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A method is described to identify peer cliques based on a consensus of group members; it provides quantitative measures of preadolescents' involvement in cliques and their association with peers who often get in trouble. Of primary interest was the relation between peer rejection and participation in peer cliques. Characteristics of peer cliques were assessed for 824 fourth-grade youth as a function of their sociometric status, gender, and aggressiveness. Rejected youth were less central members of their group than were average-status peers; however, aggressive preadolescents were no less centrally involved than their nonaggressive peers. Rejected preadolescents also belonged to smaller cliques and to cliques comprised of other low-status peers. Aggression was the primary factor associated with being a central member of deviant peer cliques.

Peer relations provide an important, if not necessary, context for adaptive social and emotional development in childhood and adolescence (Asher & Coie, 1990; Rubin, Bukowski, & Parker, 1998). There are multiple dimensions of peer relations that vary in their nature and function, and success in each may have different implications for adjustment.

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The focus of the present paper is on the intersection between social status in the peer group, particularly peer rejection, and participation in peer cliques. Social status is a group-oriented concept that indexes the degree to which an individual is liked and disliked by the general peer group. Peer cliques are cohesive groups of youth who spend time together. Thus, they differ from dyadic friendships, which are mutual relationships between two children based on affection, reciprocity, and intimacy. One reason for considering peer cliques as a unique social context is the powerful relation between participation in deviant peer groups and delinquency. Involvement in peer cliques has normative significance as well. Most youth are involved in cliques and as they rely on peers as normative and comparative reference groups, they are influenced by members of their clique. Cliques are expected, thus, to play a critical role in influencing social behavior, attitudes, and academic adjustment (Adler & Adler, 1995; Brown, 1990; Hallinan, 1980; Harris, 1995; Kindermann, 1993). Not all individuals are equally involved in their clique; thus, peer clique participation can be assessed in terms of centrality or degree of association in the group.

Research on the phenomenon of peer rejection has increased dramatically since the 1970s for two reasons. The first is that early rejection has been found to predict delinquency and psychological maladjustment in later childhood and adolescence (Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987). The second is that rejection is related concurrently and predictively to feelings of loneliness and depression, and victimization by peers (Boivin & Hymel, 1997; Boivin, Hymel, & Bukowski, 1995; Parker & Asher, 1993; Parkhurst & Asher, 1992). A number of speculations have been offered about the reasons for the predictive links between rejection and subsequent maladjustment (Coie, 1990; Parker, Rubin, Price, & DeRosier, 1995; Rubin et al., 1998). In addition, empirical demonstrations suggest that these associations are not artifactual and that rejection plays a mediating role in contributing to further maladjustment, including both internalizing (Boivin et al., 1995) and externalizing problems (Coie, Lochman, Terry, & Hyman, 1992; Coie, Terry, Lenox, Lochman, & Hyman, 1995; Dodge, Bates, & Pettit, 1990), although the case is stronger for externalizing problems.

One hypothesis for the causal relation between peer rejection and delinquency is that peer rejection reduces the range of social alternatives for rejected youth so that they gravitate toward deviant peer groups (Dishion, Patterson, & Griesler, 1994). These deviant peer associations, in turn, foster increased involvement in delinquent activity. A further amplification of this hypothesis (Coie, 1990) is that rejection not only leads to deviant peer associations but also leads to association with less skillful

peers who may be both less supportive and less able to model effective social and emotional behavior. That is, they fail to provide the kind of interactions in which positive social development can take place. In short, one important causal factor in linking rejected social status in childhood and subsequent social and behavioral dysfunction is the restricted social opportunities that are a consequence of peer rejection. Preadolescence is expected to be an important period in which to examine these issues because preadolescents are on the cusp of a period in development when peers play a primary role in promoting both positive and potentially delinquent behavior.

Surprisingly little research has been conducted to examine the preceding hypothesis. Ladd (1983) observed and interviewed third- and fourth-grade students at play and found that lower status youth tended to play in smaller groups with younger peers and with peers of lower social status, that is, youth who presumably were less socially skilled than the playmates of nonrejected youth. In a study of preschool-aged children, negative peer nominations at the beginning of the school year predicted a lower range of peer contacts at the middle of the school year. Similarly, negative nominations at midyear predicted fewer peer contacts at the end of the year (Ladd, Price, & Hart, 1990). Studies of the mutual friendships of rejected students show that they are less likely to receive reciprocal friendship nominations from classmates (Bagwell, Peppelman, & Parker, 1997), and they rate their friendships as more conflictual and less supportive than others do (Parker & Asher, 1993). Together these findings suggest that rejected youths' peer associations may not provide the context for developing positive social skills and competencies that higher status youth achieve in their peer relations.

Aggressive behavior and peer rejection are strongly associated, particularly among boys, such that approximately 50% of aggressive boys are rejected. However, distinctions between aggression and rejection are demonstrated in the nature of rejected and aggressive youths' peer associations. There is evidence that children often form mutual friendships with peers of similar social status (Dishion, 1990; Parker & Asher, 1989). Thus, rejected youth may be particularly disadvantaged because they associate with other socially unskilled youth. However, some prior research on the friendship networks of aggressive children has shown that they are not handicapped in their participation in peer social networks by their antisocial characteristics. Cairns, Cairns, Neckerman, Gest, and Gariepy (1988) found that aggressive youth were as likely as nonaggressive youth to be members of social cliques or networks. Because Cairns et al. did not analyze membership in social networks as a function of peer social status, there is no evidence as yet as to whether peer dislike leads

to exclusion from social cliques or whether rejected preadolescents participate in friendship networks but are limited to participation with other less socially competent peers.

The primary reason for investigating preadolescents' participation in peer cliques as distinct from other dimensions of peer relations is the recognition that the peer clique is a powerful socialization force that differs from other peer relations in its nature and function. At the simplest level, peer cliques provide an organizational structure in the social world of children and adolescents. However, the influence of peer cliques on their lives extends far beyond the provision of social arrangement. In her recent formulation of group socialization theory, Harris (1995) suggests that peer groups are responsible for transmission of cultural knowledge. Specifically, the behaviors and attitudes held in common by a portion of clique members are available to the entire clique. Thus, by participating in and identifying with a particular peer clique, children and adolescents learn accepted behavior and attitudes. The hierarchical structure and exclusivity of cliques further define their influence on individual development as children engage in group-sanctioned behavior to achieve or maintain status in the group (Adler & Adler, 1995). Although socialization in peer cliques is a ubiquitous feature of childhood and adolescence, conformity to peer clique norms and behaviors is clearly problematic when these norms include positive views on antisocial and delinquent behavior.

Most of the research on peer network associations, as distinguished from dyadic friendships, has been conducted with adolescents. Brown (1990) identified groups of adolescents who shared certain reputational characteristics (i.e., jocks, nerds, druggies, etc.) following the assumption that many adolescent associations are organized by shared interests, activities, or values. Other researchers (Kindermann, 1993; Urberg, Değirmencioğlu, Tolson, & Halliday-Scher, 1995) have followed the lead of Cairns et al. (1988) in identifying groups of youth who are observed by their peers to form social cliques and then investigating their similarities in attitudes. Although there are variations in the techniques for having peers assist researchers in identifying these clique structures, the essential dimension is frequency of association.

A social clique differs from a dyadic friendship because not all members of a clique name each other reciprocally as best friends. It is possible for youth not to like all members of a group with whom they frequently associate. Likewise, not all clique members are equally involved in their group; dominance hierarchies reflect different degrees of influence on activities and attitudes among the group (Adler & Adler, 1995; Strayer, 1989). Not all members associate in the group with equal frequency—

some are more central participants and others more peripheral. This distinction was made by Cairns et al. (1988) in defining some youth as *nuclear,* others as *secondary,* and some as *peripheral* members of their clique based on the frequency of nominations they received for belonging to a particular group. The logic of this operational definition is that peers' memories or impressions of a clique's composition are based, to some extent, on the frequency in which members are seen with each other. These impressions also reflect the degree to which certain combinations of youth define the clique by their behavior together.

This concept of centrality of group membership is of potential importance for understanding the relation between peer status and group membership. It is possible that individuals who are disliked by many peers belong to a social clique but have only peripheral status. Peer cliques may exert their influence in multiple ways. On the one hand, having peripheral status in a group can have important implications for behavior if increased inclusion is desired because it could lead to greater adoption of group values and attitudes than would be true for more central members (Hollander, 1958). More peripheral status in a deviant peer group would lead to greater antisocial behavior, possibly, than would central membership.

On the other hand, involvement in deviant peer groups has been found consistently to lead to increases in antisocial behavior among adolescents. Patterson, Capaldi, and Bank (1991) predicted delinquency in early adolescence from sixth-grade deviant peer associations, controlling for prior delinquency. In addition, associations with deviant peers have been found to predict the onset of offending behavior (Keenan, Loeber, Zhang, Stouthamer-Loeber, & Van Kammen, 1995) and subsequent arrests (Simons, Wu, Conger, & Lorenz, 1994). Thornberry, Krohn, Lizotte, and Chard-Wierschem (1993) reported that gang members increase their criminal offending during the periods they associate with their gangs and decrease it when they leave the gangs. Thus, the influence of the peer clique (particularly the deviant peer clique) on an individual's behavior and attitudes is expected to be strong for central and peripheral members but may be achieved through different processes for those varying in their degree of association with the group.

Associations with deviant peers have been operationalized by researchers in several ways, and a consistent methodology for assessing affiliations with deviant peer groups has yet to emerge. There are two predominant measures in the existing literature. The first involves an assessment of reputations for "hanging around with kids who often get in trouble" where informants simply rate or nominate youth on this item (see Dishion, 1990). The second is a self-report measure that requires youth to

indicate on a Likert-type scale how many of their friends (e.g., *all, most, few,* or *none*) participate in particular antisocial or deviant activities (Elliott, Huizinga, & Ageton, 1985). Unfortunately, both of these measures are based on general perceptions about an individual's group of friends and may not account for the groups in which he or she actually "hangs around." Our alternative method was to use existing techniques for defining peer cliques based on a consensus about who associates with one another and then qualify these groups by the extent to which group members have a reputation for getting into trouble.

In the present study, we adopted the Cairns et al. (1988) method for having peers identify groups of cliques in large school populations. However, rather than relying on a few informants to identify all of the peer cliques, all youth who had permission to participate were asked to indicate the peers with whom they hang around. Linkages or co-occurrences between individual preadolescents were then used to identify cohesive subsets of peers within the larger peer network. Thus, clique membership was based on a consensus of peers in general about who belongs together, and this consensus was measured by factor-analytic procedures. An advantage of this procedure is that it provided a continuous variable indicator of the centrality of each preadolescent's involvement in his or her social clique, namely, the preadolescent's factor loading on that clique. For the purposes of the present study, this measure of centrality permitted evaluation of the hypotheses regarding rejected youths' peripheral membership in cliques and their involvement in cliques dominated by peers who often get into trouble. That is, rather than defining youth as either in a clique or not in a clique, we compared them on the degree of central or peripheral membership in these groups.

A primary goal of the present study was to examine the connection between peer rejection in preadolescence and clique membership. Our hypothesis was that although relatively few preadolescents are excluded from any group at all (if groups or cliques are defined by as few as three individuals), rejected youth are more peripheral members of their clique than are others. Furthermore, we hypothesized that the cliques to which rejected preadolescents belong are smaller and comprised of lower status peers than are the cliques to which others belong.

A second goal was to consider the relation between rejected peer status and deviant peer associations. Although Patterson (Patterson, Reid, & Dishion, 1992) originally suggested that rejection leads to limited social opportunities and thus to greater deviant peer associations, his data actually referred to children who were both aggressive and rejected. Current research on the implications of peer rejection for adjustment has consistently involved the distinction between aggressive-rejected and

nonaggressive-rejected youth. Sometimes the latter group are referred to as withdrawn-rejected (French, 1988, 1990; Rubin, LeMare, & Lollis, 1990) or as submissive-rejected (Parkhurst & Asher, 1992). There is now clear evidence that the developmental trajectories of these two subgroups of rejected students are quite different. Aggressive-rejected youth (boys in particular) are at high risk for antisocial activities (Coie et al., 1995), whereas withdrawn-rejected youth are at risk for internalizing problems (Boivin, Poulin, & Vitaro, 1994). For this reason, we were interested in the deviant peer associations of aggressive-rejected preadolescents as compared with aggressive-nonrejected preadolescents. We hypothesized that both subgroups of aggressive preadolescents are more involved in deviant peer cliques than are their nonaggressive peers, but aggressive-rejected youth are more peripheral members of these cliques than aggressive-nonrejected youth. This hypothesis follows from the expectation that rejected youth are less central members of cliques in general.

The advantage of our large sample from multiple elementary schools is that it provided the opportunity for examining these hypotheses for boys and girls. The hypotheses regarding deviant peer associations were based on a research literature that relates primarily to males. For this reason, we expected the strongest effects in the predicted direction for males. Peer rejection also plays an important role in the adjustment of girls, but the mechanisms involved in this association are not as well understood as for boys. For example, although it is well established that approximately half of rejected boys display aggressive and disruptive behavior, findings about subgroups and behavioral patterns of rejected girls are much less consistent. Girls are more likely to engage in relational aggression that includes behaviors aimed at damaging others' peer relations rather than the overt type of aggression assessed in the current study (Crick & Grotpeter, 1995). Furthermore, little is known about the nature and function of deviant peer associations for girls. As a result, the present study included both boys and girls. Gender was included as a variable in our analyses to assess whether our hypotheses, particularly regarding the expectation that rejected youth are peripheral members of cliques and participate in cliques with other low-status youth, apply equally well to girls and boys.

METHOD

Participants

All students in the fourth grade of eight public elementary schools in a southern suburban community were included on the sociometric ros-

ters in the procedure described later (N = 824, 50% male). The 623 (76%) preadolescents who were given parental consent participated as sociometric voters. The students came from 33 classrooms, and 56% of the students were Caucasian, and 41% were African American. The percentage of students receiving free or reduced lunches ranged from 12% to 47% across the eight schools (eligibility requirement for the National School Lunch Program is a family income at or below 185% of the poverty level).

Procedure

Data collection occurred in the spring of the participants' fourth-grade year. For each of eight questions, the participants were given a roster with the names of all preadolescents in the fourth grade at their school. They were asked to nominate the peers they liked the most as well as those they liked the least. In addition, the participants indicated the peers they "hang around with" and nominated themselves and peers on both prosocial and antisocial behavioral characteristics. The present analyses included the two behavioral items of "starts fights, picks on other kids, and teases them" and "hangs around with kids who often get in trouble" as well as the nominations for most liked and least liked.[1] For all questions, students could nominate as many or as few peers as they chose.

Sociometric Status and Aggression Classification

Preadolescents were assigned to the popular, rejected, neglected, controversial, or average sociometric groups based on nominations as most liked and least liked peers. The numbers of most liked and least liked nominations received were first standardized within each school. Each participant's social preference score was defined as the standardized number of nominations received for most liked (i.e., acceptance) minus the standardized number of nominations received for least liked (i.e., rejection). Thus, social preference reflected a preadolescent's popularity in the peer group. Social impact indexed the degree to which a preadolescent was noticed by the peer group and was defined by the

[1] The use of peer nominations on a single item reflecting characteristics such as aggression does not have the same limitations as single-item measures assessed by other methods involving a single rater (e.g., self-report or teacher report). Specifically, the number of peer raters can be conceptualized as the number of items on a scale. Ratings from these multiple peers contribute to the total aggression score for each participant and thus improve the overall reliability of these scores. Aggression defined in this manner is highly reliable: the 1-year test-retest reliability is .83 for this age group (Coie & Dodge, 1983).

Table 1. Number of Children in Each Sociometric Group as a Function of Gender and Aggression

	Boys		Girls	
Sociometric group	Aggressive	Nonaggressive	Aggressive	Nonaggressive
Average	23 (35.4)	182 (52.1)	20 (43.5)	171 (47.0)
Rejected	19 (29.2)	62 (17.8)	14 (30.4)	34 (9.3)
Popular	4 (6.2)	35 (10.0)	2 (4.3)	74 (20.3)
Neglected	2 (3.1)	48 (13.8)	5 (10.9)	67 (18.4)
Controversial	17 (26.2)	22 (6.3)	5 (10.9)	18 (4.9)

Note: The column percentage (i.e., percentage of aggressive or nonaggressive boys or girls in each sociometric group) is given in parentheses.

standardized number of most liked nominations plus the standardized number of least liked nominations. Social preference and social impact scores were then standardized within each school and used to classify participants into the five sociometric groups according to the method described by Coie and Dodge (1983).

Specifically, students with a standardized social preference score greater than 1.0, a standardized most liked score greater than 0, and a standardized least liked score less than 0 were classified as *popular.* Youth with *rejected* status had a social preference score less than 1.0, a least liked score greater than 0, and a most liked score less than 0. The *neglected* group was comprised of preadolescents with social impact scores less than −1.0. *Controversial* preadolescents had social impact scores greater than 1.0, and their most liked and least liked scores were both greater than 0. All other participants were placed in the *average* group. The racial distribution of participants in each group was as follows: popular (64%, African American; 36%, Caucasian), rejected (53%, African American; 47%, Caucasian), neglected (36%, African American; 64%, Caucasian), controversial (79%, African American; 21%, Caucasian), and average (36%, African American; 64%, Caucasian).

All preadolescents were classified as aggressive or nonaggressive based on the number of nominations they received for the "starts fights, picks on other kids, and teases them" item. The number of aggression nominations received was standardized by school as well as by gender to account for the greater number of nominations received by boys than girls. Students with standardized aggression scores greater than 1.0 were considered aggressive, and all others were considered nonaggressive. The number and percentage of boys and girls in each sociometric group and each aggression group are shown in Table 1.

Clique Membership

A factor-analytic procedure was used to determine preadolescents' membership in social cliques (see Coie, Terry, & Christopoulos, 1991). The pattern of nominations each individual received for the "hangs around with" item from all peers participating in the sociometric nomination procedure was arranged in a voter by votee matrix. The columns of this sociomatrix thus represented the nominations received by each person in the peer group, and the rows of the sociomatrix reflected the pattern of nominations given by each voter. A principal-axis factor analysis was conducted on the phi correlations between the columns of each sociomatrix for each school. The phi correlations reflect the similarity in group membership for two preadolescents as assigned by the voters.[2]

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[2] One concern that often arises with the use of a correlation coefficient as a measure of similarity is the extent to which high correlations can be obtained simply as a function of the number of overlapping zeroes between the columns of the raw data matrix. For example, if there are 80 individuals in the social network, and 78 of them fail to nominate students 1 and 2 as hanging around together, will this result in a high correlation between students 1 and 2? In short, the answer is no. To demonstrate this, it is important to recognize that a correlation between two individuals who receive nominations in a binary form is a phi (ϕ) coefficient. The phi coefficient can be conceptualized as a measure of association for a 2×2 contingency table where the rows of the table indicate the presence or absence of a nomination for student 1, and the columns indicate the presence or absence of a nomination for student 2. The cells of the table indicate the cross-classification of nomination patterns for students 1 and 2.

The phi coefficient can be written in terms of four parameters: the number of nominations in which both students received a positive nomination (f_{11}); the total number of positive nominations received by both student 1 (f_1) and student 2 (f_2); and the total number of individuals in the network (*N;* Fleiss, 1981, pp. 59–60). We used this formulation to conduct a simulation of the behavior of the phi coefficient for assessing network similarity between two students. In this simulation, we varied the following: (a) the marginal number of nominations received by student 1 (from 1 to 8) and student 2 (from 1 to 8); (b) the number of nominations in which both students received a nomination from the same person (from 1 to 8 conditional upon the marginal numbers); and (c) the total size of the network (from 20 to 80 by 10s). This simulation resulted in 1,876 different possible configurations and covered the possibilities inherent in our data. At the most basic level, we correlated the value of the phi coefficient with that of the number of common nominations and the number of common not-nominations. We found a substantial correlation between the value of phi and the number of common nominations ($r = .83$) and a low correlation between the value of phi and the number of common not-nominations ($r = .20$).

Even this clear demonstration of what primarily drives a phi coefficient is misleading. For a set of *fixed margins,* a change in the number of common nominations necessarily leads to a change in the number of common not-nominations. For example, with the size of the network fixed at 80, we find no correlation at all between phi and the number of common not-nominations (average $\phi = -.05$, with a range between $-.01$ and $-.11$), as long as there are no common nominations shared. However, if two students share one common nomination, then the average phi coefficient is $\phi = .25$, with a range between $-.09$ and 1.00. Thus, one can show that the number of common nominations and the number of common not-nominations are not independent. In an 80-person network in which each student

This factor-analytic procedure was continued by decreasing the number of factors by one until the eigenvalues of each factor were greater than or equal to 1.0 and each factor had at least three significant loadings on the reference structure matrix. A significant loading was defined as a semipartial correlation of at least .25. This criterion was chosen to allow for the identification of cohesive groups that include central as well as more peripheral members. When these conditions were met, each factor was assumed to represent a clique. Thus, each clique contained at least three members. The loading for each student on a particular clique was the semipartial correlation between the preadolescent and the clique after the variance explained by all other cliques was removed. This loading indicated the association of the individual with the particular clique and was used as our measure of centrality. Specifically, participants with high loadings on their clique were central members of the group, whereas low loadings indicated peripheral membership.

Youth were assumed to be a member of the clique on which they had the highest loading, and those who did not have a loading of at least .25 on any of the cliques in their school were considered social isolates. There were very few students (n = 23; 2.8% of the total sample) who were not members of a clique based on this fairly liberal criterion for inclusion. Across the eight schools, 109 cliques were identified. The number of members in a clique ranged from 3 to 17, and the median number in each clique was 7. Of the cliques, 80% were homogeneous with respect to gender, and 20% were homogeneous with respect to ethnicity.

The factor-analytic method of identifying social cliques presented in the current paper is similar to two commonly used methods of analyzing social networks—the NEGOPY computer program (Richards & Rice, 1981) and the Social Cognitive Map procedure (SCM; Cairns et al., 1988; Cairns, Perrin, & Cairns, 1985). Most of the differences lie in the choices made concerning arbitrary determinants such as the threshold of membership and the minimum number of individuals that may comprise a clique. The primary difference between our factor-analytic technique and the SCM procedure is the design of the data collection.

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receives at least one nomination, we can show that the minimum number of common not-nominations varies systematically with the number of common nominations received. For example, with no shared common nominations, the minimum number of common not-nominations shared is 64. With one common nomination shared, the minimum number is 65; with two common nominations shared, the minimum number is 66; and so on. It is this dependency between the number of common nominations shared by two students and the subsequent minimum number of not-nominations that they also must share that creates the slight correlation found between the value of phi and the number of zeroes in the column of the raw data matrix.

In our procedure (like with the NEGOPY program), all eligible participants use self-report to name their associates. In the SCM method, a smaller set of informants report on all groups in the peer network. The self-report method is more practical for large schools (i.e., more than 100 students per grade) because students often do not keep track of the peer associations of all other students. The notion of cliques consisting of members with mutually high intercorrelations with respect to their co-occurrence with other network members is the same in the SCM and factor-analytic methods. However, the SCM method uses matrix permutation to facilitate clique identification, whereas the current method uses factor analysis.

Our factor-analytic technique is similar to the NEGOPY approach in that it requires at least three members per group and has a membership test (i.e., the magnitude of the factor loading). NEGOPY has a number of user-specified options to change the criteria by which the cliques are determined. Thus, by equating the degree of membership test, using identical input data, and using similar convergence criteria, essentially the same clique structure may be obtained by NEGOPY and the factor-analytic approach. The primary advantage of the current procedure is that a preadolescent's loading on a factor (i.e., clique) provides a quantitative indicator of the relative centrality of each preadolescent's involvement in his or her social clique.

Associations With Deviant Peers

In the current study, we developed a measure of preadolescents' associations with deviant peers that reflects the degree to which they belong to cliques with troublemaking peers, that is, their centrality of membership in deviant cliques. There were two steps in calculating this measure. The first step established the degree to which cliques were comprised of youth who get in trouble. Specifically, for each clique (i.e., factor), the factor loadings for all individuals in the sample on that clique were correlated with their nominations for "hangs around with kids who often get in trouble." The resulting correlation for each clique was used in the second step to calculate a score for each person that indicated his or her centrality of membership in deviant cliques. In this second step, for each preadolescent, the correlation for each clique determined in the first step was multiplied by his or her loading on that particular clique and summed across all cliques. Thus, our measure of associations with deviant peers is a continuous variable reflecting the degree to which an individual is a central member of deviant cliques. A high score indicates that the preadolescent is a central member of cliques comprised of peers

who often get in trouble (i.e., deviant cliques), and a low score represents peripheral association with deviant cliques.

In previous research, children's and adolescents' associations with deviant peers have been primarily assessed by peer or parent nominations for hanging around with troublemakers or by self-report measures asking children how many of their friends are involved in particular delinquent or antisocial acts (Dishion, 1990; Elliott et al., 1985). As compared with simple nomination-based or self-report measures, our clique-based measure is expected to tap not only reputations for associating with troublemaking peers but also the degree to which they are actually involved in social cliques with these youth.

RESULTS

Four primary aspects of preadolescents' involvement in cliques were considered in the analyses to address our hypotheses about their participation in social cliques: (a) the centrality of their membership in a clique, (b) the popularity of their clique, (c) the size of their clique, and (d) their involvement in deviant peer cliques. These measures served as the dependent variables in 5 (Sociometric status) × 2 (Gender) analyses of variance (ANOVAs). Interactions and main effects involving sociometric status were followed by contrasts comparing the rejected group with the other status groups. To control for Type I error, only contrasts significant at the $\alpha = .01$ level were evaluated. In addition, to examine our hypothesis about the deviant peer associations of rejected preadolescents as a function of their aggression status, a 2 (Rejected vs. nonrejected) × 2 (Aggressive vs. nonaggressive) ANOVA was computed for the measure of centrality in deviant cliques.

Centrality of Clique Membership

Our hypothesis about the centrality of rejected preadolescents' membership in peer cliques was examined first. The factor loading for each preadolescent on the clique to which he or she belonged indicated his or her centrality in the group. The 5 (Sociometric status) × 2 (Gender) ANOVA revealed that centrality of clique membership differed according to sociometric status, $F(4, 814) = 3.69$, $MSE = .02$, $p < .01$. The main effect for gender, $F(1, 814) = 2.41$, $MSE = .02$, $p > .10$, and the gender by status interaction, $F(4, 814) = .38$, $MSE = .02$, $p > .10$, were not significant. A significant contrast comparing the rejected group with the average of the other four groups indicated that rejected youth were less central

Table 2. Means and F-ratios for Measures of Children's Participation in Peer Cliques as a Function of Their Sociometric Status Group

Measure		Ave.	Rej.	Pop.	Neg.	Con.	*F*-ratio	df	*MSE*
Centrality									
	M	.56[a]	.51	.52	.56[a]	.55	3.69**	4,814	.02
	n	396	129	129	122	62			
Within-clique "like most"									
	M	.51[a]	.25	.66[a]	40[a]	.62[a]	60.61***	4,796	.05
	n	389	123	112	115	62			
Within-clique "hangs around"									
	M	.51[a]	.35	.65[a]	.45[a]	.53[a]	17.20***	4,796	.08
	n	389	123	112	115	62			
Popularity									
	M	.01[a]	–.24	.33[a]	–.10	.11[a]	17.46***	4,791	.27
	n	389	123	112	115	62			
Clique size									
	M	8.73[a]	7.84	9.42[a]	7.89	9.32[a]	5.71***	4,791	9.84
	n	389	123	112	115	62			

Notes: Avg. = Average, Rej. = Rejected, Pop. = Popular, Neg. = Neglected, Con. = Controversial.
[a]The adjusted mean for this group differs from the adjusted mean for the rejected group ($p < .01$).
*$p < .05$, **$p < .01$, ***$p < .001$.

members of their clique than were the other status groups ($p < .01$). This contrast was followed by pairwise comparisons of the rejected group with all other groups. Two significant pairwise differences emerged (see Table 2). As hypothesized, rejected youth ($M = .50$) were less central members of their peer clique than were their peers of average ($M = .56$) and neglected ($M = .56$) status ($p <. 01$).

A second set of analyses were completed to further examine rejected preadolescents' place in their peer clique. A measure of within-clique nominations for "people you like the most" and for "people you hang around" was computed for each participant. These measures were the proportion of clique members who nominated the individual for the particular characteristic. These within-clique scores served as the dependent variable in two ANOVAs with sociometric status as the independent variable. The results of these analyses provided further confirmation for the peripheral status of rejected youth in their cliques. As shown in Table 2, rejected youth received fewer nominations from their fellow clique members for being liked and for being someone they hang around than did individuals in any other status group, $F(4, 796) = 60.61$, $MSE = .05$, $p <. 001$ and $F(4, 796) = 17.20$, $MSE = .08$, $p < .001$, respectively.

To replicate the Cairns et al. (1988) finding that aggressive youth are not less central members of peer cliques than nonaggressive youth, we computed an ANOVA on centrality scores with aggression status as the independent variable. The results of the ANOVA were consistent with the Cairns et al. finding. Specifically, there was no difference between aggressive ($M = .56$) and nonaggressive ($M = .54$) preadolescents in the centrality of their membership in their peer clique, $F(1, 822) = 1.76$, $MSE = .03$, $p > .10$. In addition, the number of nominations aggressive and nonaggressive preadolescents received from fellow clique members as someone they like the most (aggressive: $M = .48$, nonaggressive: $M = .48$) and as someone they hang around (aggressive: $M = .53$, nonaggressive: $M = .49$) did not differ, $F(1, 799) = .00$, $MSE = .07$, $p > .10$ and $F(1, 799) = 1.69$, $MSE = .09$, $p > .10$, respectively.

Popularity of Fellow Clique Members

Each preadolescent received a composite social preference score for his or her clique that reflected the average of the social preference scores of all members in the clique except for the target individual. This measure allowed us to examine variations in the popularity or status of individuals' cliques as a function of their sociometric status and gender. Because this dependent measure was evaluated at the level of the clique rather than the individual, youth who did not belong to any clique (i.e., social

Table 3. Means for Associations with Deviant Peers as a Function of the Sociometric Group by Gender Interaction

	Boys		Girls	
Sociometric group	*M*	*n*	*M*	*n*
Average	.11	205	−.08	191
Rejected	.08	81	−.06	48
Popular	.12	39	−.10	76
Neglected	.06	50	−.06	72
Controversial	.19[a]	39	−.05	23

Note: [a]The adjusted mean for this group differs from the adjusted mean for males in the rejected group ($p < .01$).

isolates) were excluded from this analysis. In the 5 (Sociometric status) × 2 (Gender) ANOVA, main effects emerged for gender, $F(1, 791) = 40.28$, $MSE = .27$, $p < .001$, and for sociometric status, $F(4, 791) = 17.46$, $MSE = .27$, $p < .001$. The two-way interaction was not significant, $F(4, 791) = .55$, $MSE = .27$, $p > .10$. According to pairwise contrasts between the rejected group and all other sociometric groups (see Table 2), rejected youth ($M = -.24$) belonged to cliques comprised of peers with lower social status than did average ($M = .01$), popular ($M = .33$), and controversial ($M = .11$) youth ($p < .001$).

Finally, girls' cliques ($M = .17$) were comprised of more popular peers than were boys' cliques ($M = -.12$). Nearly 80% of the identified cliques were homogeneous with respect to gender, and overall, boys tended to have lower social preference scores than did girls. Thus, the finding that boys' cliques were comprised of less popular peers than were girls' cliques is not surprising.

Size of Cliques

The size of preadolescents' cliques was evaluated as an additional indicator of potential restricted social opportunities. In a 5 (Status) × 2 (Gender) ANOVA, a significant main effect only for social status emerged, $F(4, 791) = 5.71$, $MSE = 9.84$, $p < .001$. A comparison of the rejected group versus a combination of all other status groups was significant ($p < .01$). Specific pairwise comparisons with the rejected group showed that rejected youth ($M = 7.84$) belong to smaller cliques than popular ($M = 9.42$), controversial ($M = 9.32$), and average ($M = 8.78$) peers (see Table 2).

Associations With Deviant Peers

Preadolescents' associations with deviant peers were examined using our measure of the centrality of involvement in deviant cliques. This

analysis addressed the hypothesis about rejected youths' associations with deviant peers.[3] The 5 (Sociometric status) × 2 (Gender) ANOVA yielded a significant interaction, $F(4, 814) = 4.26$, $MSE = .02$, $p < .01$, as well as significant main effects for sociometric status, $F(4, 814) = 3.10$, $MSE = .02$, $p < .05$, and gender, $F(1, 814) = 264.83$, $MSE = .02$, $p < .001$. The means associated with the status by gender interaction are shown in Table 3. The main effect for gender, indicating that boys were more central members of deviant cliques than were girls, held across all five sociometric groups ($p < .001$).

Two planned contrasts compared the rejected group with the combination of all other status groups for boys and for girls. This comparison was significant for boys ($p < .02$). These contrasts were followed by pairwise comparisons of rejected youth with the other four social status groups. Rejected boys ($M = .08$) were less central members of deviant peer cliques than were controversial boys ($M = .19$, $p < .001$). To further explore social status differences in boys' centrality of deviant peer group membership in post hoc comparisons, pairwise comparisons among the other groups also were examined. Rejected, popular, and average boys were equally involved in deviant peer groups. However, controversial boys were more involved and neglected boys were less involved in deviant peer cliques than were boys of average sociometric status ($p < .001$).

To examine further the deviant peer associations of rejected youth and to address the distinction between rejected youth who are aggressive and those who are not aggressive, a 2 (Aggression status) × 2 (Rejection status) ANOVA was computed with the centrality of deviant peer group membership as the dependent variable. Given the interaction between sociometric status and gender described earlier, this analysis was com-

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[3] We also examined social status and gender differences in preadolescents' standardized number of nominations for hanging around with peers who get in trouble. The correlation between our measure of centrality of involvement in deviant peer groups and this simple nomination measure was $r = .71$. A similar pattern of results was obtained in the 5 (Sociometric status) × 2 (Gender) ANOVAs computed for these two measures. With the nomination score, significant main effects for gender and social status were qualified by a status by gender interaction, $F(4, 814) = 3.04$, $MSE = .70$, $p < .05$. Across all status groups, boys received more peer nominations for hanging around with others who get in trouble than did girls. Controversial boys ($M = 1.51$) received significantly more nominations than boys in any other group, and rejected boys had the second highest score on this measure ($M = .66$). Girls in the controversial and rejected groups did not differ in their number of nominations for hanging around with troublemakers but had significantly higher scores on this measure than girls of popular, neglected, and average status. These results suggest that rejected and controversial youth are viewed by peers as associating with deviant peers, but controversial youth seem to be more centrally involved in these groups as seen in our analysis of the centrality of membership in deviant peer cliques.

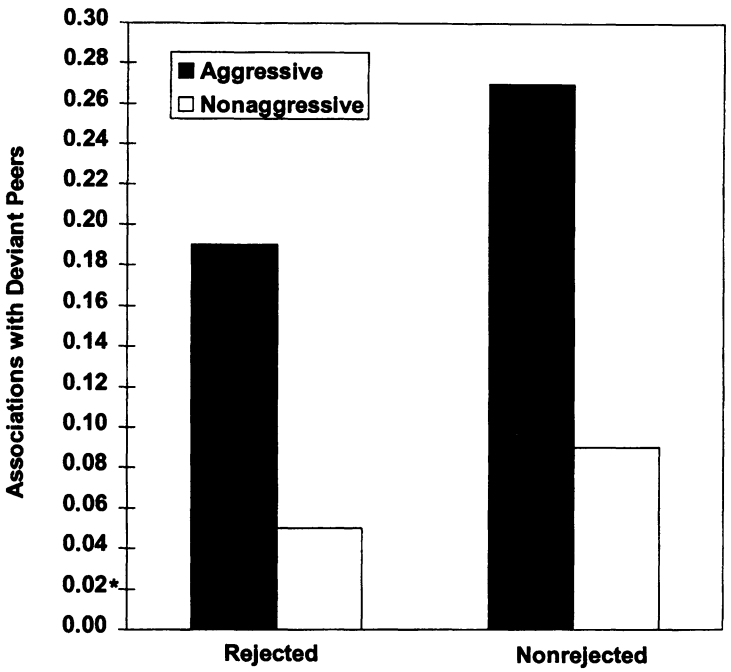

Figure 1. Means for boys' associations with deviant peers as a function of rejection and aggression status. The asterisk indicates that .02 is the mean score for the average status group.

puted separately for boys and girls. For boys, main effects emerged for rejection, $F(1, 410) = 64.09$, $MSE = .02$, $p < .001$, and aggression, $F(1, 410) = 8.98$, $MSE = .02$, $p < .01$. Aggressive boys ($M = .23$) were more central members of deviant peer groups than nonaggressive boys ($M = .07$), and nonrejected boys ($M = .18$) were more central members of deviant peer groups than rejected boys ($M = .12$). The means for the four groups (rejected-aggressive, rejected-nonaggressive, nonrejected-aggressive, nonrejected-nonaggressive) are shown in Figure 1. The mean score for the average status group's association with deviant peers is also shown in Figure 1 for the purpose of comparison.

For girls, only a significant effect for aggression emerged, $F(1, 406) = 38.87$, $MSE = .01$, $p < .001$. As expected, aggressive girls ($M = .04$) were more involved with deviant peers than nonaggressive girls ($M = -.09$). It should be noted that the nonrejected-aggressive group is comprised primarily of youth of average and controversial status. In fact, approximately 35% of controversial youth were aggressive, and controversial students

made 28% of the nonrejected-aggressive group. As noted earlier, the controversial group is most centrally involved in deviant peer groups, and the controversial status group consists of more boys than girls.

DISCUSSION

Although much of what is known about dyadic friendships and peer social status comes from studies of children in elementary school, the research on peer cliques and deviant peer associations has been focused primarily on adolescents, leaving the connection between social status and peer cliques in preadolescence largely unexplored. In addition, the limited opportunities for associating with socially competent peers that result from being rejected by the general peer group are hypothesized to be a critical factor in the well-established pathway from childhood peer rejection to later social and behavioral maladjustment, including delinquency (Coie, 1990). The present findings provide support for this hypothesis, suggesting that the characteristics of rejected preadolescents' participation in cliques differ from their better accepted peers. Rejected preadolescents are more peripheral members of peer cliques, and the cliques to which they belong are smaller and are comprised of other low-status peers.

The relative lack of research on preadolescents' peer cliques compared with other dimensions of their peer relations is due in part to the methodological complexities inherent in assessing the social structure of a school grade. In this study, we have demonstrated a method for identifying peer cliques that is based on a consensus of the members of the peer group and that provides an index of preadolescents' centrality in their social network. Our first question addressed the association between popularity in the entire peer group and the centrality of involvement in a peer clique. This notion of centrality reflects the variability in individuals' degree of association or belonging in a clique. Of particular interest were the peer clique associations of those who are rejected by the larger peer group. The findings of Cairns et al. (1988) that aggressive youth are no less involved in peer cliques than nonaggressive youth are often used to suggest that rejected students are as involved in peer cliques as their nonrejected peers. The present findings provide replication for Cairns et al.'s investigation as there was no difference between aggressive and nonaggressive youths' centrality of membership in their cliques or the proportion of fellow clique members who nominated them as someone they like the most and someone they hang around. However, the current results indicated that although only a few students were not involved in a

clique, rejected youth were less central members of their clique than were youth of average status. Thus, rejected students appear to have difficulty establishing themselves as salient members of their peer cliques and remain only peripherally involved. Furthermore, they belong to smaller cliques than do peers of average status.

Not only are rejected youth more peripheral members of cliques but the cliques to which they belong are comprised of other low-status peers. This latter finding may be of even greater importance than the centrality finding, because popular peers, by contrast, belong to groups with others of much more desirable social status even though they are not always the most central members of these cliques. Behavioral similarity between friends has been documented clearly for children and adolescents across many ages (Challman, 1932; Clark & Drewry, 1985; Kandel, 1978). In addition to friends' similarity in behavior, children are often involved in dyadic friendships with others of similar sociometric status (Dishion, 1990; Parker & Asher, 1989). The present findings suggest that they also associate in peer cliques with others of similar social status and are consistent with observations that children engage in more interactions with similar-status than different-status peers (Ladd, 1983).

Rejected preadolescents' peripheral association in peer cliques and participation with other low-status peers in the cliques to which they do belong may have negative implications for their social development. Positive interactions with peers provide a context for the development of social skills and competencies such as cooperation, problem solving, and other social interaction skills. Rejected youth are limited in these skills (Newcomb, Bukowski, & Pattee, 1993), and by associating in peer cliques with other poorly skilled youth, they may not be provided opportunities for developing these competencies. Likewise, they are not expected to model effective social behavior for others in their clique. Indeed, intervention programs designed to improve social status in the peer group often are aimed at increasing positive interactions with higher status, better skilled youth.

A primary reason for investigating the peer clique participation of rejected preadolescents is that among adolescents, associations in deviant peer networks are concurrently and predictively related to delinquency and antisocial behavior. Furthermore, childhood peer rejection is a risk factor for adolescent delinquency, particularly among the subgroup of rejected youth who are aggressive. Unfortunately, there is limited research of deviant peer associations prior to adolescence. Our measure of deviant peer associations captures not only an individual's reputation for hanging around with peers who frequently get in trouble but also the extent to which he or she actually belongs to these groups. That is, we

examined the centrality of preadolescents' membership in deviant peer cliques. Our findings of social-status group differences in deviant peer associations indicate that youth in the controversial status group are most centrally involved in deviant peer groups. By definition, controversial-status students are highly visible classroom members who are accepted by some peers and rejected by others. Thus, they may be disliked by prosocial peers and yet still be pivotal members of deviant cliques, supporting the notion of cohesive deviant cliques comprised of friends who support and reinforce their associates' antisocial behavior (Dishion et al., 1994).

Because of the identification of different trajectories for rejected youth who are aggressive versus those who are not aggressive (and often withdrawn or submissive), we were particularly interested in the deviant peer associations of rejected-aggressive and nonrejected-aggressive preadolescents. Our findings indicate that it is not the rejected-aggressive youth who are most centrally involved in deviant peer cliques, but the nonrejected-aggressive youth. As discussed earlier, rejected youth are less centrally involved in all peer cliques than many others, and this marginal status appears to extend to deviant peer cliques as well. Furthermore, consistent with prior research (Newcomb et al., 1993), our nonrejected-aggressive group was comprised of many individuals of controversial peer status, and this group is more centrally involved in deviant peer cliques than any other status group. Nonetheless, the rejected-aggressive youth (boys in particular) are more closely associated with deviant peers than almost all other youth, and they may therefore be quite susceptible to their influence.

A social influence model of delinquent and antisocial behavior suggests that an active process of seeking social reinforcement leads those at risk for delinquency to associate with one another in deviant peer groups. In these groups, favorable attitudes toward delinquent behavior are fostered. A second component of the social influence view is that rejection by the peer group at large for their antisocial behavior may lead to the exclusion of at-risk youth from some cliques and thus promote the development of deviant groups by default. In these relationships, delinquent behavior is both maintained and promoted (Dishion et al., 1994; Patterson et al., 1992).

In relation to this model, the present findings show that rejected preadolescents belong to cliques with other low-status peers and thus may be excluded from participation in peer cliques with higher status, presumably more socially skilled others. However, they are not central members of any peer cliques, including deviant peer cliques, and it is the nonrejected-aggressive preadolescents who are the most central members of deviant cliques. One explanation for this finding is that

nonrejected-aggressive youth possess the social skills for leadership in deviant groups and thus have higher centrality scores, whereas rejected-aggressive youth may only be hangers-on in these same groups. It is possible then that the rejected-aggressive youth are particularly susceptible to the influence of deviant peer cliques. They are clearly more involved in these cliques than are most other students and thus are in contact with other peers who engage in delinquent activities. Furthermore, their peripheral status may lead them to be especially conforming to the antisocial values and norms of these groups in an effort to secure their belongingness in the clique or even to achieve a higher status in the group (Hollander, 1958). It will be important to examine in future research whether peripheral members of deviant cliques become more aggressive and deviant over time as their involvement in the clique continues.

Gender differences emerged for two aspects of clique characteristics—the popularity of cliques and preadolescents' associations with deviant peers. Analyses of the popularity of cliques showed that girls belonged to cliques with higher status peers than did boys. As described earlier, this difference reflects the homogeneity of cliques with respect to gender. Across all sociometric status groups, boys were more central members of deviant peer cliques than were girls. This gender difference is consistent with Cairns et al.'s (1988) observation that girls do not form friendships and social networks based on similarities in aggression and antisocial behavior in preadolescence. It is important to note, however, that the measure of aggression used reflects overt forms of aggression rather than relational aggression that is more typical of girls. For girls, relational aggression is associated with peer rejection (Crick, 1996), and it may also be a defining feature of deviant peer cliques for girls. Future research is needed to examine this hypothesis.

The current study demonstrates that participation in social cliques is a readily identified aspect of peer relations in preadolescence, and these peer cliques are not haphazard associations among dissimilar youth. Fourth-grade preadolescents align themselves with particular cliques according to characteristics such as sociometric status, gender, and aggressiveness. The current findings suggest several negative consequences of rejected status for peer associations, and longitudinal work is needed to specify these potential negative implications for adjustment over time. On the one hand, rejected-aggressive youth are exposed to the influence of deviant peers by their involvement in deviant peer cliques. The context of these peer cliques is one in which aggression may be normative and antisocial and delinquent behavior may be reinforced.

On the other hand, the fact that rejected preadolescents associate in low-status groups with others who have similar social skills deficits has

negative implications for the development of prosocial behavior. They are not likely to learn the positive social skills and competencies that are necessary for establishing and maintaining close, intimate friendships. These peer cliques may provide a context for practicing maladaptive styles of interaction such as coercion rather than cooperation, conflict instigation rather than conflict resolution, and dominance rather than equality. Taken together, the aspects of preadolescents' involvement in peer cliques that were examined in the current study further our understanding of the myriad of difficulties rejected youth face in the social world of school. Our findings suggest implications for rejected preadolescents' compromised social development including the negative influence of deviant peers and the lack of opportunity for the development of prosocial skills necessary for success in social relationships in adolescence and beyond.

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