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Childhood Maltreatment and the Development of Relational and Physical Aggression: The Importance of a Gender-Informed Approach

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Abstract

This investigation examined the associations between maltreatment and aggression using a gender-informed approach. Peer ratings, peer nominations, and counselor reports of aggression were collected on 211 maltreated and 199 non-maltreated inner-city youth (mean age = 9.9 years) during a summer day camp. Maltreatment was associated with aggressive conduct; however, these effects were qualified by gender, maltreatment subtype, and the form of aggression under investigation. Findings revealed that maltreatment was associated with physical aggression for boys and relational aggression for girls. Physical abuse was associated with physically aggressive behaviors, but sexual abuse predicted relational aggression for girls only. Findings suggest that investigating the interaction between familial risk and gender is important in understanding aggressive behaviors of boys and girls.

A robust finding in the maltreatment literature is the association between childhood abuse and externalizing difficulties, particularly children's aggression towards peers (Klimes-Dougan & Kistner, 1990; Shields & Cicchetti, 2001; Salzinger, Feldman, Hammer, & Rosario, 1993; Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006). Unfortunately, our understanding of these links for boys and girls is limited in several important ways. First, work is needed that extends definitions of aggression to forms that are salient to girls as well as boys (Crick, 1995). Second, few studies have examined the moderating effects of gender on the association between maltreatment and gender-salient forms of aggression. Finally, there is a paucity of research on the ways in which subtypes of maltreatment may interact with gender when predicting aggression among males and females. The present investigation represents an initial attempt to elucidate these processes by examining the

patterns of associations between maltreatment and aggression using a gender-informed developmental approach.

Maltreatment and Aggression

The first goal of the present study was to gain a gender-balanced understanding of the association between maltreatment and aggressive conduct. A number of mechanisms have been posited to underlie the relation between maltreatment and aggression. Due to the inconsistent care and relational toxicity that exists in maltreating families, maltreatment may disrupt children's internal working models (i.e., the view of self as worthy and competent and of others as caring and responsive) which in turn place them at risk for heightened aggression (Cicchetti & Toth, 2005; Rogosch, Cicchetti, & Aber, 1995; Shields, Ryan, & Cicchetti, 2001). Consistent with this perspective, Shields and colleagues (Shields et al., 2001) found that negative and constrictive representations of caregivers significantly increased the likelihood that maltreated children would exhibit aggression with peers. Children who carry these internal representations forward into their relationships with peers are likely to readily perceive threats from peers, misinterpret social cues from others, and respond to peers with anger and aggression (e.g., Teisl & Cicchetti, 2008; Troy & Sroufe, 1987).

Findings from the maltreatment literature are also commensurate with a social-cognitive perspective of aggression (e.g., Bandura, 1986; Crick & Dodge, 1994). Physically abused children not only generate more aggressive solutions in the face of conflict, but also view aggression as an effective way to meet their social and instrumental goals (Dodge, Bates & Pettit, 1990; Herrenkohl, Egolf, & Herrenkohl, 1997; Shields & Cicchetti, 2001; Weiss, Dodge, Bates, & Pettit, 1992). In addition, children exposed to abuse and neglect encounter difficulties accurately interpreting social cues, with a greater tendency to perceive hostility and anger compared to children who have not been maltreated (e.g., Pine et al., 2005; Pollak, Cicchetti, Hornung, & Reed, 2000).

Maltreatment may also contribute to aggressive behavior by interfering with children's emotion regulation abilities. Children who experience maltreatment at the hands of significant others may internalize the experienced hostility, fear, and rejection in ways that lead to difficulties managing frustration and anger, competencies that are necessary for the successful resolution of peer conflicts (e.g., Shields & Cicchetti, 2001). In fact, maltreated children exhibit heightened arousal in response to other's distress or interpersonal conflict and display more anger than their non-maltreated peers (Cummings, Hennessy, Rabideau, & Cicchetti, 1994; Klimes-Dougan & Kistner, 1990; Maughan & Cicchetti, 2002). Such difficulties have been found to mediate the relation between maltreatment and poor social competence with peers (Shields, Cicchetti, & Ryan, 1994).

A Gender-Informed Approach to the Study of Maltreatment and Aggression

Despite considerable theoretical and empirical work linking maltreatment and aggression, at present, we know very little about the ways in which gender may interact with maltreatment experiences in predicting aggression among boys and girls. We argue that a gender-informed approach capable of simultaneously modeling gender-balanced predictors and outcomes is needed. First, evidence suggests that males and females may differ in the ways they experience aggression (Archer & Coyne, 2005; Paquette & Underwood, 1999). Second, different etiologic risks may predict different aggression trajectories for boys and girls (e.g., Crick & Zahn-Waxler, 2003; Moffit & Caspi, 2001; Silverthorn & Frick, 1999). Based on this work, it would be important to examine how different forms of maltreatment, for

example physical and sexual abuse, interact with gender when predicting gender-relevant forms of aggression.

Relational aggression

A gender-informed approach should include relational as well as physical aggression for two reasons. First, although both boys and girls use physical and relational aggression, there are important differences. Boys tend to use physical force or make physical threats more than girls, and girls, when aggressive, are more likely to use relational, indirect, or social aggression over physical means (Archer & Coyne, 2005; Brendgen, Dionne, Girard, Boivin, Vitaro, & Perusse, 2005; Card, Stucky, Sawalani, & Little, in press; Giles & Heyman, 2005; Ostrov & Keating, 2004). In this paper, relational aggression will refer to overtly or covertly socially manipulating behaviors used to harm relationships between two or more individuals. These behaviors include withdrawing friendship, excluding others, or sabotaging someone's relationships with others by spreading vicious rumors (Crick, 1995; for discussion of indirect/social aggression, see Archer & Coyne, 2005; Björkqvist, Lagerspetz, & Kaukiainen, 1992; Galen & Underwood, 1997).

Second, mounting evidence suggests that girls are more attuned to and affected by relational conflicts than boys. Relative to boys, girls perceive relationally aggressive acts as mean and hurtful and experience heightened emotional and physiological distress in response to such behaviors (Coyne, Archer, & Eslea, 2006; Galen & Underwood, 1997; Giles & Heyman, 2005). Furthermore, whereas girls are more likely than boys to view relationally aggressive acts as wrong, boys are more likely than girls to view physically aggressive acts as wrong (Goldstein, Tisak, & Boxer, 2002; Murray-Close, Crick, & Galotti, 2006).

Relational aggression and maltreatment

Through many of the same mechanisms already discussed (e.g., biased social cognitions, dysregulated affect), maltreated children may extend the relational hostility and confusion experienced within their family system into subsequent peer interactions by exhibiting relational aggression. For example, from a social-information processing (SIP) perspective (Crick & Dodge, 1994), relationally aggressive children readily perceive threats in relational conflicts and use relationally aggressive behaviors to increase feelings of inclusion, control social connections, or reduce feelings of jealousy (Crick & Werner, 1998; Grotzinger & Crick, 1996). Maltreated children may learn through their interactions with caregivers that love and affection are given sporadically, can be withdrawn, and are used against others such that when confronted with relational threats in the peer context, they exclude or socially manipulate their peers. Likewise, because maltreatment and relational aggression are associated with heightened dysregulation in response to interpersonal conflicts (Shields, Cicchetti, & Ryan, 1994; Coyne et al., 2006; Crick et al., 2002; Murray-Close & Crick, 2007), maltreated children may react to such conflicts with relational aggression. Preliminary research suggests that maltreated children exhibit significantly higher levels of relational aggression than their non-maltreated peers (Rogosch & Cicchetti, 2005). However, relational aggression was included as part of a larger composite variable used to assess precursors of borderline personality features and was not of primary interest. Thus, the first goal of the present study was to investigate the links between maltreatment and both physical and relational aggression. We expected that maltreatment would emerge as an important predictor of both physical and relational aggression.

Gender as a moderator

The second goal of the present study was to examine whether maltreatment was associated with different forms of aggression for girls and boys. Within the maltreatment literature, the role of gender in the association between maltreatment and aggression has been relatively

understudied. Due to the challenges inherent in this work, researchers have included samples of only one gender, used gender as a main effect variable, or been unable to examine the potential moderating effects of gender due to small samples (e.g., Calverley, Fishcer, & Ayoub, 1994; Kitzmann et al., 2003; McKinnon-Lewis, Volling, Lamb, Dechman, Rabiner, & Curtner, 1994; Trickett, McBride-Chang, & Putnam, 1994; Wolfe et al., 2003). Even when gender has been examined as a potential moderator, few investigations have found significant interactions between it and maltreatment in the prediction of externalizing difficulties (Dodge, Pettit, & Bates, 1994; Sternberg et al., 2006). However, there are at least two reasons to expect that gender would moderate the relation between maltreatment and aggression using a gender-informed approach.

First, children at risk for aggressive behaviors due to experiences of maltreatment are likely to engage in gender-typical conduct when aggressive (i.e., relational aggression for girls and physical aggression for boys). Particularly during the early and middle childhood periods, children play in gender-segregated groups and exhibit behaviors that are consistent with the social norms of their peers (Rose & Rudolf, 2006). Furthermore, girls, but not boys, exhibit relational aggression in response to physiological stress caused by interpersonal provocations (e.g., Murray-Close & Crick, 2007). Thus, maltreated children may be especially likely to employ aggressive behaviors typical of their same-sex peer groups.

Second, research suggests that boys and girls differ in the ways in which they make meaning of their experiences (e.g., Rose & Rudolf, 2006) and in the value they place on various aspects of their relationships (e.g., Buhrmester, 1990; Bukowski, Newcomb, & Hartup, 1996). This may also be the case with respect to experiences of abuse and/or neglect. For example, girls may be more likely than boys to focus on the relational aspects of the maltreating environment, such as love withdrawal or the betrayal of trust within the parent-child dyad. Compared to boys, girls are more likely to focus on and value intimacy, trust, and closeness in their relationships (Coyne et al., 2006; Crick et al., 2002; Rose & Rudolf, 2006; Zahn-Waxler et al., 2006) and to report dissatisfaction, emotional distress, and relational aggression when their relational needs are threatened (Crick et al., 2002; Galen & Underwood, 1997; Werner & Nixon, 2005). Therefore, because a focus on relational stressors is associated with heightened involvement in relational aggression (Crick et al., 2002; Murray-Close & Crick, 2007), we expected that maltreatment would predict especially high levels of relational aggression for girls.

In contrast, maltreated boys may be at particularly high risk for involvement in physical aggression. Boys tend to emphasize physical and instrumental competence in their social interactions with others (Bukowski et al., 1996; Rose & Rudolf, 2006) and are more likely to use physical aggression during instrumental conflict situations (Crick & Werner, 1998; Grotperter & Crick, 1996). As such, maltreated boys may be particularly vulnerable to aspects of the maltreating environment that threaten their own or their loved ones' physical security such that they readily perceive and respond to such threats with physical aggression (Dodge et al., 1990; Cummings et al., 1994).

In sum, experiences of maltreatment may lead to different behavioral problems in males and females. We hypothesized that the effects of maltreatment on physical and relational aggression would be contingent upon the gender of the child, such that maltreatment would predict higher levels of physical aggression among boys and higher levels of relational aggression among girls.

Gender, maltreatment subtypes, and aggression

The final goal of this study was to better understand the associations between specific maltreatment subtypes and aggression using a gender-informed approach. We expected that

subtypes of abuse would differentially predict physical and relational aggression. Specifically, we hypothesized that physical abuse would be associated with physical forms of aggression. Physical abuse has been shown to disrupt SIP and emotional regulation, which in turn have been associated with physical aggression among physically abused children (Dodge, Pettit, Bates, & Valente, 1995; Klimes-Dougan & Kistner, 1990; Rogosch, Cicchetti, & Aber, 1995; Teisl & Cicchetti, 2008). In contrast, although there is a paucity of research in this area, we expected sexual abuse to be associated with relational aggression, because sexual abuse violates aspects of relationships, such as trust and intimacy, which are known to be associated with relationally aggressive behavior patterns (Crick et al., 2002; Howes, Cicchetti, Toth, & Rogosch, 2000).

Specific maltreatment subtypes may be especially important in differentially predicting boys' and girls' aggressive conduct. Findings from the Third National Incidence Study indicate that boys are more likely to sustain physical injuries as the result of maltreatment (Sedlak & Broadhurst, 1996). Furthermore, some research suggests that physical abuse may have more deleterious effects on boys than girls (e.g., Jaffe, Wolf, Wilson & Zak, 1986) and that physically abused boys are more likely than girls to exhibit physical aggression (Cummings et al., 1994). Thus we hypothesized that physical abuse would predict higher levels of physical aggression, particularly for boys.

In contrast, girls are three times more likely than boys to be sexually abused (Sedlak & Broadhurst, 1996) and some researchers have proposed that sexual abuse may be a particularly salient risk factor for girls (e.g., Feiring, Taska, & Lewis, 1999). Girls are not only more likely than boys to experience sexual abuse and, when aggressive, use relationally aggressive behaviors, but compared to boys, they are also more likely to focus on and value intimacy and closeness in their relationships, aspects that become toxic and confusing where sexual abuse occurs (e.g., Howes et al., 2000; Kendall-Tackett, Williams, & Finkelhor, 1993). When needs of relational security are threatened, girls are more likely than boys to show signs of distress and to respond with relational aggression. Furthermore, both sexually abused and relationally aggressive girls display negative self-views and feel more guilt and regret in relation to their interactions with others (e.g., Calverley et al., 1994; Feiring et al., 1999; Morretti, Holland, & Mccay, 2001). For these reasons, we hypothesized that sexual abuse would be associated with higher levels of relational aggression, particularly for girls.

Method

Participants

A total of 410 children who attended a week-long day camp research program for inner-city youth participated in the present study. Demographic characteristics for the sample are shown in Table 1. Participants included 211 (123 boys) maltreated and 199 (90 boys) nonmaltreated children ranging in age from 6 years, 1 month to 12 years, 11 months (average age was 9.93 years). Maltreated and nonmaltreated children did not differ significantly on age, $F(1, 408) = .87, ns$. The majority of children were of an ethnic minority (83.7%). Fifty-six percent of participants were Black, 16.3% were White, 11.2% were Latino/Hispanic (non-black), 13.8% were biracial, .7% were American Indian, and 2.2% were of other ethnicities. Ethnicity was significantly associated with maltreatment, $\chi^2(5, n = 410) = 11.83, p < .05$. Follow-up analyses sequentially comparing each ethnic group against the remainder of the sample revealed a higher than expected level of maltreatment among biracial participants, $\chi^2(1, n = 410) = 7.62, p < .01$, and a lower than expected level of maltreatment among African-American participants, $\chi^2(1, n = 410) = 5.08, p < .05$.

Participants in both maltreatment and comparison groups were from low-income, demographically similar backgrounds based on Hollingshead's (1975) four-factor index of

social status (accounting gender, occupation, education, and family configuration). All children were living with their biological mothers, most of whom were single parents. Maltreated children were recruited based on a history of child maltreatment as reported through the Monroe County (NY) Department of Social Services (DSS). Due to the need to protect the rights of confidentiality, families were initially approached by a DSS staff member. This DSS liaison met with a random sample of families on the DSS rosters who had children ages 6–12. The liaison explained the project to the mother of a target-age child and asked if she were willing to participate. The DSS liaison was careful to stress the voluntary nature of the project in order to avoid feelings of coercion, and assured the mother that her refusal to participate would in no way affect her or her family's status with DSS or access to related services. Once mothers expressed an interest, the DSS liaison asked the mother sign a release form indicating her willingness to be contacted by research staff. Following a similar procedure, non-maltreated participants were recruited from a random sample of families who received Temporary Assistance to Needy Families (TANF). Prior to enrolling in the study, mothers of both maltreated and nonmaltreated children provided written consent to allow trained project staff to examine any existing Department of Social Services (DSS) records.

Several safeguards were used to determine the maltreatment status of the maltreated and non-maltreated comparison group. First, trained staff (doctoral students from Clinical and Social Sciences and clinical psychologists) carefully examined family records at the local Child Protection and Preventive Services to confirm the presence or absence of abuse within the family. Second, mothers of non-maltreated children were interviewed to screen for maltreatment (see Cicchetti, Toth, & Manly, 2003). All maltreated children in the present study had a documented history of family abuse with Child Protection and Preventive Services at the DSS resulting in services through the agency; in contrast, non-maltreated children had no history of abuse in these records or indicators of maltreatment based on interviews.

Specific maltreatment experiences were coded from DSS records using the Maltreatment Classification System (MCS; Barnett, Manly, & Cicchetti, 1993). Previous studies indicate that the MCS is both reliable and valid in classifying maltreatment subtypes (e.g., Bolger & Patterson, 2001; Manly, 2005). Consistent with this research, adequate reliability was obtained for each maltreatment subtype (kappas for physical, sexual, and emotional abuse were 1.00 and .90 for neglect).

The presence of sexual, physical, emotional abuse and/or neglect in each family was assessed using criteria outlined by Barnett, Manly, and Cicchetti (1993) based on the Maltreatment Classification System operational criteria for maltreatment subtypes. The primary emphasis of the MCS subtypes definitions is on the parental behaviors that potentially result in psychological or physical harm to the child. *Sexual abuse* involves any attempted or actual sexual contact between a child and caregiver for the caregiver's satisfaction or financial benefit. *Physical abuse* is the infliction of physical injury on a child other than by accident, such as beatings that result in bruises, choking, or burning a child. *Emotional maltreatment* occurs when caregivers prevent children from obtaining needed psychological safety and security, acceptance, self-esteem, and age-appropriate autonomy (e.g., ridiculing the child, abandoning the child, exposing the child to violence). *Neglect* is the failure to provide for children's basic physical needs and supervision or moral-legal or educational neglect. Neglect may result in lack of adequate food, shelter or clothing, or cause harm or potential harm from lack of supervision. CPS narratives could include information that pertained to several forms of maltreatment. In such cases, information was scrutinized to determine the ways in which the parent's behavior threatened the child. For example, parent alcohol use may have resulted in the inability to provide adequate food or

shelter and would thus be considered neglect, or it could have resulted in physically violent behaviors toward the child while under the influence and therefore be considered physical abuse. The number of children who experienced each subtype based on these definitions is provided in Table 2.

Design and Procedure

Participants attended a week-long summer day camp for inner-city children (for details of this setting, see Cicchetti & Manly, 1990). During the summer camp, children were assigned to groups of approximately 8 ($M = 7.57$, $SD = 1.57$) same-sex and same-age peers. Half of the members in each group were maltreated and half were nonmaltreated. Each group was led by 3 camp counselors who were unaware of participants' maltreatment status or the study hypotheses. During the summer camp, children participated in a number of recreational and research activities, including the completion of instruments assessing the social behaviors of the peers in their group. In addition, camp counselors completed measures assessing the children's behavior in their group following each camp session.

Measures

Given the limitations of many single measures of aggressive conduct, children's physically and relationally aggressive behaviors were assessed using a multi-informant approach.

Peer ratings of aggression—First, children completed ratings of their peers' physically and relationally aggressive behaviors. Children were provided with one item depicting a physically aggressive child ("starts fights, says mean things, pushes or hits others") and one item depicting a relationally aggressive child ("when s/he is mad at someone, refuses to play or talk to the person, will try to get others not to like the person, will spread rumors or talk behind the person's back") and asked to rate how true each item was of each peer in their group on a scale of 0 ("not true") to 2 ("very true"). The rating scores received from each peer in the group were averaged to yield an overall peer rating of physical aggression and relational aggression for each child.

Peer nominations of aggression—For the second measure of aggression, participants completed a peer nomination procedure. Group participation rates ranged from 75% to 100% ($M = 95\%$, $SD = 7\%$). Each child was asked to nominate one child in their group who fit the description of a physically aggressive child (this child "starts fights. He/she says mean things to other kids, or pushes them, or hits them") and a relationally aggressive child (this child, "when he/she is mad at someone, will refuse to play or talk to the person, will try to get others not to like the person, will spread rumors or talk behind the person's back"). The nominations received for each item were summed, standardized within group, and then standardized across all camp participants to yield total relational aggression and total physical aggression peer nomination scores.

Counselor report of aggression—The third measure of children's aggression was an instrument developed in previous research with teachers (Crick, 1996) and adapted to be used by camp counselors (Shields & Cicchetti, 2001). Counselors were provided with statements about physically aggressive behaviors (4 items; e.g., "This child hits or kicks peers"), relationally aggressive behaviors (5 items; e.g., "When mad at a peer, this child ignores the peer or stops talking to the peer"), and prosocial behaviors (4 items, positively-toned filler items) and asked to rate how true each statement was of the target child on a scale from 1 ("never true") to 5 ("almost always true"). Each participating child was rated by two of the three counselors for their group. Subscales were computed by summing across physical and relational aggression items, respectively. These subscales were then averaged across counselors, yielding overall physical and relational aggression scores. Evidence for

the validity of this measure has been demonstrated in previous research (Crick, 1996; Shields & Cicchetti, 2001). Cronbach's alpha demonstrated high reliability of the measures for this sample, with $\alpha = .97$ for physical aggression and $\alpha = .90$ for relational aggression.

Composite aggression scores—Composite physical and relational aggression scores were computed for each participant based on their counselor report, peer nomination, and peer ratings of aggression. Relational aggression scores and physical aggression scores from each method were transformed to z-scores, summed, and then standardized across camp participants to yield a composite relational aggression score and a composite physical aggression score, respectively. The internal consistencies of the composite aggression scales were acceptable, with $\alpha = .70$ for relational aggression and $\alpha = .83$ for physical aggression. In addition, confirmatory factor analyses (CFA) using Mplus were conducted to examine the latent structure of the composite aggression variables. Results of the CFA indicated good fit with counselor reports, peer nominations and peer ratings loading onto physical and relational aggression, respectively, and correlated residuals across informant types ($CFI = 1.0$; $SRMR = .01$). Moreover, all indicators exhibited large and significant loadings on their factor ($M_{loading} = .73$, range = .50 to .97). Finally, nested model comparisons indicated that the model with separate physical and relational aggression factors provided significantly better fit than the model with one latent aggression factor, $\chi^2(1) = 8.34$, $p < .01$. These findings provide support for the validity of the composite physical and relational aggression factors in the present sample.

Means and standard deviations for each aggression measure are listed in Table 3. Peer ratings, peer nominations, and counselor reports of physical and relational aggression were significantly, moderately correlated (see Table 4). In addition, composite aggression scores for physical and relational aggression were strongly, significantly related to peer ratings, nominations, and counselor reports, with r s ranging from .83–.91 and .76–.82, respectively. Composite aggression scores were used in all analyses.

Results

Descriptive information and correlations among age, race, gender, maltreatment, and aggression variables are presented in Table 5.

Maltreatment Status and Aggression

The first two goals of this study were to assess whether maltreatment status was associated with physical and relational aggression and to examine whether this association differed for males and females. We predicted that maltreatment would be associated with both physical and relational aggression. Furthermore, we expected that this relation would be moderated by gender, such that maltreatment would be more strongly related to physical aggression for boys and relational aggression for girls. Correlations between maltreatment status and aggression indicated that experiencing maltreatment was positively correlated with physical ($\phi = .19$, $p < .001$) and relational aggression ($\phi = .17$, $p < .001$). To examine the role of gender in these relations, a series of Analyses of Covariance (ANCOVA) were conducted. Given the overlap between physical and relational aggression ($r = .81$, $p < .001$ in the present sample), the nonfocal form of aggression was entered as a covariate in all analyses. Age and ethnicity were also entered as covariates to control for the potential effects on aggression (Archer & Coyne, 2005; Cillessen & Meyeux, 2004). For these analyses, a four-category ethnicity variable was created representing black, white, biracial and other groups.

First, a 2 (maltreatment status: nonmaltreated vs. maltreated) $\times$ 2 (gender) ANCOVA was conducted with physical aggression serving as the dependent variable and age, ethnicity, and relational aggression entered as the covariates. As depicted in Table 6, the results indicated

significant effects of ethnicity and relational aggression in predicting children's physically aggressive behaviors. Black children ($M = .16$, $SD = 1.05$) were significantly more likely to exhibit physical aggression than white children ($M = -.28$, $SD = 0.72$), $p < .01$, and children of other ethnicities ($M = -.38$, $SD = 0.78$), $p < .01$. Black and biracial children ($M = .08$, $SD = 1.12$) did not differ significantly on physical aggression. In addition, the effect for gender was significant, with boys exhibiting greater levels of physical aggression ($M = .14$, $SD = 1.10$) than girls ($M = -.17$, $SD = .82$) based on the estimated marginal means. Finally, the Gender $\times$ Maltreatment Status interaction was significant. Follow-up planned comparisons revealed that maltreated boys ($M = .24$, $SD = 1.15$) were more physically aggressive than nonmaltreated boys ($M = .04$, $SD = .98$), $p < .05$, nonmaltreated girls ($M = -.16$, $SD = .67$), $p < .001$, and maltreated girls ($M = -.19$, $SD = .95$), $p < .001$.

Second, a 2 (maltreatment status) $\times$ 2 (gender) ANCOVA was conducted with relational aggression serving as the dependent variable and age, ethnicity, and physical aggression entered as the covariates. The results, shown in Table 7, indicated that physical aggression was a significant predictor of relational aggression. In addition, the effect for gender was also significant, with girls displaying greater levels of relational aggression ($M = .11$, $SD = 1.02$) than boys ($M = -.09$, $SD = .97$) based on the estimated marginal means. Finally, the Gender $\times$ Maltreatment Status interaction was also significant. Planned comparisons indicated that maltreated girls ($M = .20$, $SD = 1.13$) were more relationally aggressive than nonmaltreated girls ($M = .03$, $SD = .89$), $p < .05$, maltreated boys ($M = -.13$, $SD = .98$), $p < .01$, and nonmaltreated boys ($M = -.05$, $SD = .94$), $p < .001$.

Subtypes of Maltreatment and Aggression

The third goal of the present study was to examine the association between subtypes of maltreatment and aggression and to investigate whether this relation differed for males and females. We expected that physical abuse would be associated with physical aggression, particularly for boys. In addition, we expected that sexual abuse would predict relational aggression, particularly for girls.

To examine the associations between maltreatment subtypes, gender, and physical and relational aggression, a series of hierarchical multiple regression analyses were computed. For each regression, age, ethnicity, and the non-focal form of aggression were entered into step 1. Ethnicity was dummy-coded into several dichotomous variables representing 'black' (0 = non-black, 1 = black), 'white' (0 = non-white, 1 = white), and 'biracial' (0 = non-biracial, 1 = biracial) groups, with 'other' serving as the reference group. Maltreatment subtypes were then entered into step 2. This allowed us to examine the unique effects of each subtype while controlling for the potential effects of experiencing other forms of maltreatment. Maltreatment subtypes were dummy coded to assess the effects of each subtype (e.g., 0 = not sexually abused, 1 = sexually abused) on aggressive conduct. Finally, to investigate the effects of gender and its potential moderating role in the relation between maltreatment subtypes and aggression, gender (0 = male, 1 = female) and each Subtype $\times$ Gender interaction term was entered into step 3. Due to the high correlation between relational and physical aggression, multicollinearity diagnostics were examined. Tolerance levels (0.3–0.34), Variance Inflation Factors (2.94–3.3), and the standard error of the regression coefficients (0.03) were in acceptable ranges for all regression analyses. Follow-up hierarchical regression analyses were computed separately for boys and girls to break down significant or marginally significant interactions between subtype of abuse and gender. In these analyses, age, ethnicity, non-focal form of aggression, and subtypes from non-significant interaction terms were entered into step 1 and maltreatment subtypes from significant interactions were entered into step 2.

Physical aggression—The results of the regression examining the role of maltreatment subtypes in children's physically aggressive behaviors are presented in Table 8. Thus, findings revealed that age, ethnicity, relational aggression, maltreatment subtypes, gender, and the interactions between maltreatment subtypes and gender accounted for a substantial amount of variance (70%) associated with physical aggression. As shown in Table 8, experiences of maltreatment significantly predicted children's involvement in physical aggression, even after controlling for age, ethnicity, and relational aggression. Tests of individual effects indicated that children who were physically abused had higher levels of physical aggression than those who were not physically abused. The addition of gender and the interaction terms in step 3 resulted in a significant, albeit small (3%) increase in the model R^2 ($p < .001$). Tests of individual effects indicated that boys were more physically aggressive than girls. The Gender x Sexual Abuse interaction was marginally significant ($p = .08$). Due to the conservative nature of these analyses, exploratory follow-up hierarchical regressions were conducted separately for boys and girls. Findings revealed that sexual abuse was significantly associated with physical aggression for girls, such that girls who were sexually abused exhibited lower levels of physical aggression than non-sexually abused girls ($p < .01$).

Relational aggression—The results of the regression examining the role of maltreatment subtypes in children's relationally aggressive behaviors are presented in Table 9. The results indicated that age, ethnicity, physical aggression, maltreatment subtypes, gender, and the interaction between maltreatment subtypes and gender accounted for a substantial amount of variance (68%) in the prediction of relational aggression.

As shown in Table 10, gender and experiences of maltreatment significantly predicted children's involvement in relational aggression, even after controlling for age, ethnicity, and physical aggression. The addition of gender and the interaction terms in step 3 resulted in a significant, although small (2%) increase in the model R^2 ($p < .01$). In addition, the Gender x Sexual Abuse interaction was significant. Follow-up hierarchical regressions were conducted separately for boys and girls. Findings revealed that, as expected, sexual abuse was significantly associated with relational aggression for girls ($p < .01$) but not for boys.

Discussion

This investigation brings together three areas important to the study of development and advances our knowledge in a relatively understudied area of research, namely maltreatment, gender, and relational aggression. Our goal in designing this study was to examine the relations between maltreatment and aggression using a gender-informed approach. In our models we not only examined the associations between children's experiences of maltreatment and aggression, but also the relations between specific subtypes of maltreatment and forms of aggression that are salient to both boys and girls (Crick et al., 2006; Feiring, Taska, & Lewis, 1999). Unlike prior research on maltreatment and aggression (e.g., Dodge, Pettit, & Bates, 1994; MacKinnon-Lewis, et al., 1994; Shields & Cicchetti, 2001), we were able to discern the unique effects of gender and subtypes within a developmental perspective by including gender-relevant independent and dependent variables, while controlling for non-focal forms of aggression in these models.

The first goal of this study was to examine the association between childhood maltreatment and peer aggression by investigating whether children's experiences of maltreatment would significantly predict both physical and relational forms of aggression. Although maltreatment was positively associated with greater levels of both forms of aggression, our findings indicated that we must examine the moderating role of gender in order to understand the associations between maltreatment and aggression. This is consistent with

the second goal of this investigation. In contrast to previous studies (e.g., Sternberg et al., 2006), we found that gender moderated these relations. As expected, whereas maltreated boys exhibited higher levels of physical aggression than maltreated girls and non-maltreated children, maltreated girls displayed higher levels of relational aggression than all other groups. The associations between maltreatment and aggression for boys and girls may be explained in part by children's tendency to use forms of aggression that are consistent with the norms of their peer cultures, particularly during middle childhood. For example, Rose and Rudolf (2006) argue that children are more likely to exhibit sex-linked outcomes of adjustment (in this case, physical aggression among boys and relational aggression among girls) to the degree that they interact with same sex peers. This would be particularly true in the current study where most participants were in middle childhood and all interacted in groups of same sex peers.

Moreover, the unique associations (i.e., significant interactions) between maltreatment and relational and physical aggression for boys and girls indicate that girls and boys not only differ in their expression of aggression, but may internalize the experience of maltreatment in different ways. It is possible that boys and girls attend to and incorporate different aspects of their relationships with caregivers in making meaning of their relationships with peers. For example, maltreated children often display attentional as well as attributional biases that affect how they respond to others, understand their relationships with caregivers, and avoid or attend to threatening stimuli (Cicchetti & Curtis, 2005; Klimes-Dougan & Kistner, 1990; MacKinnon-Lewis, Volling, Lamb, Dechman, Rabiner, & Curtner, 1994; Rogosch et al., 1995; Shields et al., 2001). Future research should explore the ways in which maltreated boys and girls attend to various aspects of the caregiving system and how specific patterns of individual differences in attentional and attributional processes may influence peer interactions.

The third goal of this study was to extend current knowledge about the influence of subtypes of maltreatment in understanding the developmental trajectories of physical and relational aggression for both boys and girls. To address this issue, we conducted several hierarchical multiple regressions which enabled us to first assess the unique contributions of maltreatment subtypes in the prediction of physical and relational aggression, and then to examine the contribution of gender and its potential moderating role on these relations. Findings revealed that maltreatment subtypes contributed significantly to the prediction of physical aggression, above and beyond that accounted for by age, ethnicity, and relational aggression. As expected, physical abuse emerged as a stronger predictor of children's physical aggression than the other maltreatment subtypes examined. These findings are consistent with the view that physical abuse may initiate a pathway to externalizing difficulties, particularly physical aggression (e.g., Dodge, Pettit, & Bates, 1994), whereas experiences of neglect or sexual abuse may foster different developmental outcomes (Bolger & Patterson, 2001; Kim & Cicchetti, 2006). It is also possible that in order to understand how other maltreatment subtypes, such as sexual abuse, affect children's physical aggression, moderating variables, such as gender, need to be examined. Indeed, the findings revealed that the inclusion of gender and the gender by maltreatment subtype interaction terms added a small, but significant amount of variance in the prediction of physical aggression. Follow-up analyses revealed that sexual abuse was associated with lower levels of physical aggression for girls only.

Consistent with this view, results also indicated that gender and its moderating role must be considered when examining the associations between maltreatment subtypes and relational aggression. As hypothesized, findings revealed that sexual abuse was associated with higher levels of relational aggression for girls only, even after statistically controlling for the effects

of age, ethnicity, and physical aggression. In contrast, without gender as a moderator, maltreatment subtypes did not contribute to the prediction of relational aggression.

Taken together, the findings are consistent with a gender-informed model of development and developmental psychopathology (Crick & Zahn-Waxler, 2003; Moffit & Caspi, 2001; Silverthorn & Frick, 1999; Zahn-Waxler et al., 2006) and suggest that we must consider specific maltreatment experiences, especially physical and sexual abuse, within the context of gender when predicting physical and relational aggression.

This investigation addressed several shortcomings present within the maltreatment and aggression literatures. First, unlike many prior studies (Kitzmann et al., 2003; Trickett, McBride-Chang, & Putnam, 1994; Wolfe et al., 2003), this investigation included a large sample of maltreated and nonmaltreated children, comprised of both males and females, so that the moderating role of gender in the association between maltreatment subtype and aggression could be assessed. In contrast to other studies utilizing gender as a control variable (e.g., Bolger & Patterson, 2000), we specifically examined the moderating effects of gender on the relation between maltreatment and aggression. Furthermore, the sample included demographically similar maltreatment and comparison groups, which controlled for the potentially confounding effects of environmental stressors on children's aggression, such as the risks associated with living in poverty. Finally, by investigating children's use of relational aggression among socioeconomically disadvantaged children, our findings add to the emergent literature on children's use of relational aggression among low SES samples (Bonica, Arnold, Fisher, Zeljo, & Yershova, 2003; Sullivan, Farrell, & Kliewer, 2006) and calls into question the notion often perpetuated among the popular press that relational aggression is predominately a problem of middle and upper class children (for a review, see Crick, 2007).

Implications, Limitations, and Future Directions

The current findings have several implications for future research. First, research is needed to understand the mechanisms through which maltreatment and its various subtypes affect the development of physical and relational aggression among boys and girls. Future research should explore whether boys and girls attend to and incorporate particular aspects of maltreating relational systems in ways that lead to their reliance on relational and physical aggression with peers. Of particular investigative interest would be how sexually and physically maltreated girls and boys allocate and control (e.g., initiate, inhibit, and disengage) their attention to real and perceived threats, particularly emotional cues from the environment. For example, attentional biases have been found among physically abused children, such that they over attend to, more readily detect, and demonstrate heightened psychophysiological reactivity to expressions of anger (e.g., Pollak & Sinha, 2002; Pollak & Tolly-Schell, 2003; Pollak et al., 2001). It is possible that boys and girls may exhibit different patterns of attention and control to different features of emotional expressions. For example, sexually abused girls have difficulties controlling intrusive thoughts and report heightened hyperarousal relative to boys (Feiring et al., 1999). These gender differences may have important implications for the development of physical and relational aggression among maltreated boys and girls.

Another important avenue for future research is to examine the ways in which attentional and attributional processes affect the meanings children make of their abusive experiences, and how these interpretations relate to their use of aggression. Such work will be especially important for understanding the links between sexual abuse and relational aggression among girls. For example, compared to non-maltreated girls, sexually abused adolescent girls have more negative, constrictive, and dissociative descriptions of themselves in response to the emotional tone set by those with whom they interact (e.g., Calverley, Fischer, & Ayoub,

1994). Emerging evidence also suggests that negative self-perceptions are related to relationally aggressive behaviors among girls but not boys (Morretti, Holland, & Mcay, 2001). This finding may be associated with girls' tendency to feel guilt, regret, and loss of control following relationally aggressive events (Archer & Parker, 1994). Such feelings may begin during the sexually abusive experience, become internalized as distorted views of oneself in relation to others, and be expressed in the form of relational aggression, which in turn, may bring about more guilt, regret, and loss of control and continued aggressive behaviors.

Given the disruption that maltreatment causes to children's ability to modulate their emotions and behaviors (Maughan & Cicchetti, 2002; Shields & Cicchetti, 2001), future work should also examine how emotional dysregulation relates to children's use of physical and relational aggression among maltreated and non-maltreated children. Such difficulties have been shown to mediate the association between maltreatment and physical aggression (Shields et al., 2001), and given that relationally aggressive children have been shown to exhibit particularly heightened negative emotions and physiological reactivity in response to perceived relationship-oriented threats (Crick, 1995; Murray-Close & Crick, 2007), emotional dysregulation may serve as a vehicle through which maltreatment leads to children's use of relational aggression as well.

Finally, the current investigation represents a concurrent look at how relational and physical forms of aggression are related to maltreatment and how the development of these forms of aggression are highly contextualized (e.g., gender-specific) outcomes of an individual's interactions with his or her environments. However, replication research is needed. In addition, researchers should conduct longitudinal studies that explore the dynamic transactions within, as well as across, specific ecologies (e.g., family, peer, school) to better understand the links between maltreatment, aggression, and gender.

Conclusion

The findings from this study extend our current knowledge and have important implications for theory and research. This investigation represents the first study to specifically examine associations between maltreatment and relational aggression. Although the past decade has witnessed an increased focus on children's experience of relational aggression, few studies have investigated etiological underpinnings of relational aggression or relevant familial risk factors associated with the development of relational aggression. This study adds to existing research by demonstrating that violent and relationally toxic maltreating family systems (often characterized by ambivalence, avoidance, enmeshment, and/or disorganization) affect the extent to which children not only exhibit physical aggression, but also the degree to which they relationally manipulate their peers. This view is consistent with the second major contribution of this work. In this initial attempt to apply a gender-informed approach to the study of maltreatment and aggression, the findings suggest that we need to investigate the patterns of interactions between specific familial risk factors and aggression for both boys and girls. Indeed, our findings indicate that physical abuse may initiate a pathway to physically aggressive behaviors, whereas the developmental pathway for girls' aggression may be best understood when considering their sexual abuse histories and use of relational forms of aggression.

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References

- Archer J, Coyne SM. An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*. 2005; 9:212–230. [PubMed: 16083361]
- Archer J, Parker S. Social representations of aggression in children. *Aggressive Behavior*. 1994; 20:101–114.
- Bandura, A. *Social foundations of thought and action: A social cognitive theory*. Upper Saddle River, NJ: Prentice Hall, Inc; 1986.
- Barnett, D.; Manly, JT.; Cicchetti, D. Defining child maltreatment: The interface between policy and research. In: Cicchetti, D.; Toth, SL., editors. *Advances in Applied Developmental Psychology: Vol. 8. Child Abuse, Child Development and Social Policy*. Norwood, NJ: Ablex; 1993. p. 7-73.
- Björkqvist K, Lagerspetz K, Kaukianen A. Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior*. 1992; 18:117–127.
- Bolger KE, Patterson CJ. Developmental pathways from child maltreatment to peer rejection. *Child Development*. 2000; 72:549–568. [PubMed: 11333084]
- Bolger KE, Patterson CJ. Pathways from child maltreatment to internalizing problems: Perceptions of control as mediators and moderators. *Development and Psychopathology*. 2001; 13:913–940. [PubMed: 11771914]
- Bonica C, Arnold DH, Fisher PH, Zeljo A, Yershova K. Relational aggression, relational victimization, and language development in preschoolers. *Social Development*. 2003; 12:551–562.
- Buhrmester D. Intimacy of friendship, interpersonal competence, and adjustment during preadolescence and adolescence. *Child Development*. 1990; 61:1101–1111. [PubMed: 2209180]
- Bukowski, WM.; Newcomb, AF.; Hartup, WW., editors. *The company they keep: Friendship in childhood and adolescence*. New York: Cambridge University Press; 1996.
- Brendgen M, Dionne G, Girard A, Boivin M, Vitaro F, Perusse D. Examining genetic and environmental effects on social aggression: A study of 6-year-old twins. *Child Development*. 2005; 76:930–946. [PubMed: 16026506]
- Calverley RM, Fischer KW, Ayoub K. Complex splitting of self-representations in sexually abused adolescent girls. *Development and Psychopathology*. 1994; 6:195–213.
- Card NA, Stucky BD, Sawalini GA, Little TD. Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development*. (in press).
- Cicchetti D, Curtis WJ. An event-related potential study of the processing of affective facial expressions in young children who experienced maltreatment during the first year of life. *Development and Psychopathology*. 2005; 17:641–677. [PubMed: 16262986]
- Cicchetti, D.; Manly, JT. A personal perspective on conducting research with maltreating families: Problems and solutions. In: Brody, E.; Sigel, I., editors. *Family Research: Vol. 2: Families at Risk*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc; 1990. p. 87-133.
- Cicchetti D, Toth SL. Child maltreatment. *Annual Review of Clinical Psychology*. 2005; 1:409–438.
- Cicchetti, D.; Toth, SL.; Manly, JT. Unpublished manuscript. Rochester, NY: Mt. Hope Family Center; 2003. Maternal Child Maltreatment Interview.
- Cillessen AHN, Mayeux L. From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development*. 2004; 75:147–163. [PubMed: 15015681]
- Coyne S, Archer J, Elsea M. The frequency and harmfulness of indirect, relational, and social aggression. *Aggressive Behavior*. 2006; 32(4):294–307.
- Crick NR. Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology*. 1995; 7:313–322.
- Crick NR. The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development*. 1996; 67:2317–2327. [PubMed: 9022243]
- Crick NR, Dodge KA. A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychological Bulletin*. 1994; 11:74–101.

- Crick NR, Werner NE. Response decision processes in relational and overt aggression. *Child Development*. 1998; 69:1630–1639. [PubMed: 9914643]
- Crick NR, Zahn-Waxler C. The development of psychopathology in females and males: Current progress and future challenges. *Development and Psychopathology*. 2003; 15:719–742. [PubMed: 14582938]
- Cummings EM, Hennessy KD, Rabideau GJ, Cicchetti D. Responses of physically abused boys to interadult anger involving their mothers. *Development and Psychopathology*. 1994; 6:31–41.
- Dodge KA, Bates JE, Pettit GS. Mechanisms in the cycle of violence. *Science*. 1990; 250:1678–1683. [PubMed: 2270481]
- Dodge KA, Pettit GS, Bates JE. Effects of physical maltreatment on the development of peer relations. *Development and Psychopathology*. 1994; 6:43–55.
- Dodge KA, Pettit GS, Bates JE, Valente E. Social information-processing patterns partially mediate the effect of early physical abuse on later conduct problems. *Journal of Abnormal Psychology*. 1995; 104:632–643. [PubMed: 8530766]
- Feiring C, Taska L, Lewis M. Age and gender differences in children's and adolescents' adaptation to sexual abuse. *Child Abuse & Neglect*. 1999; 23:115–128. [PubMed: 10075182]
- Galen BR, Underwood MK. A developmental investigation of social aggression among children. *Developmental Psychology*. 1997; 33:589–600. [PubMed: 9232374]
- Giles JW, Heyman GD. Young children's beliefs about the relationship between gender and aggressive behavior. *Child Development*. 2005; 76:107–121. [PubMed: 15693761]
- Goldstein SE, Tisak MS, Boxer P. Preschoolers' normative and prescriptive judgments of relational and overt aggression. *Early Education and Development*. 2002; 13:23–39.
- Grotjeter JK, Crick NR. Relational aggression, overt aggression and friendship. *Child Development*. 1996; 67:2328–2338. [PubMed: 9022244]
- Herrenkohl RC, Egolf BP, Herrenkohl EC. Preschool antecedents of adolescent assaultive behavior: A longitudinal study. *American Journal of Orthopsychiatry*. 1997; 67:422–432. [PubMed: 9250343]
- Hollingshead, A. Unpublished manuscript. Yale University; 1975. Four-factor index of social status.
- Howes PW, Cicchetti D, Toth SL, Rogosch FA. Affective, organizational, and relational characteristics of maltreating families: A systems perspective. *Journal of Family Psychology*. 2000; 14(1):95–110. [PubMed: 10740685]
- Jaffe PG, Wolfe D, Wilson S, Zak L. Family violence and child adjustments: A comparative analysis of girls' and boys' behavioral symptoms. *American Journal of Psychiatry*. 1986; 143:74–77. [PubMed: 3942290]
- Kendall-Tackett KA, Williams LM, Finkelhor D. Impact of sexual abuse on children: A review and synthesis of recent empirical studies. *Psychological Bulletin*. 1993; 113:164–180. [PubMed: 8426874]
- Kim J, Cicchetti D. Longitudinal trajectories of self-esteem processes and depressive symptoms among maltreated and nonmaltreated children. *Child Development*. 2006; 77:624–639. [PubMed: 16686792]
- Kitzmann KM, Gaylord NK, Holt AR, Kenny ED. Child witnesses to domestic violence: A meta-analytic review. *Journal of Consulting and Clinical Psychology*. 2003; 71:339–352. [PubMed: 12699028]
- Klimes-Dougan B, Kistner JA. Physically abused preschoolers' responses to peer distress. *Developmental Psychology*. 1990; 26:599–602.
- Manly TJ. Advances in research definitions in child development. *Child Abuse & Neglect*. 2005; 29:425–439. [PubMed: 15970318]
- Maughan A, Cicchetti D. The impact of child maltreatment and interadult violence on children's emotion regulation abilities. *Child Development*. 2002; 73:1525–1542. [PubMed: 12361317]
- McKinnon-Lewis C, Volling BL, Lamb ME, Dechman K, Rabiner D, Curtner ME. A cross-contextual analysis of boys' social competence: From family to school. *Developmental Psychology*. 1994; 30:325–333.

- Moffit TE, Caspi A. Childhood predictors that differentiate life-course persistent and adolescent-limited antisocial pathways among males and females. *Development and Psychopathology*. 2001; 8:399–424.
- Moretti MM, Holland R, McKay S. Self-other representations and relational and overt aggression in adolescent girls and boys. *Behavioral Sciences and the Law*. 2001; 19:109–126. [PubMed: 11241684]
- Murray-Close D, Crick NR. Gender differences in the association between cardiovascular reactivity and aggressive conduct. *International Journal of Psychophysiology*. 2007; 65:103–113. [PubMed: 17481760]
- Murray-Close D, Crick NR, Galotti KM. Children's moral reasoning about physical and relational aggression. *Social Development*. 2006; 15:345–372.
- Ostrov JM, Keating CF. Gender differences in preschool aggression during free play and structured interactions: An observational study. *Social Development*. 2004; 13:255–277.
- Paquette JA, Underwood MK. Gender differences in young adolescents' experiences of peer victimization: Social and physical aggression. *Merrill-Palmer Quarterly*. 1999; 45:242–266.
- Pine DS, Mogg K, Bradley BP, Montgomery L, Monk CS, McClure E, et al. Attention bias to threat in maltreated children: Implications for vulnerability to stress-related psychopathology. *American Journal of Psychiatry*. 2005; 162(2):291–296. [PubMed: 15677593]
- Pollak SD, Cicchetti D, Hornung K, Reed A. Recognizing emotion in faces: Developmental effects of child abuse and neglect. *Developmental Psychology*. 2000; 36:1025–1038.
- Pollak SD, Sinha P. Effects of early experience on children's recognition of facial displays of emotion. *Developmental Psychology*. 2002; 38:784–791. [PubMed: 12220055]
- Rogosch FA, Cicchetti D. Child maltreatment, attention networks, and potential precursors to borderline personality disorder. *Development and Psychopathology*. 2005; 17:1071–1089. [PubMed: 16613431]
- Rogosch FA, Cicchetti D, Aber JL. The role of child maltreatment in early deviations in cognitive and affective processing abilities and later relationship problems. *Development and Psychopathology*. 1995; 7:591–609.
- Rose AR, Rudolf KD. A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin*. 2006; 132:98–131. [PubMed: 16435959]
- Salzinger S, Feldman RS, Hammer M, Rosario M. The effects of physical abuse on children's social relationships. *Child Development*. 1993; 64:169–187. [PubMed: 8436027]
- Sedlak, AJ.; Broadhurst, DD. Executive summary of the Third National Incidence Study of child abuse and neglect. 1996. Retrieved October 27, 2007, from: <http://www.childwelfare.gov/pubs/statsinfo/nis3.cfm#foreward>
- Shields A, Cicchetti D. Parental maltreatment and emotion dysregulation as risk factors for bullying and victimization in middle childhood. *Journal of Clinical Child Psychology*. 2001; 30(3):349–363. [PubMed: 11501252]
- Shields A, Cicchetti D, Ryan RM. The development of emotional and behavioral self regulation and social competence among maltreated school-age children. *Development and Psychopathology*. 1994; 6:57–75.
- Shields A, Ryan RM, Cicchetti D. Narrative representations of caregivers and emotion dysregulation as predictors of maltreated children's rejection by peers. *Developmental Psychology*. 2001; 37:321–337. [PubMed: 11370909]
- Silverthorn P, Frick PJ. Developmental pathways to antisocial behavior: The delayed-onset pathway in girls. *Development and Psychopathology*. 1999; 11:101–126. [PubMed: 10208358]
- Sternberg KJ, Baradaran LP, Abbott CB, Lamb ME, Guterman E. Type of violence, age, and gender differences in the effects of family violence on children's behavior problems: A mega-analysis. *Developmental Review*. 2006; 26:89–112.
- Sullivan TN, Farrell AD, Kliewer W. Peer victimization in early adolescence: Association between physical and relational victimization and drug use, aggression, and delinquent behaviors among urban middle school students. *Development and Psychopathology*. 2006; 18:119–137. [PubMed: 16478555]

- Teisl M, Cicchetti D. Physical abuse, cognitive and emotional processes, and aggressive/disruptive behavior problems. *Social Development*. 2008; 17:1–23.
- Trickett PK, McBride-Chang C, Putnum F. The classroom performance and behavior of sexually abused females. *Development and Psychopathology*. 1994; 6:183–194.
- Troy M, Sroufe LA. Victimization among preschoolers: Role of attachment relationship history. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1987; 26:166–172. [PubMed: 3584012]
- Weiss B, Dodge KA, Bates JE, Pettit GS. Some consequences of early harsh discipline: Child aggression and maladaptive social information processing style. *Child Development*. 1992; 63:1321–1335. [PubMed: 1446555]
- Werner NE, Nixon CL. Normative beliefs and relational aggression: An investigation of the cognitive bases of adolescent aggressive behavior. *Journal of Youth and Adolescence*. 2005; 34:229–243.
- Wolfe DA, Crooks CV, Lee V, McIntyre-Smith A, Jaffe PG. The effects of children's exposure to domestic violence: A meta-analysis and critique. *Clinical Child and Family Psychology Review*. 2003; 6:171–187. [PubMed: 14620578]
- Zahn-Waxler, C.; Crick, NR.; Shirtcliff, R.; Woods, KE. Gender and psychopathology: Conceptual, methodological, statistical, and substantive issues. In: Cicchetti, D.; Cohen, D., editors. *Handbook of Developmental Psychopathology Vol 3: Theory and method*. 2. New York: Wiley; 2006. p. 76-138.

Table 1

Demographic Characteristics of Sample by Gender and Maltreatment Status

Variable	Whole Sample (N = 410)	Gender		Maltreatment Status	
		Boys (N = 213; 52%)	Girls (N = 197; 48%)	Maltreated (N = 211; 51.5%)	Nonmaltreated (N = 199; 48.5%)
Age	9.93 (1.81)	9.85 (1.86)	10.00 (1.75)	9.97 (1.86)	9.88 (1.75)
White	67 (16.34%)	28 (6.83%)	39 (9.51%)	40 (9.76%)	27 (6.59%)
Minority	343 (83.67%)	185 (45.12%)	158 (38.54%)	171 (41.71%)	172 (41.95%)
Black	228 (55.61%)	120 (29.27%)	108 (26.34%)	106 (25.85%)	122 (29.76%)
Latino/Hispanic	46 (11.22%)	29 (7.07%)	17 (4.15%)	21 (5.12%)	25 (6.10%)
Biracial	57 (13.90%)	31 (7.56%)	26 (6.34%)	39 (9.51%)	18 (4.39%)
American Indian	3 (0.73%)	3 (0.73%)	0 (0%)	1 (0.24%)	2 (0.49%)
Other	9 (2.20%)	2 (0.49%)	7 (1.71%)	4 (0.98%)	5 (1.22%)
Boys	213 (52%)			123 (30.00%)	90 (21.95%)
Girls	197 (48%)			88 (21.46%)	109 (26.59%)

Note. Values for age = mean age (standard deviation). All other values indicate frequencies (percent of whole sample).

Table 2

Frequencies and Percentages of Maltreated Children by Maltreatment Subtype (N = 410)

	Maltreatment Subtype			
	Sexual Abuse	Physical Abuse	Neglect	Emotional Maltreatment
Presence (1)	31 (7.6%)	104 (25.4%)	169 (41.2%)	147 (35.9%)
Absence (0)	379 (92.4%)	306 (74.6%)	241 (58.8%)	263 (64.1%)

Table 3
Means and Standard Deviations of Relational and Physical Aggression Measures by Gender and Maltreatment Status

Measures	Gender						Maltreatment Status			
	Boys (N = 213)			Girls (N = 197)			Maltreated (N = 211)		Nonmaltreated (N = 199)	
	M	SD		M	SD		M	SD	M	SD
Relational Aggression										
Peer Ratings	0.01 (1.01)		0.17 (1.00)	-0.17 (0.98)		0.22 (1.10)		-0.22 (0.85)		
Peer Nominations	0.01 (1.01)		0.03 (1.02)	0.00 (1.00)		0.10 (1.07)		-0.07 (0.93)		
Counselor Reports	0.01 (1.01)		0.05 (0.98)	-0.04 (1.04)		0.12 (1.03)		-0.11 (0.98)		
Composite Variable	0.00 (1.00)		0.09 (0.97)	-0.10 (1.02)		0.17 (1.04)		-0.18 (0.92)		
Physical Aggression										
Peer Ratings	0.01 (1.01)		0.25 (1.07)	-0.25 (0.87)		0.19 (1.09)		-0.18 (0.87)		
Peer Nominations	0.01 (1.01)		0.02 (1.02)	0.00 (1.00)		0.13 (1.09)		-0.11 (0.90)		
Counselor Reports	0.00 (1.01)		0.35 (1.15)	-0.37 (0.66)		0.21 (1.11)		-0.21 (0.85)		
Composite Variable	0.00 (1.00)		0.23 (1.10)	-0.24 (0.82)		0.19 (1.10)		-0.20 (0.84)		

Table 4

Correlations among Relational and Physical Aggression Measures (N = 410)

Variable	Correlations					
	1	2	3	4	5	6
1. Relational Aggression – Peer Ratings	—					
2. Relational Aggression – Peer Nominations	0.53	—				
3. Relational Aggression – Counselor Reports	0.43	0.37	—			
4. Physical Aggression – Peer Ratings	0.79	0.59	0.45	—		
5. Physical Aggression – Peer Nominations	0.54	0.71	0.35	0.65	—	
6. Physical Aggression – Counselor Reports	0.60	0.44	0.50	0.72	0.51	—

Note. All correlations are statistically significant at $p < .001$.

Table 5

Means, Standard Deviations, and Correlations among Age, Ethnicity, Gender, Maltreatment, and Aggression (N = 410)

Variables	Correlations											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	—											
2. Ethnicity (Black)	.09 ⁺	—										
3. Ethnicity (White)	-.04	-.50***	—									
4. Ethnicity (Biracial)	-.12*	-.45***	-.18***	—								
5. Gender	.04	-.02	.09 ⁺	-.02	—							
6. Maltreatment Status	.03	-.11*	.07	.14**	-.13**	—						
7. Emotional Maltreatment	.05	-.11*	.10 ⁺	.08 ⁺	-.15**	.73***	—					
8. Neglect	.07	-.04	.03	.08	-.07	.81***	.62***	—				
9. Physical Abuse	.11*	-.07	.00	.09 ⁺	-.12*	.57***	.43***	.41***	—			
10. Sexual Abuse	.04	-.10*	.12*	.05	.02	.28***	.25***	.25***	.22***	—		
11. Relational Aggression	-.06	.11*	-.11*	.13*	-.10 ⁺	.17***	.11*	.15**	.16**	.06	—	
12. Physical Aggression	-.06	.18***	-.13*	.03	-.24***	.19***	.14**	.16**	.22***	.02	.81***	—
<i>M</i>	9.93	0.56	0.16	0.14	0.48	0.51	0.36	0.41	0.25	0.08	0.00	0.00
<i>SD</i>	1.81	0.50	0.37	0.35	0.50	0.50	0.48	0.49	0.44	0.27	1.00	1.00

Note. Ethnicity (Black): 0 = non-black, 1 = black; Race (White): 0 = non-white, 1 = white; Race (Biracial): 0 = non-biracial, 1 = biracial; Gender: 0 = male, 1 = female; Maltreatment Status: 0 = non-maltreated, 1 = maltreated; Emotional Maltreatment: 0 = non-emotionally maltreated, 1 = emotionally maltreated; Neglect: 0 = non-neglected, 1 = neglected; Physical Abuse: 0 = non-physically abused, 1 = physically abused; Sexual Abuse: 0 = non-sexually abused, 1 = sexually abused.

⁺ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 6

Summary of Analysis of Covariance (ANCOVA) for Variables Predicting Physical Aggression (N = 410)

Variable	<i>df</i>	<i>F</i>	<i>p</i> η^2	<i>p</i>
Age	2	0.26	.001	.61
Ethnicity	2	8.69 **	.02	.003
Relational aggression	2	720.76 ***	.64	<.001
Gender	2	30.54 ***	.07	<.001
Maltreatment status	2	2.34	.006	.13
Maltreatment status $\times$ gender	2	4.23 *	.01	.04

*
 $p < .05$.**
 $p < .01$.***
 $p < .001$.

Table 7

Summary of Analysis of Covariance (ANCOVA) for Variables Predicting Relational Aggression (N = 410)

Variable	<i>df</i>	<i>F</i>	<i>p</i> η^2	<i>p</i>
Age	2	0.21	.001	.65
Ethnicity	2	0.54	.001	.47
Physical aggression	2	720.76 ***	.64	<.001
Gender	2	11.77 **	.03	.001
Maltreatment status	2	0.75	.002	.39
Maltreatment status $\times$ gender	2	4.68 *	.01	.03

*
 $p < .05$.**
 $p < .01$.***
 $p < .001$.

Table 8

Summary of Hierarchical Regression Analysis for Variables Predicting Physical Aggression (N = 410)

Variable	Step 1			Step 2			Step 3		
	B	SE B	β	B	SE B	β	B	SE B	β
Age	-.02	0.02	-.03	-.02	0.02	-.04	-.02	0.02	-.03
Ethnicity									
Black versus Other	0.13	0.09	.06	0.14	0.09	.07	0.15	0.09	.08 ⁺
White versus Other	-.03	0.11	-.01	-.02	0.11	-.01	0.02	0.10	.01
Biracial versus Other	-.13	0.11	-.05	-.14	0.11	-.05	-.13	0.11	-.05
Relational aggression	0.80	0.03	.80 ^{***}	0.78	0.03	.78 ^{***}	0.78	0.03	.78 ^{***}
Emotional maltreatment				0.08	0.08	.04	0.09	0.10	.04
Neglect				0.01	0.08	.00	-.05	0.10	-.03
Physical abuse				0.22	0.08	.10 ^{**}	0.28	0.10	.12 ^{**}
Sexual abuse				-.020	0.11	-.05	0.04	0.16	.01
Gender							-.24	0.08	-.12 ^{**}
Emotional maltreatment $\times$ gender							-.15	0.16	-.05
Neglect $\times$ gender							0.18	0.15	.07
Physical abuse $\times$ gender							-.20	0.15	-.06
Sexual abuse $\times$ gender							-.40	0.22	-.08 ⁺
R^2		.66			.67			.70	
F for change in R^2		154.82 ^{***}			4.02 ^{**}			6.96 ^{***}	

Note. Ethnicity was represented as three dummy variables with "Other" (i.e., neither black, white, nor biracial) serving as the reference group.

⁺ $p < .08$.

* $p < .05$.

** $p < .01$.

*** $p < .001$

Table 9
Summary of Hierarchical Regression Analysis for Variables Predicting Relational Aggression (N = 410)

Variable	Step 1			Step 2			Step 3		
	B	SE B	β	B	SE B	β	B	SE B	β
Age	0.00	0.02	.01	0.00	0.02	.01	0.00	0.02	.00
Ethnicity									
Black versus Other	0.08	0.09	.04	0.08	0.09	.04	0.07	0.09	.03
White versus Other	0.08	0.11	.03	0.06	0.11	.02	0.04	0.11	.02
Biracial versus Other	0.36	0.11	.13**	0.35	0.11	.12**	0.34	0.11	.12**
Physical aggression	0.80	0.03	.80***	0.80	0.03	.80***	0.83	0.03	.83***
Emotional Maltreatment				−0.05	0.08	−.03	−0.07	0.10	−.04
Neglect				0.06	0.08	.03	0.09	0.10	.04
Physical Abuse				−0.08	0.08	−.03	−0.13	0.10	−.06
Sexual Abuse				0.20	0.12	.05	−0.07	0.16	−.02
Gender							0.12	0.08	.06
Emotional maltreatment $\times$ gender							0.11	0.17	.04
Neglect $\times$ gender							−0.10	0.16	−.04
Physical abuse $\times$ gender							0.16	0.15	.05
Sexual abuse $\times$ gender							0.48	0.23	.09*
R^2		.66			.66			.68	
F for change in R^2		155.70***			1.08			3.67**	

Note. Ethnicity was represented as three dummy variables with "Other" (i.e., neither black, white, nor biracial) serving as the reference group.

* $p < .05$.

** $p < .01$.

*** $p < .001$.