

The Role of Peer Rejection in the Link between Reactive Aggression and Academic Performance

Paula J. Fite · Michelle Hendrickson · Sonia L. Rubens ·
Joy Gabrielli · Spencer Evans

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Abstract

Background There is substantial evidence to suggest that aggressive behavior is associated with poor academic performance in school-aged children. However, less is known about how different subtypes of aggression are related to academic performance and what variables may account for this association.

Objective The current study examined unique associations between reactive (aggression in response to provocation) and proactive (goal-oriented calculated aggression) subtypes of aggression and academic performance. Further, the study evaluated whether peer rejection accounted for the link between these aggression subtypes and academic problems.

Methods Study questions were examined using a sample of 147 school-age children ($M = 8.22$, $SD = 1.99$, 54.4 % male) who attended a community-based after school program. Path models were used to estimate the proposed associations using Mplus 6.12 statistical software.

Results As expected, findings indicated that high levels of reactive, not proactive, aggression were uniquely associated with low levels of academic performance, and peer rejection accounted for this association.

Conclusions Results advance the literature linking aggression and academic difficulties by indicating that reactive aggression, but not proactive aggression, is associated with academic difficulties. Findings also support previous literature suggesting that peer relationships are an important target of prevention and intervention efforts aimed at improving school performance, particularly for individuals who exhibit reactively aggressive behavior.

Keywords Reactive aggression · Academic performance · Peer rejection

Introduction

Academic difficulties are prevalent among youth. The U.S. Department of Education (2010) reported that approximately 34 % of elementary school children demonstrate reading skills that are below grade level and 19 % lack grade-appropriate math skills. Further, academic difficulties have been linked to numerous negative outcomes throughout the lifespan, such as poor job satisfaction and work competence, trouble with the law, and problems with romantic relationships (Masten et al. 1995, 2005; Roisman et al. 2004). Given the prevalence and the potential consequences associated with academic problems, research is needed to better understand the factors that may contribute to these difficulties, particularly those that are preventable and treatable, such as aggression and conduct problems (e.g., Kazdin 2010; Webster-Stratton and Reid 2003).

Indeed, there is substantial evidence to suggest that aggression and other antisocial behaviors precede academic difficulties in school-age children (e.g., Dodge and Pettit 2003; Hinshaw 1992; Loveland et al. 2007; Masten et al. 2005). However, aggression is not a unidimensional construct; rather, researchers often categorize aggression by its function or motivation behind the aggression. To date, one study has examined the link between reactive (aggressive behavior in response to provocation) and proactive (unprovoked, goal-directed aggressive behavior) functions of aggression and academic performance. Day et al. (1992) found evidence to suggest that reactive aggression is more strongly associated with academic difficulties than proactive aggression. However, additional research is needed in order to understand factors that may contribute to the link between specific subtypes of aggression and academic difficulties. Peer rejection has been found to mediate the link between rule-breaking behavior and academic difficulties (e.g., Fite et al. 2012c); therefore, peer rejection may also play a role in the link between reactive aggression and academic performance. Accordingly, the current study advances the aggression and academic performance literature by further examining the associations between reactive and proactive aggression and academic performance in a sample of school-age children. Additionally, the role of peer rejection in these associations is evaluated.

Proactive and Reactive Aggression

Although many children exhibit both proactive and reactive functions of aggression, theoretical as well as empirical support exists for the distinction between reactive and proactive aggression (Dodge and Coie 1987; Fite et al. 2006; Little et al. 2003). Reactive aggression can best be explained by the frustration-aggression hypothesis, which describes aggression as a response to a perceived provocation or threat (Berkowitz 1978). In contrast, social learning theory may better explain proactive aggression (Bandura 1973), as this theory posits that the perpetration of an aggressive act is contingent upon a learned expectancy for reinforcement.

These aggressive subtypes are differentially associated with a host of behavioral, social, and emotional outcomes, further supporting the reactive/proactive dichotomy (Fite et al. 2008; Vitaro and Brendgen 2011; Vitaro et al. 2006). For example, reactive, but not proactive, aggression is consistently uniquely linked with high levels of peer rejection and low levels of peer acceptance (Day et al. 1992; Dodge et al. 1997; Fite et al. 2012a, b; Raine et al. 2006).

Moreover, there is a small but convincing body of literature linking reactive, but not proactive, aggression to low verbal intelligence and executive functioning deficits (e.g., Arsenio et al. 2009; Connor et al. 2003; Dodge et al. 1997). In fact, proactive aggression

has been found to be associated with high levels of verbal intelligence (Arsenio et al. 2009). However, less is known about the relations between these aggressive subtypes and actual school performance, which is an important predictor of adult adjustment (Masten et al. 2005). Nas et al. (2005) found that adolescents with more education exhibited less reactive aggression than less educated youth and juvenile delinquents. This study suggests that reactive aggression may be linked to lower levels of educational attainment, but it does not speak to how reactive and proactive aggression may influence actual academic performance in the classroom. To our knowledge, only one study to date has examined the link between reactive and proactive aggression and academic performance (Day et al. 1992). Consistent with the larger aggression literature (e.g., Loveland et al. 2007; Masten et al. 2005), Day et al. (1992) found that in general aggressive children performed lower academically than non-aggressive children. However, only children in the purely reactively aggressive group (not purely proactively aggressive or both proactively and reactively aggressive groups) performed statistically worse academically than non-aggressive youth. The utility of grouping children based on arbitrary cutoff criteria on levels of aggression is questionable, however, particularly given the small number of children who fall into a proactive aggression-only group (Fite et al. 2012a).

Due to the limited research available regarding the impact of these aggression subtypes on academic performance, and the long-term implications associated with poor academic performance, it is important to further evaluate the unique contributing effects of proactive and reactive aggression on academic performance. Thus, a primary goal of the current study was to examine associations between reactive and proactive aggression and academic performance.

The Role of Peer Rejection in Academic Performance

Peer rejection is considered a stressful life event that can lead to negative outcomes due to feelings of isolation and failure to bond with conventional social institutions (e.g., Bierman 2004; Dodge et al. 2003; Prinstein and Aikins 2004; Prinstein et al. 2000). Children who are rejected by their peers may become less invested in the norms of conventional social institutions (such as school), putting them at risk for subsequent problem behaviors, including academic difficulties (Bierman 2004; Coie 1990; Hinshaw 1992; Masten et al. 2005). Moreover, there is evidence to suggest that peer rejection may play a role in the pathway between problem behaviors and academic difficulties. For instance, Fite et al. (2012c) found that rejection by peers mediated the relation between rule-breaking behavior and academic difficulties. Given the evidence suggesting a relation between peer rejection and academic performance (Coie 1990; Hinshaw 1992; Masten et al. 2005) and peer rejection accounting for the link between rule-breaking behavior and academic performance (Fite et al. 2012c), the need to examine the role of peer rejection in the relation between reactive and proactive functions of aggression and academic performance is indicated. Identification of the specific factors that account for the association between the aggression subtypes and academic difficulties could directly inform preventative and treatment intervention efforts aimed at reducing the developmental progression from aggression to academic difficulties. Accordingly, the current study evaluates the role of peer rejection in the link between reactive and proactive aggression and academic performance.

As stated above, reactive, but not proactive, aggression has been consistently uniquely linked to peer rejection (Fite et al. 2012a, b). Additionally, peer rejection has been found to mediate associations between reactive, but not proactive, aggression and other negative outcomes (i.e., substance use and anxious/depressed symptoms; Fite et al. 2007, 2012b).

Therefore, we expected peer rejection to partially account for the link between reactive aggression and poor academic performance.

Current Study

In sum, the current study sought to further advance the literature by examining the links between reactive and proactive subtypes of aggression and academic performance. Moreover, we examined the indirect effects of peer rejection on these associations. We expected reactive aggression to be more strongly negatively associated with academic performance than proactive aggression, with peer rejection playing a role in the link between reactive aggression and poor academic performance.

Methods

Participants

Participants were 147 school-age children, ranging from 5 to 13 years of age ($M_{age} = 8.22$ years, $SD = 1.99$). The sample was comprised of children from a community-based non-profit program aimed at providing childcare services to a socioeconomically disadvantaged population of youth. The program provides after-school services to children from 11 schools in a mid-size southeastern community. Gender dispersion was approximately equal, with 46 % of the sample identifying as female. The majority of participants were African American (67 %), with the next largest group Caucasian (21 %), followed by Hispanic/Latino (5 %), and biracial or other race/ethnicity (8 %).

According to demographic data collected by the community center, the sample was considered to be low-income, with families averaging \$12,000 in annual income. Most children in the study received a fee reduction for their attendance to the program (96 %); the majority (87 %) received a government subsidy as part of a program that offers childcare subsidies to low-income and at-risk families. The sample was considered to be an “at-risk” population due to exposure to a number of environmental and economic stressors.

Study participants attended the program regularly, with 86 % of children attending daily and just 7 % attending three days or fewer each week on average. Children spend up to 3.5 h per day at the program, with all attendees receiving a snack and dinner while at the program. Note that the current sample is representative of the larger population of approximately 300 students who attend the after-school program with regard to demographics and rates of program attendance.

Measures

Proactive and Reactive Aggression

Proactive and reactive aggression were assessed through the education director’s reports on Dodge and Coie’s (1987) Proactive–Reactive Aggression Questionnaire. This measure is comprised of six items with response options on a five-point Likert scale from 1 (Never) to 5 (Almost Always). Three items assessed proactive aggression (e.g., “This child uses physical force (or threatens to use physical force) to dominate other kids”), and the other three assessed reactive aggression (e.g., “When this child has been teased or threatened,

he/she gets angry easily and strikes back”). The means for each subscale were calculated and used in the analyses. Previous research has provided evidence for the reliability and validity of this instrument with school age children (e.g., Dodge et al. 1997; Waschbusch 1998). The subscales demonstrated strong internal consistencies within the current sample (reactive aggression: $\alpha = .99$; proactive aggression: $\alpha = .98$).

Peer Rejection

Peer rejection was assessed through the education director’s reports on four items from the Teacher Report Form (Achenbach and Rescorla 2001). These items presented statements describing peer difficulties, such as not getting along with others and not being liked by others, to which the education director was asked to rate children on a three-point Likert scale: 1 (Not true), 2 (Somewhat or sometimes true), or 3 (Very or often true). Previous research using this subscale has found it to be correlated with other measures of related peer constructs, thus supporting its construct validity with school-age populations (e.g., Fite et al. 2009). Additionally, these items demonstrated strong internal consistency within the current sample ($\alpha = .91$).

Academic Performance

Academic performance was assessed through the facility director’s review of children’s academic records (i.e., report cards). The director was asked to rate each child’s academic performance on a five-point Likert scale: 1 (Well below average), 2 (Somewhat below average), 3 (Average), 4 (Somewhat above average), and 5 (Well above average). Note that this method of assessment was necessary because the research team was not granted access to the children’s academic files. Scores ranged between 1 and 4, with the mean score falling in between the “Somewhat below average” and “Average” range. Fifty-six percent of children’s scores fell in the “Below average” range.

Procedures

Eligible study participants were children who attended a community-based afterschool program. Caregivers were alerted to the study by a sign at a recruitment table reading, “Earn \$5.00”, which was located at the main entrance of the building for one week. Upon approaching the table to express interest in the study, families were provided further information about the project. This information included explanation of the voluntary nature of the study, a brief description of overarching study aims and the study methodology, an optional review of items in the questionnaire, and an explanation of the five-dollar compensation for child participation.

Upon attainment of caregiver informed consent, surveys completed by the child, the education director, and the director of the facility were collected. Surveys were administered through a Medialab software program. The education director and the facility director were given study laptops to use for a period of two weeks to complete the surveys. The facility director is a masters-level position that entails overseeing the entire program. He was responsible for the staff and all programs that were conducted within the facility. He also handled all issues with families and was in charge of maintaining up-to-date records on all program attendees. The facility director reported on basic demographics, academic functioning, and attendance to the program for each study participant based on facility

records. The facility director provided written consent prior to data collection and received two dollars for every child report completed.

The education director is a bachelors-level position that entails working one-on-one and in group settings with children. The education director was selected for reporting on child behavior and peer relationships due to his direct involvement with the children across a variety of settings throughout the afterschool program. Specifically, he supervised homework sessions, which are a major component of the program. He also supervised field trips and extracurricular activities, as well as provided bus transportation. Given his daily and regular interaction with all the children, this individual presented as an ideal reporter on the children's behavior across various settings. The education director provided written consent prior to data collection and received three dollars for every survey completed.

Finally, note that child survey data regarding feelings and contextual risk factors were also collected, but were not relevant to the present study. This study received approval from the researchers' institutional review board. The authors had no conflicts of interest in conducting this research.

Data Analyses

Proposed associations were evaluated by estimating a path model using Mplus 6.12 statistical software (Muthén and Muthén 2010). Full information maximum likelihood estimation (FIMLE) was employed to accommodate missing data (<10 %). FIMLE has been found to be less biased and more efficient than other strategies used to accommodate missing data (Arbuckle 1996). Model fit was evaluated using χ^2 values, Comparable Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA), with a model considered a good fit when $\chi^2/2 < 2.0$, CFI $\geq .95$, and RMSEA $\leq .08$ (Bollen and Curran 2006; Hu and Bentler 1999; Tabachnick and Fidell 2001).

Standardized path coefficients can be interpreted as r-values (Durlak 2009), with r-values of .10 considered small, r-values of .30 considered medium, and r-values of .50 or greater considered large effects (Cohen 1988).

The biased corrected bootstrap method was used to evaluate indirect effects. The biased corrected bootstrap method provides a more accurate balance between Type 1 and Type 2 errors than other methods used to evaluate indirect effects (MacKinnon et al. 2004). Five hundred bootstrap samples and 95 % confidence intervals (CIs) were used to evaluate significance of indirect effects.

Results

Descriptive Statistics

Correlations, means and SDs are reported in Table 1. Consistent with previous research (Fite et al. 2012a, c), reactive and proactive aggression were highly correlated, sharing approximately 79 % of their variance.¹ Both aggression subtypes were strongly positively

¹ Due to the high correlation between proactive and reactive aggression, Tolerance and Variance Inflation Factor (VIF) values were computed in order to evaluate whether multicollinearity was of concern. Tolerance values $< .1$ and VIF values > 10 suggest issues of multicollinearity (Cohen et al. 2003). Tolerance and VIF values of both proactive (tolerance = .19 and VIF = 5.23) and reactive (tolerance = .19 and VIF = 5.27) aggression were acceptable, suggesting that multicollinearity between the aggression subtypes was not a concern in the present study.

Table 1 Correlations, means, and SDs of study variables

	1	2	3	4	5	6	7
1. Age	–						
2. Gender	.07	–					
3. Race	–.10	–.09	–				
4. Proactive aggression	.25*	.13	.22*	–			
5. Reactive aggression	.21*	.22*	.21*	.89*	–		
6. Peer rejection	.30*	.17*	.09	.69*	.75*	–	
7. Academic performance	.14	–.45*	.06	–.16*	–.27*	–.30*	–
Mean	8.22	1.54	1.80	1.59	1.90	1.27	2.33
SD	1.99	.50	.40	.99	1.24	.46	.85

* $p < .05$; Gender (1 = female, 2 = Male); Race (1 = Caucasian, 2 = Minority)

associated with peer rejection. Further, both reactive and proactive aggression were negatively associated with academic performance; however, reactive aggression was more strongly associated with academic performance than proactive aggression. Peer rejection was also negatively associated with academic performance.

Effects for age, gender, and race were also observed. Age was positively associated with both aggression subtypes and peer rejection, with older children exhibiting higher levels of aggression and peer rejection than younger children. Boys exhibited higher levels of reactive aggression and peer rejection and performed worse academically than girls. Minority youth exhibited higher levels of both reactive and proactive aggression than Caucasian youth.

Path Models

An initial model in which academic performance was regressed on reactive aggression, proactive aggression, age, gender, and race was estimated in order to evaluate the unique associations between these aggression subtypes and academic performance. This model was fully saturated (i.e., 0 degrees of freedom), resulting in a perfect fit to the data. Accordingly, model fit statistics are not reported. As hypothesized, reactive aggression was uniquely negatively associated with academic performance ($B = -.28$, $p = .02$), while proactive aggression was not statistically associated with academic performance ($B = .15$, $p = .26$).

Peer rejection was then added to the model (see Fig. 1). Note that gender and race were initially included as predictors of peer rejection, which resulted in a fully saturated model. However, these paths were not statistically significant. Further, excluding these paths from the model did not result in a significant decrement in the model fit, and path coefficients of the other variables did not change when these two paths were removed. Accordingly, the model depicted in Fig. 1 was evaluated. The estimated model provided a good fit to the data, $\chi^2(2) = .81$, $p = .67$, CFI = 1.00, RMSEA = .00. As posited, reactive, but not proactive, aggression was uniquely positively associated with peer rejection, and this was a large effect. Peer rejection was negatively associated with academic performance, and this was a medium effect. Once also taking into account the variance associated with peer rejection, reactive aggression was no longer statistically associated with academic performance. The test of indirect effects further suggested that peer rejection accounted for the link between reactive aggression and academic performance ($B = -.45$, 95 % CI = $-.31$

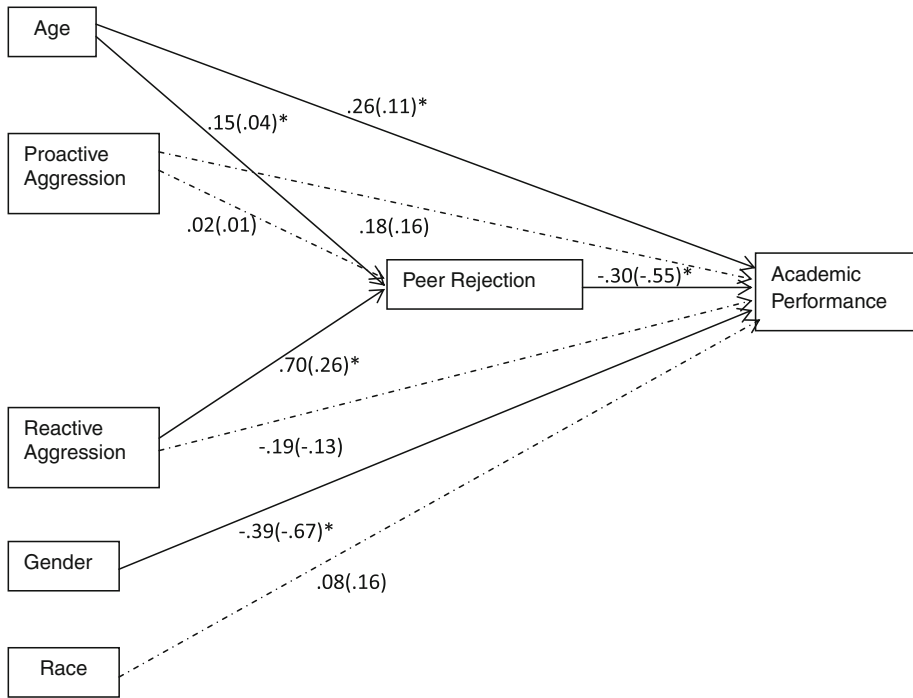


Fig. 1 Estimated path model. Standardized parameter estimates are reported *outside parentheses* and unstandardized parameter estimates are reported *inside parentheses*. * $p < .05$, and dotted lines represent estimated but nonsignificant paths. Covariances between all exogenous variables were estimated but are not depicted for clarity purposes. Gender (1 = female; 2 = male); Race (1 = Caucasian, 2 = Minority). Model Fit: $\chi^2(2) = .81$, $p = .67$, CFI = 1.00, RMSEA = .00

to $-.02$). Findings indicated that high levels of reactive aggression were associated with high levels of peer rejection, which in turn were associated with low levels of academic performance.^{2,3}

Discussion

The current study extended the aggression and academic difficulties literature by evaluating unique associations between reactive and proactive subtypes of aggression and academic performance. As expected, findings supported a negative association between

² There is some evidence to suggest that there may be gender differences in the link between verbal intelligence and reactive aggression (e.g., Connor et al. 2003) as well as the impact of peers on problem behavior (Burks et al. 1995). Accordingly, a multiple group model approach was employed to determine if associated varied across gender. Constraining paths to be equal across the groups did not result in a significant decrement in the model fit, $\Delta\chi^2(8) = 4.79$, $p = .78$, suggesting that no gender differences were evident.

³ Due to the large age range included in the study, age was examined as a moderator in the proposed mediated pathways by adding aggression \times age (i.e., proactive aggression \times age and reactive aggression \times age) and social problem \times age interactions to the model. No significant interactions were found ($ps > .25$), suggesting that associations did not vary as a function of age.

reactive, but not proactive, aggression and academic performance. Further, results suggested that peer rejection accounted for the link between reactive aggression and academic performance. The finding that reactive, but not proactive, aggression is associated with poor academic performance is consistent with Day et al.'s (1992) study, which found that only purely reactively aggressive youth performed worse academically than non-aggressive youth. Reactive aggression has been associated with a wide range of cognitive deficits in childhood (e.g., Arsenio et al. 2009; Connor et al. 2003; Dodge et al. 1997), and it may be that reactive aggression is more readily associated with academic problems as a result of cognitive impairments.

However, the current findings suggest that peer rejection is also contributing to this association. In fact, the indirect effects model we evaluated indicated that peer rejection fully accounted for the link between reactive aggression and poor academic performance. Consistent with previous research, this study found that reactive aggression was associated with peer rejection (e.g., Dodge et al. 1997; Fite et al. 2012a, b; Raine et al. 2006). The impulsive and disruptive nature of reactive aggression likely results in negative evaluation and ultimately rejection by peers. Further, previous studies have found that children who exhibit reactive aggression and are rejected by their peers are more likely to experience a host of negative outcomes, including an increased risk of substance use (Fite et al. 2007) and internalizing symptoms (Fite et al. 2012b). The current study extends this prior work by demonstrating that peer rejection also impacts reactively aggressive children's academic success. Peer rejection may result in academic difficulties due to a failure to bond to conventional institutions (Bierman 2004). That is, experiencing rejection from peers could cause low motivation in addition to a lack of confidence in academic performance (Bierman 2004; Coie 1990; Rubin et al. 1998), ultimately resulting in poor academic performance.

As anticipated, proactive aggression was not uniquely related to academic performance. This is consistent with Day et al. (1992) prior findings. Proactive aggression is goal-oriented and calculated by definition, with an individual needing to be skillful in planning, forethought, and attentional focus. That is, an individual needs to exhibit high levels of executive functioning in order to engage in proactively aggressive behavior, and these same skills are likely necessary in order to perform well academically. In fact, there is some evidence to suggest that proactive aggression is associated with higher levels of verbal intelligence (Arsenio et al. 2009), which may lead to improved school performance. Note that although proactive aggression was negatively correlated with academic performance, regression analyses suggested that the unique association (while also taking into account the shared variance of reactive aggression) was in the positive direction. However, this relation was not statistically significant and therefore no conclusions should be drawn from this association.

The lack of a unique association between proactive aggression and poor academic performance may also be a reflection of the fact that proactive aggression does not share the same unique risk factors as reactive aggression. Proactive aggression is not as disruptive as reactive aggression (Vitaro and Brendgen 2011; Waschbusch et al. 1998); therefore purely proactively aggressive behavior may not result in less time in the classroom, a factor which may lead to worse academic performance. Moreover, proactive aggression is not as strongly associated with peer rejection as reactive aggression (e.g., Fite et al. 2012a, b; Vitaro and Brendgen 2011), further reducing the risk for academic difficulties (Bierman 2004; Fite et al. 2012a, c; Masten et al. 2005).

Limitations and Future Directions

Although the present study provides unique insight into associations between the aggression subtypes, peer rejection, and academic performance, several limitations should be considered. First, the data were cross-sectional and correlational in nature, and therefore causal inferences cannot be made. A second potential limitation regarding the generalization of this study's findings was the use of a low socioeconomic, predominantly African American sample, and findings may not generalize to other populations. Additionally, this sample was restricted to youth ranging from age five to thirteen, which hinders application of these findings to adolescents. Further, variability across the measure of academic performance was restricted, with no child being rated "Above Average" and the sample mean falling below "Average." Although assessing academic performance through children's actual grades would have been ideal, study staff were not privy to this information necessitating the use of director report using a single item. We note that findings are consistent with previous research, providing some evidence of the validity of this measure. Nonetheless, it will be important for future research to evaluate these associations using a more stringent assessment of academic performance. Moreover, each construct was only assessed by a single informant (education or facility director). It would have been beneficial to have each construct assessed by multiple informants. Finally, the current study was unable to examine the impact of cognitive deficits in these associations. It should be acknowledged that the cognitive deficits associated with reactively aggressive behavior have also been linked to peer rejection and poor academic performance (e.g., Arsenio et al. 2009; Clark et al. 2002; Connor et al. 2003; Nigg et al. 1999). Thus, it is likely that cognitive deficits contribute to the findings of the current study.

Given the above limitations, recommendations for future research in this area include the need to examine associations longitudinally, the use of more comprehensive measures of academic functioning (e.g., report cards), the inclusion of data from multiple informants for study constructs, sampling across a broader range of academic performance levels, application of the present model in older age groups in a more ethnically and socioeconomically diverse sample, and including measures of cognitive ability and executive functioning.

Conclusions and Study Implications

Despite these limitations, the current findings have many important conceptual and intervention implications. First, the current study provides support for the need to distinguish between reactive and proactive functions of aggression by providing further evidence for unique outcomes associated with these aggression subtypes. Specifically, findings indicate that the negative outcomes associated with reactive aggression include academic difficulties. These findings advance the literature supporting a link between aggression and academic difficulties (e.g., Dodge and Pettit 2003; Hinshaw 1992; Masten et al. 2005) by indicating the need to specifically target reactively aggressive behavior for the prevention of academic difficulties.

Moreover, peer rejection appears to be playing a major role in the association between reactive aggression and poor academic performance. Current findings contribute to a growing body of literature, suggesting that reactive aggression is uniquely contributing to the variance associated with peer rejection (as indicated in the path model), which subsequently results in more serious outcomes, including academic difficulties (Fite et al. 2007, 2012b). Thus, peer rejection appears to be a particularly important target of

intervention for the negative outcomes associated with reactively aggressive behavior, including academic difficulties.

Peer rejection itself is a serious problem that is associated with a host of negative outcomes, including academic difficulties (Bierman 2004). Thus, programs that are aimed at improving academic performance may need to include a focus on peer relationships. Social skills training may be useful for improving these difficulties, as there is growing evidence supporting the effectiveness of social skills training for treating child behavioral and emotional problems (Kazdin 2010; Webster-Stratton 1990; Webster-Stratton and Reid 2003). Perhaps improving social skills can also aid in improving academic performance, particularly for reactively aggressive youth.

Finally, findings should not be interpreted in a way that suggests that proactive aggression is not a concern for school teachers and counselors. Rather, while reactive aggression remains an essential target for the prevention of peer rejection and academic difficulties, proactive aggression needs to be targeted for the prevention of delinquent peer affiliations and antisocial behavior, such as bullying (Fite et al. 2012a).

Conflict of interest The authors declare that they have no conflict of interest.

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