

Forms and Functions of Adolescent Peer Aggression Associated With High Levels of Peer Status

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Concurrent (Study 1) and longitudinal (Study 2) associations between adolescents' aggression, victimization, and high status were examined to test the hypothesis that forms and functions of aggression most likely to affect the status hierarchy will be associated with reputation-based measures of popularity. In Study 1, 235 10th-grade adolescents' overt, relational, and reputational forms of aggression and victimization were assessed. Functions of aggression (instrumental, reactive, bullying) within each form were also examined. Results supported the general prediction that aggression is associated with high peer-perceived popularity, but low likability (i.e., social preference) among peers. Significant curvilinear trends revealed a subtle association between aggression and low levels of popularity as well. Regarding forms and functions, results indicated that both the provocateurs and targets of reputational aggression had high levels of peer-perceived popularity; proactive uses of aggression were also associated with high popularity among adolescents, while reactive aggression was associated with low social preference. Longitudinal analyses of the same participants in Study 2 indicated that high peer-perceived popularity and low social preference predicted all forms of aggressive behavior over a 17-month interval. Overall, the results reveal complex associations between aggression and status that help to explain possible social reinforcement associated with aggression and clarify the pattern of heterogeneous aggressive behaviors exhibited by adolescents at various points along the status continuum.

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Special thanks are due to Audrey Zakriski and Charissa Cheah for helpful comments on an earlier draft of this manuscript.

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Merrill-Palmer Quarterly, July 2003, Vol. 49, No. 3, pp. 310-342. Copyright © 2003 by Wayne State University Press, Detroit, MI 48201.

For decades, investigations in the social-development literature have demonstrated that children's aggressive behavior is associated with maladaptive psychological functioning and deleterious developmental consequences (see Coie & Dodge, 1998; Parke & Slaby, 1983). In particular, research on aggression among peers has revealed numerous links with indices of social incompetence (e.g., poor social skills, social-cognitive biases) and reputations of low social status (i.e., rejection) among peers (e.g., Dodge, 1983; Lochman & Dodge, 1998). The study of adverse correlates and consequences of aggression has been particularly useful not only from a theoretical perspective but also in developing preventive interventions that could alter developmental trajectories toward aggression in childhood and adolescence (Conduct Problems Prevention Research Group, 2002).

Recent work has departed from this fundamental tradition by demonstrating that some aggressive behaviors are exhibited by high status youth who are indeed socially competent. For instance, a recent study offered evidence for the convergence of aggressive and popular reputations by cluster analyzing teacher ratings of children's social reputations and behavior. These analyses revealed a subset of boys who were both popular and aggressive ("popular-toughs") according to teachers and regarded by peers as athletic, "cool," and antisocial (Rodkin, Farmer, Pearl, & Van Acker, 2000). Similarly, Luthar and McMahon (1996) revealed a subgroup of "aggressive-popular" children in cluster analyses of peer nominations. Findings such as these also offer important theoretical and practical implications, in that links between aggression and high status may reveal processes of social reinforcement that perpetuate aggression, or social mechanisms that potentially can be manipulated to reduce children's engagement in aggressive behavior (Bandura, 1983). Notably, associations between certain manifestations of aggressive behavior and high peer status may also help inform theoretical work on the heterogeneous nature of aggressive behavior in youth.

The apparent contrast between past findings, linking children's aggression with peer rejection, and recent work on associations between aggression and popularity deserves additional attention and scrutiny, however. In particular, some clarity may be achieved by using more precise definitions of aggressive behavior and popularity than in past investigations. A focus on definitional obfuscation is especially important given recent intriguing studies on various forms of aggression that have proliferated without definitional consensus among researchers or reference to past theoretical work on aggressive behavior (Underwood, Galen, & Paquette, 2001). Also, recent research has elu-

cidated at least two distinct measures of peer status in adolescence that may be differentially associated with aggressive behavior. The current study offers an initial step toward clarity through consideration of the heterogeneity of aggressive behaviors—in form and function—and links with two measures of adolescents' peer status. Past work from both social-developmental and ethology literatures will be reviewed to support the general hypothesis that aggressive behavior is differentially associated with distinct measures of popularity. It was hypothesized that aggressive behaviors would be linked to reputations of popularity, but low levels of preference (i.e., likability) among peers. More specifically, it was hypothesized that this association would be most evident for those forms and functions of aggression exhibited specifically to manipulate the social hierarchy.

An explanation for recently revealed associations between aggression, as broadly defined, and high peer status can be extracted from past ethology studies on dominance. Using an evolutionary perspective, ethologists have frequently posited associations between aggression and high status, insomuch as high status members of a group are often the most dominant (LaFreniere & Charlesworth, 1983; Strayer & Strayer, 1976; Strayer & Trudel, 1984). In both human and nonhuman groups, individuals use aggressive behavior as one tool to gain access to resources, and consequently, successful aggressors achieve high positions of control and dominance within the group context (Hawley, 1999). In other words, dominance is a social reward of aggression (Bandura, 1973; Hartup, 1974) and for the majority of individuals within a group hierarchy, aggressive behavior is positively associated with dominance as well as reputations of competence and adjustment by group members (Weisfeld, Omark, & Cronin, 1980).

Empirical studies have offered some support for links among aggression, dominance, and high status among young children (e.g., Boulton, 1992; Pettit, Bakshi, Dodge, & Coie, 1990; Vaughn & Waters, 1981; Wright, Zakriski, & Fisher, 1996). For instance, aggression and dominance are significantly associated with peer ratings of leadership (Pettit et al., 1990; Vaughn & Waters, 1981; Wright et al., 1996), suggesting that aggressive individuals may be perceived by peers as high in status and popular (Parkhurst & Hopmeyer, 1998). In contrast, there is mixed evidence regarding the links between aggression, dominance, and group acceptance (LaFreniere & Charlesworth, 1983; Pettit et al., 1990; Vaughn & Waters, 1981; Wright et al., 1996), suggesting that apart from their reputations of popularity, aggressors may not always be well liked by peers.

Recent developmental studies have made this distinction between measures of status explicit with support for a reputation-based measure of "peer-perceived" popularity (i.e., based on most and least popular nominations) that differs from traditional preference-based measures of "sociometric" status (i.e., based on liked most and liked least nominations; LaFontana & Cillessen, 1999; Parkhurst & Hopmeyer, 1998). Whereas sociometric preference captures an individual's likability, or acceptance/rejection among peers, peer-perceived popularity captures peers' perceptions of an individual's social reputation and is more conceptually and statistically related to the construct of dominance (Parkhurst & Hopmeyer, 1998; Weisfeld et al., 1980). In ethology, peer-perceived popularity serves as a direct measure of status reputations, identifying the most dominant members of a peer group, in much the same way that measures of visual attention identify the group members with greatest visibility and potential for group influence (e.g., Vaughn & Waters, 1981). Note that Rodkin et al.'s (2000) findings linking aggression and high status were based on teacher ratings of "popularity," but not acceptance and rejection.

Therefore, by examining both peer-perceived popularity and sociometric popularity, this study examined the general hypothesis that aggression would be more strongly and positively associated with peer-perceived popularity than sociometric preference (i.e., likability). Moreover, it was anticipated that sociometric preference would be uncorrelated or negatively associated with adolescents' aggressive behavior, suggesting that aggressive teens may be popular but not necessarily well liked.

Still, to adequately account for associations between aggression and high status, a more careful consideration of the various forms and functions of aggression revealed in past research is needed. Ethology studies have focused exclusively on those manifestations of aggression that are common to both human and nonhuman populations, specifically nonverbal, physical (i.e., overt) aggression (Weisfeld & Weisfeld, 1984). Prior developmental research on aggressive functions also has examined overt forms of aggression exclusively. However, an active area of recent research has involved the study of indirect forms of aggression, with a particular focus on their associations with social-psychological maladjustment, including peer rejection. From an ethological perspective, these indirect aggressive behaviors may be conceptualized in a manner that is most helpful for understanding possible links with high peer status.

In contrast to overt forms of aggression (e.g., hitting, kicking a peer), indirect aggression includes nonphysical means of inflicting

harm (e.g., telling rumors, excluding a peer from social activities) that are generally less confrontational than acts of physical conflict (Björkqvist, Lagerspetz, & Kaukiainen, 1992; Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989; Crick & Grotpeter, 1995; Galen & Underwood, 1997). Note that some of these “indirectly” aggressive behaviors are specifically focused on the manner in which individuals may use their relationships as a weapon to harm others (e.g., by withdrawing friendship support or ignoring; Crick & Grotpeter, 1995; Galen & Underwood, 1997), while others have specific implications for the status of an individual within the group hierarchy (i.e., telling gossip or rumors, enlisting others to dislike a peer). Although these two types of indirect behavior may frequently co-occur, and may be exhibited by the same individuals, these behaviors may be differentially associated with peer status (Xie, Swift, Cairns, & Cairns, 2002).

Related work has supported a distinction between these two different types of indirect aggression. In a recent study, Xie et al. (2002) suggested that “reputational aggression,” defined as attempts to damage another person’s social reputation, was conceptually distinct from relational aggression, defined as using one’s relationships to inflict harm on others (see also Hart et al., 2001). Results from this study revealed that reputational aggression was most frequently used during the initiation of conflict, while relational aggression was more typically used in retaliation, maintenance, or escalation of conflict. Most relevant, the results suggested that reputational aggression was the only form of aggression associated with social network centrality, leading these authors to conclude that strongly affiliated members of peer cliques are most likely to use this form of aggression effectively (Xie et al., 2002).

Using these definitions of indirect aggression, and by extending past developmental and ethological theories, it is hypothesized that in analogy to overt aggression, relational and reputational aggression may be effective means to assert power or dominance over others (i.e., perhaps through resource control; Hawley, 1999). However, it may be that relationally aggressive behaviors are most effective for manipulating the social hierarchy within a specific friendship clique, while reputational aggression has the most potential to be related to high peer status in the larger peer context, because these behaviors are often purposeful attempts to specifically manipulate one’s position in the overall status hierarchy. Individuals who are invested in reifying their high status position should be most likely to use reputational aggression and most often rewarded and reinforced for using this form of aggression. In contrast, low status individuals may be less likely to initiate reputationally aggressive acts; indeed, this behavior would likely be ineffec-

tive and should extinguish in the absence of social rewards (Bandura, 1973).

In terms of the targets of aggression, it was hypothesized that the victims of reputational aggression would also be of relatively high status, since reputational aggression will be directed to individuals who are at near-adjacent points in the status hierarchy and pose the greatest threat to high status individuals' status position. In contrast, aggressive behaviors that are less relevant to the overall status hierarchy may not be targeted toward individuals with high levels of group status.

Thus far, it has been hypothesized that links between aggression and high peer status may be most evident for specific forms of aggressive behavior and when considering specific measures of peer status. Findings from the social-developmental literature also have revealed that individuals may engage in similar forms of aggressive behavior to serve disparate functions. Consideration of the heterogeneity of functions that may motivate aggression led to two additional hypotheses. First, in addition to linear effects, suggesting that high peer status individuals may engage in aggressive behavior strategically, it was hypothesized that a significant minority of low status individuals may also engage in aggressive behavior, perhaps in retaliation. This pattern of findings would be reflected in a subtle, curvilinear trend in which aggressive behavior is predominantly associated with high status but also significantly associated with low peer status. Given the relative normative salience for the use of indirect forms of aggression in adolescence to serve all functions (Björkqvist et al., 1992; Cairns et al., 1989) and evidence that indirect aggression may be a unique predictor of dominance among teens (Savin-Williams, 1980), this pattern of results was anticipated for relational and reputational forms of aggression. Accordingly, because it was hypothesized that aggression would be directed toward targets at near-adjacent points on the status hierarchy, curvilinear associations were also predicted for these forms of victimization, suggesting that both high and low status individuals would be the targets of indirectly aggressive behaviors.

Second, this idea was investigated by specifically examining associations between peer status and the functions of aggressive behavior, including instrumental, reactive, and bullying functions. Note that findings in the ethology literature are based on an assessment of both agonistic acts and their accompanying social responses. The most dominant group members are those who are most frequently successful in using aggression instrumentally (Strayer & Strayer, 1976). Thus, dominance relies heavily on strategic uses of aggression that lead to successful social

outcomes for the provocateur. Ineffective or uncontrolled uses of aggression are less likely to advance an individual to a higher position in the dominance hierarchy and may not correlate with high peer status.

This particular strategic use of aggression is most similar to proactive aggression, as defined in the developmental literature. Proactive aggression is described as a strategic behavior motivated by an explicit internal or external goal (Dodge & Coie, 1987; Lorenz, 1966). Hartup (1974) noted that proactive aggression might be object oriented (i.e., instrumental aggression) or person directed (i.e., bullying; Dodge & Coie, 1987; Price & Dodge, 1989). Bullying aggression, in particular, is likely to be motivated by a desire to gain status or maintain a position of dominance among peers (Bandura, 1973; Hartup, 1974). Past work has typically combined both object-oriented and person-directed functions, and there is some evidence that proactive aggression, as broadly defined, is positively associated with peer-rated leadership and sense of humor (Dodge & Coie, 1987); thus it was anticipated that proactive uses of aggression may be positively associated with reputations of popularity. Predictions for the association between proactive aggression and sociometric preference (i.e., likability) are more difficult, however, given inconsistent past findings. Although past studies have demonstrated links between proactive aggression and positive friendship qualities (i.e., support and satisfaction; Poulin & Boivin, 1999), links with peer acceptance have been inconsistent (Dodge, Coie, Pettit, & Price, 1990; Price & Dodge, 1989). Indeed, proactive aggressors may be well liked mostly among other bullies (Pellegrini, Bartini, & Brooks, 1999).

In contrast, reactive aggression derives primarily from feelings of anger or frustration (Dodge & Coie, 1987; Dollard, Doob, Miller, Mowrer, & Sears, 1939). In a social context, reactive aggression can act as a dysregulated, undercontrolled form of communication to express discontent (Schwartz, 2000). Research has demonstrated that reactive aggression is associated with indicators of low social competence, such as poor problem-solving skills, attribution biases, and low likability among peers (e.g., Crick & Dodge, 1994; Dodge & Coie, 1987). Accordingly, it was anticipated that reactive aggression would be associated with low levels of sociometric preference. Again, it was hypothesized that this pattern of findings would be most evident for indirectly aggressive behaviors.

In sum, this study examined associations between two measures of peer status (i.e., peer-perceived popularity and sociometric preference) and aggressive behavior. Three functions (i.e., instrumental, reactive, and bullying) nested within three forms of aggression (i.e., overt, relational, and reputational) were examined, as well as forms of victimiza-

tion. Gender differences in the mean level of these aggressive behaviors were anticipated. Past work has suggested that boys more frequently exhibit overt aggressive behaviors, while indirect aggressive behaviors may be exhibited at equal or greater frequencies by girls (Crick & Grotpeter, 1995). Thus, it was anticipated that a gender difference would emerge for the frequency of aggressive behaviors, consistent with findings previously discussed. Gender differences in the associations between status and aggression, particularly gender nonnormative forms of aggression, were also explored.

Study 1

Method

PARTICIPANTS

Participants were 235 adolescents (98 boys, 41.7%; 137 girls, 58.3%) in the 10th grade at a suburban, southern New England high school. Participants ranged in age from 15 to 17 years ($M = 16.31$; $SD = .50$). The ethnic composition of the sample was 76.9% White, 9.5% African American, 4.1% Latino, and 9.5% of other origin, within a city of fairly homogeneous, middle class socioeconomic status (per capita income = \$25,175; Connecticut State Department of Education, 2000). According to school records, approximately 22.3% of students were eligible for free or reduced lunch. All 10th-grade students were recruited for participation, with the exception of students in self-contained special education classes. Consent forms were returned by 70% of families ($n = 255$); of these, 92% of parents gave consent for their child's participation ($n = 235$).

MEASURES

Peer nominations of preference and popularity

Measures of peer status were obtained using standard sociometric procedures. Using rosters of all grade-mates, all adolescents were asked to complete peer nominations for four sociometric items of peer status. The order of names was counterbalanced on these rosters to control for possible effects of alphabetization on nominee selection. Adolescents nominated an unlimited number of peers whom they "liked to spend time with the most" and "liked to spend time with the least." A standardized score was computed based on the number of nominations received for each item. The difference between "like most" and "like least" standard scores was computed and restandardized to create a measure of social preference (i.e., referred to as *preference* later), with higher scores indicating greater likability among peers (Coie & Dodge, 1983). Adolescents were also asked to nominate those

peers who were “most popular” and “least popular” (LaFontana & Cillessen, 1999; Parkhurst & Hopmeyer, 1998). Standardized nominations received were again computed for these items, and a difference score was computed and restandardized to indicate each adolescents’ level of peer-perceived popularity (i.e., referred to as *popularity*), with greater scores indicating that adolescents were perceived by their classmates to have higher reputations of popularity. Peer nomination procedures are widely believed to yield the most reliable and valid measures of peer status (Coie & Dodge, 1983; Parkhurst & Hopmeyer, 1998). In this dataset, preference and popularity were significantly correlated, $r = .68$, $p < .001$. This association was significantly stronger among boys, $r = .80$, $p < .001$ than girls, $r = .57$, $p < .001$; Fisher $z = 3.40$, $p < .01$.

Peer nominations of the forms and functions of aggression and victimization

An unlimited nomination procedure was also used to assess forms and functions of aggression using rosters of all grade-mates. Nominators were first asked to identify peers who exhibited each of the three forms of aggression. The forms of aggression were examined using specific definitions of *overt aggression* (“Who says mean things, threatens, or physically hurts others—for instance, hitting, kicking or pushing others, teasing or calling names?”), *relational aggression* (“Who uses their friendships as a way of being mean to others—for instance, by telling people that they will not be their friend, excluding someone from their group of friends, or giving someone the ‘silent treatment’?”), and *reputational aggression* (“Who does things to damage someone’s social reputation—for instance, telling rumors about them, gossiping, and saying mean things behind their back?”). The number of nominations received by each adolescent was counted and standardized to produce measures of each form of aggression.

When a participant named a peer as aggressive on one of the three aggression items, they were then asked to indicate whether they believed the peer behaved aggressively “to get what they want” (*instrumental*), “mostly when they have been hurt, angered, or upset” (*reactive*), or “just to be mean or hostile to others” (*bullying*). These three options reflect the three previously studied functions of aggressive behavior. Participants could name none, one, two, or all three options for each peer they had named as aggressive. Nominations received were again counted and standardized within grade yielding nine new scores indicating the degree to which an adolescent used each form of aggression (overt, relational, reputational) for instrumental, reactive, and bullying purposes.

Using a parallel set of items, adolescents nominated the peers in their grade who were the victims of each form of aggression (i.e., *overt victimization*, *relational victimization*, and *reputational victimization*). Again, nominations received were counted for each adolescent and standardized within grade. Functions were not assessed for victimization.

No prior study has utilized peer-reported sociometric methods to examine the functions of aggressive behavior. To obtain peer-reported data of this complexity, we used a nomination procedure pioneered by Brown and colleagues (Clasen & Brown, 1985) and Cairns and colleagues (Cairns, Gariépy, & Kindermann, 1991; Cairns, Xie, & Leung, 1998) within this age group. Specifically, a subsample of adolescents nominated by their teachers as social experts ($n = 26$; approximately 10% of sample) participated in individual interviews regarding the forms and functions of aggression in the peer system. Evidence from several studies indicates that the use of a subsample of experts yields reliable and valid estimates of peer reputations, particularly when using an unlimited nomination procedure. Terry and colleagues revealed that measures of peer status derived from responses made by 10% of participants yielded scores that are moderately to strongly correlated with scores from the full sample ($r = .61$; Terry, 2000; Terry, Coie, Lochman, & Cillessen, 1998). Cairns and colleagues found similar results for measures of social network affiliation (Cairns et al., 1998). The Social Rating Type Procedure described by Brown and colleagues (Clasen & Brown, 1985) has relied on a subsample of adolescent experts to measure affiliation with reputation-based peer crowds as well. Finally, Prinstein (in press) found moderate to strong correlations between scores derived from expert nominators and the full sample for social preference, $r = .62$, $p < .001$, and peer-perceived popularity, $r = .87$, $p < .001$. Data from the same study indicate comparable associations between nominations made by experts and the full sample for several reputation measures, including academic achievement, $r = .79$, $p < .001$, physical attractiveness, $r = .84$, $p < .001$, and overt aggression, $r = .67$, $p < .001$.

Results

PRELIMINARY ANALYSES: GENDER DIFFERENCES

Before examining the study hypotheses, gender differences in the forms of adolescent aggression and victimization were examined. A multivariate effect of gender was found in a MANOVA with the three forms of aggression as the dependent variables, $F(3, 231) = 10.38$, $p < .001$. Univariate results indicated that girls scored higher than boys on

Table 1. Gender Differences for Forms of Adolescents' Peer-Rated Aggression and Victimization: Means (and Standard Deviations)

	Boys	Girls	<i>F</i> (1, 233)
<i>n</i>	98	137	
Overt aggression	-.16 (.68)	-.09 (.73)	.54
Relational aggression	-.27 (.50)	-.22 (1.24)	13.83**
Reputational aggression	-.34 (.35)	.26 (1.29)	20.35**
Overt victimization	.30 (1.26)	-.08 (.85)	7.88*
Relational victimization	.26 (1.25)	.10 (.97)	1.17
Reputational victimization	-.15 (.83)	.29 (1.21)	9.33*

Note. * $p < .001$; ** $p < .0001$.

relational and reputational aggression. No gender effect was found for overt aggression. All means are listed in Table 1.

A significant multivariate effect of gender was found in a MANOVA with the three forms of victimization as the dependent variables, $F(3, 231) = 12.34, p < .001$. Univariate results showed that boys were more likely to be the victims of overt aggression and girls were more likely to be victims of reputational aggression. No gender effects were found for relational victimization (see Table 1).

To examine the main study hypotheses, a series of hierarchical multiple regression analyses were conducted and are reported in the following sections. An initial set of analyses were conducted examining gender effects. Specifically, for each analysis, gender was included in the first step of each regression model, and interaction terms between gender and each predictor were included in the last step. With only a few exceptions (noted later), there were no significant gender interactions. Therefore, analyses were conducted again excluding gender and its interactions. Results of analyses with and without gender were virtually identical; results of the analyses without gender are reported below.

ASSOCIATIONS BETWEEN FORMS OF ADOLESCENT AGGRESSION AND PEER STATUS

A primary goal of the study was to examine the general hypothesis that adolescent aggression would be associated with high status, in particular popularity. In order to test this idea, two regressions were run in which popularity and preference, respectively, were regressed on the

three forms of aggression (overt, relational, reputational), entered simultaneously.

The overall model for the prediction of popularity was significant, $F(3, 231) = 35.54, p < .001, R^2 = .32$. High levels of reputational aggression ($\beta = .31, p < .001$) and high levels of relational aggression ($\beta = .20, p < .05$) uniquely predicted high levels of popularity. The unique effect of overt aggression ($\beta = .11$) was not significant.

The overall model for the prediction of preference was significant as well, $F(3, 231) = 3.23, p < .05, R^2 = .04$. High overt aggression uniquely predicted low preference ($\beta = -.23, p < .01$). The effects of relational and reputational aggression (β s = .12 and .16, respectively) were not significant.

CURVILINEAR ASSOCIATIONS BETWEEN PEER STATUS AND ADOLESCENT AGGRESSION

In addition to the linear associations between aggression and status, curvilinear trends were expected that would indicate that adolescent aggression would be predominantly associated with high status but also associated with low status. Test of the predicted J-shaped curve required examination of regression models in which aggression was regressed on status (i.e., the inverse model would reveal clockwise rotated J-shaped curves that result in correlation coefficients approaching zero).

The three forms of aggression (overt, relational, reputational) were the dependent variables in three hierarchical multiple regressions. In each analysis, the linear associations of popularity and preference were entered simultaneously in Step 1, followed by the quadratic terms of both predictors simultaneously in Step 2. Results of each analysis are presented in Table 2.

The overall model was significant for each form of aggression, $F(4, 230) = 51.27, 55.64, \text{ and } 71.36$, for overt, relational, and reputational, respectively (all $ps < .001$). In each model, significant linear effects emerged with popularity positively predicting and preference negatively predicting aggression. In addition, a significant curvilinear trend emerged for popularity in all three models. The combined presence of significant linear and curvilinear trends indicates that the data are best fit by a J-shaped curve. The positive β for the linear effect indicated that high popularity was associated with high aggression. The lower but also significant β for the curvilinear trend indicated that aggression was also elevated at low levels of popularity. A depiction of this trend is presented in Figure 1.

In addition to these consistent findings across all three forms of aggression, a significant negative curvilinear effect of preference was

Table 2. Regression Results for Curvilinear Associations Between Peer Status, Forms of Aggression, and Victimization

	<i>Form of aggression</i>					
	<i>Overt</i>		<i>Relational</i>		<i>Reputational</i>	
	<i>R</i> ²	β	<i>R</i> ²	β	<i>R</i> ²	β
Step 1 (<i>R</i> ²)	.43**		.39**		.43**	
Popularity		.88**		.76**		.77**
Preference		-.55**		-.29**		-.31**
Step 2 (ΔR^2)	.04**		.10**		.13**	
Popularity—quadratic term		.17*		.38**		.46**
Preference—quadratic term		.08		-.05		-.13*
Total <i>R</i> ²	.47**		.49**		.55**	

	<i>Form of victimization</i>					
	<i>Overt</i>		<i>Relational</i>		<i>Reputational</i>	
	<i>R</i> ²	β	<i>R</i> ²	β	<i>R</i> ²	β
Step 1 (<i>R</i> ²)	.47*		.25*		.13*	
Popularity		-.49*		-.27*		.32*
Preference		-.09*		-.13*		-.16*
Step 2 (ΔR^2)	.19*		.15* ¹		.27*	
Popularity—quadratic term		.49*		.45*		.54*
Preference—quadratic term		.00		-.04		.06
Total <i>R</i> ²	.66*		.39**		.55**	

Note. * $p < .001$; ** $p < .0001$

¹ This effect was qualified by a significant gender interaction, $\Delta R^2 = .25$, $p < .001$. Significant curvilinear effects for popularity ($\beta = .72$, $p < .001$) and preference ($\beta = -.32$, $p < .001$) were revealed for girls, but not for boys (β 's = .15, .02, respectively).

found for the prediction of reputational aggression only. Reputational aggression was associated with high and low levels of peer-perceived popularity (i.e., a J-shaped curve) and moderate levels of social preference (i.e., an inverted U-shaped curve).

ASSOCIATIONS BETWEEN FORMS OF ADOLESCENT VICTIMIZATION AND PEER STATUS

A similar set of analyses was conducted to examine associations between peer victimization, popularity, and preference. The three

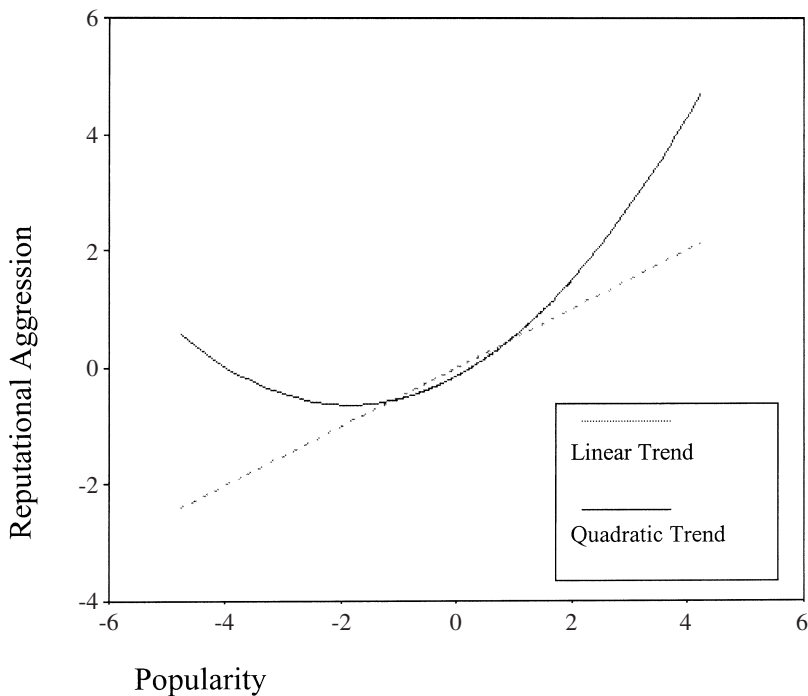


Figure 1. Sample linear and curvilinear trends for the association between aggression and popularity.

forms of victimization were simultaneously entered as predictors in two regressions, with popularity and preference as dependent variables, respectively.

The overall model for the prediction of popularity was significant, $F(3, 234) = 118.15$, $p < .001$, $R^2 = .61$. High overt victimization uniquely predicted low popularity ($\beta = -.84$, $p < .001$). However, high reputational victimization uniquely predicted high popularity ($\beta = .53$, $p < .001$). The effect of relational victimization ($\beta = -.06$) was not significant.

The overall model for the prediction of preference was also significant, $F(3, 234) = 53.58$, $p < .001$, $R^2 = .41$. Overt victimization predicted low preference ($\beta = -.64$, $p < .001$) and reputational victimization predicted high preference ($\beta = .17$, $p < .01$). The effect of relational victimization was not significant ($\beta = -.09$).

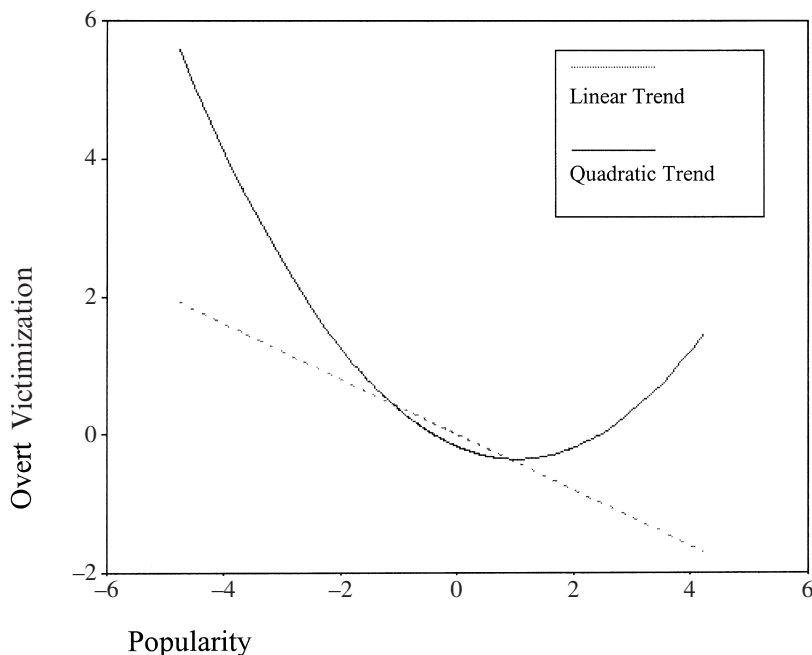


Figure 2. Sample linear and curvilinear trends for the association between victimization and popularity.

CURVILINEAR ASSOCIATIONS BETWEEN PEER STATUS AND ADOLESCENT VICTIMIZATION

The three forms of victimization (overt, relational, reputational) were the dependent variables in three hierarchical multiple regression analyses. In each regression, the linear effects of popularity and preference were entered simultaneously in Step 1, followed by the curvilinear effects of popularity and preference in Step 2. The results are presented in Table 2.

The overall model was significant for the prediction of each form of victimization, $F(4, 230) = 110.66, 37.24, \text{ and } 37.41$, for overt, relational, and reputational, respectively (all $ps < .001$). Significant linear trends indicated that low preference predicted each form of victimization. Low popularity also predicted overt and relational victimization, but reputational victimization was predicted by high popularity. For all three forms of victimization, a significant curvilinear trend emerged for popularity. A depiction of the trend found for overt and relational aggression is presented in Figure 2. For reputational victimization, a

U-shaped curve was found suggesting that adolescents with high and low levels of popularity were targets of this form of victimization.

FUNCTIONS WITHIN FORMS OF AGGRESSION

Descriptive analyses

Before examining the associations among functions within each form of aggression and peer status, descriptive analyses were conducted. We examined whether each function of aggression (instrumental, reactive, bullying) was endorsed at comparable rates across the three forms of aggression (overt, relational, reputational). Correlations between the functions of aggression within each form were also examined. For these purposes, proportion scores for each of the nine functional variables were computed. For each adolescent, three proportion scores were computed for each form of aggression. These scores indicated for each participant what proportion of their nominations received for each form of aggression was attributed to instrumental, reactive, or bullying purposes. (Because nominators could attribute more than one purpose to a person's aggression, the resulting proportion scores can exceed 1 for each form of aggression.) Table 3 presents the average proportions and the correlations among the proportion scores.

The average proportions in Table 3 indicate that there was no association between forms and functions. Each form of aggression was equally likely to be used for instrumental, reactive, or bullying purposes. A 3 (Form) X 3 (Function) ANOVA on adolescents' proportion scores with forms and functions as repeated measures yielded no significant effects. Thus, peers reported that each form of aggression was equally likely to be used for instrumental, reactive, and bullying functions.

Significant but moderate correlations were found between the proportion scores for the proactive functions (instrumental and bullying) within each form of aggression (Table 3). Adolescents' instrumental use of aggression was associated with their use of aggression for bullying. For overt aggression, the proactive and reactive functions were not correlated with each other, confirming that they are relatively independent dimensions of overt aggression. For the two forms of indirect aggression, however, the proactive and reactive functions were more likely to be correlated.

Associations with peer status

To examine the associations among adolescents' use of aggressive behavior and peer status, regression analyses were conducted. We expected the proactive uses of aggression to be associated with high

Table 3. Correlations Among Functions Within Forms of Aggression

	Overt			Relational			Reputational		
	Instrumental	Reactive	Bullying	Instrumental	Reactive	Bullying	Instrumental	Reactive	Bullying
Overt									
Instrumental	—								
Reactive	.12	—							
Bullying	.60**	.14*	—						
Relational									
Instrumental	.35**	.06	.41**	—					
Reactive	.22**	.03	.10	.25**	—				
Bullying	.38**	.19**	.44**	.39**	.09	—			
Reputational									
Instrumental	.29**	.16*	.28**	.52**	.25**	.20**	—		
Reactive	.19**	.16*	.11	.13*	.22**	.10	.31**	—	
Bullying	.28**	.26**	.31**	.29**	.19**	.34**	.47**	.29**	—
Mean (and SD) proportion of function within form	.35 (.38)	.30 (.42)	.34 (.40)	.41 (.42)	.35 (.43)	.29 (.40)	.37 (.37)	.37 (.25)	.30 (.39)

peer status (in particular popularity), while the reactive use of aggression was expected to be associated with low peer status (in particular preference). In two regressions, popularity and preference were regressed on adolescents' standardized nomination scores for each function of aggression entered simultaneously as predictors (see table 4).

Support for the hypothesis was provided by the functions of overt aggression. High levels of overt aggression used instrumentally were associated with high popularity. High levels of overt aggression used reactively were associated with low popularity and preference. Partial support for the hypothesis also emerged for the functions of reputational aggression. Only reputational aggression used instrumentally was uniquely associated with high levels of popularity and preference.

Interestingly, high levels of reactive relational aggression were associated with high popularity and preference. Consistent with our expectations, the instrumental use of relational aggression was uniquely associated with high popularity. This effect was qualified by the one significant gender interaction to emerge in these analyses. The interaction between gender and the instrumental use of relational aggression explained a significant incremental proportion of variance, $\Delta R^2 = .02$, $p < .05$. Subsequent post hoc probing of the moderator effect using Holmbeck's (2002) guidelines indicated that the instrumental use of relational aggression significantly predicted popularity for girls (i.e., a statistically significant slope; $\beta = .46$, $p < .001$), but not for boys.

Discussion

This study builds on previous research by examining not only a general hypothesis about the association between aggression and status, but specifically the forms and functions of aggression and victimization that are linked with high status, as predicted by past theories. This study is the first to examine aggressive functions as perceived by peers, and also the first to examine nonlinear models that may help elucidate the complex associations between status and aggression in adolescence.

Overall, the results supported the hypothesis that adolescents' aggressive behavior is associated with high levels of peer-perceived popularity, but not necessarily with peer acceptance. Moreover, the results supported the prediction that the forms and functions of aggression expected to affect the status hierarchy were related to popular reputations among peers. These findings are important because they suggest that some forms of aggressive behavior may be accompanied by social reinforcement within the peer context, in the form of

Table 4. Regression Coefficients for Associations Among Functions of Aggression Within Form and Peer Status

Function within form of aggression	Peer status					
	Popularity			Preference		
	<i>F</i> (2, 231)	<i>R</i> ² (total)	β	<i>F</i> (2, 231)	<i>R</i> ² (total)	β
Overt						
Instrumental			.45***			.11
Reactive			-.15*			-.22**
Bullying			.05			.02
		.23***			.05**	
	23.16***			3.96*		
Relational						
Instrumental			.34*** ¹			.10
Reactive			.23**			.16*
Bullying			-.04			-.15
		.23***			.03	
	23.34***			2.62		
Reputational						
Instrumental			.48***			.20*
Reactive			.05			.00
Bullying			-.01			-.15
		.26***			.02	
	26.47***			1.71		

Note. * $p < .05$; ** $p < .001$; *** $p < .0001$.

¹This effect was qualified by a significant gender interaction.

high reputations of status. The findings also suggest the existence of subgroups of adolescents that engage in aggressive behavior, albeit in different ways, and to serve disparate social functions.

Study 2

An important next question is the degree to which these associations may exist prospectively. It seems especially important to examine whether aggression predicts status over time (as has been found with younger age groups), or whether the inverse association is found

instead. To date, few longitudinal data are available on the antecedents or consequences of peer-perceived popularity; nor have past studies examined the developmental transactions between peer status and the forms and functions of aggression in adolescence. To address these issues, a follow-up study was conducted with the sample of the current study. With these longitudinal data, two hypotheses were tested. First, we expected high peer-perceived popularity and low social preference to predict aggression, in particular reputational aggression, over time. Second, we expected the proactive use of reputational aggression to predict adolescents' peer-perceived popularity over time, while all forms of aggression used reactively were expected to predict low social preference over time.

Method

PARTICIPANTS

Participants were 159 adolescents (62 boys, 97 girls) who had also participated in Study 1 17 months earlier. The sample was demographically representative of the full Study 1 sample; no significant differences for gender or ethnicity emerged. All students were in Grade 12 at Time 2.

Data collection for Study 2 occurred 17 months after Study 1. Of the 235 participants in Study 1, 228 were still enrolled in school at this time and eligible to be recruited for participation in Study 2. Consent forms were mailed to the families of all students eligible to participate. Forms were returned by 76% of these families; 92% of them agreed to participate in the study. Thus, consent was obtained for 159 (67.7%) of Study 1 participants.

MEASURES

Peer nominations

Using rosters of grade-mates, an unlimited peer-nomination procedure was again used to measure peer status aggression. Nominations for all sociometric items in Study 2 were completed by the full sample of participants ($n = 159$). Seven nominations were used: liked most, liked least, most popular, least popular, and overt, relational, and reputational aggression. The wording of all items was identical to Study 1. Nominations received were counted and standardized within grade for all seven items, and social preference and perceived popularity composite scores were again determined following the same procedures described in Study 1. Again, preference and popularity were significantly correlated, $r = .56$, $p < .001$, and this association was significantly stronger among boys, $r = .77$, $p < .001$, than girls, $r = .44$, $p < .001$; Fisher $z = 3.34$, $p < .01$.

Results

As in Study 1, analyses were initially conducted to examine gender effects by entering gender in an initial step in hierarchical multiple regression models, and entering interaction terms between gender and each predictor as a final step. With a few exceptions reported later, no gender effects were found. Therefore, results of analyses without gender are reported. Analyses were also conducted to examine curvilinear trends; these trends are reported when significant.

REPLICATION ANALYSES

Before examining longitudinal associations between adolescents' aggressive behavior and peer status analyses were conducted to replicate the concurrent associations reported in Study 1. Three hierarchical regressions were conducted using the three forms of aggression as dependent variables. In each analysis, the linear effects of preference and popularity were entered on Step 1, and the quadratic effects of both predictors were entered in Step 2. The results are presented in Table 5.

Overall, the results replicated the findings from Study 1. High levels of popularity and low levels of preference significantly predicted high levels of all three forms of aggression. In addition, a curvilinear effect of popularity was found for relational and reputational aggression. Combined with the linear effects, these effects again suggested a J-shaped curve in which high popularity was primarily associated with high aggression, but aggression was also elevated at low levels of popularity. Thus, these results were consistent with Figure 1. In contrast to Study 1, no significant curvilinear associations were found for overt aggression.

STABILITY OF AGGRESSION AND PEER STATUS

Correlations were computed to examine the stability of aggression and status across 17 months (see Table 6). The stability of both status measures was high, especially for popularity. The stabilities of the three forms of aggression across the 17-month interval were consistent with the stability of overt aggressive behavior found for younger age groups (Parke & Slaby, 1983).

LONGITUDINAL ASSOCIATIONS BETWEEN AGGRESSION AND PEER STATUS

To examine whether status was a prospective predictor of aggression, each form of aggression at Time 2 was regressed on the same form of aggression at Time 1 (Step 1), followed by popularity and pref-

Table 5. Replication Analyses: Regression Results for Curvilinear Associations Between Peer Status and Forms of Aggression in Study 2

	Form of aggression					
	Overt		Relational		Reputational	
	<i>F</i> (4, 158)	Total <i>R</i> ²	β	<i>F</i> (4, 158)	Total <i>R</i> ²	β
Step 1 (<i>R</i> ²)		.19**			.36**	
Popularity			.66**			.76**
Preference			-.59**			-.44**
Step 2 (ΔR^2)		.01			.10**	
Popularity—quadratic term			-.07			.40**
Preference—quadratic term			.12			-.09
	9.49**	.20**		31.97**	.45**	
					38.77**	

Note. * $p < .001$; ** $p < .0001$.

Table 6. Stability of Adolescents' Aggression and Peer Status between Time 1 and Time 2

<i>Time 1 Variables</i>	<i>Peer status at Time 2</i>		<i>Aggression at Time 2</i>		
	<i>Social preference</i>	<i>Social reputation</i>	<i>Overt</i>	<i>Relational</i>	<i>Reputational</i>
Social preference	.69**	.45**	-.17*	-.10	-.11
Social reputation	.72**	.89**	.39**	.43**	.40**
Overt aggression	-.13	.18*	.55**	.39**	.34**
Relational aggression	-.01	.39**	.57**	.60**	.62**
Reputational aggression	.13	.54**	.68**	.68**	.77**

Note. * $p < .05$; ** $p < .0001$.

erence at Time 1 entered simultaneously in Step 2. The results are presented in Table 7.

The overall model was significant for each form of aggression. After controlling for the initial levels of aggression at Time 1, high popularity and low preference predicted high relational and reputational aggression at Time 2. Gender interacted significantly with both popularity and preference in the prediction of overt aggression. High popularity and low preference predicted overt aggression for girls but not for boys. In addition to these linear effects, one curvilinear effect emerged for relational aggression. While popularity positively predicted relational aggression at Time 2 (after controlling for initial levels), aggression was also elevated at low levels of popularity.

Two additional sets of analyses were conducted to examine aggression as a predictor of peer status over time. First, two hierarchical multiple regressions were conducted with popularity and preference at Time 2 as dependent variables, respectively. For each analysis, corresponding measures of peer status at Time 1 were entered in Step 1, followed by the three forms of aggression entered simultaneously in Step 2.

The incremental contribution of the three aggressive behaviors, entered as a set of predictors, did not contribute significantly to the prediction of popularity at Time 2, but did contribute significantly to the prediction of preference at Time 2, $\Delta F(3, 154) = 5.43$; $\Delta R^2 = .05$, $p < .001$, Total $R^2 = .53$, $F(4, 154) = 43.14$, $p < .001$. Regression weights were not significant for any of the individual measures of aggression, however ($-.04$, $-.05$, and $-.15$, for overt, relational, and reputational

Table 7. Longitudinal Associations between Peer Status and Forms of Aggression: Hierarchical Multiple Regression Results (β)

Time 1 Predictors	Aggression at Time 2					
	Overt			Relational		
	<i>F</i> (3, 155)	Total <i>R</i> ²	β	<i>F</i> (3, 155)	Total <i>R</i> ²	β
Step 1 (<i>R</i> ²)		.31**			.36**	
Baseline measure for						
corresponding form of aggression			.52**			.59**
Step 2 (ΔR^2)		.02 ^{††}			.09**	
Popularity			.09			.53** ²
Preference			-.21 [†]			-.46**
	25.33**			41.59**		
					.85.88**	
						.62**
						.40*
						-.26*

Note. * $p < .001$; ** $p < .0001$; [†] $p < .10$.
¹This effect is qualified by a significant gender interaction ($r^2\Delta = .07$; β for gender x social reputation interaction = $-.33$, $p < .001$. Post hoc analyses reveal significant effects of social preference ($\beta = -.42$) and social reputation ($\beta = .48$) for girls only, $\Delta R^2 = .08$, $p < .001$. A nonsignificant trend in the same direction was revealed for boys, $\Delta R^2 = .01$, NS.
²This effect is qualified by a significant curvilinear trend for social reputation, $\Delta R^2 = .04$, $p < .001$; $\beta = .30$.

aggression, respectively). In other words, although the three aggression variables predicted additional variance in Time 2 preference as a block, the unique effects of each variable separately failed to reach significance.

Second, two additional regressions were run in which popularity and preference at Time 2 were regressed on the functions of aggression at Time 1, controlling for popularity and aggression at Time 1 in Step 1 of the analysis. In Step 2, the nine measures of aggressive functions (i.e., the three functions for each of the three forms of aggression) were entered simultaneously. The overall model for the prediction of popularity was not significant. The overall model for the prediction of preference was significant, $F(10, 148) = 18.83, p < .001, R^2 = .56$. The incremental variance explained in Step 2 was significant as well, $\Delta F(9, 148) = 3.04; \Delta R^2 = .08, p < .01$. One significant regression weight emerged in Step 2: High reactive reputational aggression at Time 1 predicted low social preference at Time 2 ($\beta = -.17$), after controlling for social preference at Time 1.

General Discussion

Past empirical studies have offered abundant evidence to suggest that aggressive behavior has negative developmental effects on children's and adolescents' psychological functioning. The current study focused more specifically on adaptive correlates of aggressive behavior and revealed consistent links between aggression and high status among peers. These results, and those from similar recent investigations (e.g., Rodkin et al., 2000), are in contrast to prior work and are attributable in part to recent advances in the definitional precision used to operationalize the forms and functions of aggressive behavior, as well as differences in the definition of peer status.

By conceptualizing peer status in a manner that may help to differentiate reputations of popularity and perhaps dominance (Parkhurst & Hopmeyer, 1998) from preference or likability, it was possible to reveal a pattern of findings that is consistent with past work in developmental psychology and ethology. Aggressive adolescents are generally high status, highly visible members of the social milieu who are not necessarily well liked. The distinction between peer-perceived (reputational) and sociometric (preferential) measures of popularity may be most applicable to adolescence (LaFontana & Cillessen, 1999, in press; Prinstein, in press). However, the similarity of these results with past findings on elevated levels of aggressive behavior in sociometrically "controversial" children (Coie & Dodge, 1983) should also be noted. Like those with high reputations of popularity, controversial children are defined by their high visibility and impact among peers, but

tend to be both liked and disliked in the peer group. Previous research has shown that youth high in peer-perceived popularity are likely to be sociometrically controversial (Parkhurst & Hopmeyer, 1998). Sociometrically controversial children have been largely neglected in past research, however. The use of these two related, yet theoretically distinct measures of peer status may help to further understand this sociometric group and disentangle the extent to which behaviors like aggression may be simultaneously associated with reputations and preferences among peers.

Beyond this general association between status and aggression, however, the results from this study provided further exploration of the various manifestations of aggressive behavior that may be most closely associated with status from a theoretical perspective. An initial hypothesis pertained to the forms of aggression that have been revealed in past research.

When research on various forms of aggressive behavior (i.e., overt vs. relational) began to emerge in the developmental literature, much attention was paid to possible gender differences in these behaviors (e.g., Crick & Grotpeter, 1995). Apart from the debates regarding the evidence for gender differences, and the inconsistent use of terminology to describe these forms of aggression (e.g., indirect, social, relational) in subsequent work, little attention has been given toward understanding how these discrete behaviors may fit within a larger theoretical model of aggression (Underwood et al., 2001). Although descriptive data on gender-specific manifestations of discrete behaviors may ultimately be helpful to identify children and adolescents at risk, a functional perspective is needed to understand the motives and processes that underlie these various forms of aggression. Indeed, a theoretically informed approach may yield data that would help to categorize these behaviors by their true shared properties (e.g., by their functions or effects on the social context) and to determine the manner in which current correlates, such as gender, may be etiologic or perhaps only incidental identifiers.

This study offered an initial advance toward integration with theory by attempting to classify aggressive behaviors according to their effect on the social hierarchy. Two indirect forms of aggression were independently assessed: behaviors that have clear consequences for the status of a dyadic relationship (i.e., relational aggression) and those with the greatest potential to influence the group hierarchy (i.e., reputational aggression). The unique associations between these behaviors and status supported the discriminant validity of this categorization. The results indicated that reputational aggression was predominantly

associated with high levels of popularity. Notably, victims of reputational aggression were also of high status, suggesting that reputational aggression is targeted toward those with levels of status similar to the provocateurs. In other words, behaviors that could be used to reify or defend one's position in the status hierarchy were indeed associated with high status among adolescents. Moreover, longitudinal analyses indicated that popularity was related to increasing trajectories of this behavior over time, suggesting that popularity may be related to adolescents' motivation to engage in this behavior. The extent to which reputational aggression leads to increases in popularity was less clear, however; longitudinal analyses did not support this reciprocal association. It may be that aggression helps adolescents to maintain their status, rather than to increase their status.

Significant curvilinear trends indicated that aggression was not only exhibited by popular, disliked adolescents. Although the general pattern of findings remained unchanged, nonlinear effects suggested that all three forms of aggressive behavior were also associated with low acceptance in the context of unpopularity. Moreover, nonlinear effects for victimization suggested that some targets of overt and relational aggression may be popular and disliked; some targets of reputational aggression may be unpopular and well liked. Overall, these results offer new insight on the complex associations between status and aggression than have been revealed in previous studies of linear models. Whereas linear models are limited by describing only a single predicted association, the examination of curvilinear trends allows for a systematic study of the heterogeneity of adolescents who may behave aggressively, suggesting that this behavior may be associated with various points along the status continuum. Indeed, these curvilinear trends accounted for a significant proportion of variance in aggression after accounting for linear effects, allowing us to account for more variability in adolescents' aggressive behavior. These results were consistent with the hypothesis that adolescents may engage in aggression for different reasons, and the different functions of aggression may prove meaningful for understanding differential status correlates.

To examine this hypothesis, we used a unique procedure to assess aggressive functions, based on the perceptions by peers. The results indicated that adolescents perceived the functions of aggression in a manner that was similar to past observations and teacher reports. Proactive functions of aggression, including instrumental and bullying functions, were associated with each other within each form of aggression. For overt aggression in particular, proactive and reactive func-

tions appeared to be relatively discrete (Dodge & Coie, 1987). Interestingly, the different forms of aggression otherwise were relatively inconsequential for adolescents' perceptions of functions; no differences emerged in the distributions of functions within each form.

Apart from the forms of aggression used, either physical fighting, relationship manipulation, or status attacks, the results offered partial support for the hypothesis that the functions of aggression are meaningfully and consistently associated with status. Proactive (instrumental) use of all three types of aggression was associated with high popularity. In contrast, reactive use of overt and reputational aggression was uncorrelated with popularity.

These results are consistent with a social learning theory perspective on proactive and reactive aggression. Social learning theories suggest that proactive aggression is reinforced by the social rewards it was designed to elicit, such as status or dominance within a group (Bandura, 1973, 1983). Although longitudinal results did not indicate that the proactive use of aggression was uniquely associated with increased status, it is likely that adolescents nevertheless perceive that their strategic use of aggression may help to maintain their status. Indeed, peers associated the proactive use of aggression with popularity. Thus, perceived rewards may reinforce proactive aggression, leading to increases in the frequency of aggression by individuals who are high or ascending in status (Bandura, 1973, 1983; Hinde, 1974; Savin-Williams, 1979). Reactive aggression may also be reinforced by short term social rewards. As a dysregulated expression of a need or negative emotional state, reactive aggression outbursts are typically met with increased attention from others (Patterson, 1986), reinforcing and increasing its expression across time and contexts (Bandura, 1973). However, the expression of negative emotions through reactive aggression may have long term negative consequences. Reactive aggression is perceived as a norm violation by nonaggressive peers (Wright, Giammarino, & Parad, 1986), can curtail opportunities to develop more appropriate, prosocial communication strategies (Coie & Dodge, 1998); and should therefore lead to rejection. Indeed, in this study, the reactive use of overt aggression predicted low social preference. Moreover, the reactive use of reputational aggression predicted low social preference over time.

Interestingly, few gender differences emerged in this study of aggression and peer status in adolescence. Consistent with prior work, there was an overall difference in the mean level of various forms of aggressive behavior, suggesting that gender may be a marker for the specific behavior that adolescents select to inflict harm on others. The

associations between the use of these behaviors and adolescents' status within the peer culture were not affected by adolescents' gender, however, with only a few exceptions. For example, instrumental use of relational aggression was associated with popularity for girls only, perhaps indicating that strategic use of relationship manipulation is less appropriate among boys (Crick, 1997) or less relevant to the social goals that are most important to boys. Overall, the results suggest that the processes involved in the competitive struggle for status among peers may be relatively similar among both genders (Hawley, 1999); however, continued research that explores processes specific to gender may offer some important advances in future research.

Future research would also benefit by addressing some of the limitations in this study. Although this investigation provided some compelling theoretical and empirical evidence for a reclassification of indirectly aggressive behaviors, future work is surely needed to determine the distinctiveness of relational and reputational forms of aggression. Perhaps more importantly, future research should consider the effect of aggression within a social context and the psychological functions served by aggression rather than only the form of aggression itself. Continued study of longitudinal associations is also important for future work, as are designs that would allow for the study of associations between aggression and status across several discrete developmental levels.

Overall, this study offered several new strategies for the consideration of complex associations between aggression and high peer status in adolescence. The use of more precise definitions of peer status and the forms and functions of aggression, examination of nonlinear models, and the study of prospective associations indicated that aggression may be exhibited by adolescents at various points along the status continuum, and its heterogeneous manifestation may in part be explained by differential social rewards associated with this behavior.

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