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## Contingent Responses of Mothers and Peers to Indirect and Direct Aggression in Preschool and School-Aged Children

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### Abstract

The primary goal of the study was to determine whether mother and peer's responses to direct and indirect aggression would contribute to children's use of direct and indirect aggression. Using adaptations of the Direct and Indirect Aggression Scale, a multi-informant strategy, and a sample of disadvantaged families, data were collected from 296 mothers of children ages 4–11; 237 children ages 6–11; and 151 teachers of those children. Mothers and peers were reported to react more harshly in response to direct aggression compared to indirect aggression, and higher rates of direct aggression were associated with reduced popularity. These findings were seen as being consistent with the hypothesis that different forms of aggression result in differential responding by mothers and peers, as well as the notion that direct aggression is a higher cost option than indirect aggression. Results also replicated previous findings that boys tend to use physical aggression more than girls, but girls use indirect aggression more than boys. Finally, low IQ was correlated with higher direct aggression in girls but had no relation with aggression in boys.

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In an attempt to understand the different ways in which children express aggression, factors influencing the use of indirect aggression have received increased attention. Indirect aggression was originally defined as “a type of behavior in which the perpetrator attempts to inflict pain in such a manner that he or she [often] makes it seem as though there has been no intention to hurt at all” (Björkqvist, Lagerspetz, & Kaukiainen, 1992, p.118), and was distinguished from direct aggression, characterized by “straightforward attacks that are often visible, disruptive, and frightening even to the spectators” (Salmivalli, Kaukiainen, & Lagerspetz, 2000, p.18). Indirect aggression included such acts as gossiping, excluding a child from the play group, or writing critical notes about a targeted child. In indirect aggression, the aggressor often uses others in the social group to harm the target and may avoid direct confrontation, whereas in direct aggression, the aggressor either physically or verbally confronts the target. Closely related to indirect aggression are forms of aggression labeled relational aggression (c.f. Crick & Grotpeter, 1995) or social aggression (c.f. Glen & Underwood, 1997), which have been operationalized as children using the peer group to damage another child's social relationships or social standing. Although subtle differences in the conceptual frameworks underlying indirect, relational, and social aggression have been offered (e.g., Underwood, 2003), based on an integrated review of the literature, Archer and Coyne (2005) concluded that indirect aggression was the preferred superordinate category and that knowledge of aggression would be better advanced by focusing on the common essential features of indirect aggression. Thus, the present study focused on indices of indirect aggression.

Early research concluded that indirect aggression was predominantly used by girls (Björkqvist, Lagerspetz et al., 1992; Björkqvist, Österman, & Kaukiainen, 1992; Cairns, Cairns, Neckerman, Ferguson, & Gariépy 1989; Lagerspetz & Björkqvist, 1994; Lagerspetz,

Björkqvist, & Peltonen, 1988; Österman, Björkqvist, Lagerspetz, Kaukianen, Landau et al., 1998; Richardson & Green, 1999; Russell & Owens, 1999; Salmivalli et al., 2000), but more recent data suggest the picture is not quite so clear. A meta-analysis of sex differences in aggression in “real-world” settings (Archer, 2004) indicated that greater indirect aggression by females was a function of the method used, with the largest effect sizes obtained with observational methods ( $d = -.74$ ), followed by peer ratings ( $d = -.19$ ), and teacher reports ( $d = -.13$ ). A later study based on maternal report demonstrated that indirect aggression is common among boys (e.g., Vaillancourt, Brendgen, Boivin, & Tremblay, 2003). Moreover, using peer nominations and self-report, Salmivalli and Kaukianen (2004) documented high rates of indirect aggression by boys; however, a cluster analysis identified a group of highly aggressive girls who predominantly displayed indirect aggression whereas the highly aggressive boys were directly and indirectly aggressive. Similarly, in an analysis of trajectory groups based on mother reports, girls were more likely than boys to be in the group characterized by increasing indirect aggression across development (Vaillancourt, Miller, Fagbemi, Côté, & Tremblay, 2007). Thus based on meta-analysis and more recent work, gender differences in indirect aggression are not unequivocal and are at least somewhat a function of method used, but there is also the possibility that some variables might differentially influence the development of indirect aggression in boys and girls.

Björkqvist, Österman et al., (1992) initially placed the age at which children predominantly use indirect aggression at about age 11, with a trajectory of growth between ages 8 and 11. Although there was a presumption that indirect aggression would not be evidenced in young children, Crick et al., (1999) reported examples of verbal aggression in preschool children that were seen as precursors of relational aggression. Moreover, recent reports based on longitudinal samples derived from the National Longitudinal Survey of Children and Youth (NLSCY) in Canada indicated that some children evidenced indirect aggression as young as 4 years of age, and evidenced an increasing trajectory in indirect aggression to age 8 (Vaillancourt et al., 2007). Although based on maternal reports, with only 35% of the mothers reporting indirect aggression in young children, these findings indicate indirect aggression can occur at a young age among some children.

Evidence regarding gender differences and developmental trajectory groups establishes the need to identify variables that could contribute to growth in indirect aggression with age among some children, and differentially affect indirect aggression in boys and girls. The most common explanation for such patterns is a social-cognitive-developmental model. Originally using the model to account for gender differences, Björkqvist and colleagues (e.g. Björkqvist, Lagerspetz et al., 1992; Björkqvist, Österman et al., 1992; Lagerspetz & Björkqvist, 1994) posited that, because girls’ verbal competence matures earlier than boys, girls would move from physical aggression to verbal aggression, and then, with the maturation of social-cognitive skills, to indirect aggression more rapidly than boys. Advocates of this model assume that verbal competence and social intelligence are prerequisites for indirect aggression. In a test of that model, Kaukiainen, Björkqvist, Lagerspetz, Österman, Salmivalli, Rothberg, et al., (1999), found that social competence was positively correlated with indirect aggression and negatively correlated with direct aggression. However, using an accelerated longitudinal design based on the NLSCY, Vaillancourt et al., (2003) failed to find support for the developmental hypothesis. Rather, physically aggressive children remained physically aggressive and indirectly aggressive children remained indirectly aggressive across time (Vaillancourt et al., 2003). More recently, new studies based on the NLSCY established different direct- and indirect-aggression trajectory groups that suggested a developmental course for indirect aggression among some children (Vaillancourt et al., 2007), but an attempt to link that developmental trajectory to age-4 verbal competence was unsuccessful (Côté, Vaillancourt, Barker, Nagin, & Tremblay, 2007). Although the findings were inconsistent with the simplest form of the cognitive-developmental model, the Côté et al. (2007) study was not a critical test of the model.

That is, the index of indirect aggression had a truncated range because it was based on only 5 items rather than all 12 items of the Björkqvist, Lagerspetz et al. Indirect Aggression Scale, and the Peabody Picture Vocabulary Test administered at age 4 might not have adequately sampled the full range of verbal competence. Thus, one goal of the present study was to determine whether measured verbal and full scale intelligence was related to the expression of direct and indirect aggression.

An alternative explanation for the Vaillancourt et al. (2003) and Côté et al. (2007) findings, as well as cross sectional studies identifying age differences in forms of aggression, can be derived from an extension of social learning theories. These theories (e.g., Bandura, 1973; Patterson, 1982) attempt to explain the development of aggression by considering the proximal and distal consequences of aggressive acts. Growth in aggression is presumed to reflect, in part, the positive and negative reinforcers that are experienced following aggressive acts. Although social learning theories have been applied to explain many aspects of direct aggression (Archer, 2001; Eron, 1994; Guerra, Nucci, & Huesmann, 1994; Patterson, Reid, & Dishion, 1992), growth in indirect aggression as a function of reinforcing consequences has not been studied. Importantly, Archer and Coyne (2005) called for studies of the consequences of indirect aggression experienced by perpetrators, and the need to assess the social reinforcement of indirect aggression was implicated by data presented by Vaillancourt and Hymel (2004, 2006). Thus, a second goal of the present study was to determine whether positive consequences from mothers and peers might contribute to the development of indirect aggression.

Although the possible role of contingent positive reinforcement in the development of indirect aggression has not been examined, some research has examined the possible role of negative consequences from peers as a source of gender differences and developmental trends in indirect aggression. For example, Björkqvist, Lagerspetz et al., (1992) argued that children who use direct aggression are socially rejected and disliked by their peers; as a result, children adopt indirect methods to attack an adversary to avoid aversive consequences. Additionally, anonymity in indirect aggression is thought to be an effort to avoid retaliation (Archer, 2001) and, when placed in an evolutionary or game-theoretic context, indirect aggression has been seen as having lower cost than direct aggression (see Archer & Coyne, 2005). Supporting that notion, Salmivalli et al., (2000) found that physical and verbal aggression leads to peer-rejection for both genders, whereas indirect aggression does not lead to peer-rejection and can be associated with peer-acceptance when used by boys. Therefore, a third goal of the present study was to determine whether children experience aversive consequences for the use of direct and indirect methods of aggression, and whether aversive contingencies contribute to either age or gender differences in types of aggression displayed.

The measurement of indirect aggression was initially based on peer ratings, and it could be argued that the procedure is preferred. However, the bulk of recent work, reflected in the many large-sample studies from the Canadian NLSCY, has used mother informants, while some studies have included self-reports (e.g. Salmavalli & Kaukianinen, 2004). With some findings regarding indirect aggression being attributed to source differences (e.g. Salmavalli & Kaukianinen, 2004), and the Archer (2004) meta-analysis indicating gender differences are a function of method, it is apparent that research on indirect aggression cannot rely on a single method or source of data. Indeed, Vaillancourt et al., (2007) identified the sole use of maternal report as a potential limitation of their important study. When studies of indirect aggression are placed in the context of other studies of child behavior (e.g., Achenbach, McCounaughy, & Howell, 1987), it seems probable that multiple informants would yield different pictures of indirect aggression. Moreover, to the extent that persons in different contexts can observe different expressions of behavior (Culp, Howell, Culp, & Blankemeyer, 2001; La Greca & Stone, 1992; Phares, 1997), it is probable that informants from different contexts would assess

a child's direct and indirect aggression differently. Therefore, the present study adopted a multisource methodology, with data collected from the child's mother, his/her teacher, as well as the child.

In summary, the present study was primarily designed to determine whether positive and aversive consequences meted by parents and peers would contribute to age and gender differences in the use of indirect and direct aggression in children. A related goal was to determine whether acceptance or rejection by peers would be associated with rates of direct and indirect aggression. To test one central assumption of the social cognition/social development model of the development of indirect aggression, the study examined whether the use of indirect aggression was related to the intellectual status of the children. Finally, the study assessed whether there were systematic differences in the reporting of direct and indirect aggression by different sources of information (i.e. mother report, self-report, teacher report) and the level of concordance among informants with regards to the different types of aggression displayed by the child.

## Method

### Participants

Mothers of 296 children between the ages of 4 and 11 years ( $M = 7.11$ ) were recruited from two counties in southeastern Iowa ( $n = 189$ ) and a single county in extreme north central Wisconsin ( $n = 107$ ). The children in the sample were 70% White (non-Hispanic), 20% Black, and 10% other (i.e., Hispanic, Native American, and Multi-ethnic/Multiracial). Families had been enrolled in either of two on-going longitudinal studies designed to examine the social development of children from circumstances of disadvantage. Families were eligible to participate in the longitudinal studies if they received any form of service from the Iowa Department of Human Services (IDHS) or the Oneida County Department of Social Services (OCDSS) during the three months preceding enrollment. Children who were in an out-of-home placement, were known to have been sexually abused, or were actively enrolled in intensive interventions related to parenting were excluded from the eligibility list provided by the state or county agencies. Children who had been identified as neglected or physically abused were eligible to participate in both projects. Because one project was also designed to enhance the enrollment of families in which domestic violence had occurred, monthly records of indictable domestic assault from the offices of the county attorneys were also used to identify potential subjects. Because exposure to domestic violence constitutes neglectful parenting in both Iowa and Wisconsin, families enrolled in the other project could also have been characterized by domestic violence. Thus, the two projects from which the present sample was recruited had enrolled families who were drawn from essentially the same high-risk population and who were recruited using an identical protocol. Parents of eligible children were contacted either by mail or telephone to inform them of their eligibility to participate in research for which they would receive compensation. The informed consent and enrollment in both parent projects occurred during an in-home interview with the parent; all other variables were assessed in laboratory sessions. Mothers were compensated \$50 per session and children could select a toy valued at \$10 or \$10 cash. The measures for the present study were obtained during one of the laboratory visits during the first, second, or third year of participation in the parent projects. Whether the data for the present study were collected in the first year or a follow-up year merely reflected where the families were in the parent projects when the present study commenced. Thus, there was no subject selection in the current study; data were collected continuously when the mother and child were scheduled for a session. Importantly, neither parent project involved an intervention to influence child behavior or parenting. Additionally, the projects were conducted under a Certificate of Confidentiality and the protocol explicitly precluded informing the social service agencies whether families elected to enroll or not enroll

in the project. Thus, there were no social service inducements to participate in the research; subjects were informed that their enrollment would not be reported to the service agencies and would not affect their eligibility for any services. Because of the complexity of the recruitment process that was approved by the sentinel agencies and the IRB, it is impossible to determine unequivocally the number of eligible subjects who were actually contacted (i.e., read the recruitment letters). Indirect evidence derived from telephone contacts, returned letters, and focus groups with the targeted population suggests that approximately 55–65% of the contacted families scheduled an initial home visit. Less than 1% of those scheduling an in-home recruitment visit declined to participate.

## Measures

**DIAS Interview: Parent Version**—To assess the mother’s report of the child’s use of indirect and direct aggression, as well as her reinforcement and punishment of those behaviors, a structured interview was derived from the Direct and Indirect Aggression Scale (DIAS; Björkqvist, Lagerspetz, & Österman, 1992), with permission from the authors. The DIAS consists of 24 items: 12 items on the Indirect Aggression Scale (e.g., exclude child from the peer group, gossip about the other child), 7 Physical Aggression items (e.g., kicking, hitting, and taking things from the other child), and 5 Verbal Aggression (e.g., yelling/arguing with the other child, name calling) items. Each item is rated for frequency of occurrence on a 5 point Likert scale (0 = never, 1 = rarely, 2 = sometimes, 3 = almost always, and 4 = always). An aggregate score for each aggression type was calculated by summing each item of the appropriate subscale. Scores could range from 0 to 28 for Physical Aggression, from 0 to 20 for Verbal Aggression, and from 0–48 for Indirect Aggression. After rating the frequency of the specific aggressive acts, the mother was asked: “Can you describe the last time your child did [the aggressive act], please include when it happened, who was involved, and how you responded to your child.” Furthermore, to assess the target of the child’s aggression, the mothers were asked to recall who the target of their child’s aggression had been. This descriptive information was used to determine the mother’s responses to the various aggressive acts. The most recent act was selected to minimize the role of memory effects and specific acts were used to minimize speculative summaries by the mothers. The items were reordered from the original DIAS to group like-category items together; the Physical items were assessed first, Verbal assessed second, and Indirect third. Cronbach’s alphas for each of the three interview subscales (Physical, Verbal, and Indirect a) were: .69, .71, and .63, respectively (total scale  $\alpha = .81$ ).

**DIAS Interview: Child Version (6–11 years old)**—To assess the child’s report of the use of direct and indirect aggression, as well as experienced contingencies, a structured interview paralleling the parent interview was used. Children were asked if they had engaged in each of the 24 aggressive acts, with the range of scores comparable to the parent interview. To assess parental reinforcement and punishment of specific aggressive acts, for each act the child was asked: “What DID your mom do or say to you the last time you [engaged in aggressive act] when you were mad?” Given the covert nature of some of the indirect aggression items and reports that aggressive acts occur within the peer group (Björkqvist, 2001), children were also asked to report how their friends reacted to the endorsed aggressive acts. Therefore, in order to assess peer reinforcement and punishment of aggressive expressions, for each form of aggression in which the child reported engaging, the child was also asked: “What DID your friends do or say to you the last time you [engaged in aggressive act] when you got mad?” Because pilot data indicated that children under 6 years of age could not respond reliably to the structured interview, it was only administered to children aged 6–11 ( $N = 237$ ). Cronbach’s alpha for the Physical, Verbal, and Indirect Aggression subscales were .78, .76 and .81 respectively, and .89 for the total scale.

**Teacher DIAS Questionnaire**—Indirect and direct aggression of the children enrolled in school was assessed by teachers completing a questionnaire based on the original peer nomination version of the DIAS. The teachers were only asked to rate the frequency of occurrence of each of the 24 types of aggressive behavior for the subject who was enrolled in his or her class. To assure that the teacher was familiar with the behavior of the child, the questionnaire was mailed to the teacher after the child had been enrolled in the class for at least 4 months. For their participation, teachers received a \$20 honorarium—151 of 296 teachers completed the questionnaire. Cronbach's alpha for the Physical, Verbal, and Indirect Aggression subscales were .86, .89, and .92 respectively, and .94 for the total scale.

**Teacher Predictions of Peer Nominated Aggression**—Subjects were enrolled in over 20 school districts in four counties in two states. Few school districts would permit peer nominations in classrooms attended by enrolled subjects. Thus, it was impossible to obtain peer nominations to assess social status. As an alternative, the Teacher Predictions of Peer Nominations (TPPN; Huesmann, Eron, Guerra, & Crawshaw, 1994) was completed by the teachers. Although the full instrument was administered, only the Popularity and Rejection scales were used. On the TPPN, teachers indicate the percentage of the child's classmates who would endorse each of the questions that comprised a subscale on a Likert-type scale (e.g., 1 = 0%, 2 = 1–5%, 3 = 6–10%, 4 = 11–25%, 5 = 26–50%, 6 = 51–75%, 7 = over 75%). According to Huesmann et al. (1994), the measure has adequate reliability ( $\alpha = .72$  for Popularity Scale and .70 for the Rejection scale), but some degree of gender bias on the Popularity Scale required statistical control of gender. Cronbach's alphas for the present study were .90 for the Popularity Subscale and .86 for the Rejection Subscale.

**Wechsler Abbreviated Scale of Intelligence**—To assess verbal and general intelligence, children were administered the *Wechsler Abbreviated Scale of Intelligence* (WASI; Wechsler, 1999). The WASI includes a 2-subtest Performance IQ score and a 2-subtest Verbal IQ score; the two IQ scores are combined to create a Full Scale IQ (FSIQ) estimate. Most subjects were administered the WASI during the initial year of enrollment in the parent project, but some children were administered the WASI during a follow-up year, when the minimum age of 6 was reached.

## Procedures

Trained research assistants administered the DIAS interview individually to children and mothers from one project during the third session of either the first- or the second-year follow-up. Children and mothers from the second project were administered the interview during the fourth or fifth session of the initial year. Mother and child responses to the DIAS interview regarding the occurrence and consequences of the 24 aggressive acts were recorded verbatim. For each aggressive act, the mother's reported reaction to the child's behavior, as well as the child's report of the mother's reaction to an aggressive act were later classified into six categories: 1) positive reinforcement (e.g., rewarded or praised him/her), 2) punitive punishment (e.g., spanked him/her or yelled at him/her), 3) restrictive discipline (e.g., timeout, privilege restriction), 4) verbal reprimand (e.g., suggested a different way to behave, lecturing discipline), 5) no response to behavior/could not imagine child doing the behavior, and 6) other (e.g., seek professional help). The target of the child's aggression reported by the mother was coded as: sibling, friend, classmate (not a friend), unknown child, or other. Child reports of peer responses were classified into six categories: 1) positive reinforcement (e.g., rewarded or praised him/her), 2) punitive response (e.g., hit him/her or yelled at him/her), 3) direct-verbal response (e.g., explained that the behavior was wrong), 4) indirect responses (e.g., ignored him/her), 5) no response, and 6) other (e.g. tell the teacher or other adult). To establish the reliability of the classification process, an independent coder recoded 15% of the mother interviews and 20% of the child interviews. Intraclass correlations (ICCs) were then computed

using a mixed analysis based on absolute agreement, with the resulting scores interpreted following the guidelines outlined by Cicchetti (1994); ICCs of .75 or greater are considered to be excellent and scores in the .60 to .74 range are considered to be good. Agreement ICCs for classifying mother reports of discipline ranged from .84 to .97 in response to Physical Aggression, ranged from .90 to .92 in response to Verbal Aggression, and .66 to .99 in response to Indirect aggression. Agreement ICCs for classifying child reports of their mother's response to aggression ranged from .93 to 1.00 for Physical Aggression, .66 to .98 for Verbal Aggression, and .66 to 1.00 for Indirect Aggression. Agreement ICCs for classifying child reports of peer responses ranged from .91 to .98 for Physical Aggression, .82 to .98 for Verbal Aggression, and 1.00 for children's report of Indirect Aggression. The low base rate of punitive discipline in response to Indirect Aggression and Verbal Aggression compromised computing some ICCs. With a large number of 0 scores, a disagreement between coders for a single case would greatly attenuate the ICC. Moreover, for all of the DIAS interviews that were recoded, based on both coders, none of the children reported experiencing harsh reactions from peers, resulting in zero variance, but perfect agreement. In summary, the classification of peer and parent reactions was accomplished reliably.

## Results

Preliminary analyses were conducted to assess potential differences between sites and between projects with respect to demographic characteristics (e.g. gender, age, and race) and type of aggression reported by mothers and children. No statistically significant differences with respect to gender and aggression subtypes were found between sites (maximum  $F [1, 290] = 1.08, p = .30$ ). The sample from WI had fewer minority subjects ( $\chi^2 (1) = 45.59, p \leq .001$ ) and was also slightly older than the IA sample ( $F [1, 293] = 8.16, p \leq .01$ ). Because children from one parent project were recruited during follow-up sessions and all children from the other project were recruited in the first year of the parent project, the sample from one project was significantly older than the sample from the other project ( $F [1, 294] = 99.46, p \leq .001$ ). No other significant differences between projects were found. Because the absolute magnitude of the differences between sites and projects were minor, the data were combined across sites and projects for all analyses.

## Informant Differences

Within-subject ANOVAs were conducted to examine differences among informants for each of the three types of aggression, collapsed across age groups and gender. For each of the analyses, the homogeneity of variance assumption was violated (Mauchly's Test of Sphericity); therefore, the Greenhouse-Geisser test of within-subjects effects was used to adjust the degrees of freedom. Results of the analysis showed that there were no significant differences among teacher, parent, and self-reported levels of Physical Aggression or Verbal Aggression ( $F [2, 199] = 1.85, p = .17$  and  $F [2, 208] = 2.21, p = .12$ , respectively). However, for Indirect Aggression, there was a significant main effect of informant ( $F [2, 210] = 7.66, p \leq .001$ , Partial  $\eta^2 = .06$ ). Bonferroni pairwise comparisons—used to guard against Type I errors—indicated that teachers reported significantly greater levels of Indirect Aggression compared to mothers ( $p \leq .001$ ). To further examine concordance between informants, Pearson product moment correlations between mother, teacher, and child Indirect, Physical, and Verbal Aggression scores were computed (see Table 1). Although most inter-informant correlations were statistically significant, they were only low to modest in magnitude. Moreover, the correlations between child and teacher reports of all types of aggression were not statistically significant. Because of the lack of concordance among informants planned analyses of aggression as a function of age and gender were conducted separately within informants.

## Age and Gender Differences among Aggression Types: Mother, Child, and Teacher Report

**Analyses based on mother report**—For analysis, and consistent with the Vaillancourt et al. (2003) and Vaillancourt et al. (2007) studies, children were categorized into four two-year age groups: Group 1 consisted of children ages 4–5, Group 2: ages 6–7, Group 3: ages 8–9, and Group 4: ages 10–11. Two factor (Age Group and Gender) between-subjects univariate ANOVAs were conducted with mother reports of Physical, Verbal, and Indirect Aggression as the dependent variables. Table 2 shows the mean levels of Physical, Verbal, and Indirect Aggression mothers reported for boys and girls across age groups. Mothers reported that boys used more Physical Aggression compared to girls ( $F [1, 284] = 7.11, p \leq .01, d = .28$ ). Neither the main effect of Age Group nor the Gender  $\times$  Age Group interaction were significant ( $F [3, 284] = .61, p = .61$  and  $F [3, 284] = 2.50, p = .06$ , respectively). For Indirect Aggression, mothers reported that girls used more Indirect Aggression compared to boys ( $F [1, 284] = 9.43, p \leq .01$ , Partial  $d = -.39$ ), but the effect of Age Group and the Gender  $\times$  Age Group interaction were non-significant ( $F [3, 284] = .64, p = .59$  and ( $F [3, 284] = 1.53, p = .21$ , respectively). For mother report of child use of Verbal Aggression, there was no significant Gender  $\times$  Age Group interaction ( $F (3, 284) = .29, p = .83$ ) nor main effects for Age Group or Gender ( $F [3, 284] = .10, p = .96$  and  $F [1, 284] = 1.86, p = .17$ , respectively).

**Analyses based on child report**—Because children under 6 did not complete the interview, Table 2 shows the mean child reports of the use of Physical, Verbal, and Indirect Aggression by boys and girls in the three older Groups (6–7, 8–9, and 10–11 year olds). Three  $3 \times 2$  between-subjects (Age Group and Gender) ANOVAs of child report of each type of aggression were conducted. For Physical Aggression, no statistically significant Gender  $\times$  Age Group interaction was found ( $F [2, 231] = .08, p = .92$ ) and the main effect for Age Group was also not statistically significant ( $F [2, 231] = .91, p = .40$ ). However, the main effect of Gender was significant ( $F [1, 231] = 9.45, p \leq .01, d = .46$ ), with boys reporting engaging in more Physical Aggression than girls. Results of the between-subject ANOVA for Verbal Aggression showed no statistically significant Gender  $\times$  Age Group interaction ( $F [2, 231] = .63, p = .53$ ) nor a significant main effect for Gender ( $F [1, 231] = .63, p = .43$ ). However, the main effect of Age Group was significant ( $F [2, 231] = 3.09, p = .05, d = .32$ ). Tukey post-hoc tests indicated that children in Age Group 3 reported significantly more Verbal Aggression than Age Group 2 ( $p \leq .05$ ). For Indirect Aggression, although it was predicted that the Gender  $\times$  Age Group interaction would be statistically significant, with older girls reporting more Indirect Aggression compared to all boys and younger girls, no significant Gender  $\times$  Age Group interaction nor main effects of Gender and Age Group were identified ( $F [2, 231] = .31, p = .74, F [1, 231] = .008, p = .93$ , and  $F [2, 231] = .004, p = .99$ , respectively).

**Analyses based on teacher report**—The means for the teacher report of Physical, Verbal, and Indirect Aggression for each of the age and gender groups are presented in Table 2. Analyses of the Physical Aggression scores with between subject ANOVA indicated no significant Gender  $\times$  Age Group interaction nor main effect of Age Group ( $F [3, 143] = .75, p = .52$  and  $F [3, 143] = .63, p = .60$ , respectively); however, a significant main effect for Gender was identified ( $F [1, 143] = 16.17, p \leq .001, d = .74$ ). Mean comparisons indicated that teachers reported that boys use significantly more Physical Aggression than girls. For teacher's report of Verbal Aggression, no significant Gender  $\times$  Age Group interaction nor main effects of Gender and Age Group were found (All  $F$ s  $< 0.57$ ). Contrary to expectations, the interaction and main effects of Gender and Age Group were non-significant for teacher report of Indirect Aggression ( $F [3, 143] = .43, p = .74, F [1, 143] = 1.98, p = .16$ , and  $F [3, 143] = 2.00, p = .12$ , respectively).



## Mother and Child Report of Differential Responses to Types of Aggression

A central goal was to determine if positive reinforcement of indirect aggression contributes to the putative transition from direct aggression to indirect aggression; however, given the relatively low base rate of mothers and children reporting positive reinforcement for aggression (11% of mothers and 11% of children), this goal could not be achieved. Therefore, only restrictive discipline (e.g., timeout), verbal reprimands (e.g., lecturing, suggesting a different way to behave), and punitive (e.g., spanking and yelling) disciplinary responses were analyzed. Table 3 shows the mean proportion of each type of aggression resulting in restrictive discipline, verbal reprimands, and punitive discipline, as reported by the mother. To contrast the three types of disciplinary responses to the different types of aggression,  $4 \times 3 \times 2$  mixed ANOVAs were conducted with mothers' report of their disciplinary responses (i.e., restrictive, verbal, and punitive discipline) to the three different types of aggression as the within-subjects factors, and Age Group and Gender as the between-subject factors. For mother reports of restrictive discipline, the homogeneity of variance assumption (Mauchly's Test of Sphericity); to control for inflated Type I errors, the Greenhouse-Geisser correction was used. For mother reports of restrictive discipline to Physical, Verbal, and Indirect Aggression the differences were statistically significant ( $F [2, 409] = 47.65, p \leq .001, \text{Partial } \eta^2 = .18$ ). Bonferroni pairwise comparisons indicated that mothers reported using more restrictive discipline in response to Physical Aggression compared to Verbal ( $p \leq .001$ ) and Indirect Aggression ( $p \leq .01$ ). Mother reports of differential verbal reprimands to the different types of aggression also resulted in a statistically significant main effect of aggression type ( $F [2, 424] = 16.89, p \leq .001, \text{Partial } \eta^2 = .07$ ). Bonferroni pairwise comparisons indicated that mothers reported using more verbal reprimands in response to Indirect Aggression compared to Physical Aggression ( $p \leq .001$ ) and more verbal reprimands for Verbal Aggression compared to Physical Aggression ( $p \leq .001$ ). For mothers' report of punitive responses to the different types of aggression, results showed a significant main effect ( $F [2, 424] = 9.06, p \leq .001, \text{Partial } \eta^2 = .04$ ). Bonferroni pairwise comparisons indicated that mothers reported using significantly more punitive discipline in response to Physical and Verbal Aggression compared to Indirect Aggression ( $p \leq .001$  and  $p \leq .01$ , respectively). Taken as a whole, these results indicated that mothers reported using harsher discipline (i.e., restrictive and punitive discipline) for both Physical and Verbal Aggression compared to Indirect Aggression.

To contrast the three types of disciplinary responses to the different types of aggression, mixed ANOVAs were conducted with child reports of their mothers' disciplinary responses to the types of aggression as the within-subjects factor, and Age and Gender Groups as the between-subject factors. The mean proportion of the children's report of their mothers used of restrictive discipline, verbal reprimands, and punitive discipline to their own Physical, Verbal, and Indirect Aggression are presented in Table 4. The main effect of children's report of their mothers' restrictive discipline to different types of aggression was significant,  $F (2, 256) = 5.25, p \leq .01, \text{Partial } \eta^2 = .04$ . Bonferroni pairwise comparisons indicated that children reported that their mother's used significantly more restrictive discipline (e.g., timeouts) in response to Physical Aggression compared to Indirect Aggression ( $p \leq .01$ ). For child reports of verbal reprimands, a significant Gender  $\times$  Verbal discipline interaction was obtained, ( $F [2, 272] = 4.35, p \leq .01, \text{Partial } \eta^2 = .03$ ). Simple effects tests indicated that girls reported that their mother's used significantly more verbal disciplinary methods in response to their aggressive acts than did boys ( $F [2, 132] = 4.73, p \leq .01, d = -.21$ ). Bonferroni pairwise comparisons indicated that girls reported significantly more usage of verbal reprimands by their mothers in response to Verbal Aggression compared to Physical Aggression ( $p \leq .01$ ). A significant Gender  $\times$  Age interaction,  $F (4, 272) = 2.81, p \leq .05, \text{Partial } \eta^2 = .04$ , was also found for child reports of verbal reprimands. Simple effects of the Gender  $\times$  Age interaction suggested that children older than 9 reported receiving more verbal reprimands in response to aggressive acts;

however, given the relatively small sample size ( $n = 17$ ) the results only approached a conventional level of significance ( $F [2, 32] = 3.17, p = .06$ ). Child report of their mothers' use of punitive discipline differed among the different aggressive acts  $F (2, 259) = 6.71, p \leq .01$ , Partial  $\eta^2 = .05$ . Bonferroni pairwise comparisons indicated that children reported greater punitive discipline from their mothers in response to Physical Aggression compared to Indirect Aggression ( $p \leq .01$ ) and greater punitive discipline in response to Verbal Aggression compared to Indirect Aggression ( $p \leq .05$ ).

Children were also asked to report how their peers responded to a reported aggressive act. Table 5 displays the mean child reports of their peer's reactions to Direct and Indirect Aggression. Child reports of verbal reprimands from their peers indicated a significant main effect,  $F (2, 272) = 2.95, p \leq .05$ , Partial  $\eta^2 = .02$ . Bonferroni pairwise comparisons indicated that children reported that their peers were more likely to have responded with a verbal reprimand (e.g., tell child to stop) in response to Verbal Aggression compared to Indirect Aggression; however, given the conservative nature of Bonferroni pairwise comparisons, this finding was only marginally significant ( $p = .06$ ). There was a significant main effect for child reports of their peers hitting/yelling in response to the participant's different types of aggressive acts,  $F (2, 272) = 5.01, p \leq .01$ , Partial  $\eta^2 = .04$ . Bonferroni pairwise comparisons indicated that children reported that their peers respond more harshly (e.g., hitting and yelling) in response to Verbal Aggression compared to Indirect Aggression ( $p \leq .01$ ).

### Aggression Types and Peer Status

Given that peer rejection is a possible negative consequence that may follow the use of different forms of aggression, peer status and use of different forms of aggression were assessed. In these analyses, the index of peer status was based on the difference between the Popularity and Rejection Subscale scores of the TPPN (Huesmann et al., 1994). Multiple linear regressions were conducted to determine whether gender (coded as 1=girl and 2=boy), Direct Aggression scores (i.e., both Physical and Verbal Aggression combined), Indirect Aggression scores, and their cross-product predicted peer status. To control for a possible gender bias, for each analysis based on teacher, mother, and child aggression scores, gender was entered into the equation first, and then Indirect Aggression, Direct Aggression, and their cross-product were entered simultaneously. The results are shown in Table 6. Results of the regression analysis for Teacher Reports of Aggression identified a significant negative main effect of Direct Aggression on peer status ( $p < .001$ ). That is, children who use Direct Aggression (i.e., physical and verbal aggression) are considered by teachers to be less popular, regardless of gender. Although gender was correlated  $-.23$  ( $p < .01$ ) with popularity within this sample, it did not add significantly to the prediction of popularity once Direct Aggression was in the equation. Its lack of significance reflects the fact that direct aggression and gender were very highly correlated. The regression analyses for predicting popularity from mother reports or child self-reports of aggression showed no significant results, suggesting that teacher reports may be more valid measures of aggression.

### Aggression Types and Intelligence

In order to examine whether verbal competence could play a role in the differential use of Direct and Indirect Aggression, the children's Verbal Intelligence (VIQ,  $M = 99.5, SD = 15.23$ ) and Full Scale Intelligence Scores (FSIQ,  $M = 99.54, SD = 13.29$ ) were used as indicators of verbal competence and general intelligence, respectively. Correlations between teacher, child, and mother report of aggression types (i.e., Physical, Verbal, and Indirect) were computed for each gender separately. Results of the teacher data indicated that only girls' Physical Aggression was negatively correlated with both VIQ and FSIQ ( $r = -.37$  and  $-.31$ , respectively). However, the correlations between IQ scores and Verbal and Indirect Aggression

were low and non-significant for girls. Similarly, none of the correlations between the IQ scores and aggression scores for boys were statistically significant ( $r$ s ranged from  $-.01$  to  $-.18$ ).

## Discussion

The present study provides data pertinent to both methodological and theoretical considerations of children's use of direct and indirect aggression. Methodologically, the results underscore the importance of considering the source of information when assessing direct and indirect aggression. Although the measurement of indirect aggression was initially based on peer ratings (c.f., Björkqvist, Lagerspetz, et al., 1992), opportunities for investigators to use a peer rating process to measure aggression in individual children enrolled in clinical or basic research have become increasingly limited by school districts and Institutional Review Boards. That is, although peer ratings might be possible when entire classrooms or districts are involved in research, when only a single child from the classroom is a research subject, the use of a peer rating measure is virtually impossible. This inability to use the peer rating process has led recent studies of direct and indirect aggression to use methods other than peer ratings, such as mother reports (e.g. Vaillancourt et al., 2003). Importantly, a peer rating procedure is a multisource procedure, with the scores reflecting the aggregated view of the peer group. When other methods have been used, they are usually monomethod and monosource (e.g., Vaillancourt et al., 2003). The current findings, based on a multi-informant strategy, indicate some limitations that can be associated with reliance on a single source approach to assessing direct and indirect aggression.

The cross-informant agreement among mother, teacher, and child reports of aggression was less than perfect. While there were no significant major differences in reports between informants, the cross-informant correlations were not high, and there were mean differences. For example, teachers reported greater use of indirect aggression by children (regardless of gender and age) than either mothers or children reported. These findings could reflect indirect aggression being a form of aggression that is typically reserved for peer interactions (c.f., Vaillancourt et al., 2003), with teachers being more aware of such acts than parents, and the children being less willing to acknowledge those acts (c.f., Björkqvist, Lagerspetz et al., 1992). Although researchers might be encouraged that there were no major mean differences in the reports among informants, suggesting a lack of systematic bias in reporting, the low teacher-parent and parent-child correlations, and the even lower and non-significant teacher-child correlations can raise questions about analysis of direct and indirect aggression that are derived from a single informant. One plausible account for the modest to poor correlations among respondents is the degree to which a child's aggressive behavior is setting-specific and the degree to which informants have differing access to the full range of settings and interpersonal contexts in which the aggressive behavior is expressed. Clearly teachers do not have exposure to sibling interactions, and parents rarely have direct exposure to the interactions of their children at school or in the community. The greater concordance among informants found for physical aggression is consistent with studies reporting that agreement is higher for easily observed behaviors compared to more covert behaviors (Pakaslahti & Keltikangas-Järvinen, 2000). Regardless of the cause, the cross-informant findings support arguments for the use of multiple informants when assessing direct and indirect aggression when peer ratings cannot be used.

The analyses of gender differences examined within informants lend mixed support to the notion that girls use indirect aggression more than boys (Archer, 2004; Björkqvist, Österman, et al., 1992; Lagerspetz & Björkqvist, 1994; Richardson & Green, 1999; Russell & Owens, 1999; Salmivalli et al., 2000). That is, only mothers indicated that girls use indirect aggression more frequently than boys, a finding that is consistent with the Vaillancourt et al. (2003) and Vaillancourt et al. (2007) studies that were based on mother reports. However, data from both

the children and the teachers did not identify a gender difference. This pattern of cross-informant differences underscores the Archer (2004) meta-analysis in which gender differences were a function of method.

It is possible that the gender difference in the mother report could reflect a maternal report bias in which mothers might recognize and acknowledge indirect aggression in their daughters but do not readily recognize it in the behavioral repertoire of their sons. Although parental bias has not been examined in indirect aggression, a study by Ohan and Johnston (2005), found that mother's rated relational aggression items—a similar concept to indirect aggression—as being more typical of girls, while overt aggression was rated as more typical of boys. However, because mothers in the current sample reported on the behavior of only the enrolled child, it is impossible to determine whether a maternal indirect aggression bias actually operated in the present study. Future research should address informant bias as it may have important implications for studies that rely solely on one informant.

The absence of a gender by age interaction with respect to the development of indirect aggression is inconsistent with the findings reported by Björkqvist and colleagues (e.g. Björkqvist, Lagerspetz, et al., 1992), but is largely consistent with the Vaillancourt et al. (2007) findings of stability in aggression trajectory groups. Moreover, all informants in the present study consistently reported that boys are more physically aggressive than girls, findings that are congruent with a large body of earlier research (Archer, 2004; Björkqvist, Lagerspetz et al., 1992; Lagerspetz & Björkqvist, 1994). In regard to verbal aggression, children between the ages of 8–9 reported using more verbal aggression than children between the ages of 6–7, a finding that is more consistent with Björkqvist's developmental transition (Björkqvist, Lagerspetz, et al., 1992; Björkqvist, Österman, et al., 1992). According to that developmental model, children at age 8 tend to use verbal aggression more than physical aggression (Björkqvist et al., 1992).

A primary goal of the present study was to determine whether positive and/or negative contingent consequences meted by mothers and peers might contribute to the development of indirect aggression. Although some mothers and children did report positive consequences in response to specific aggressive acts, given the relatively low base rate of positive reinforcement, only negative consequences could be examined statistically. Consistent with the hypotheses advanced by Björkqvist, Lagerspetz, et al. (1992) based on mother and child reports, the use of indirect aggression leads to fewer negative consequences. That is, both mothers and children reported that the mothers in this disadvantaged sample tended to use harsher disciplinary methods (e.g., spanking and yelling) in response to physical aggression and more verbal reprimands (e.g., explaining that the behavior is wrong) in response to indirect aggression. To the extent that parental use of physical/punitive discipline is associated with greater levels of child aggression (Bandura, 1973; Knutson, DeGarmo, Koepl, & Reid, 2005; Patterson, 1982; Stormshak, Bierman, McMahon, & Lengua, 2000), the relatively frequent reports of harsher discipline in this sample could account for the absence of a significant decline in physical aggression across the age groups. That is, based on several lines of evidence, a decline in physical aggression across the age groups should be expected (c.f. Côté et al., 2007; Côté, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Nagin & Tremblay, 1999). If the mothers enrolled in the present study are more punitive than the general population, and if punitive discipline results in persistent physical aggression in the early elementary school years, the physical discipline reported by the mothers and children in the current study might account for the failure to identify an age effect on the forms of aggression. This account is largely consistent with the Vaillancourt et al. (2007) study which identified a contribution of hostile/inconsistent parenting, family dysfunction, and lower SES to the development of indirect aggression in a general population sample. It is possible that the truncated range of SES, the high rate of punitive discipline, and the higher risk for family

dysfunction in the sample results in less of a development of indirect aggression coupled with the persistence of physical aggression.

Since peers also play a role in the maintenance of aggressive behaviors, another goal of this study was to examine whether children report receiving differential consequences from their peers in response to acts of direct and indirect aggression. Because some indirect aggression is covert and the perpetrator may not be known to the victim, the current study focused on the reactions of friends, who are likely to be involved in the conduct of acts of indirect aggression. The children reported that their peers tended to use more harsh behaviors (e.g., hitting or yelling) in response to their physical aggression compared to indirect aggression, a pattern that is consistent with the Björkqvist, Lagerspetz, et al. (1992) notion that indirect aggression reduces the chances of immediate retaliation from the victim and the Archer and Coyne (2005) conclusion that indirect aggression is a lower cost option than direct aggression. The data, however, are also consistent with the notion that coercive peer interactions reflect a degree of reciprocity (e.g. Snyder, 1992), as well as research that has found that peers who engage in antisocial behaviors contribute to their friend's high levels of aggression through lack of appropriate social skills training, deviancy training, and exposure to aggressive social encounters (c.f., Capaldi, Dishion, Stoolmiller, & Yoerger, 2001; Lansford, Criss, Pettit, Dodge, & Bates, 2003; Snyder, 1992). That is, the child reports of peer's harsh reactions could reflect assortative friendships, with children who are physically aggressive establishing friendships with other children who are also physically aggressive, which can then lead to rejection from non-aggressive peers. Consistent with this notion, teacher reports of aggression and peer status indicated that only children who use direct aggression (i.e., physical and verbal combined) were rated as being less popular. When using self-reported or mother reports of aggression, however, aggression was not associated with peer status. This finding could be due to the method used to assess peer status. Previous research has shown that teachers tend to have a bias towards girls when assessing popularity, a bias that is not present when assessing the relation between child report of peer status and peer nominated levels of aggression (Huesmann et al., 1994). However, these findings could also reflect shared method variance, as only the *teacher's* report of aggression was related to the *teacher's* report of peer status. Notably, an examination of the peer status by gender distributions indicated that while teachers reported that 12% of the girls sampled were rejected by their peers, 22% of boys were described as rejected by their classmates. Moreover, 52% of the boys could be characterized as not "well-liked." This truncated range of peer status within this disadvantaged sample, coupled with the relatively high rates of physical aggression used by boys, could also account for the lack of a significant relation between teacher rating of peer status and the aggression scores provided by both the children and their mothers.

One account for the development of indirect aggression posits that children begin to use more sophisticated methods of aggression with greater language development (c.f., Björkqvist, Österman, et al., 1992). The analyses based on the VIQ and FSIQ scores provide only minimal support for that hypothesis. Using teacher's report of girls' aggression, the results of this study did find only a modest negative correlation between intelligence and physical aggression in girls, but no relation between IQ and aggression in boys. With all correlations between IQ and aggression reports by mothers and children approaching zero, the results are consistent with the Côté et al., (2007) study, which failed to find a relation between the Peabody Picture Vocabulary Test and the development of indirect aggression. Importantly, the present results cannot be attributed to a truncated range of intelligence, with both the means and standard deviations approximating normative samples. Thus, it seems probable that variability in the development of indirect aggression cannot be attributed to variability in measured intelligence alone.

The findings of the present study highlight the importance of using multiple informants when examining forms of aggression, as well as the role that parents and peers may play in the child's transition from direct to indirect aggression. However, a major limitation of the current study was the inability to use peer ratings as another source of information. This shortcoming could have had potential effects on the findings of gender differences as well as the analyses of peer status and aggression. That is, Archer's (2004) meta-analysis indicated that a female directed effect size could be found using peer ratings. Regarding peer status, teachers have been found to be reliable sources of information regarding aggressive behaviors in children but also appear to have a female directed bias when asked to report on a child's popularity (Huesmann et al, 1994). Another limitation of the study is the high risk nature of the sample. Although a benefit of that sample is the high rate of aggressive behavior, the truncated range of SES, the relatively high rates of low popularity, and the high levels of punitive discipline might preclude detecting the effect of some variables. Additionally, data from this sample might not generalize to the more advantaged community samples usually recruited for developmental work.

Although the study did not establish the hypothesized age influences on direct and indirect aggression, it did establish that young children do evidence indirect aggression and that their parents and peers respond differentially to direct and indirect aggressive behaviors. Whether the patterns of findings are attributable to the high risk population that was enrolled in this research or whether the pattern applies more generally to younger children, remains to be evaluated. The findings do, however, underscore the importance of obtaining data on direct and indirect aggression from multiple informants if critical tests of factors influencing children's aggression are to be understood.

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**Table 1**  
Correlations Between Child, Mother, and Teacher Reports of Aggression

Aggression	1	2	3	4	5	6	7	8
1. Child Indirect	---							
2. Child Physical	.49**	---						
3. Child Verbal	.67**	.59**	---					
4. Mother Indirect	<b>.16*</b>	.25**	.15*	---				
5. Mother Physical	.11*	<b>.25**</b>	.16*	.31**	---			
6. Mother Verbal	.17*	.25**	<b>.26**</b>	.45**	.62**	---		
7. Teacher Indirect	<b>.17</b>	.03	.13	<b>.19*</b>	.06	.16	---	
8. Teacher Physical	.09	<b>.08</b>	.06	-.08	<b>.16*</b>	.07	.48**	---
9. Teacher Verbal	.21*	.04	<b>.15</b>	.07	.09	<b>.16*</b>	.81**	.75**

Note: Cross informant correlations are in bold.

\*\* p < .01

\* p < .05

Table 2

Mother, Child, and Teacher Report of Aggression

Aggression	Girls			Boys		
	Mother	Child	Teacher	Mother	Child	Teacher
Physical	4.15 (2.85)	-	3.14 (4.77)	5.19 (4.19)	-	5.86 (4.85)
	4.81 (3.53)	-	3.93 (4.98)	5.53 (3.33)	-	4.36 (3.50)
	4.30 (3.60)	-	7.43 (7.59)	3.50 (3.07)	-	7.07 (5.65)
Verbal	Mother	Child	Teacher	Mother	Child	Teacher
	4.13 (3.27)	2.17 (2.87)	1.10 (2.83)	4.70 (3.46)	4.04 (4.20)	6.30 (6.70)
	5.11 (3.54)	3.15 (3.17)	3.34 (4.45)	5.67 (3.56)	3.54 (3.92)	4.65 (4.67)
Indirect	4.56 (3.87)	6.11 (7.48)	6.48 (7.90)	3.53 (3.01)	5.88 (6.58)	5.87 (6.38)
	Mother	Child	Teacher	Mother	Child	Teacher
	3.10 (2.72)	2.84 (3.63)	1.89 (4.27)	3.85 (3.80)	4.42 (5.13)	4.41 (5.96)
Physical	5.13 (3.16)	3.92 (3.21)	3.81 (4.11)	5.15 (4.24)	5.19 (4.39)	4.52 (4.67)
	6.04 (4.99)	5.54 (5.25)	8.22 (9.68)	3.94 (3.95)	6.54 (6.20)	6.26 (7.16)
	Mother	Child	Teacher	Mother	Child	Teacher
Verbal	2.07 (2.30)	1.50 (1.87)	.78 (2.33)	4.54 (2.63)	3.71 (4.05)	4.75 (5.37)
	4.57 (3.55)	4.64 (3.41)	5.22 (5.47)	5.92 (3.33)	4.36 (3.97)	5.25 (3.99)
	6.07 (4.25)	6.36 (4.63)	14.22 (12.27)	3.62 (3.07)	5.86 (4.59)	9.00 (6.14)

Note: Standard deviations are in parentheses. For mother's n=143 for girls and 149 for boys, for self-report n=118 for girls and 119 for boys, for teachers n=79 for girls and 72 for boys.

**Table 3**  
Mean Proportion of Mother Reported Discipline to Aggression Forms

Aggression	Mean	Restrictive SD
Physical	.39	.39
Verbal	.19	.30
Indirect	.11	.24
	Mean	Verbal Reprimand SD
Physical	.41	.40
Verbal	.59	.38
Indirect	.58	.39
	Mean	Punitive SD
Physical	.10	.22
Verbal	.09	.23
Indirect	.02	.10

Note. SD is standard deviations. N=220.

**Table 4**  
Mean Proportion of Child Reported Discipline to Aggression

Discipline	Female			Male		
	6-7	8-9	10-11	6-7	8-9	10-11
Restrictive	.35 (.43)	.30 (.35)	.19 (.24)	.27 (.38)	.21 (.32)	.23 (.42)
	.19 (.28)	.25 (.32)	.12 (.21)	.19 (.29)	.35 (.36)	.43 (.41)
	.14 (.29)	.11 (.27)	.14 (.24)	.29 (.36)	.15 (.27)	.04 (.18)
Verbal	.39 (.41)	.17 (.30)	.00 (.00)	.21 (.32)	.28 (.39)	.12 (.21)
	.24 (.33)	.40 (.40)	.56 (.43)	.22 (.34)	.21 (.27)	.62 (.41)
	.07 (.16)	.07 (.21)	.16 (.23)	.15 (.27)	.19 (.27)	.05 (.16)
Punitive	.6-7	8-9	10-11	6-7	8-9	10-11
	.22 (.37)	.11 (.16)	.04 (.08)	.18 (.31)	.15 (.21)	.10 (.32)
	.26 (.34)	.25 (.35)	.40 (.43)	.14 (.29)	.20 (.23)	.41 (.49)
Punitive	.07 (.19)	.01 (.04)	.03 (.06)	.12 (.24)	.02 (.08)	.01 (.03)
	Physical Aggression			Indirect Aggression		
	Verbal Aggression			6-7		

Note. N=142 (67 girls, 75 boys). Standard deviations are in parentheses.

**Table 5**  
Mean Proportion of Child Reported Peer Reactions to Aggression

Aggression	Verbal Reprimand	
	Mean	SD
Physical	.14	.27
Verbal	.16	.29
Indirect	.12	.23
		Punitive
	Mean	SD
Physical	.08	.21
Verbal	.12	.25
Indirect	.03	.10

Note. SD is standard deviations. N=142.

**Table 6**  
Multiple Regression Analyses Predicting Peer Status from Different Measures of Aggression

Predictor Variables	Teacher Reported Aggression (N = 147)	Mother Reported Aggression (N = 168)	Child Self-reported Aggression (N = 135)
	Beta	Beta	Beta
Gender	-0.06	-0.22*	-0.22*
Indirect Aggression	0.05	-0.01	-0.17 <sup>+</sup>
Direct Aggression	-0.62**	-0.06	-0.06
Indirect × Direct Aggression	0.10	-0.02	0.01
	R2 = .31**	R2 = .09 <sup>+</sup>	R2 = .09 <sup>+</sup>

<sup>+</sup> p < .10,

\* p < .05,

\*\* p < .01