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Friendships with Peers Who are Low or High in Aggression as Moderators of the Link between Peer Victimization and Declines in Academic Functioning

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Abstract

This paper reports two prospective investigations of the role of friendship in the relation between peer victimization and grade point averages (GPA). Study 1 included 199 children (105 boys, 94 girls; mean age of 9.1 years) and Study 2 included 310 children (151 boys, 159 girls; mean age of 8.5 years). These children were followed for two school years. In both projects, we assessed aggression, victimization, and friendship with a peer nomination inventory, and we obtained children's GPAs from a review of school records. Peer victimization was associated with academic declines only when children had either a high number of friends who were above the classroom mean on aggression or a low number of friends who were below the classroom mean on aggression. These results highlight the importance of aggression levels among friends for the academic adjustment of victimized children.

Keywords

Peer relationships; Academic functioning; Friendship; Peer victimization

There is growing evidence that children who experience frequent mistreatment by peers are at risk for deficient academic performance and other related forms of school maladjustment. Children who are persistently targeted for bullying may develop negative attitudes toward school and, as a result, disengage from the academic environment (Kochenderfer and Ladd 1996a, b). Victimization by peers can also lead to feelings of loneliness and depression that interfere with concentration and focus in the classroom (Juvonen et al. 2000; Schwartz et al. 2005). In addition, peer victimization has been linked to the emergence of disruptive behavior disorders and other impairments in self-regulation (Schwartz et al. 1998) that can detract from classroom performance (Wentzel 1991). Not surprisingly, a number of researchers have reported modest associations between victimization in the peer group and poor achievement

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(Buhs and Ladd 2001; Juvonen et al. 2000) although the availability of relevant longitudinal data is currently limited.

The negative impact of peer group victimization on academic functioning is important to consider because school maladjustment can portend dysfunction later in life. Indeed, there is considerable evidence that early academic failure is predictive of later internalizing and externalizing problems (Cole et al. 1996; Dishion et al. 1991; Patterson et al. 1998). Adequate performance in school is a salient developmental task of childhood and adolescence (Masten and Curtis 2000) and academic difficulties can interfere with functioning in other domains (Masten et al. 2005).

The existing findings have provided some insight into the pathways through which victimization in the peer group might influence academic outcomes. However, research in this area has relied primarily on main-effect models of risk. Such models incorporate the assumption that there is a linear relation between exposure to victimization by peers and academic functioning difficulties. Victimization in the peer group is also presumed to be associated with the same level of risk for school problems across all children. These perspectives offer an important starting point, but do not take into account the potential influence of moderator variables (Rutter 1989). There may be other factors embedded in the school environment that exacerbate or mitigate the processes linking maltreatment by peers to adjustment problems.

Within the bully/victim literature, a relevant domain of inquiry has focused on friendship (Hodges et al. 1999). Researchers have suggested that friends can reduce a child's risk for bullying in the school peer group as well as mitigate anxiety regarding future vulnerability (Boivin et al. 2001). The underlying presumption is that friends act as defenders or allies for children whose behavioral attributes might otherwise lead to mistreatment by peers (Hodges et al. 1999). For example, Hodges et al. (1997) found cross-sectional associations between maladaptive behavioral styles and peer victimization. The observed associations were attenuated for children who were able to establish friendships with classmates. Likewise, Schwartz et al. (1999) reported that friendship moderates the relation between externalizing behavior in the early years of elementary school and victimization by peers in third and fourth grade. Schwartz and colleagues (Schwartz et al. 2000) later described evidence that friendship has a similar mitigating influence on the relation between harsh home environments and peer victimization.

Although past research has emphasized the role of friendship in protecting vulnerable children against risk for bullying, friendship could also serve a critical function for youths who have already experienced mistreatment by peers. Friends can provide a context for children to develop core self-regulatory skills (Hartup and Stevens 1997; Newcomb and Bagwell 1995, 1996; Price 1996). These competencies could then facilitate adjustment at school and engagement in learning (Gauze et al. 1996) despite exposure to stressors. In addition, friendship may help mitigate negative attitudes toward school by providing children with encouragement, social support, and opportunities for play during the school day.

The available findings provide preliminary support for a conceptualization of friendship as an ameliorative factor although further investigation is needed. In one notable study, Hodges et al. (1999) reported that peer group victimization was predictive of increases in behavior problems over a school year. This effect was reduced to nonsignificance for children who had a best friend in their classroom. Insofar as we are aware, these results have not been replicated in any other samples and have yet to be extended to the domain of academic functioning. Accordingly, a central objective of the current investigation was to consider the moderating role of friendship in the association between victimization by peers and academic outcomes.

We sought to examine evidence that friendships with well-adjusted peers might serve a buffering role for children who emerge as frequent targets of bullying.

To this point, our discussion has focused on friendship as a factor that enhances the adjustment of victimized children. Nonetheless, some friendships can exert a more pernicious influence on development (Hartup 2005). Investigations conducted in related areas have demonstrated that the characteristics of a child's friends can have critical implications for the outcomes experienced by that child (Dishion and Dodge 2005). Friends who are well-adjusted and socially competent can serve as positive role models (Parker et al. 1995). In contrast, friendships with peers who are aggressive or characterized by other behavior problems may accelerate trajectories toward negative outcomes (Laird et al. 1999). Youths who form friendships with aggressive peers often experience increases in disruptive behavior (Lahey et al. 1999). Moreover, there is some evidence that friendships with aggressive or antisocial peers are relatively low in quality, lacking important attributes such as closeness, security, and companionship (Dishion et al. 1995; Poulin et al. 1999). The issue of friendship quality is notable because friendships that are high in negative features do not promote positive adjustment in school (Berndt 1996).

The attributes of children's friends have rarely been considered in the existing bully/victim literature (Hodges et al. 1999). As a result, little is known about how friendships with aggressive or disruptive peers might affect the functioning of victimized children. Indeed, we are unaware of any existing study that has directly examined this issue. From the perspective of research on academic outcomes, this gap is noteworthy because aggressive friends are unlikely to socialize positive attitudes toward school or to model belief systems that promote achievement (Vitaro et al. 2005). Friendships with aggressive peers could offer victimized children the opportunity to acquire defiant or antisocial behaviors that interact with existing vulnerabilities to predict declines in academic functioning. Furthermore, the negative features that characterize friendships involving aggressive children (Laird et al. 1999) might be particularly damaging for children who are experiencing mistreatment by other peers.

In the current study, our goal was to examine the influence of friends who are low or high in aggression on the link between victimization by peers and children's academic functioning. Based on the available findings (e.g., Juvonen et al. 2000; Schwartz et al. 2005), we expected that victimization by peers would be related to declines in academic performance. However, we predicted that friendship would have a moderating influence on this association, with the specific direction of the moderating effect varying as a function of friends' aggression levels. We hypothesized that the association between victimization and declines in academic performance would be attenuated for children who establish friendships with classmates who are relatively low in aggression, but exacerbated for children who befriend more aggressive classmates.

A final issue considered in this paper was the influence of gender. Gender differences in the form and function of peer victimization have been well-documented by previous researchers (Crick and Grotpeter 1995). There are also important differences in quality and developmental significance of friendship for boys and girls (Parker and Asher 1993). Nonetheless, research on friendship and bully/victim problems has consistently yielded similar patterns of findings for boys and girls (e.g., Hodges et al. 1997, 1999). Thus, we did not expect gender to moderate the pattern of friendship effects but we sought to explore the possibility.

We addressed these research objectives in two independent prospective studies that were each conducted as part of larger longitudinal investigations. In both projects, we focused on friendship, victimization, and academic functioning in middle years of childhood. Our goal was to examine factors that might promote poor adjustment in the classroom during the critical

years before the transition to the complex academic environment of middle school. Individual differences in children's propensity to be mistreated by peers also begin to stabilize (e.g., Hodges and Perry 1999; Ladd and Kochenderfer-Ladd 2002) during this developmental period.

Study 1

Study 1 was conducted as part of the Los Angeles Social Development Project (LASDP), a short-term longitudinal investigation of the academic and social adjustment of children living in economically-distressed urban neighborhoods (Schwartz and Gorman 2003; Toblin et al. 2005). The measurement strategy underlying the LASDP was informed by recent developments in research on peer victimization. Initially, work in this area emphasized overt forms of victimization (e.g., hitting, pushing, or verbal insults; Hodges et al. 1997, 1999; Schwartz et al. 1999). More recently, investigators have added a focus on relational victimization (e.g., exclusion, spreading rumors, gossiping). These latter behaviors cause harm by damaging social relationships (Crick and Grotpeter 1995). To enhance the content validity of our measures, we included items that tap both subtypes of victimization.

Method

Participant Recruitment and Retention

We recruited participants from two elementary schools located in the greater Los Angeles area. The surrounding neighborhoods were characterized by moderately high crime rates and a mixture of multi-family and single-family homes. The families served by these schools have been characterized as "working poor" in demographic studies (Los Angeles Alliance for a New Economy 2000). Moreover, as a reflection of neighborhood instability and residential mobility, both of the schools were characterized by high annual turnover rates in the student population.

All children in the third and fourth grades of these schools were invited to participate. Of children who were eligible, 78% (125 boys, 115 girls) returned positive parental permission and assented to participate in the first year of the project. A final sample of 199 children (105 boys, 94 girls; mean age of 9.1 years) from 12 classrooms participated in both the first (T1) and second (T2) years of the project. The ethnic/racial composition of the sample (via self-report) was 36% Hispanic American, 26% European American, 7% Asian American, 2% African American, 23% mixed or other background, and 6% unclassified.

Measures

Peer victimization—At T1, a peer nomination interview was group-administered to the children. Children were given a class roster and asked to nominate up to three peers who fit a series of the descriptors. Four items assessed children's social reputation as a victim of bullying ("hit or pushed by other kids," "picked on or bullied by other kids," "other kids say mean things about them or gossip about them," "left out of fun games or play when other kids are trying to hurt their feelings"; α=.87). We generated a victimization score based on the total nominations received across the four items standardized within class (Coie et al. 1982).

Aggression—The peer nomination inventory also included four items assessing children's social reputations as aggressive ("pushes or hits other kids" "teases or bullies other kids," "gossips or says means things about other kids," "tries to leave other kids out of fun games or play in order to hurt their feelings"; α=.93). We generated a summary aggression score based on the total nominations received across the four items, standardized within class.

Friendship indices—Children were asked to circle the name of their "best friend" on the class roster as well as the names of four additional children who were "also good friends." We

classified children as friends if they reciprocally nominated each other for either item (Criss et al. 2002). The mean number of friends that each child had in his or her classroom was 1.7 (SD=1.2). We also calculated the total number of friends that each child had whose aggression score was at or below the classroom mean on aggression (*M*= 1.2, SD= 1.1, range=0 to 4) and the number of friends whose aggression score was above the classroom mean on aggression (*M*=0.5, SD=0.7, range=0 to 3). Of the participating children, 67% had at least one friend who was below the mean on aggression, 40% had at least one friend who was above the mean on aggression, and 24% had at least one friend in each subgroup.

We did not rely on extreme aggression cutoffs for classification of the friendship subgroups partially because of power concerns. Given the conservative nature of interaction effects in nonexperimental designs (McClelland and Judd 1993), we sought to maximize subgroup size for all analyses. In our exploratory analyses, we found that higher cutoff levels (e.g., ±1 SD) resulted in friendship groups that were too small for analysis. Children with very high or very low aggression scores may be characterized by behavioral attributes that could interfere with friendship formation. For example, we found that children with extremely low aggression scores tended to be socially withdrawn. Likewise, highly aggressive youths seemed to establish friendships with a small number of peers who were also aggressive.

Academic functioning—Children's GPAs were obtained from a review of school records that was conducted in the summer following each year of the study. We assigned numerical scores to letter grades in reading and math for the full school year. GPA was calculated as the mean of these scores (r=0.68, p<0.001).

Results

Descriptive Analyses and Bivariate Relations

Before moving on to our inferential analyses, we examined the distribution of each of the variables. Peer victimization and GPA were distributed with similar levels of variability across the full range of the friendship variables. However, univariate statistics and scatter plots revealed a pattern of modest skew in the friendship and victimization variables. Accordingly, we applied square-root transformations to normalize distributions (Tabachnick and Fidell 2001).

Table 1 summarizes bivariate relations among all variables. To control error rates, we interpreted these effects at a relatively conservative level of 0.001. We coded gender dichotomously (0=boys, 1= girls) so that negative correlations between gender and variable indicate higher scores for boys. As shown in Table 1, boys had higher scores than girls for aggression and for friends above the mean on aggression.

The Moderating Role of Friends Below and Above the Mean on Aggression

We examined our hypotheses regarding subtypes of friends with a hierarchical regression analysis. T2 GPA was predicted from the main effects of T1 GPA, peer victimization, friends above the mean on aggression, and friends below the mean on aggression (entered on Step 1); the two-way interactions for peer victimization by friends below the mean on aggression, peer victimization by friends above the mean on aggression, and friends above the mean on aggression by friends below the mean on aggression (entered on Step 2); and the three-way interaction for peer victimization by friends below the mean on aggression by friends above the mean on aggression (entered on Step 3). Variables were entered simultaneously at each step, and the steps were entered sequentially. Interaction terms were calculated based on mean centered values (Aiken and West 1991). The full model was significant, $F(8,190)=23.02$, $R^2=0.47$, $p<0.001$, and there were significant two-way interactions for peer victimization by

friends below the mean on aggression and peer victimization by friends above the mean on aggression (Table 2).

To decompose the interaction for friends below the mean on aggression, we used procedures recommended by Aiken and West (1991). We specified models predicting T2 GPA from peer victimization with the level of friends below the mean on aggression fixed at low (one standard deviation below the mean), medium (the mean), and high (one standard deviation above the mean). T1 GPA and friends above the mean on aggression were entered as covariates. The results were supportive of our hypotheses with the relation between peer victimization and T2 GPA changing in a theory-consistent manner as the level of friends below the mean on aggression moved from low, β=−0.19, p< 0.05, to medium, β=−0.05, ns, to high, β=0.10, ns. The association reached significance only at the lowest level of friends below the mean on aggression. Nonetheless, even at this level, the effect size was small in magnitude.

We decomposed the peer victimization by friends above the mean on aggression effect using similar procedures. T2 GPA was predicted from peer victimization with the level of friends above the mean on aggression fixed at low, medium, and high levels. T1 GPA and friends below the mean on aggression were entered as covariates. Consistent with our expectations, the negative association between peer victimization and T2 GPA increased in magnitude as the level of friends above the mean on aggression moved from low, β=0.15, ns, to medium, β=−0.02, ns, to high, β=−0.19, p<0.05. The effect at the highest level of friends above the mean on aggression was significant but small in magnitude.

The Moderating Role of Gender

Next, we conducted a series of hierarchical regressions to examine the moderating influence of gender. Separate models were specified for the two friendship variables. T2 GPA was predicted from the main effects of T1 GPA, peer victimization, the friendship variable, and gender (entered on Step 1); the two-way interactions for peer victimization by gender, the friendship variable by gender, and peer victimization by the friendship variable (entered on Step 2); and the three-way interaction for peer victimization by the friendship variable by gender (entered on Step 3). The two-way (β=0.06, ns) and three-way (β=0.03, ns) effects for friends below the mean on aggression did not approach significance. The corresponding two-way effect for friends above the mean on aggression also did not approach significance (β= −0.01, ns) whereas the three-way peer victimization by friends above the mean on aggression by gender effect was marginal (β=0.11, p<0.08).

The Role of Children's Own Aggressive Behavior

Friendship with aggressive peers could be indicative of a child's own level of aggression, given the tendency for friendship dyads to be characterized by homophily (Haselager et al. 1998). Therefore, children who have aggressive friends in their classroom might be at risk for academic failure because their own aggressive behavior interferes with school adjustment. Likewise, children who have only nonaggressive friends may do relatively well in school because they are low in aggression. This potential confound seems particularly relevant given evidence that children who are both victimized and aggressive are especially likely to be characterized by poor achievement (Schwartz 2000; Toblin et al. 2005).

To clarify our findings, we conducted exploratory analyses examining the moderating role of friends with children's own level of aggression controlled. However, to the extent that behavioral attributes are correlated within friendship dyads (Haselager et al. 1998), a child's aggression score will be statistically dependent on the aggression scores of his or her friends (Kenny and Judd 1996). Dependencies of this nature lead to inflated Type I error rates and may induce other regression artifacts (Kenny and Judd 1986).

With these potential interpretational difficulties in mind, we cautiously specified a separate regression for each of the two friendship variables. In each model, we predicted T2 GPA from main effects of T1 GPA, peer victimization, aggression, and the friendship variable (Step 1); and the two-way interactions for peer victimization by aggression, aggression by friendship variable, and peer victimization by friendship variable (Step 2). Consistent with our earlier findings, these models produced significant interactions for peer victimization by friends below the mean on aggression, β=0.28, p<0.01, and peer victimization by friends above the mean on aggression, β=−0.22, p<0.01. In contrast, aggression did not significantly interact with peer victimization or either of the friendship variables. Thus, these analyses do not provide evidence that our findings are artifacts of the association between friendship and aggression.

Discussion

Consistent with our hypotheses, we found that the moderating role of friendship differed as a function of the aggression levels among children's friends. Peer victimization was associated with academic declines when children had either few nonaggressive friends or relatively numerous aggressive friends. These associations did not reach significance for children who had numerous nonaggressive friends or few aggressive friends.

A caveat to these findings is that the sample for Study 1 was not representative of a wide range of social settings. This project focused on the adjustment of children living in economically-distressed urban neighborhoods with participants recruited from densely populated areas. Although we would expect our findings to generalize across samples, research conducted in other contexts might enhance confidence in the full pattern of results. For example, it would be worthwhile to replicate our analyses with schools located in less disadvantaged neighborhoods. Accordingly, in Study 2, we sought to replicate the results of Study 1 with an archival data set that included a sample of children recruited from a wider range of contexts.

Study 2

Study 2 was completed as part of the Child Development Project (CDP), a multi-site longitudinal investigation of children's social development and adjustment (Pettit et al. 1999; Pettit et al. 2001). We conducted a focused series of secondary analyses in the context of this ongoing longitudinal project. Our objective was to replicate the pattern of findings from Study 1, although we did not attempt to conduct analyses directly examining potential differences in the findings across projects. The CDP has also served as the basis for several past reports on the concurrent and predictive correlates of peer group victimization (e.g., Schwartz et al. 1997; Schwartz et al. 1998, 1999). Because these data were collected prior to the recent interest in the distinction between relational and overt aggression (Archer and Coyne 2005), the measures used in Study 2 emphasized overt behaviors and did not tap relational subtypes of victimization and aggression.

Method

Participant Recruitment and Retention

Two separate cohorts, recruited in consecutive years from three different sites, are participating in the CDP. Assessments of children's social and behavioral adjustment have been obtained on an annual basis. Consistent with Study 1, peer victimization was assessed when the second cohort was in the third grade ("C2"; mean age of 8.0 years) and the first cohort was in the fourth grade ("C1"; mean age of 9.0 years). We focused on the prediction of academic outcomes one-year later, when the children were in the fourth and fifth grades.

The initial sample was recruited just prior to kindergarten enrollment in three geographic regions (Bloomington, IN; Knoxville, TN; Nashville, TN). Parents were approached by research staff and asked to participate in a longitudinal study of child development. About 75% of the parents consented and provided written permission. A total of 585 children (304 boys, 281 girls) participated in initial data collection, 308 in C1, and 277 in C2. These children were instructed that participation was voluntary and were also told that they could choose not to complete specific items. Accordingly, missing values were possible.

By the time they reached the middle years of childhood, the original participants had been dispersed over a wide geographic area. Resource limitations precluded administration of the peer nomination inventory in outlying schools. However, we obtained peer nomination and academic data for 310 (151 boys, 159 girls) participants who attended schools that were geographically close to the data collection centers. Approximately 24% of these children were from minority ethnic/racial backgrounds (almost all African American). Most of the children were from middle socioeconomic class backgrounds, although 26% of the children came from the two lowest socioeconomic status groups (as per Hollingshead, unpublished manuscript).

Measures

Peer victimization—A peer nomination inventory was group administered at T1. Children were given a roster with the names of all children in their classroom, and asked to identify up to three peers who fit a series of descriptors. Three of these descriptors assessed children's social reputation as a victim of bullying (i.e., "kids who get picked on," "kids who get teased," "kids who get hit or pushed"). For each child, a victimization score was calculated from the total number of nominations received for the three items (α=0.82) standardized within classroom.

Aggression—The peer nomination inventory also included three descriptors assessing children's social reputation as aggressive ("kids who start fights," "kids who say mean things," "kids who get mad easily"). An aggression score was calculated from the total nominations received for these items, standardized within class (α=0.89).

Friendship—Children were asked to rate how much they liked each of their classmates on a 1-to-5 scale, with higher ratings indicating greater liking. Children who reciprocally rated each other with the highest liking rating were classified as friends, and the total number of friendships that each child had was calculated (M=2.2, SD = 1.8). We also calculated the number of friends that each child had whose aggression score was at or below the mean on their classroom (M=1.7, SD=1.6, range=0 to 6) and the number of friends whose aggression score was above the classroom mean (M=0,5, SD=0.8, range=0 to 4). Of the participating children, 72% had at least one friend below the mean on aggression, 34% had at least one friend above the mean on aggression, and 27% had one or more friends in both subgroups.

Since the CDP data were collected, researchers have concluded that children have a specific concept of friendship that is distinct from the more generalized construct of liking (Asher et al. 1996). From this perspective, an optimal assessment strategy would require children to identify peers who are "friends" rather than peers who are well-liked. Nonetheless, the concurrent and predictive validity of reciprocal liking ratings has been demonstrated in past CDP reports (Criss et al. 2002; Schwartz et al. 1997, 1999). Reciprocated liking scores have also been employed in past bully/victim investigations (Hodges et al. 1997), and in related domains of inquiry (Bukowski and Hoza 1989; Bukowski et al. 1994).

Academic functioning—Children's GPAs were obtained from a review of school records that was conducted in the summer following each year of the project. We assigned numerical

scores to letter grades in reading, science, social studies, and math. Grades were based on the entire school year. GPA was calculated as the mean of these scores (α=0.88).

Results

Descriptive Analyses and Bivariate Statistics

Visual inspection of scatterplots and review of univariate statistics indicated that the victimization and GPA scores were distributed with similar variability across levels of the friendship variables. However, histograms and descriptive statistics revealed modest skew in the friendship and peer victimization variable distributions. We applied square-root transformations to normalize distributions and reduce the potential influence of outliers.

Table 3 summarizes bivariate relations among all variables. Effects were evaluated with a critical value of 0.001. As shown, peer victimization was negatively correlated with GPA (with small effect sizes) and there was a negative correlation between peer victimization and friends below the mean on aggression.

The Moderating Role of Friends Below and Above the Mean on Aggression

We examined our hypotheses regarding the moderating role of friendship subtypes in a hierarchical regression analysis, T2 GPA was predicted from the main effects of T1 GPA, peer victimization, friends below the mean on aggression, and friends above the mean on aggression (Step 1); the two-way interactions for peer victimization by friends below the mean on aggression, peer victimization by friends above the mean on aggression, and friends below the mean on aggression by friends above the mean on aggression (Step 2); and the three-way interaction for peer victimization by friends below the mean on aggression by friends above the mean on aggression (Step 3). Variables were entered simultaneously at each step and steps were entered sequentially. Interaction terms were based on mean centered values (Aiken and West 1991). The full model was significant, $F(8,301)=46.02$, $R^2=.55$, $p<0.001$. There was a significant two-way interaction for peer victimization by friends above the mean on aggression (Table 4). The corresponding effect for friends below the mean on aggression did not reach significance.

To decompose the friends above the mean on aggression effect, we specified a series of follow-up regression models. We predicted T2 GPA from peer victimization with the level of friends above the mean on aggression fixed at low, medium, and high levels. T1 GPA and friends below the mean on aggression were entered as covariates. Consistent with our expectations, the negative association between peer victimization and T2 GPA increased in magnitude as the level of friends above the mean on aggression moved from low, $\beta=-0.04$, ns, to medium, $\beta=-0.11$, $p<0.01$, to high, $\beta=-0.18$, $p<0.001$. The effect reached significance only at the highest level of friends above the mean on aggression and was small in magnitude.

Gender as a Moderator

Next, we conducted a series of hierarchical regression analyses to examine the moderating influence of gender. Separate models were specified for each of the two friendship subtypes. T2 GPA was predicted from the main effects of T1 GPA, peer victimization, the friendship variable, and gender (Step 1); the two-way interactions for peer victimization by gender, friendship variable by gender, and peer victimization by friendship variable (Step 2); and the three-way interaction for peer victimization by friendship variable by gender (Step 3). These analyses yielded a significant three-way peer victimization by friends below the mean on aggression by gender interaction, $\beta=-0.13$, $p<0.01$. To decompose this effect, we examined the two-way interaction effect for peer victimization by friends below the mean on aggression separately by gender. For boys, there was a significant peer victimization by friends below the

mean on aggression interaction, β=0.19, p<0.05. The corresponding effect for girls did not approach significance, β=−0.06, ns. We then explored the effect for boys in a series of follow-up analyses. The negative association between peer victimization and T2 GPA (with T1 GPA controlled) decreased in magnitude as the level of friends below the mean on aggression moved from low, β=−0.20, p<0.01, to medium, β=−0.02, ns, to high, β=0.23, ns.

The Role of Children's Own Aggressive Behavior

To examine the moderating role of friendship after taking into account children's own level of aggression, we specified a separate exploratory regression model for each friendship subtype. In these models, T2 GPA was predicted from the main effects of T1 GPA, peer victimization, aggression, friendship variable (Step 1); the two-way interactions for peer victimization by aggression, aggression by friendship variable, and peer victimization by friendship variable (Step 2). We included only boys in the analysis for friends below the mean on aggression in light of the gender effects described earlier. Consistent with our initial findings, we found significant interactions for peer victimization by friends below the mean on aggression, β=0.18, p<0.05, and peer victimization by friends above the mean on aggression, β=−0.09, p<0.05. There were no significant interactions with children's own level of aggression.

Discussion

The results of Study 2 provide further evidence that friendships with peers who are relatively high in aggression can moderate the association between peer group victimization and academic difficulties. As was the case in Study 1, peer victimization was not predictive of declines in academic functioning for children who had a low number of friends who were above the mean on aggression in their classroom. In contrast, victimized children who had a high number of friends who were above the mean on aggression appeared to be at risk for later academic difficulties. For these children, peer victimization was negatively associated with academic competence although the effect was small in magnitude.

The findings for friends who are below the mean on aggression were somewhat less clear and complicated by gender differences. Boys who did not form friendships with peers who were low in aggression emerged as a potentially vulnerable subgroup. For these boys, there was a significant association between peer victimization and declines in school performance. However, friendships with peers who were below the mean on aggression did not significantly influence the relation between victimization and academic functioning for girls.

General Discussion

Previous investigators have conceptualized friendship as a social relationship that can function to buffer children against the risks associated with victimization in the peer group. A potential limitation of the existing work is that little consideration has been given to the behavioral attributes of children's friends. Our goal was to address this deficit in the extent literature by examining differences in the moderating roles of friends who are relatively low or high on aggression. In our analyses, peer victimization emerged as a significant predictor of academic difficulties only when children had either few low aggression friends or numerous high aggression friends. These results highlight the importance of aggression levels among friends for the academic adjustment of victimized children.

Our findings are generally supportive of theoretical perspectives that emphasize the ameliorative role of friendships with well-adjusted peers. Peer victimization was predictive of declines in GPA over two school years for children who did not form friendships with peers who were below the classroom mean on aggression. In contrast, children who were able to establish such friendships seemed to be resilient to the impact of peer group victimization (at

least with regard to academic outcomes). Much remains to be learned about the mechanisms underlying these effects but our results might suggest that friends who are not aggressive can provide an adaptive socializing influence for victimized children. Friendships with well-behaved classmates could enhance the development of skills that facilitate behavioral and cognitive engagement in the classroom. Likewise, nonaggressive friends may encourage positive attitudes toward school by providing social support and companionship for victimized children.

Our own theoretical presumptions notwithstanding, a more parsimonious explanation for the described interactions is that friendship is simply an important "marker" variable (see Parker and Asher 1987). Clearly, children who form friendships with nonaggressive peers will differ in important ways from children who have not established such relationships (Criss et al. 2002; Schwartz et al. 2000). The attributes that facilitate participation in friendships with nonaggressive peers could also foster engagement in the academic environment. Consistent with this suggestion, we found correlations between total number of nonaggressive friends and GPA (with small effect sizes) in Study 1. Therefore, friendship may be an important correlate of coping capacities rather than a factor that has a direct impact on adjustment.

We also acknowledge that our models did not consider the stability of peer victimization or friendship. This analytic feature is important to note because friendship might influence later psychosocial outcomes by mitigating vulnerability to future victimization. For example, friends may serve as protectors or allies for children who would otherwise be targeted (Hodges et al. 1997). Similarly, there could be changes over time in the structure of victimized children's friendships or in the attributes of their friends. The full pattern of developmental interactions between victimization and friendship is likely to be quite complex.

Questions also remain regarding potential gender differences in the role of nonaggressive friends. Although gender did not emerge as a moderator in Study 1, the potential benefits associated with friends below the mean on aggression held only for boys in Study 2. These incongruities in findings could partially reflect differences in sample composition. Study 1 included participants recruited exclusively from economically distressed urban neighborhoods, whereas Study 2 incorporated a much more diverse sample that was representative of a wider range of contexts. However, we suspect that measurement issues played a stronger role. Although Study 1 included items that were designed to tap relational and overt subtypes of aggression (see Crick and Grotpeter 1995), Study 2 focused exclusively on overt forms of the relevant behaviors. It is possible that overt aggression levels among friends are a less significant issue for girls than boys.

Regardless of the underlying mechanisms, friendships with peers who are relatively low in aggression are likely to have more positive implications for adjustment than friendships with classmates who are more aggressive. Peer victimization was not associated with academic difficulties for children who were not involved in friendships with aggressive peers. This effect was significant only for children with a relatively high number of friends above the classroom mean on aggression. These findings provide the first known evidence that aggressive friends can have negative implications for the functioning of frequently bullied children. Again, however, further investigation will be needed before we can make conclusions regarding causal processes. In the meantime, we can speculate that aggressive friends exert a harmful socializing influence on victimized children and encourage the development of maladaptive attitudes toward school. Friendships with aggressive peers are also likely to be low in features that promote school adjustment (e.g., warmth, trust, intimacy; see Berndt 1986; Berndt and Keefe 1995).

Before we move on to our concluding comments, some potential limitations of this project should be acknowledged. To maximize statistical power, we opted to create friendship subgroups based on mean aggression scores. An inclusive categorization system of this nature might be appropriate when researchers approach new areas of investigation but our findings will not necessarily generalize to more extreme subgroups. In fact, extreme behavioral characteristics could preclude involvement in friendships. For example, unusually low levels of aggression can be a marker of withdrawal, nonassertive tendencies, or other aspects of inhibition that interfere with relationship formation. Likewise, highly aggressive youths tend to be involved in relatively few friendships and their friends are generally other antisocial youths (Lahey et al. 1999).

Issues related to the specification of the friendship groups might partially account for the pattern of small effect sizes observed in both studies. We found that peer victimization was not strongly linked to academic difficulties at any level of the moderators. These results probably also reflect the high stability of academic competence during the middle years of childhood (Schwartz et al. 2005). By this stage of development, individual differences in achievement are often well-established and it can be difficult to observe larger changes in academic competence.

Another critical issue concerns inconsistencies in the measurement approaches used across studies. Most notably, Study 1 included items that required children to identify specific peers who are friends. We used a limited choice procedure, with children nominating up to five possible friends. Study 2 relied on reciprocated liking ratings and the number of peers that a child could rate as “most liked” was limited only by the size of the classroom. The procedures used in Study 2 have been validated in several past investigations (Criss et al. 2002; Schwartz et al. 1999, 2000) but Study 1 may have captured a closer, more intimate form of dyadic affiliation.

A final set of concerns reflects the short-term longitudinal design of these studies. We focused on a relatively narrow period of middle childhood. It should not be assumed that the observed moderating effects will persist over longer periods of development. Moreover, developmental shifts in the implications of friendships occur as adolescence begins to unfold. Friendships are marked by greater intimacy, warmth and trust (Berndt and Perry 1990), reflecting refinements in cognitive and emotional capacities. From a less adaptive perspective, affiliations with antisocial peers have an increasingly powerful influence on the development of disruptive behavior disorders (Lahey et al. 1999). It is not yet clear how these critical transitions will affect the moderator processes identified in this manuscript.

In summary, friendship seems to have a complex role in the association between peer victimization and academic difficulties. We found evidence that friendships with peers who are low in aggression can serve a positive moderating role for victims of bullying. However, friends who are above the classroom mean on aggression appear to have more negative implications for the academic functioning of victimized youths. Further research on the role of friendship in bully/victim problems might benefit from a focus on the attributes of children’s friends.

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Table 1

Bivariate relations among all variables for Study 1

Variable	1	2	3	4	5	6	7	8
1. Peer victimization	–	–	–	–	–	–	–	–
2. Aggression	0.46*	–	–	–	–	–	–	–
3. Friends below the mean on aggression	−0.16	−0.27*	–	–	–	–	–	–
4. Friends above the mean on aggression	−0.02	0.20	−0.15	–	–	_	_	_
5. Total friends	−0.16	−0.12	0.83*	0.42*	–	–	–	–
6. T1 GPA	−0.25*	−0.19	0.28*	−0.05	0.23	_	–	–
7. T2 GPA	−0.19	−0.12	0.22	−0.04	0.17	0.68*	–	–
8. Gender	−0.11	−0.30*	0.15	−0.23*	0.01	0.00	−0.01	–

Gender is coded as a dichotornous variable (0=males, 1=females).

*p<0.001

Table 2

The moderating role of friends below and above the mean on aggression in the association between peer victimization and T2 GPA for Study 1

Step	Variables entered	*B*	SE	*β*	sr^2
1	T1 GPA	0.68	0.06	0.67	0.39**
	Friends below the mean on aggression	0.06	0.13	0.03	0.00
	Friends above the mean on aggression	−0.01	0.18	0.00	0.00
	Peer victimization	−0.07	0.22	−0.02	0.00
2	Friends below the mean on aggression by friends above the mean on aggression	0.56	0.52	0.06	0.00
	Peer victimization by friends below the mean on aggression	1.62	0.64	0.14	0.02*
	Peer victimization by friends above the mean on aggression	−1.90	0.90	−0.12	0.01*
3	Peer victimization by friends below the mean on aggression by friends above the mean on aggression	−1.55	2.86	−0.03	0.00

Effects are summarized at point of entry into the model.

* $p<0.05$;

** $p<0.001$

Table 3

Bivariate relations among all variables for Study 2

Variable	1	2	3	4	5	6	7	8
1. Peer victimization	–	–	–	–	–	–	–	–
2. Aggression	0.35*	–	–	–	–	–	–	–
3. Friends below the mean on aggression	−0.19*	−0.20*	–	–	–	–	–	–
4. Friends above the mean on aggression	−0.01	0.14	0.16	–	–	–	–	–
5. Total friends	−0.26*	−0.17	0.89*	0.47*	–	–	–	–
6. T1 GPA	−0.19*	−0.30*	0.05	−0.05	0.12	–	–	–
7. T2 GPA	−0.25*	−0.31*	0.07	−0,07	0.09	0.73*	–	–
8. Gender	−0.09	−0.28*	0.18	−0.18	0.10	0.13	.12	–

Gender is coded as a dichotomous variable (0=males, 1=females).

*$p<0.001$

Table 4

The moderating role of friends below and above the mean on aggression in the association between peer victimization and T2 GPA for Study 2

Step	Variables entered	*B*	*SE*	*β*	sr^2
1	T1 GPA	0.73	0.04	0.70	0.47**
	Friends below the mean on aggression	0.08	0.19	0.02	0.00
	Friends above the mean on aggression	−0.35	0.34	−0.04	0.00
	Peer victimization	−1.18	0.44	−0.11	0.01
2	Friends below the mean on aggression by friends above the mean on aggression	0.19	0.67	0.01	0.00
	Peer victimization by friends below the mean on aggression	1.36	1.20	0.05	0.00
	Peer victimization by friends above the mean on aggression	−3.82	1.83	−0.09	0.01*
3	Peer victimization by friends below the mean on aggression by friends above the mean on aggression	0.19	0.66	−0.06	0.00

Effects are summarized at point of entry into the model.

* $p<0.05$;

** $p<0.001$