n = 173). Among the participants, 58.8% were boys. The AddHealth system for coding race/ethnicity was used (http://www.cpc.unc.edu/projects/addhealth/data/code/race); 62.4% were African American, 22.6% were Caucasian, 13.5% were Hispanic, and 1.5% were from other racial/ethnic groups. The families of the children were low income; 93.2% of the families had a history of receiving public assistance.

Recruitment and Classification Procedures

Parents of all children provided informed consent for their child's participation, as well as for examination of Department of Human Services (DHS) records pertaining to the family. Children in the maltreated group had been identified by the county DHS as having experienced child abuse or neglect, and the sample was representative of the children in families receiving services from the DHS. A recruitment liaison from DHS contacted eligible maltreating families and explained the study. If parents were interested, then they signed a name release form allowing the project team to contact them for recruitment. Families were free to choose whether or not to participate. Comprehensive searches of DHS records were completed and maltreatment information

was coded utilizing operational criteria from the maltreatment nosology specified in the Maltreatment Classification System (MCS; Barnett, Manly, & Cicchetti, 1993).

Consistent with national demographics characteristic of maltreating families (Fourth National Incidence Study of Child Abuse and Neglect [NIS-4]; Sedlack et al., 2010), the maltreated children were predominantly from low-socioeconomic status families. Consequently, demographically comparable nonmaltreated children were recruited from families receiving Temporary Assistance for Needy Families (TANF). Prior to contacting potential participants, a liaison screened DHS records to verify any record of child maltreatment. The DHS recruitment liaison then contacted eligible nonmaltreating families and described the project, and if interested, parents signed a release for their names to be given to the project for recruitment. Trained research assistants subsequently interviewed mothers of children recruited for the nonmaltreatment group to confirm a lack of DHS involvement and prior maltreatment experiences utilizing the Maternal Maltreatment Classification Interview (Cicchetti, Toth, & Manly, 2003). Record searches were conducted in the year following camp attendance to verify that all available information had been accessed. Only children from families without any history of documented abuse or neglect were retained in the nonmaltreatment group. In addition, families who had received preventive services through DHS due to concerns over risk for maltreatment were excluded from the sample to reduce the potential for unidentified maltreatment existing within this group.

The demographic characteristics of the maltreated and nonmaltreated groups were comparable (see Table 1). The two groups did not differ on child age. Chi square

analysis indicated that there was a greater proportion of males in the maltreated group than in the nonmaltreated group. In terms of race/ethnicity, a difference was observed. Specifically, the proportion of African American children was higher in the nonmaltreated group than in the maltreated group. Conversely, there was a greater proportion of Caucasian children in the maltreated group than in the nonmaltreated group. The two groups did not differ with respect to family composition. Furthermore, the maltreated and nonmaltreated groups were equally likely to have a history of receiving public assistance.

Classification of maltreatment experiences was accomplished through use of the MCS (Barnett et al., 1993). The MCS is a reliable and valid method for classifying maltreatment (Bolger et al., 1998; English et al., 2005; Manly et al., 1994) that utilizes DHS records detailing investigations and findings involving maltreatment in identified families over time. Rather than relying on official designations and case dispositions, the MCS codes all available information from DHS records, making independent determinations of maltreatment experiences.

Coding of the DHS records was conducted by trained research assistants, doctoral students, and clinical psychologists. Coders were required to meet acceptable reliability with criterion standards before coding actual records for the study. Adequate reliability has been obtained (weighted κs = .86 to .98; Manly et al., 2001). Other investigators also have demonstrated that the MCS is reliable and valid in classifying maltreatment (e.g., Bolger & Patterson 2001; English et al., 2005).

In terms of the subtypes of maltreatment, *neglect* involves failure to provide for the child's basic physical needs for adequate food, clothing, shelter, and medical treatment. *Emotional maltreatment* involves extreme thwarting of children's basic emotional needs for psychological safety and security, acceptance and self-esteem, and age-appropriate autonomy. *Physical abuse* involves the nonaccidental infliction of physical injury on the child (e.g., bruises, welts, burns, choking, broken bones). Finally, *sexual abuse* involves attempted or actual sexual contact between the child and a family member or person caring for the child for purposes of that person's sexual satisfaction or financial benefit.

Children in the maltreatment group all had histories of abuse, neglect, or both (i.e., emotional: 19.8%; physical: 30.5%; sexual: 18.0%; and neglect: 31.7%). The majority of children had experienced multiple subtypes of maltreatment. Specifically, 25.8% experienced one subtype; 33.8% experienced two; 31.8% experienced three; and 8.6% experienced four.

Procedures

Children attended a week-long day camp program and participated in research assessments (see Cicchetti & Manly, 1990, for detailed descriptions of camp procedures). Children were transported by bus to the camp each day, with travel time averaging 45 minutes. At the camp, children were assigned to groups of eight (four maltreatment, four comparison) same-age and same-sex peers. Each group was led by three trained camp counselors who were unaware of the maltreatment status of children and the hypotheses of the study. Camp lasted 7 hours a day for 5 days, providing 35 hours of interaction

between children and counselors. In addition to the recreational activities, after providing assent, children participated in various research assessments. Trained research assistants, who also were unaware of research hypotheses and maltreatment status, conducted individual research sessions with children, in which questionnaires and other research measures were administered. Clinical consultation and intervention occurred if any concerns over danger to self or others emerged during the research sessions.

Measures

Mt. Hope Bully-Victim Questionnaire—Revised. A revised version of the Mt. Hope Bully-Victim Questionnaire (Shields & Cicchetti, 2001) was used to assess relational aggression and peer victimization experiences. Five items assessed engagement in relationally aggressive acts (e.g., "When this child is mad at a peer, s/he gets even by excluding the peer from his or her clique or peer group."). Three items assessed the extent to which children were the targets of relationally aggressive acts (i.e., relational victimization). Counselors were asked to rate the frequency with which children exhibited these behaviors over the camp week using a 5-point Likert scale, with a score of 1 corresponding to *never true* and a score of 5 corresponding to *almost always true*. An additional three items assessed overt victimization on a 4-point Likert scale, with a score of 1 corresponding to *never* and a score of 4 corresponding to *always*. Mean scores across subscale items were used in analyses. In the current sample, internal consistency was $\alpha = .84$ for relational aggression, $\alpha = .90$ for relational victimization, and $\alpha = .81$ for overt victimization.

Behavior ratings. Observations of individual children's social behavior were made based on the methodology of Wright (1983). Counselors rated the social behavior of individual children on nine items that assessed three different aspects of interpersonal functioning: prosocial behavior, aggression, and withdrawal. Seven-point ratings were completed each day and were based on 45-minute observations of children in unstructured and structured camp settings (e.g., sports, art, free play). Previous investigations have reported high inter-rater reliabilities for prosocial behavior, aggression, and withdrawal (e.g., Cicchetti & Rogosch, 2007).

Peer nominations. On the fourth day of camp, children evaluated the characteristics of their peers in their respective camp groups using a peer nomination method (Coie et al., 1982). Children were taken one-by-one for private interviews, where they were shown photographs of all the children in their groups. Children were instructed to nominate a peer from the group whom they liked most, liked least, and who best fit each of the following behavioral descriptors: acts shy, cooperative, leader, disruptive, and starts fights. The number of nominations each child received for each item was summed, standardized within group, and then standardized within the summer camp session. Nominations of "least liked" were used as a dimensional indicator of peer rejection. Dimensional scores are thought to reflect peers' acceptance versus rejection of children upon entry to new social groups (Shields et al., 2001).

Peer ratings. Counselors conducted the peer rating assessment with individual children. For each peer in the camp group, children used a 3-point Likert scale (not true, sort of true, very true) to rate each child in their group on five key social behaviors:

cooperation, disruptive behavior, withdrawal, physical aggression, and leadership. For each item, all peers' ratings for a specific child were averaged to obtain a mean peer rating for each individual child for each respective item.

Friendship Quality Questionnaire. Children's perceptions of the quality of their very best friendship were assessed using the Friendship Quality Questionnaire (FQQ; Parker & Asher, 1993), which was administered in an interview format by trained research assistants. The FQQ assess six features of friendship: validation/caring, conflict resolution, conflict/betrayal, help/guidance, companionship/recreation, and intimate exchange. Children answered questions with reference to a specific friend, identified as their "very best friend." The measure included 40 primary items and an initial warm-up item. Items asked children to rate how true each statement was of their friendship on a 5-point Likert scale, with 0 corresponding to *not at all true* and 4 corresponding to *really true*. The conflict/betrayal factor was reverse-scored; higher scores indicated greater perceived friendship quality on all of the subscales. Consistent with previous research using this measure (e.g., Nangle, Erdley, Newman, Mason, & Carpenter, 2003; Parker & Asher, 1993), mean scores across all items were computed to yield a total friendship quality score that was used in analyses. Internal consistency for the total friendship score was $\alpha = .93$.

Composite scores. A physical aggression composite was computed for each participant on the basis of his or her peer nomination score for aggression ("starts fights"), peer rating score for aggression ("starts fights, says mean things, pushes or hits others"), and counselor behavior ratings of physical aggression and verbal aggression

(Cullerton-Sen et al., 2008). A prosocial composite was computed for each participant on the basis of his or her peer nomination scores for "leader" and "most cooperative," peer rating scores for prosocial behaviors ("shares, gives others their turn, pitches in, helps out") and leadership ("is chosen a s a leader"), and counselor behavior rating for prosocial behavior ("was considerate and thoughtful of others; helpful and cooperative") (Cicchetti & Rogosch, 2007). A social withdrawal composite consisted of counselor behavior ratings that described observable behaviors associated with social avoidance and withdrawal ("was untalkative; sullen, sulked, withholding, refused to talk" and "was withdrawn; isolated self, avoided contact with others"). For each composite, scores from each method were standardized within each year of camp, and the standardized variables were averaged to generate the composite scores for each child (Cicchetti & Rogosch, 2007; Cullerton-Sen et al., 2008). Internal consistencies of the composite scores were acceptable with $\alpha = .82$ for physical aggression, $\alpha = .71$ for prosocial, and $\alpha = .88$ for withdrawal.

Results

Preliminary Analyses

Means and standard deviations are presented in Table 2. Maltreated children were more physically aggressive, $t(338) = -5.16$, $p < .001$, $d = 0.56$, and less prosocial, $t(338) = 5.59$, $p < .001$, $d = 0.60$, than nonmaltreated children. No group differences emerged for relational aggression, $t(337) = -1.69$, $p = .09$, or social withdrawal, $t(336) = -1.73$, $p = .09$. With regard to peer functioning, maltreated children were more rejected, $t(335) = -2.59$, $p = .01$, $d = 0.29$ by their peers and experienced more physical, $t(337) = -$

2.64, $p = .009$, and relational peer victimization, $t(337) = -4.31$, $p < .001$, than nonmaltreated children. Maltreated and nonmaltreated children did not differ with respect to self-reported levels of friendship quality, $t(332) = -0.07$, $p = .95$.

Table 3 shows bivariate correlations between study variables. To examine demographic factors as potential covariates, associations between outcomes variables and child age, gender, race/ethnicity (minority vs. non-minority), parent living arrangements (married/living with partner vs. not), and family Hollingshead score were examined. Given significant correlations with several outcome variables of interest, Hollingshead score and race (0 = minority, 1 = non-minority) were included as covariates in subsequent analyses.

Finally, preliminary analyses indicated that skew and kurtosis were within an acceptable range (i.e., absolute value of skew < 2, absolute value of kurtosis < 7; West, Finch, & Curran, 1995); therefore, log transformations were not necessary.

Moderated Mediation

Path analysis was used to test the hypothesized moderated mediation model (Figure 1) using MPlus version 7.11 (Muthén & Muthén, 2012). Physical aggression, relational aggression, social withdrawal, and prosocial behavior were tested as mediators of the association between maltreatment and peer functioning outcomes. Given research and theory suggesting that peer group status, friendship, and peer victimization represent distinct relational systems, the four peer functioning outcomes (i.e., peer rejection, friendship quality, physical victimization, relational victimization) were entered as exogenous variables that were simultaneously tested in the model, as opposed to creating

a latent variable for peer functioning. The model included paths from maltreatment status to physical aggression, relational aggression, withdrawal, and prosocial behavior, and then from each of the four social behaviors to peer rejection, friendship quality, physical victimization, and relational victimization. Residual covariances between mediators were modeled in order to determine whether the hypothesized mediators uniquely predicted peer functioning outcomes. In addition, there were direct paths from maltreatment to each of the four peer functioning outcomes. In addition to being tested as a mediator, prosocial behavior was also tested as a moderator of the pathways linking physical aggression and relational aggression to the peer functioning outcomes (i.e., peer rejection, friendship quality, physical victimization, and relational victimization). Continuous variables were mean-centered prior to analyses. Significant interactions between aggression (i.e., physical and relational) and prosocial behavior were probed using simple slope analyses at low (- 1 *SD*) and high (+ 1 *SD*) levels of prosocial behavior (Aiken & West, 1991). Nonsignficant paths from covariates to mediators and exogenous variables were trimmed from the model. In order to establish a more parsimonious model, nonsignficant interaction terms were also trimmed from the model (Kline, 2005). Multiple-group analysis was conducted in order to test whether the pathways in the model varied by gender.

Model fit was assessed with chi-square, comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). In general, nonsignficant chi-squares, CFIs $\geq .95$, RMSEAs $\leq .05$, and SRMRs $\leq .05$ suggest good model fit with the observed data (Hu & Bentler, 1999; Kline, 2005),

although lower thresholds can indicate acceptable fit (i.e., CFIs ≥ .90, RMSEAs ≤ .10, and SRMRs ≤ .08; Hu & Bentler, 1999; Kline, 1998; McDonald & Ho, 2002). Because the chi-square statistic is considerably affected by sample size, it was not used as the primary indicator of the model fit (Hu & Bentler, 1999).

Mediation was tested by computing 95% asymmetric confidence limits for the mediated effect ($\hat{a}\hat{b}$) (MacKinnon, Lockwood, & Williams, 2004). Recent research indicates that this approach is more accurate than significance testing based on the normal distribution because it captures the nonnormal shape of the mediated effect sampling distribution (MacKinnon et al., 2002; MacKinnon et al., 2004). In the current study, asymmetric confidence limits were constructed using RMediation, a publicly available program that calculates upper and lower critical values for the mediated effect using the distribution-of-product method (http://www.amp.gatech.edu/RMediation?destination=node%2F198; Tofighi & MacKinnon, 2011). Confidence intervals (CIs) that do not include the value zero indicate significant mediation.

First, a model for the overall sample was tested. Results indicated good model fit ($\chi^2(22) = 52.74$, $p < .001$, CFI = .97, RMSEA = .06, SRMR = .04). To explore the possibility that gender serves as a moderator (i.e., that the paths in the model differ between boys and girls), this model was run as a two-group model with gender as the grouping variable. An unconstrained model was run in which hypothesized parameters (i.e., all paths except for maltreatment to prosocial, maltreatment to withdrawal, maltreatment to rejection, and maltreatment to friendship quality) were allowed to vary

by gender. Model fit was good ($\chi^2(48) = 75.14$, $p = .01$, CFI = .97, RMSEA = .06, SRMR = .05). This unconstrained model was then compared to a fully constrained two-group model in which all of the parameters were set to be equal across gender ($\chi^2(74) = 154.14$, $p < .001$, CFI = .91, RMSEA = .08, SRMR = .08). Results indicated a significant reduction in model fit ($\Delta\chi^2(26) = 79.00$, $p = .001$) suggesting that the strength of the paths may be different for boys and girls. All standardized path coefficients for boys and girls are presented in Table 4.

Although a mediated effect may exist whether or not there is a statistically significant direct effect of the independent variable on the dependent variable (MacKinnon, 2008), the direct effect of maltreatment on peer functioning was of interest in the present study. The direct effect is defined as the effect of X on Y, adjusted for the effects of the mediators (i.e., c'; MacKinnon, 2008). Results indicated that, for boys, there was a significant direct effect of maltreatment on physical victimization ($\beta = .14$, $p = .04$), as well as a significant direct effect of maltreatment on relational victimization ($\beta = .17$, $p = .003$).

Maltreatment also predicted social behaviors. Specifically, maltreatment predicted low levels of prosocial behavior for both genders (boys: $\beta = -.26$, $p < .001$; girls: $\beta = -.26$, $p < .001$). Among boys, maltreatment significantly predicted high levels of physical aggression ($\beta = .17$, $p < .001$). Maltreatment was not significantly associated with relational aggression or social withdrawal.

In addition, social behaviors predicted peer functioning outcomes. Physical aggression was positively associated with peer rejection for boys only ($\beta = .20$, $p = .02$).

Among girls, physical aggression was negatively associated with physical victimization (β = -.29, p = .05); however, this path was moderated by prosocial behavior (β = -.23, p = .02). Simple slope analysis revealed that physical aggression was negatively associated with physical victimization for girls with high levels of prosocial behavior (β = -.43, p = .002). Although the main effect of physical aggression on relational victimization was not significant, there was a significant physical aggression by prosocial behavior interaction effect (boys: β = -.27, p < .001; girls: β = -.20, p = .02). Simple slope analysis indicated that physical aggression was negatively associated with relational victimization at high levels of prosocial behavior (boys: β = -.25, p < .01; girls: β = -.28, p = .05). At low levels of prosocial behavior, physical aggression was positively associated with relational victimization at a trend level among boys (boys: β = .137, p = .097).

Relational aggression was positively associated with relational victimization (boys: β = .16, p = .01; girls: β = .28, p < .001), but none of the other peer functioning outcomes. For both boys and girls, prosocial behavior was negatively associated with peer rejection (boys: β = -.29, p < .001; girls: β = -.20, p = .05) and relational victimization (boys: β = -.21, p = .004; girls: β = -.38, p < .001). Among boys, prosocial behavior was negatively associated with physical victimization (β = -.29, p = .001). Prosocial behavior was not significantly associated with friendship quality. Social withdrawal was positively associated with physical victimization (boys: β = .15, p = .03; girls: β = .29, p < .001) and relational victimization (boys: β = .15, p = .02; girls: β = .17, p = .01). Social withdrawal did not significantly predict peer rejection or friendship quality.

Next, asymmetric confidence limits for specific indirect effects were estimated in order to evaluate the significance of mediated effects. Among boys, prosocial behavior (LCL = .055, UCL = .254) and physical aggression emerged as significant mediators of the association between maltreatment and peer rejection (LCL= .012, UCL = .201). Results also revealed an indirect effect of maltreatment on relational victimization via prosocial behavior (boys: LCL = .027, UCL = .189; girls: LCL = .056, UCL = .250). In addition, prosocial behavior mediated the association between maltreatment and physical victimization, but only among boys (LCL = .033, UCL = .161). Relational aggression and social withdrawal did not emerge as significant mediators of the link between maltreatment and peer functioning outcomes.

Finally, in order to test the hypothesis that prosocial behavior would moderate the indirect effect of maltreatment on peer functioning via aggressive behaviors, simple mediation effects were probed following the guidelines of Aiken and West (1991). Results indicated that the mediated effect of maltreatment on relational victimization, by way of physical aggression, was only significant for boys with high levels of prosocial behavior. Specifically, calculating asymmetric 95% confidence limits at one standard deviation above the mean on prosocial behavior revealed a statistically significant indirect effect (LCL = -.263, UCL = -.010). At the mean of prosocial behavior and at one standard deviation below the mean of prosocial behavior, the indirect effect was non-significant. These findings support moderated mediation, such that maltreatment predicted higher physical aggression among boys, which in turn predicted less relational victimization for boys with high levels of prosocial behavior. Moderated mediation was

not supported with respect to the other peer functioning variables (i.e., rejection, physical victimization, friendship quality).

Discussion

Extensive research has shown that maltreated children experience a broad range of peer-related difficulties (Cicchetti et al., 1992). Much of this existing work, however, has focused on direct effects with less attention to underlying processes. Rather than conceptualizing the relationship between child maltreatment and peer functioning as direct and deterministic, the current study aimed to elucidate the various pathways by which maltreated children either traverse or avert trajectories toward peer-related difficulties. Specific goals were to (1.) examine maltreated children's functioning at multiple levels of the peer ecology; (2.) identify mechanisms underlying the link between child maltreatment and peer functioning; (3.) investigate gender-specific pathways to peer functioning; and (4.) explore the moderating role of prosocial behavior. Consistent with previous research, results demonstrated that maltreated children exhibit multiple deficits in peer functioning (Cicchetti et al., 1992).

Maltreatment & Social Behaviors

In general, maltreated children appear to enter the peer domain with a limited behavioral repertoire characterized by high levels of aggression and low levels of prosociality. With respect to aggression, results provided partial support for the hypothesis that maltreated boys and girls would traverse gender-specific pathways to externalizing behaviors (Cullerton-Sen et al., 2008). As expected, maltreated boys engaged in heightened physical aggression; however, maltreatment did not significantly

predict relational aggression, regardless of gender. Turning to prosocial skills, results indicated that maltreated children exhibited deficits in helping, sharing, leadership, and cooperation (Alink et al., 2012; Anthonysamy & Zimmer-Gembeck, 2007; Kaufman & Cicchetti, 1989; Prino & Peyrot, 1994; Salzinger et al., 1993; Salzinger et al., 2002). Taken together, findings suggest that the maltreating environment not only promotes the development of aggressive behavior, but also fails to encourage prosocial behaviors. Given factors such as social isolation (Garbarino & Gilliam, 1980; Salzinger et al., 1983) and lack of caregiver responsiveness and reciprocity (Cicchetti & Valentino, 2006), it is conceivable that the maltreating home provides few opportunities for the acquisition of prosocial skills.

Results failed to support the hypothesis that maltreatment would predict social withdrawal. Although social withdrawal has emerged as a prominent and widely-cited theme in the literature on maltreated children's peer relations (Cicchetti et al., 1992; Mueller & Silverman, 1987), empirical evidence has been mixed (Bolger & Patterson, 2001). Inconsistencies may be attributable, in part, to variation in measurement across studies. For example, teacher and peer ratings of "shy" and "withdrawn" behavior appear to be less sensitive to detecting differences between maltreated and nonmaltreated children (e.g., Bolger & Patterson, 2001; Rogosch & Cicchetti, 1994; Salzinger et al., 1993), compared to observational assessments (e.g., George & Main, 1979; Howes & Espinosa, 1985; Jacobson & Straker, 1982). Given that shyness, per say, is not necessarily maladaptive (Rubin et al., 2009), items that describe active social avoidance

or disorganized approach/avoidance (e.g., George & Main, 1979) behaviors may be more effective in distinguishing maltreated from nonmaltreated children.

In the present study, an effort was made to select items that described social avoidance, as opposed to shyness. Counselors rated the extent to which children isolated themselves and avoided contact with others. In fact, peer nominations and ratings of shyness were poorly correlated with counselor ratings of social avoidance. Despite attention to measurement, the present study's withdrawal composite was likely not as robust as the physical aggression composite, perhaps contributing to the lack of association with maltreatment status. Whereas the physical aggression composite included information from counselor ratings, peer nominations, and peer ratings (i.e., a total of five indicators), the social withdrawal composite only included two indicators selected from counselor ratings. Further research is needed in order to identify the best strategies for measuring social withdrawal among maltreated children.

Social Behaviors & Peer Functioning

Contrary to the hypothesis that physical aggression would result in more severe social consequences for girls than for boys, results indicated that the positive association between physical aggression and peer rejection was significant for boys only. It has been argued that physical aggression violates gender norms in girls' peer groups, and thus, girls who engage in such behaviors are likely to be rejected by their peers (Crick, 1997). Alternatively, others have found that physical aggression is more closely linked to boys' status, as compared to girls' status (Zimmer-Gembeck et al., 2005). Other qualities, such as friendliness and cooperation, may be more influential than aggression when peers

evaluate girls' likeability (Coie et al., 1982; Coie et al., 1990). Indeed, findings from the present study indicate that, although physical aggression did not predict peer rejection among girls, prosocial behavior was negatively associated with peer rejection for both girls and boys.

Relational aggression did not predict peer rejection. Although some studies demonstrate both concurrent and longitudinal associations between relational aggression and rejection (Cillessen & Mayeux, 2004; Crick & Grotpeter, 1995; Kuppens, Grietens, Onghena, & Michiels, 2009; Putallaz et al., 2007; Rys & Bear, 1997; Tomada & Schneider, 1997; Werner & Crick, 2004), others find no association (Orue & Calvete, 2011; Salmivalli, Kaukiainen, & Lagerspetz, 2000). For example, Salmivalli et al. (2000) found that relational aggression no longer predicted peer rejection once levels of physical aggression were held constant. In a longitudinal investigation, Orue & Calvete (2011) similarly did not find an association between relational aggression and rejection. Given the subtle nature of relational aggression, it may be the case that peers have a higher tolerance for relational aggression than physical aggression (Salmivalli et al., 2000). Furthermore, relational aggression can be enacted anonymously, allowing the aggressor to inflict harm while remaining undetected, thus preserving a semblance of "niceness." Consequently, children who engage in relational aggression may be able to maintain likeability in the peer group.

Social withdrawal also did not predict peer rejection. Similar to the relational aggression literature, research on the association between social withdrawal and peer rejection has yielded contradictory findings (for review, see Rubin et al., 2009). In the

present study, participants were limited to one nomination for "liked least." In other words, they could only select one peer whom they most disliked. It is possible that children reserved these nominations for their peers who were uncooperative (i.e., low prosocial) or for those who engaged in overt, aversive behaviors like physical aggression. Given that socially withdrawn children engage in fewer peer interactions than their nonwithdrawn counterparts (Rubin et al., 2009), they may be less salient when peers evaluate likeability, and thus, receive few nominations. In fact, research indicates socially withdrawn children are more likely than their more sociable peers to be categorized in the neglected sociometric group (i.e., few nominations of "most liked" and few nominations of "least liked"; Rubin et al., 2009). Ultimately, the use of a limited nomination tool in the present study likely identified an extremely rejected group. Perhaps a continuous rating scale of likeability or unlimited nominations may have revealed a link between social withdrawal and peer rejection.

Although withdrawn children did not appear to be actively disliked be their peers, results indicated that they experienced high levels of physical and relational victimization. Due to their shy and timid nature, socially withdrawn children may be viewed by their peers as easy targets. Moreover, they may be perceived as physically and emotionally weak, and therefore, unlikely to retaliate against peer aggression (Rubin et al., 2009).

In addition to social withdrawal, lack of prosocial behavior emerged as a significant predictor of peer victimization. Consistent with previous research (e.g., Crick et al., 1999; Schwartz, 2000), prosocial behavior was negatively associated with

relational victimization. In addition, low prosocial behavior was associated with high levels of physical victimization among boys only, perhaps because girls are less likely to be targeted for this form of victimization (Crick et al., 2002). Overall, children who are deficient in prosocial skills may fail to provide positive reinforcement to peers, and thus, may be vulnerable to peer maltreatment (Crick, Casas, & Ku, 1999).

With respect to the link between aggression and victimization, results revealed a complex relationship dependent on factors including form of aggression, gender, and degree of prosocial skills. Consistent with previous research, relational aggression was positively associated with relational, but not physical, victimization (Crick et al., 1999; Leadbeater, Boone, Sangster, & Mathieson, 2006; Ostrov, 2008). Physical aggression was also positively associated with relational victimization, but only among boys with low levels of prosocial behavior. This pattern of findings provides partial support the specificity hypothesis (Crick et al., 1999; Ostrov, 2008), which posits that peer victimization may be a function of retaliation for one's own displays of aggression (i.e., physical aggression predicts physical victimization and relational aggression predicts relational victimization). Children appear to retaliate against their relationally aggressive peers using relational, as opposed to physical victimization; however, relational aggression may also be employed in retaliation against physical aggression, perhaps in an effort to avoid detection and potential punishment (Giesbrecht, Leadbeater, & MacDonald, 2011; Ostrov, 2008). Relational victimization in response to physical aggression may become more common as children develop the cognitive capacity to

engage in more covert and sophisticated forms of aggression (Björkqvist, Östermana, & Kaukiainen, 2000).

At high levels of prosocial behavior, on the other hand, aggression appeared to discourage peer victimization. Specifically, high physical aggression was associated with low levels of *relational* victimization for both boys and girls. Similarly, high physical aggression was associated with low levels *physical* victimization among girls only. Taken together, the current findings suggest that prosocial behavior exerts a protective effect against peer victimization among physically aggressive youth. Furthermore, results are consistent with research from the social dominance literature that has shown that the selective and skillful use of aggression can reduce overall levels of conflict, as well as establish and maintain social order (see Hawley, Little, & Rodkin, 2007).

However, the fact that physical aggression was negatively associated with physical victimization among girls who displayed high levels of prosocial behavior was unexpected. Based on gender normativity theory (Crick, 1997), it was hypothesized that physically aggressive girls would suffer negative social consequences regardless of their degree of prosociality. Rather, findings suggest that physically aggressive girls may compensate for aggressive behaviors with redeeming prosocial skills. Such an idea is congruent with research indicating that prosocial behavior is highly valued in girls' peer groups, and thus, is more central to girls' social adjustment compared to physically aggressive behavior (Coie et al., 1982). Moreover, socially competent girls who display physical aggression may be viewed as dominant in the peer group, likely discouraging acts of victimization.

Mediators of the Association between Maltreatment and Peer Functioning

A central aim of the present investigation involved identifying mechanisms underlying the association between maltreatment and peer functioning. Overall, findings reveal variation in the developmental processes linking maltreatment to specific relational systems within the peer group, highlighting the utility of examining multiple levels of the peer ecology.

First, physical aggression and prosocial behavior mediated the association between maltreatment and peer rejection; however, significant mediation emerged for boys only. Although previous research has demonstrated that physical aggression constitutes a significant developmental pathway from maltreatment to peer rejection, no studies to date have examined whether this pathway is relevant for both boys and girls (Anthonysamy & Zimmer-Gembeck, 2007; Bolger & Patterson, 2001; Salzinger et al., 1993; Shields, Cicchetti, & Ryan, 1994). As discussed above, developmental literature suggests that the factors that determine peer rejection may vary by gender (Coie et al, 1982; French, 1988; French, 1990). Whereas physical aggression appears to be influential in identifying peer rejected boys, rejected girls have been found to be characterized by various internalizing behaviors, including withdrawal, anxiety, depression, and hostile isolation (Bell-Dolan, Foster, & Christopher, 1995; French, 1988; French, 1990). Given that maltreatment is a robust predictor of depression and anxiety (Cicchetti & Valentino, 2006), is possible that internalizing problems may represent a gender-specific pathway by which maltreated girls become rejected by their peers.

With regard to this link between maltreatment and peer victimization, analyses showed that prosocial behavior significantly mediated the association between maltreatment and relational victimization. In addition, deficient prosocial skills emerged as a significant mechanism linking maltreatment to physical victimization among boys. Taken together, these findings suggest that a history of child maltreatment impedes the development of prosocial behavior, which in turn, heightens the risk for re-victimization upon peer group entry.

In addition to serving as a mediator, prosocial behavior moderated the indirect effect of maltreatment on relational victimization via physical aggression among boys. Specifically, the mediated effect was conditional upon the degree of prosocial behavior, such that significant mediation occurred only at high levels of prosocial behavior. In other words, maltreatment predicted elevated levels of physical aggression, which in turn, predicted low levels of relational victimization among maltreated boys who displayed high levels of prosocial behavior. Although moderated mediation was anticipated, this particular pattern of findings was unexpected. It was originally hypothesized that maltreated children would display a limited behavioral repertoire characterized by high levels of aggression and low levels of prosocial behavior, which, in turn, would lead to poor peer functioning outcomes. Accordingly, it was expected that the indirect effect of maltreatment on peer functioning via aggression would be significant at low levels of prosocial behavior. Contrary to expectations, some maltreated children appear to display both aggressive and prosocial strategies. As discussed above, the selective use of aggression balanced with prosociality may be a marker of social competence (Hawley,

2003a). Indeed, research shows that children who adopt this behavioral profile are generally well-adapted and demonstrate a superior ability to gain access to and control social resources within the peer group (Hawley, 2003a, 2003b; Hawley, Little, & Card, 2007; Rodkin et al., 2000). For maltreated children, this behavioral pattern may serve as protective factor that promotes resilient functioning in the peer domain.

It may be the case that maltreated children who engage in both high levels of physical aggression and high levels of prosocial behavior employ proactive, as opposed to reactive, functions of aggression. Whereas reactive aggression describes dysregulated, angry responses to perceived or real provocation, proactive aggression refers to controlled, umemotional aggression aimed at achieving a desired goal (Card & Little, 2006). Previous research has shown that physical abuse predicts reactive aggression (Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Shields & Cicchetti, 1998); however, social learning theory suggests that maltreatment may also promote the development of proactive aggression (Dodge et al., 1997). According to Bandura (1983), exposure to aggressive role models may foster the belief that aggressive is an effective means of achieving desired outcomes. Exposed to violence and coercion in the context of early caregiving relationships, maltreated children may develop positive outcome expectations for aggression as a social strategy (Dodge et al., 1997).

Consistent with previous research, withdrawal did not constitute a significant pathway from maltreatment to peer functioning (Anthonysamy & Zimmer-Gembeck, 2007; Bolger & Patterson, 2001). Nevertheless, withdrawn social behavior should not be dismissed as a potential mechanism linking maltreatment with peer difficulties. Indeed,

research by Shields et al. (1994) showed that social withdrawal, as part of an internalizing composite that included the anxiety/depression subscale of the Achenbach, mediated the association between maltreatment and peer rejection. Failure to support significant mediation by withdrawal in the present study may be attributable, in part, to weaknesses in measurement discussed above.

Finally, relational aggression did not significantly mediate the association between maltreatment and peer functioning outcomes. Unlike the physical aggression and prosocial constructs, assessment of relational aggression relied solely on counselor reports. Due to the covert nature of relational aggression, it is possible that camp counselors underestimated the actual frequency of relationally aggressive behaviors. Peer reports, on the other hand, may provide a more accurate representation of relational aggression (Ladd & Kochenderfer-Ladd, 2002). Unlike adults, peers are privy to unsupervised contexts in which relational aggression is likely to occur. Nevertheless, teacher reports provide unique information about child behaviors and peer aggression (Cullerton-Sen & Crick, 2005). In order to improve the power to detect mediation by relational aggression, future research should adopt a multi-informant approach that includes both teacher and peer report.

With the exception of the finding that prosocial behavior mediates the association between maltreatment and relational victimization, significant mediation emerged only for boys. In general, heightened physical aggression and deficits in prosocial behavior contributed to maltreated boys' poor peer functioning. As suggested earlier, maltreated boys and girls may traverse gender-specific pathways to peer functioning. It will be

important for future research to investigate other factors that contribute to the peer functioning of maltreated girls.

Limitations and Directions for Future Research

Although this investigation provides new information about the processes by which maltreatment impacts peer functioning, limitations exist that should be addressed in future research. First, in the absence of longitudinal data, the current study cannot address the direction of causality within the mediational model (MacKinnon et al., 2002; MacKinnon et al., 2004). Future research should be directed toward gathering longitudinal assessments of functioning at multiple levels of the peer ecology in order to more precisely test mediational effects related to maltreatment.

Longitudinal studies would also permit the investigation of transactional models of development (Sameroff & MacKenzie, 2003). A transactional approach conceptualizes developmental outcomes as a function of the continuous, dynamic interplay between the child and his or her environment (Sameroff & MacKenzie, 2003). Accordingly, children are viewed as shaping their social context, which, in turn, influences their behavioral development. Reared in a maltreating environment, maltreated children develop a behavioral profile characterized by high levels of aggression and low levels of prosocial behavior. Upon entry to the peer domain, maltreated children behave in ways that are incongruent with peer norms, resulting in a social environment characterized by peer rejection and victimization. Isolated from competent peers, maltreated children likely become deprived of interactions that would allow them to acquire and practice prosocial skills. Rather, maltreated children may be

left to associate with other rejected children who may reinforce negative behavioral patterns. Within this social environment, behaviors like physical aggression may escalate, initiating a vicious cycle that confirms maladaptive internal working models of self, other, and relationships.

Second, unlike the other relational systems under study, maltreatment was neither directly nor indirectly associated with friendship quality. Previous studies have shown comparable levels of friendship quality for maltreated and nonmaltreated children, suggesting resilient functioning within this domain of peer functioning (Howe & Parke, 2001; Parker & Herrera, 1996). In the current investigation, however, it is likely that the use of self-reports of friendship quality contributed to the lack of significant findings. Maltreated children may not possess the insight to reliably assess the quality of their relationships. Moreover, research has shown that, in some cases, maltreated children overestimate their social competence (Vondra, Barnett, Cicchetti, 1989). Another possibility is that the effects of maltreatment on friendship may not become apparent until adolescence, when friendships become central to social and psychological development (Buhrmester & Furman, 1987).

Even if maltreated children are capable of forming high quality friendships, positive friendship quality does not necessarily promote positive developmental outcomes. Children who associate with deviant peers, for example, show an escalation in their own antisocial behavior over time (e.g., Dishion, Andrews, & Crosby, 1995). Moreover, these effects are amplified within the context of high quality relationships (Berndt, 2002). Maltreated children may be particularly vulnerable to negative peer

socialization effects. In fact, two studies have shown that deviant peer affiliations are detrimental to maltreated children's development. In a study by Perkins and Jones (2004), physically abused children were more likely to engage in health risk behaviors than nonabused children; however, physically abused children with delinquent friends were at the highest risk for engagement in health risk behaviors. Similarly, Salzinger et al. (2007) showed that deviant peer affiliation moderated the association between maltreatment and subsequent violent delinquency in adolescence. Thus, future research would benefit from assessing multiple aspects of maltreated children's friendships, including quantity, quality, and identity of one's friend.

In conclusion, findings from the present investigation indicate that child maltreatment disrupts behavioral development, which, in turn, compromises the successful negotiation of peer relationships. Specifically, maltreated boys' low levels of prosocial behavior increased their risk for peer rejection, relational victimization, and physical victimization. In addition to prosocial behavior, physical aggression uniquely predicted peer rejection among maltreated boys. Among girls, maltreatment resulted in low levels of prosocial behavior, which in turn, heightened risk for relational peer victimization. Results also highlight the importance of investigating resilient processes (Cicchetti & Curtis, 2007). Analysis of moderated mediation revealed that maltreated boys who engaged in high levels of physical aggression and high levels of prosocial behavior experienced lower levels of relational peer victimization. Taken together, findings underscore the utility of including both aggressive and prosocial behaviors

within the same model in order to capture a more comprehensive picture of the processes that underlie the association between maltreatment and peer functioning.

Overall, the present investigation's findings are congruent with organizational theories of development that suggest continuity in relationships (Main, Kaplan, & Cassidy, 1985; Sroufe & Fleeson, 1986). Reared in a pathogenic relational environment, maltreated children may develop negative expectations regarding the self and others, as well as a concept of relationships as involving victimization and coercion (Cicchetti et al., 1992; Cicchetti & Lynch, 1995; Cicchetti & Toth, 1998). Maltreated children may maintain a coherent sense of self by recreating familiar social environments that validate their relational expectations (Sroufe & Fleeson, 1986).

Depending on when a maltreated child comes to the attention of mental health professionals, it may be possible to provide services that target age-specific developmental tasks. Results from the present investigation reinforce the potential of peer-oriented therapeutic interventions to alleviate the effects of maltreatment and promote positive development. Positive interactions with socially competent may help to re-direct maladaptive developmental trajectories by providing maltreated children with a remedial context in which to enhance social skills; however, maltreated children likely require support if this route is to be utilized successfully. Preliminary research has demonstrated the short-term effectiveness of interventions that provide maltreated children with scaffolded, positive play experiences with socially competent peers (Fantuzzo, Manz, Atkins, & Meyers, 2005). In addition, intervention strategies aimed at modifying internal representations of the self and others have been shown to promote

competence in stage-salient domains (Cicchetti, Rogosch, & Toth, 2006; Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002). By targeting key developmental tasks, it may be possible to prevent developmental cascades leading to costlier interventions, such as special education services, residential treatment, and incarceration (Cicchetti & Toth, 2010). Longitudinal research that elucidates the various pathways by which maltreated children develop or avert maladaptation can inform translational efforts that have the potential to reduce the burden of mental illness on society.

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Appendix A: Tables

Table 1. Demographic comparison of maltreated and nonmaltreated groups

	Maltreated M (SD)	Nonmaltreated M (SD)	*t*	*P*
Child age	10.30 (1.61)	10.40 (1.59)	.56	.57
Family Hollingshead score	21.54 (8.18)	26.42 (9.59)	5.02	<.001
	% Maltreated	% Nonmaltreated	χ^2	*p*
Child gender (% male)	65.27	52.60	5.63	.02
Child race			13.90	.003
African American	54.49	69.94		
Caucasian	31.14	14.45		
Hispanic	13.17	13.87		
Other	1.20	1.73		
Single parent family	70.30	61.85	2.69	.10
Family history of public assistance	95.76	90.70	3.39	.70

Table 2. Descriptive Statistics of Study Variables

	Maltreated		Comparison		
	M	*SD*	*M*	*SD*	Statistics
Physical Aggression	0.17	0.88	-0.25	.61	$t(338) = -5.16$, $p < .001$
Relational Aggression	1.96	0.70	1.83	0.67	$t(337) = -1.69$, $p = .09$
Prosocial Behavior	-0.18	0.65	0.21	0.65	$t(338) = 5.59$, $p < .001$
Social Withdrawal	0.01	0.93	-0.16	0.88	$t(336) = -1.73$, $p = .09$
Peer Rejection	0.13	1.03	-0.15	0.90	$t(335) = -2.59$, $p = .01$
Friendship Quality	3.14	0.71	3.13	0.58	$t(332) = -0.07$, $p = .95$
Physical Victimization	1.55	0.62	1.39	0.54	$t(337) = -2.64$, $p = .009$
Relational Victimization	1.86	0.96	1.47	0.67	$t(337) = -4.31$, $p < .001$

Table 3. Correlation Matrix

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.	Maltreatment	—											
2.	Hollingshead	-.26**	—										
3.	Race	-.20**	-.01	—									
4.	Gender	.13*	-.07	-.08	—								
5.	Physical Agg.	.27**	-.12*	.09	.28**	—							
6.	Relational Agg.	.09	-.03	.06	.09	.47**	—						
7.	Prosocial	-.29**	.10	.04	-.16**	-.67**	-.31**	—					
8.	Withdrawal	.09	-.17**	-.08	.10	.24**	.10	-.31**	—				
9.	Rejection	.14*	-.11	-.03	.03	.42**	.15**	-.45**	.21**	—			
10.	Friendship Qual.	.01	-.01	.10	-.12*	-.06	-.07	.09	-.07	-.11*	—		
11.	Phys. Victim.	.14**	-.04	-.23**	.17**	.15**	.09	-.24**	.27**	.25**	-.06	—	
12.	Rel. Victim.	.23**	-.04	-.23**	.11*	.39**	.31**	-.44**	.32**	.39**	-.07	.51**	—

Note. Physical Agg. = Physical Aggression; Relational Agg. = Relational Aggression; Friendship Qual. = Friendship Quality; Phys. Victim. = Physical Victimization; Rel. Victim = Relational Victimization
*$p < .05$; **$p < .01$

Table 4. Standardized path coefficients (β) for final path model

Predictors	Mediators							
	Physical Agg.		Relational Agg.		Withdrawal		Prosocial	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Maltreatment	.25***	.10	.11	-.01	-.01	-.01	-.25***	-.26***
Hollingshead	--	--	--	--	-.17***	-.19***	--	--
Race	--	--	--	--	-.11*	-.11*	--	--

Predictors/Mediators	Outcomes							
	Rejection		Physical Vic.		Relational Vic.		Friendship Quality	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Maltreatment	-.002	-.002	.14*	-.11	.17**	-.10	.06	.06
Physical Agg.	.20*	.43***	-.12	-.29*	-.07	-.12	.08	-.01
Relational Agg.	-.08	-.07	.07	.04	.16**	.28***	-.08	.01
Withdrawal	.10	.05	.15*	.29***	.15*	.17**	-.01	-.10
Prosocial	-.29***	-.20*	-.29***	-.14	-.21**	-.38***	.09	.09
PA X Prosocial	--	--	-.05	-.23*	-.27***	-.20*	--	--
Race	--	--	-.17***	-.18***	-.23***	-.26***	--	--

Note. Physical Agg. = Physical aggression; Relational Agg. = Relational aggression; PA X Prosocial = physical aggression X prosocial ; Physical Vic. = Physical victimization; Relational Vic. = Relational Victimization.
* $p < .05$, **, $p \leq .01$, *** $p \leq .001$

Appendix B: Figures

Figure 1. Hypothesized Model

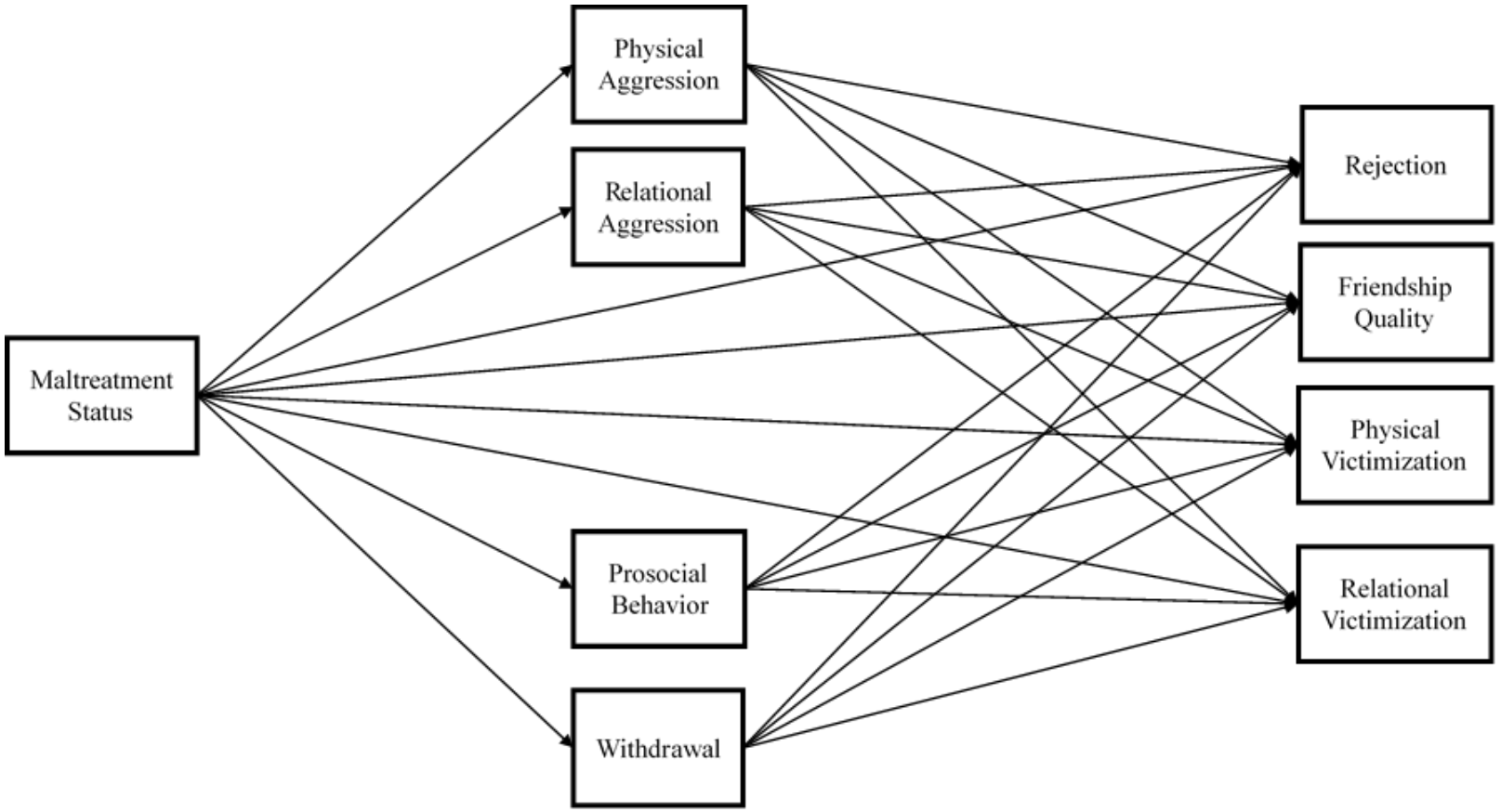

Figure 2. Prosocial behavior moderates the association between physical aggression and relational victimization among girls

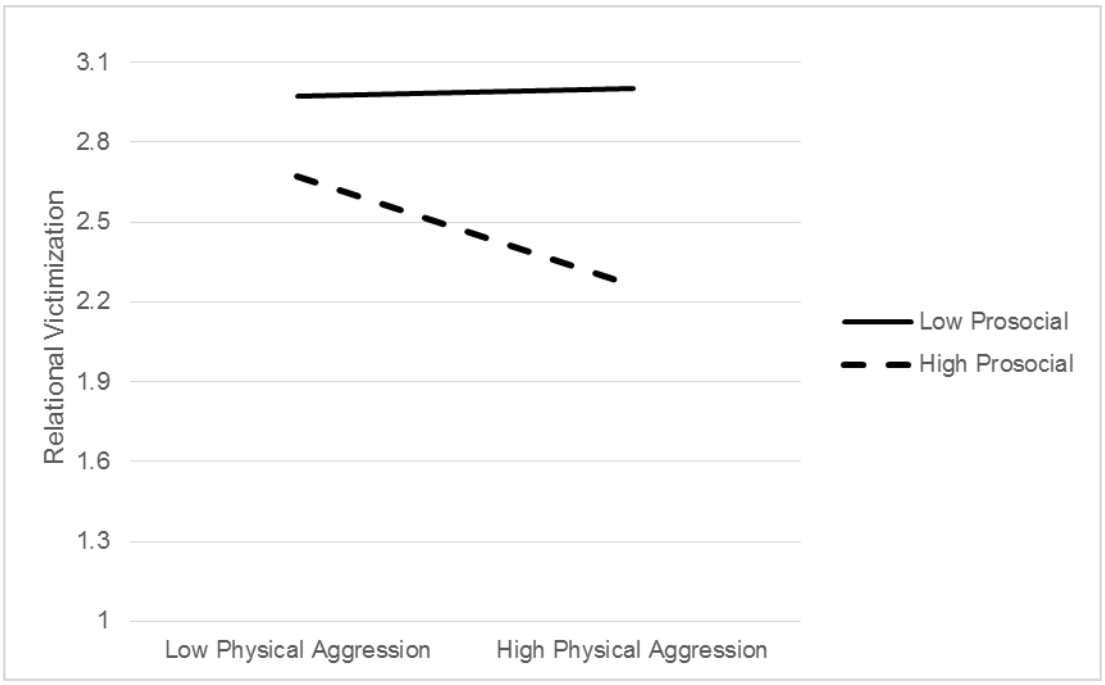

Figure 3. Prosocial behavior moderates the association between physical aggression and relational victimization among boys

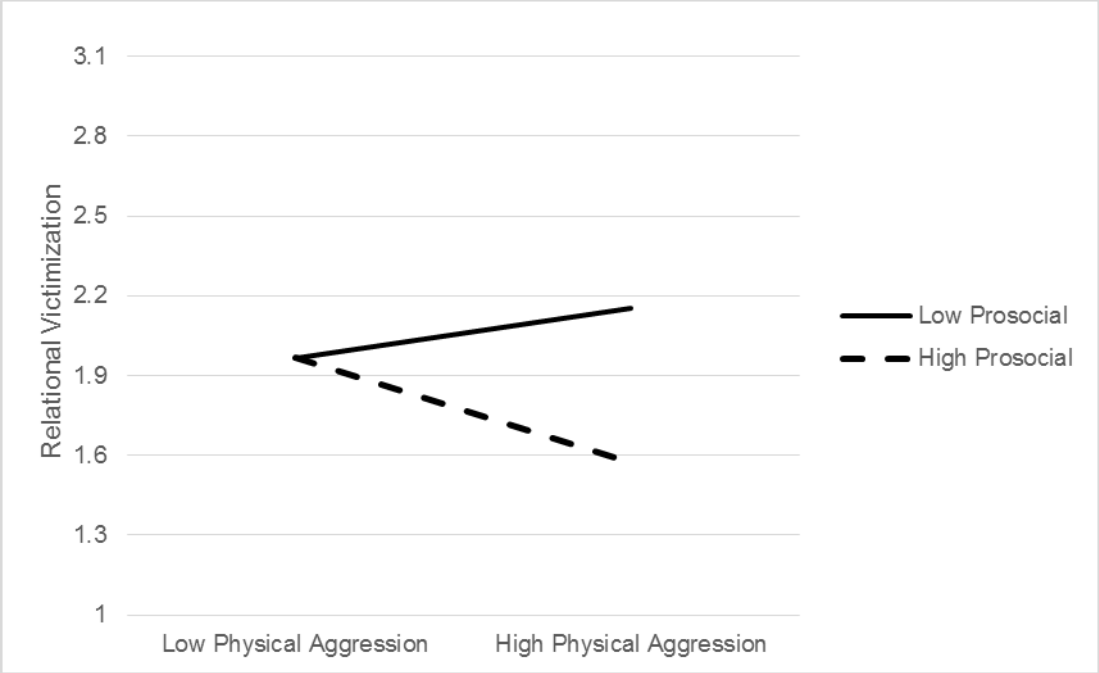

Figure 4. Prosocial behavior moderates the association between physical aggression and physical victimization among girls