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Childhood aggression, depressive symptoms, and peer rejection: The mediational model revisited

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The goals of the current study were to investigate whether peer rejection mediated the relation between aggression and depressive symptoms in childhood, and if so, whether this mediational pathway was specific to the reactive subtype of aggression. Participants were 57 second-grade children (22 girls and 35 boys). Data on reactive aggression, proactive aggression, depressive symptoms, and peer rejection were collected from four sources (parents, teachers, peers, and self). Results revealed that reactive aggression, but not proactive aggression, was positively related to depressive symptoms. Furthermore, peer rejection partially mediated the relation between reactive aggression and depressive symptoms.

Keywords: depression; peer rejection; peer relations; proactive aggression; reactive aggression

Although aggressive children characteristically display high levels of anger, clinical observations suggest that they are often quite sad as well. In fact, a significant body of research has demonstrated the co-occurrence of aggressive disorders and depression in children and adolescents, using a variety of assessment methods and measures (e.g., Hops, Lewinsohn, Andrews, & Roberts, 1990; McConaughy & Sikka, 1993; Rhode, Lewinsohn, & Seeley, 1991). Comorbidity rates for community samples have been estimated to be between 9% and 45% for children with conduct/oppositional disorders also presenting with depression and between 23% and 83% for children with depression also presenting with conduct/oppositional disorders (for a review, see Angold & Costello, 1993).

Theorists and researchers have attempted to delineate the mediating mechanisms driving this relation between aggression and depressive symptoms in children (Kiesner, 2002; Messer & Gross, 1994; Panak & Garber, 1992). Why would these seemingly disparate constructs, one internalizing and the other externalizing, be related? One possible factor that has received considerable attention is peer rejection. Theorists suggest that incompetent behaviors elicit rejection and negative appraisals from others. Over time, such aversive experiences make children vulnerable to negative self-evaluations and attributional processes and ultimately lead to depressive symptoms.

Aggression toward other children is one example of an incompetent behavior that is likely to elicit dislike from peers. If aggressive children become aware of this peer rejection through the treatment or feedback that they receive from peers, this awareness may lead to negative self-perceptions and subsequent depressive symptoms. Two theoretical models which advance this line of reasoning are Cole, Martin, and Power's (1990) failure model. Both of these models specifically discuss peer rejection or failures in the social domain as one potential mediator between incompetent behaviors such as aggression and resulting depressive symptoms.

To establish that peer rejection indeed mediates the relation between aggression and depressive symptoms, it is first necessary to demonstrate significant relations between each pair of constructs (Baron & Kenny, 1986). First, as reviewed above, comorbidity research has demonstrated a consistent association between aggression and depression. Second, a plethora of studies have revealed the stable connection between aggression and peer rejection (e.g., Coie, Dodge, & Coppotelli, 1982; Coie, Dodge, & Kupersmidt, 1990; Dodge, 1983). Third, research also suggests that rejected children are at risk for depressive symptoms (Little & Garber, 1995; Nolan, Flynn, & Garber, 2003; Patterson & Stoolmiller, 1991). Accordingly, all three constructs appear to be significantly related. However, to constitute mediation, peer rejection must account for a significant portion of the relation between aggression and depressive symptoms (Baron & Kenny, 1986).

To our knowledge, three studies have directly addressed the question of whether peer rejection mediates the relation between aggression and depression; however, the results of these studies are equivocal. In the first study, Messer and Gross (1994) tested separate concurrent models for boys and girls (aged 8–13 years) using latent variables for aggression and depressive symptoms (derived from teacher, self, and peer report) and an observed variable for peer rejection (based on peer report). They found that peer rejection partially mediated the relation between aggression and depressive symptoms for both boys and girls.

In the second study, Panak and Garber (1992) conducted a one-year longitudinal study with late elementary-school
students. They assessed peer report of rejection, self report of depressive symptoms, and an aggregate of teacher and peer report of aggression. They found that changes in peer rejection partially mediated the effect of changes in aggression on depressive symptoms. However, Kiesner (2002) criticized this study on the grounds that the reduction in the relation between aggression and depression when the mediator of peer rejection was added was quite minimal and that the authors failed to test the significance of this reduction.

Following Panak and Garber (1992), Kiesner (2002) conducted a two-year longitudinal study with Italian middle-school students. He assessed self-reported depressive symptoms, teacher-reported aggressive behavior, and peer-reported rejection at two time points. In contrast to the previous two studies, Kiesner failed to find any evidence that peer rejection mediated the relation between earlier aggression and later depression.

Several factors may account for the conflicting findings observed across these three studies. First, the age of the samples differed; support for partial mediation was found for late-elementary school samples but not for the middle school sample. Accordingly, this mediational relation may not generalize to children beyond the elementary school years. Second, the nationality of the samples differed; support for partial mediation was found for American children but not for Italian children. It is possible that cultural factors contribute to differences in this mediational relation. Third, the first two studies specifically measured aggression, whereas Kiesner assessed a broader index of problem behavior including aggressive and non-aggressive disruptive behaviors. Kiesner’s failure to detect a mediational relation may suggest that this relation is specific to aggression and does not apply to other externalizing behaviors.

Given the conflicting findings and the considerable methodological differences reviewed above, the question of whether peer rejection mediates the relation between aggression and depressive symptoms has not been answered clearly. Thus, a first objective of the current study was to re-examine this mediational model.

The role of reactive versus proactive aggression in the mediational model

Over the past 15 years, researchers have distinguished between the subtypes of reactive aggression and proactive aggression (for reviews, see Dodge, 1991; Vitaro & Brendgen, in press). Reactive aggression is characterized by anger and retaliation in response to actual or perceived provocation. Proactive aggression, on the other hand, is described as deliberate, unprovoked behavior that is used to accomplish an instrumental or social goal.

Researchers originally hypothesized that distinct groups of aggressive children existed, with one group displaying primarily reactive aggression and the other group displaying primarily proactive aggression (Dodge, 1991). However, in most studies to date, the correlation between reactive and proactive aggression ranges from .60 to .80. These strong correlations imply that the two subtypes of aggression tend to co-occur, with most aggressive children displaying some degree of both reactive and proactive aggression. In other words, the subtypes of aggression can most accurately be conceptualized as continuous dimensions which exist to varying degrees in each aggressive child, rather than as categories into which children are exclusively placed.

Even though separate groups of children are not found, the distinction between reactive and proactive aggression may still be quite useful. A number of unique correlates have been identified for each of the aggressive subtypes. These findings suggest that variations in reactive aggression across children are related to variations in particular social cognitive, behavioral, and social correlates; in contrast, variations in proactive aggression across children are related to variations in quite different correlates. These findings emerge most strongly when partial correlations are used to account for the variance attributable to the other subtype of aggression. Cronbach (1951) argued that two measures that do not relate to other variables in the same way must represent distinct constructs, even if they are highly correlated.

In terms of the mediational model described above, we hypothesized that peer rejection would mediate the relation between reactive aggression and depression, but that these same relations would not hold for proactive aggression. This hypothesis is based on both theoretical considerations and empirical findings. Empirically, reactive aggression, but not proactive aggression, has been related to both peer rejection (e.g., Day, Bream, & Pal, 1992; Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Pellegrini, Bartini & Brooks, 1999; Poulin & Boivin, 2000; Price & Dodge, 1989) and depression (Day et al., 1992; Dodge et al., 1997; Vitaro, Brendgen, & Tremblay, 2002), using the partial correlation approach described above. Thus, previous literature suggests that both the mediator variable and the outcome variable in our model are related specifically to the reactive subtype of aggression.

Theoretically, why would reactive aggression in particular fit our mediational model? First, reactive and proactive aggression are distinct behaviors that elicit different social responses from peers. As described above, reactive aggression specifically has been empirically related to peer rejection. This finding suggests that reactive aggressive behaviors are more likely to elicit negative appraisals or feelings of dislike from peers than proactive aggressive behaviors. One reason for this differential response may be that proactive aggressive behaviors are actually associated with positive behavioral qualities such as leadership and having a sense of humor (Dodge & Coie, 1987; Poulin & Boivin, 2000). These positive attributes may serve to buffer peers’ responses to proactive aggression, by providing a more positive interpretation of these aggressive behaviors. Second, peers may be more likely to express feelings of dislike openly in response to reactive aggression than proactive aggression, because bullying behavior may frighten peers and make them feel uncomfortable providing direct feedback about disliking. In support of this argument, empirical findings suggest that reactive aggression is more related to being victimized by peers than proactive aggression (Camodeca, Goossens, Meerum Terwogt, & Schuengel, 2002; Pellegrini et al., 1999).

For these reasons, reactive aggression may result in more negative feedback from peers and greater opportunity to become aware of and internalize this peer rejection. Following this line of reasoning, reactive aggression should demonstrate a stronger relation to depressive symptoms than proactive aggression.

Thus, the second goal of this investigation was to examine the hypothesis that peer rejection would mediate the relation between reactive aggression and depression, but that this
mediational relation would not hold for proactive aggression. To our knowledge, the current study is the first to examine the distinction between the reactive and proactive subtypes of aggression in this mediational model.

Summary of goals and strengths of the current study

The current investigation attempted to accomplish two main goals. The first goal was to examine whether peer rejection mediated the relation between aggression and depression in childhood. The second goal was to assess whether this relation was specific to the reactive subtype of aggression, as hypothesized.

The present study was well-suited to explore these issues for two reasons. First, whereas most previous studies used single sources of data to measure many constructs, we measured aggression, peer rejection, and depressive symptoms using multiple sources. In fact, we assessed each of these constructs through teacher-, parent-, peer-, and self-report measures. Multiple sources provided a more complete picture of these constructs and allowed us to reduce measurement error by constructing aggregate variables.

Second, in analyzing our mediation models, we were careful to conduct tests to determine the significance of any mediated effects. These tests allowed us to determine whether peer rejection significantly accounted for at least a portion of the relation between children's aggression and depressive symptoms.

Method

Participants

Fifty-seven second-grade children (35 boys and 22 girls) participated in this study. The mean age of the sample was 9.17 years. Thirty-four of the children were black, 18 were white, three were of mixed race, and two were Hispanic. The mean family income was $38,000, with a range from $6,000 to $100,000.

We chose to study second-grade children for two reasons. First, research indicates that both aggression and depression are becoming stable by this age (Cole, Peeke, Martin, Truglio, & Seroczenski, 1998; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003). Second, both aggressive and depressive behaviors are becoming less acceptable to peers and so more related to peer rejection by this age (Coie, Dodge, Terry, & Wright, 1991; Dodge, Coie, Pettit, & Price 1990; Peterson, Mullins, & Ridley-Johnson, 1985).

The children in this study were participants in a larger evaluation of a school-based intervention for aggression. Twenty of the children comprised the intervention group and participated in a 10-session school-based group intervention; these children were rated by their teachers as aggressive (they received a score of at least one standard deviation above the mean on reactive aggression, proactive aggression, or both). Eighteen of the children comprised the control group; these children were also rated by their teachers as displaying average levels of aggression (they received scores on both reactive and proactive aggression that were between −.5 and .5 standard deviations of the mean).

All data reported here were from the pre-intervention assessment, before any intervention services were delivered. For this reason, in the current manuscript, we consolidated the three groups into a single sample. Accordingly, aggressive children were over-represented in the sample. However, given that we were interested in assessing the role of the reactive versus proactive subtypes of aggression in our model, it seemed advantageous to oversample aggressive children, in order to insure adequate variation in the subtypes of aggression.

Procedures

Data were collected during November and December of the children's second grade year. For all constructs, data were collected from four sources: parents, teachers, peers, and the children themselves.

The teacher and peer data were collected through 21 classroom visits. The classroom visits were conducted by four to six research assistants. During these visits, peer data were collected in 20-minute individual interviews with each child with parental permission. During the same visits, teachers were given a packet of measures to complete for each target child in their classroom. Each teacher packet required approximately 30 minutes to complete, and teachers were compensated $20 per packet.

The parent and self data were collected through home visits. During these visits, one research assistant collected the self-report data in a one-hour interview with the child. At the same time, another research assistant gave the parent a packet of measures to complete. These measures were completed by the child's primary caregiver (not necessarily a biological parent). The parent measures required approximately 30 minutes to complete. Parents were compensated $20, and children were compensated $10.

We originally contacted 63 families, and 57 of those families (90%) agreed to participate. Data were collected from all four sources (parents, teachers, peers, self) for all 57 children.

Measures

Teacher measures. Teachers completed three measures for each child. The first measure contained 22 items and combined Dodge and Coie's (1987) and Brown and colleagues' (Brown, Atkins, Osborne, & Milnamow, 1996) measures of reactive and proactive aggression. Dodge and Coie found that their teacher ratings of reactive aggression were significantly related to observed reactive aggression in a playgroup context, even when common variance due to observed proactive aggression was taken into account. The complementary finding held for their teacher ratings of proactive aggression. In 1996, Brown and colleagues created a new teacher-rating measure of reactive and proactive aggression. Through factor analysis, they determined that items indexing reactive aggression and items indexing proactive aggression loaded onto separate factors. In our project, the Cronbach's alpha for reactive and proactive aggression were .97 and .92, respectively.

The second measure was the 10-item Depression subscale of the Behavioral Assessment System for Children (BASC). Test-retest reliability (8-week interval) for the teacher BASC Depression subscale was .88, and inter-rater reliability was .65.
In terms of validity, the Depression subscale of the teacher BASC showed a very strong correlation (.84) with the Anxious/Depressed subscale on the Achenbach Teacher Report Form (Reynolds & Kamphaus, 1992). In our project, the internal consistency of the Depression subscale was .81.

The three-item Social Competence subscale of Harter’s Teacher Rating Scale of Child’s Actual Behavior provided teacher data on peer rejection. The teacher version of the Harter has shown good test-retest reliability, with correlations ranging from .67 to .73 over a 6-month period (Cole, Martin, Powers, & Truglio 1996; Harter, 1985). In our project, we obtained a Cronbach’s alpha of .96. Examples of items from the Social Competence subscale of the Harter measures (teacher, parent, and self-report versions) include “This child has a lot of friends” and “This child is popular with others his/her age”. This measure was reverse-scored, so that higher values represented increasing levels of peer rejection.

Parent measures. Parents completed three measures. The first measure contained 22 items and combined Dodge and Coie’s (1987) and Brown and colleagues’ (Brown et al., 1996) measures of reactive and proactive aggression. The measure was the same one used for teachers, but reworded to be appropriate for parents. In support of the validity of this approach, Poulin and Boivin (2000) found that a parent version of the Dodge and Coie measure fit a two-factor model significantly better than a one-factor model. Furthermore, Marcus and Kramer (2001) used Brown and colleagues’ measure reworded for parents; they found a similar factor structure to that obtained by Brown and colleagues using teacher ratings. In our project, the internal consistency of the reactive and proactive aggression subscales was .90 and .84, respectively.

The second measure was the 12-item Depression subscale of the parent BASC. Test-retest reliability (8-week interval) for the parent BASC Depression subscale was .81, and interrater reliability was .73. In terms of validity, the Depression subscale of the parent BASC showed a strong correlation (.66) with the Anxious/Depressed subscale on the Achenbach Child Behavior Checklist (Reynolds & Kamphaus, 1992). In our project, the internal consistency of the Depression subscale was .86.

The third measure was the three-item Social Competence subscale of Harter’s Parent Rating Scale of Child’s Actual Behavior, which provided parent data on peer rejection. The parent version of the Harter has shown good test-retest reliability, with correlations ranging from .71 to .80 over a 4-month period (Cole et al., 1996; Harter, 1985). We obtained a Cronbach’s alpha of .89 for this measure. This measure was reverse-scored, so that higher values represented increasing levels of peer rejection.

Self measure. The children completed three self-report measures. The first measure was the 10-item short version of the Children’s Depression Inventory (CDI; Kovacs, 1981). Extensive psychometric studies of the CDI indicate that it has relatively high levels of internal consistency and test-retest reliability, as well as predictive, convergent, and construct validity (e.g., Carey, Faulstich, Gresham, Ruggiero, & Enyart, 1987; Mattison, Handford, Kales, Goodman, & McLaughlin, 1990; Smucker, Craighead, Craighead, & Green, 1986). In our project, the internal consistency of this measure was .82.

The second measure was a three-item newly-developed scale designed to provide self-report data on reactive aggression and proactive aggression. The item for reactive aggression was “I fight or say mean things when something bad happens to me”, and the two items for proactive aggression were “I pick on or bully other kids just to be mean” and “I fight or say mean things so that I can get something that I want”.

The third measure was the six-item Social Competence subscale of Harter’s Self Perception Profile for Children, which provided self-report data on peer rejection. Harter (1982; 1985) reported a 3-month test-retest reliability of the Social Competence subscale that ranged from .70 to .87. We obtained a Cronbach’s alpha of .69 for this measure. This measure was reverse-scored, so that higher values represented increasing levels of peer rejection.

Descriptive statistics

Descriptive statistics for each measure are provided in Table 1. Statistics for the parent, teacher, and self measures reflect original raw scores averaged across the items of each measure. Statistics for the peer measures represent peer rejection or behavioral nominations which have been standardized within classroom, as described above.

Aggregation of variables

Most measures used in this study were previously well-validated. However, the self-report measure of reactive and proactive aggression was newly developed for this study, as were the peer nomination items for depressive symptoms and the subtypes of aggression. For this reason, for these measures...
to be retained in further analyses, they needed to demonstrate construct validity by correlating significantly with at least one well-validated measure of the same construct from a different source. The peer nomination items for reactive and proactive aggression met this criterion (significant correlations ranged from .35 to .40). However, the peer nomination item for depressive symptoms and the self-report measure of the subtypes of aggression did not (correlations were never higher than .12); thus, these measures were excluded from further analyses.

For each of the four constructs of reactive aggression, proactive aggression, depressive symptoms, and peer rejection, aggregate variables were created for use in all subsequent analyses. To create these aggregate variables, all retained measures from each source were standardized across the 57 participants and averaged.

**Correlation analyses**

Correlations among all constructs are presented in Table 2. Correlations between the aggressive subtypes and depressive symptoms or peer rejection are partial correlations controlling for the other subtype of aggression. This approach is important, because the subtypes of aggression were highly correlated; only by controlling for the other subtype of aggression is it possible to determine the unique relations of reactive and proactive aggression to other constructs. The remaining correlations are bivariate.

**Mediation analyses**

Two mediation models were analyzed. These models included either reactive or proactive aggression as the predictor variable, peer rejection as the mediator, and depressive symptoms as the outcome variable.

In order to determine whether peer rejection mediated the relation between reactive/proactive aggression and depressive symptoms, three initial criteria needed to be satisfied. The first criterion was that reactive/proactive aggression significantly related to depressive symptoms. As can be seen in Table 2, this relation was significant and positive for reactive aggression and significant and negative for proactive aggression. The second criterion was that reactive/proactive aggression significantly related to peer rejection. This relation was significant and positive for reactive aggression but non-significant for proactive aggression. The third criterion was that peer rejection significantly related to depressive symptoms; this relation was significant and positive.

Thus, the initial criteria were met only for the reactive model, and so only this model was tested further. To test for mediation, we regressed depressive symptoms on reactive aggression and proactive aggression (to partial out its effects) in a first block and then added peer rejection in a second block (see Table 3). We compared the regression coefficient for reactive aggression in the second block to this coefficient in the first block. After accounting for peer rejection, the effect of reactive aggression on depressive symptoms was reduced from .89 to .66, although both effects were still statistically significant.

To evaluate this reduction in $B$, the Sobel test (Baron & Kenny, 1986) was used. This test confirmed that the reduction in $B$ was indeed significant, $z = 2.30$, $p < .03$. Although some statisticians argue that the relation between the predictor and the outcome must be reduced to non-significance in order for mediation to be demonstrated (Baron & Kenny, 1986), others suggest that partial mediation can be demonstrated simply through a significant reduction in this relation (Holmbeck, 1997).

Collectively, these results suggest that peer rejection partially mediated the relation between reactive aggression and depressive symptoms. Moreover, this mediational relation was specific to the reactive subtype of aggression and was not found for proactive aggression.
Discussion

The goals of the current study were to investigate whether peer rejection mediated the relation between aggression and depressive symptoms in childhood, and if so, whether this mediational pathway was specific to the reactive subtype of aggression. Our findings suggest that peer rejection indeed mediated the relation between reactive aggression and depression, although this mediation was only partial. Furthermore, this mediational model was specific to the reactive subtype of aggression and did not hold for the proactive subtype.

Our findings bolster support for the validity of the distinction between the subtypes of aggression by providing further evidence that reactive aggression, but not proactive aggression, is positively related to peer rejection and depression. Our results advance previous work, however, by placing these constructs in the context of a mediational model which demonstrates that peers’ feelings of dislike play an important role in explaining the relation between children’s reactive aggressive behavior and resulting depression. The robustness of these findings is enhanced by our use of multiple sources of data to measure all constructs.

These findings provide support for theoretical work (Cole et al., 1997; Patterson & Capaldi, 1990) suggesting that incompetent behaviors result in social failures, which in turn increase children’s vulnerability to depression. Specifically, our results suggest that aggression elicits peer rejection and ultimately depressive symptoms. It is important to note that peer rejection was assessed as a unitary construct in this study and only reflects peers’ feelings of dislike for children. However, the experience of peer rejection is broader than negative peer evaluations and most likely includes components such as the negative behaviors peers use to communicate their dislike for children, a lack in the number and quality of close friendships, as well as children’s negative self-perceptions of their own peer status.

Even if children are disliked by peers, they may need to experience negative behavioral feedback from their peers in order to recognize their negative peer group status and be at risk for depressive symptoms. Peer victimization has been explored as a potential mechanism that peers use to express their negative feelings toward rejected children and that subsequently may contribute to internalizing problems. For instance, Boivin and Hymel (1997) tested a series of mediational models predicting children’s social self-perceptions. Within these models, they observed that peer victimization partially mediated the effect of social preference on children’s loneliness and perceived acceptance. Additionally, several studies have linked the experience of peer victimization to children’s depressive symptoms (Boivin, Hymel, & Bukowski, 1995; Neary & Joseph, 1994). Accordingly, behavioral feedback such as peer victimization may play an important role in the pathway from peers’ evaluations to children’s own negative self-perceptions and depressive symptoms.

A lack of close friendships or a lack in the perceived quality of affiliations may also be factors related to the experience of peer rejection and the development of internalizing problems. For example, while controlling for peer acceptance, Parker and Asher (1993) found that not having a friend and low friendship quality predicted children’s feelings of loneliness. Furthermore, Nangle, Erdley, Newman, Mason, and Carpenter (2003) recently tested a structural model in which children’s lack of popularity showed an indirect effect on children’s loneliness and depressive symptoms through an index of poor friendship quantity/quality. Thus, children’s friendship experiences may represent another critical component in the link between being disliked by peers and developing negative feelings and depressive symptoms.

Finally, even if rejected children do encounter negative behaviors from peers and lack close, fulfilling friendships, not all of these children will recognize and internalize their negative peer group status. Research suggests that social self-perceptions such as loneliness and self-perceived rejection may account for the influence of peer rejection on children’s depressive symptoms. For instance, Nangle et al. (2003) found that children’s lack of popularity and friendship impacted their depressive symptoms through feelings of loneliness. Moreover, several studies have demonstrated that self-perceptions of peer rejection mediate the relation between actual peer rejection and depressive symptoms (Cole et al., 1997; Panak & Garber, 1992). Unfortunately, no study to date has examined all of the components of peer rejection discussed above and linked them to initial aggressive behavior and resulting depressive symptoms. Future researchers should consider assessing each of these components of peer rejection separately and testing a model which links these processes sequentially.

Despite our limited assessment of peer rejection, the results of this study refine previous theories by suggesting that particular types of incompetent behavior, and even particular types of aggression, are implicated in the pathway to depression. Specifically, we found that reactive aggression, but not proactive aggression, was related to depressive symptoms through the mediator of peer rejection. Two possible explanations for the specific role of reactive aggression in our mediational model come to mind. First, reactive aggressive behaviors are more likely to elicit dislike from peers than proactive aggressive behaviors. Second, peers may be more likely

Table 3
Analysis of the mediational role of peer rejection in the relation between reactive aggression and depressive symptoms

<table>
<thead>
<tr>
<th>Blocks</th>
<th>Outcome variable</th>
<th>Predictor</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>Depressive symptoms</td>
<td>Reactive aggression</td>
<td>.89**</td>
<td>.17</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proactive aggression</td>
<td>−.62*</td>
<td>.18</td>
<td>−.66</td>
</tr>
<tr>
<td>Block 2</td>
<td>Depressive symptoms</td>
<td>Reactive aggression</td>
<td>.66**</td>
<td>.16</td>
<td>.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proactive aggression</td>
<td>−.50*</td>
<td>.16</td>
<td>−.53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer rejection</td>
<td>.43**</td>
<td>.11</td>
<td>.41</td>
</tr>
</tbody>
</table>

Note. *p < .01; **p < .001.
to provide clear behavioral feedback about dislike in response to reactive aggression than proactive aggression. In fact, empirical findings suggest that reactive aggression is more related to being victimized by peers than proactive aggression (Camodeca et al., 2002; Pellegrini et al., 1999). Thus, reactive aggression may result in more negative feedback from peers, greater opportunity for internalization of this feedback, and ultimately greater risk for depressive symptoms.

It is important to note that peer rejection only partially mediated the relation between reactive aggression and depressive symptoms. In fact, even though this relation was significantly reduced when the mediator of peer rejection was included in the model, it remained significant. The additional components of peer rejection discussed above may play a role in this relation along with other mechanisms outside of the peer context. For example, Patterson and Capaldi (1990) theorized that incompetent behaviors such as aggression may result in rejection not only by a child’s peers, but by his/her parents, teachers, and siblings as well. The experience of rejection in these other significant relationships may play a critical role in the development of depressive symptoms. Another possible factor may be the frequent punishment or revocation of privileges that often follows aggression in both the classroom and at home. If such consequences occur repeatedly in a child’s everyday life, they may result in negative self-evaluations or sadness. Furthermore, aggression may indirectly result in failure in other domains. For example, children who have serious behavior problems in school are likely to perform poorly academically, due to their lack of attention to academic tasks and removal from the classroom for disruptive behaviors. If children internalize negative appraisals about their academic failures, these evaluations may also play a role in the development of depressive symptoms.

Interestingly, proactive aggression was negatively related to depressive symptoms. In addition, proactive aggression shared a negative but nonsignificant correlation with peer rejection; it is possible that this effect would have reached significance within a larger sample of children. Together, these relations tentatively suggest that proactive aggression may serve to buffer negative social experiences and internalizing problems. Proactive aggressive behaviors may have this buffering effect in several ways. First, as suggested above, proactive aggression could frighten peers and prevent negative social experiences such as peer victimization. Second, proactive aggression is related to certain positive behavioral correlates, such as leadership and having a sense of humor (Dodge & Coie, 1987; Poulin & Boivin, 2000), which could also attenuate aversive peer experiences and even foster the development of friendships. Furthermore, this finding is consistent with previous work by Dodge et al. (1990) and Coie et al. (1991). In their study of the playgroup behavior of first- and third-grade boys, they found that observational measures of proactive bullying behavior were related to popular sociometric status in the first grade, but rejected sociometric status in the third-grade. They speculated that bullying behavior may be acceptable and even desirable when children are in first grade and lack the social skills to display more advanced forms of leadership; however, by the third grade, children expect their peers to have mastered more sophisticated ways of persuading others, and so bullying behavior is not well-tolerated. This developmental timeline maps well onto the findings of the current study, in that children were only at the beginning of second grade when data were collected.

Throughout our analyses, when we examined the relations between each of the two subtypes of aggression and the constructs of peer rejection and depression, we were careful to statistically control for the other subtype of aggression, by including it as a covariate. Thus, the relation that was found between reactive aggression and peer rejection, for example, emerged after taking into account all of the variance that was accounted for by proactive aggression. This approach is important, because across many studies, including this one, the correlation between reactive and proactive aggression has consistently been quite high. However, by using an approach such as we used here, we were able to examine the unique, non-overlapping relations between the constructs of peer rejection and depression and reactive versus proactive aggression.

In evaluating the results of the current investigation, several limitations of this study must be considered. First, compared to similar investigations, our sample size (N = 57) was relatively small, limiting our power to detect relations among variables. It is possible, for example, that the mediational effect would have emerged more strongly with a larger sample and greater statistical power. However, the fact that findings emerged using such a small sample is itself noteworthy.

Second, the current sample over-represented aggressive children, and so our findings may not generalize to samples of children with a more normal distribution of aggressive behavior. However, it seemed important to over-sample for aggression in the current study, in order to insure that adequate levels of aggressive behavior were represented. Moreover, because we were primarily interested in aggressive children and their increased risk for depressive symptomatology, it was appropriate to over-sample these children in our study.

Third, these results emerged from a second grade sample and should not be generalized beyond this age group. Research has found that aggressive behaviors decline steadily throughout childhood (Stanger, Achenbach, & Verhulst, 1997). Thus, other incompetent social behaviors may become more likely than aggression to elicit peer rejection and contribute to depressive symptoms in older children. Additionally, in late childhood and adolescence, children become less concerned with peer group acceptance and place more emphasis on developing and maintaining intimate relationships (Boivin & Hymel, 1997). Accordingly, by late childhood, negative peer group evaluations may no longer represent a potent risk factor for depressive symptoms. Furthermore, depressive symptoms are likely to be more common and more stable in later childhood and adolescent samples. For these reasons, the pattern of findings obtained here might look different if older children were studied.

Fourth, due to the small scale of this study, we did not test for gender differences within the mediational model; however, it is possible that different relations may have emerged across gender. Research suggests that boys and girls tend to display different forms of aggressive behavior. More specifically, Crick and Grotpeter (1995) found that boys and girls displayed similar levels of overall aggression but that boys exhibited more overt aggressive behaviors, whereas girls showed more relational aggression. The current study focused on the function of aggression (i.e., reactive versus proactive) and did not distinguish between different forms of aggressive behavior. Certain forms of aggression may be more likely to elicit rejection in girls’ peer groups than in boys’ peer groups and vice versa. For instance, less gender-normative aggressive
behaviors, such as girls’ overt aggression, may be more likely to elicit negative evaluations and rejecting behaviors from same-gender peers. Research is needed to explore how the form of aggression, as well as the interaction between the form and function of aggression, contribute to the experience of peer rejection and the development of depressive symptoms across gender.

Fifth, we collected only concurrent data in this study, which precluded us from drawing conclusions about the temporal relations between aggression and depressive symptoms. The theories we drew on suggest that aggressive behavior may precede depressive symptoms; however, it is also possible that depression precedes aggression, and such a distinction is not testable with the current data set. Moreover, with concurrent data, it is not possible to demonstrate that our mediational model represents a sequential process in which aggressive behavior leads to later peer rejection which in turn leads to later depressive symptoms. Future researchers should consider collecting longitudinal data to address these issues more completely.

In summary, our findings suggest that peer rejection mediates the relation between aggression and depression, and that this mediational pathway is specific to reactive aggression. Although the current study represents a first attempt at understanding these relations, the limitations outlined above suggest that considerably more work remains to be done to fully understand the pathway from children’s aggressive behavior to their depressive symptoms.

References


