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Early Adolescents' Social Standing in Peer Groups: Behavioral Correlates of Stability and Change

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Abstract

Sociometric nominations, social cognitive maps, and self-report questionnaires were completed in consecutive years by 327 students (56% girls) followed longitudinally from grade 7 to grade 8 to examine the stability of social standing in peer groups and correlates of changes in social standing. Social preference, perceived popularity, network centrality, and leadership were moderately stable from grade 7 to grade 8. Alcohol use and relational aggression in grade 7 predicted changes in social preference and centrality, respectively, between grade 7 and grade 8, but these effects were moderated by gender and ethnicity. Changes in social standing from grade 7 to grade 8 were unrelated to grade 8 physical aggression, relational aggression, and alcohol use after controlling for the grade 7 corollaries of these behaviors. Results are discussed in terms of their implications for understanding links between social standing and problem behaviors during adolescence.

Keywords

Social preference; Perceived popularity; Network centrality; Leadership

Introduction

Peer relationships provide a socialization context of great importance during adolescence, in part because adolescents who are similar to one another tend to aggregate in groups and to influence one another's behavior in those groups (Dishion and Owen 2002). Concurrent links between social standing in the peer group (particularly sociometric status) and youth behavior (particularly aggression) are well documented (e.g., Aslund et al. 2009; Morrow et al. 2008). However, less is known about the stability of social standing in the peer group, individual characteristics that may predict changes in social standing, and implications of changes in social standing for subsequent behavior. Understanding stability in social standing is important not only because of the basic knowledge of adolescent peer groups such understanding can impart but also because understanding how changes in peer standing are related to behaviors may improve interventions designed to reduce adolescents' problem behaviors by intervening through important peer contexts.

Coie (1990) explicated a theoretical framework explaining how status within the peer group may originate and be maintained over time. He posited that characteristics of children (e.g., aggression, social withdrawal, physical unattractiveness) that are not valued by the peer group, as well as children's own beliefs and expectations about their social status and peer relationships, may lead both to children's initial rejection and to the maintenance of rejected status, perhaps accounting for stability in social standing over time. From the opposite perspective, behaviors valued by the peer group may be related to stability in higher social standing. Although Coie's theory was based on children, the same principles likely apply for adolescents, although there may be shifting norms during adolescence with respect to the behaviors that are valued by the peer group. For example, behaviors not sanctioned by adults (such as alcohol use) may become more valued during adolescence than they were during childhood. Indeed, several studies have found that adolescents report using alcohol because they believe it will make them "fit in" with their peers (Coleman and Cater 2005) or because their peers' use of alcohol affects adolescents' own perceptions of its desirability (Cumsille et al. 2000). The main purpose of this study is to investigate longitudinal links between social standing in the peer group (i.e., social preference, perceived popularity, network centrality, and leadership) and adolescents' behavior (physical aggression, relational aggression, and alcohol use).

How Stable is Social Standing?

Researchers have investigated the stability of several different aspects of social standing, including continuous measures of sociometric status, categorical classifications of sociometric status, centrality within peer groups, and other aspects of peer relationships such as bully/victim status and friendships (Schafer et al. 2005). Understanding the stability of social standing is important for several reasons. For example, more confidence can be placed on studies that assess social standing at just a single point in time if social standing is stable over time, and understanding the stability of social standing can help inform understanding of how social standing is related to behavior. A complex pattern emerges from a number of studies examining the stability of continuous social preference scores and categorical classifications derived from sociometric nominations. In an early study, Newcomb and Bukowski (1983) found stability coefficients to range from .53 to .80 for average, rejected, and popular status using three different methods of defining the status groups. Bukowski and Newcomb (1984) concluded that social acceptance, rejection, preference, and impact were fairly stable across a 1 year period extending from fifth to sixth grade (covering the transition to middle school). Coie and Dodge (1983) found that social preference scores in grade 3 or grade 5 correlated .36 and .45 with social preference scores 5 years later, suggesting moderate cross-time stability. Rejected, neglected, popular, or controversial status in each year was significantly predicted by status in the previous year as well as by peer-rated behaviors such as cooperativeness, disruptiveness, and aggression (Coie and Dodge 1983).

More recently, Maassen and Verschueren (2005) followed a group of 3rd graders for 3 years and found that kappas for classification groups ranged from .10 to .20; continuous social preference scores had higher stability across the 3 years ($r = .44$). During two consecutive years of high school, continuous social preference scores were found to have a stability of .75 (Franzoi et al. 1994). However, other research has found that controversial and neglected status categories are not stable over time (e.g., Cillessen et al. 2000; Frederickson and Furnham 1998). When changes in status classifications are found, shifts are most likely to occur from the popular, rejected, or neglected categories into the average category (Newcomb and Bukowski 1984).

It is difficult to make sense of this diverse set of findings, but Jiang and Cillessen's (2005) meta-analysis of 77 studies that included 93 samples helps in this regard. The meta-analysis

focused on short-term reliability and long-term stability of acceptance, rejection, social preference, and peer ratings. Short-term reliabilities assessed across a 3-month period or less averaged .72, .70, .82, and .78, respectively, for acceptance, rejection, social preference, and liking. Longer-term stability averaged .53, .52, .58, and .52, respectively, for acceptance, rejection, social preference, and liking. Effect sizes were larger for older than younger children (for acceptance, rejection, and social preference), for shorter than for longer time intervals (for acceptance, rejection, social preference, and liking; but note that all but one study in the meta-analysis had a time interval of less than 2 years), and for samples with higher proportions of boys (for acceptance and liking). The continuous measures included in this meta-analysis were more stable than categorical measures of classification as popular, rejected, neglected, controversial, or average, which have mean levels of stability less than .40 according to one review (Cillessen et al. 2000).

Over time as researchers have gained a better understanding of the role of liking in relation to standing within the peer group, they have begun to differentiate sociometric popularity from perceived popularity. Sociometric popularity refers to how well liked an individual child is, whereas perceived popularity reflects a child's social visibility (Cillessen and Borch 2006). Cillessen and Borch (2006) found stability coefficients of .40 and .60 for sociometric popularity and perceived popularity, respectively, from grade 5 to grade 12. Cillessen and Mayeux (2004) found that these two types of popularity correlated about .70 during fifth grade, but the correlation declined over the course of 4 years to .30 for boys and $-.20$ for girls.

One dimension of the peer context that has received less empirical attention is peer leadership. Peers who are leaders play an important role in shaping and influencing the behavior of other peer group members. The role of peer leaders may be particularly salient during early adolescence as norms shift, promoting riskier behaviors. Related to leadership is the construct of network centrality, or how core a member one is of his or her peer group. Cairns et al. (1995) used social cognitive maps to examine social network membership of 4th and 7th graders over a 3-week period. They found that the higher an individual's time 1 standing within a peer group was, the greater the likelihood that he or she would be placed in the same group at time 2. Therefore, nuclear members were more likely to remain members of their group than were secondary or peripheral/isolate members. Conditional probabilities of retaining their time 1 status at time 2 were .73, .56, and .59 for nuclear, secondary, and peripheral/isolate members, respectively. It was very rare for an individual to shift from isolated/peripheral to nuclear status or from nuclear to isolated/peripheral status; shifts to adjacent status categories were more common. Peer cliques during early adolescence were more stable than were peer cliques during middle childhood. These results suggest that leadership and centrality within peer cliques are salient aspects of peer standing during early adolescence. Taken together, previous research leads to the current hypothesis that peer standing will be moderately stable over the course of 1 year but that there may be differences in stability depending on the particular indicator of social standing under consideration.

Predictors and Consequences of Changes in Social Standing

A large body of research has examined behavioral correlates of social standing. Links between physical aggression and peer rejection have been particularly well established (Dodge et al. 2003). It is unclear whether links between aggressive behavior and peer status operate similarly for relational forms of aggression. Some studies suggest that relational aggression is negatively related to peer rejection, disliking, and controversial status (e.g., Crick 1997). However, other studies have shown a positive association between relational aggression and high peer status (e.g., Merten 1997). These patterns are complex and related to the form of aggression, the measure of social standing, and gender (Salmivalli et al. 2000). It appears that higher levels of both direct and indirect/relational aggression are related positively to perceptions of popularity

but related negatively to liking and acceptance (Cillessen and Mayeux 2004; LaFontana and Cillessen 2002; Prinstein and Cillessen 2003; Rose et al. 2004; Vaillancourt and Hymel 2006). In early adolescence alcohol use also appears to be related to peer status (Henry and Kobus 2007).

Beyond considering social standing at a single point in time, several empirical studies have addressed the question of what behavioral characteristics of children predict changes in social standing over time. Physical or direct aggression has received the most attention as a correlate of change and stability in social standing. Vitaro et al. (1992) found that early in elementary school, children who were described by peers and teachers as being aggressive were more likely to remain rejected over a 2-year period than were nonaggressive rejected children. However, other researchers have found that aggression becomes less strongly associated with peer rejection as children move into early adolescence (Coie et al. 1995; Luthar and McMahon 1996). For example, in a group of youths followed from grade 5 to grade 12, Cillessen and Borch (2006) found that overt aggression predicted initially low sociometric popularity but increases in perceived popularity over time. The pattern with respect to aggression may be particularly sensitive to the age of the children. Although several studies have examined aggression in relation to changes in social standing, a question that has not yet been addressed is whether using alcohol leads to changes in social standing over time. Given that adolescents sometimes report using alcohol to “fit in” with their peers (Coleman and Cater 2005), addressing whether alcohol use is in fact related to changes in social standing over time is an important question.

Behavior may not affect social standing in a consistent way across groups. For example, because some peer groups value antisocial behavior and others do not (Chang 2004), reference group theory would suggest that the effect of antisocial behavior on social standing would vary in different peer groups. In the present study, in peer groups that value aggression or alcohol use, engaging in these behaviors might be associated with enhanced social standing, whereas in peer groups that do not value aggression or alcohol use, engaging in these behaviors might be associated with decrements in social standing. Likewise, it is possible that initial social standing affects the way in which antisocial behavior is related to stability or change in social standing. For example, if an adolescent has low initial social standing in a peer group that values antisocial behavior, then engaging in antisocial behavior would be expected to improve that adolescent’s standing in the peer group. On the other hand, if an adolescent has high initial social standing in a peer group that values antisocial behavior, then engaging in antisocial behavior might be expected to predict stability rather than change in social standing over time.

The question of stability in social standing in the peer group is important in its own right as well as because stable peer status (particularly stable rejection) has been found to be more strongly related to subsequent adjustment than has more transient peer status (e.g., Cillessen et al. 2000). For example, Zettergren et al. (2006) found that girls who were rejected at both ages 10 and 13 were at higher risk for alcohol abuse during adulthood than were girls who were rejected at only one time or non-rejected girls, even after controlling for childhood aggression, withdrawal, GPA, and SES. In a study of 585 children followed from kindergarten to first grade, increases in direct aggression were found for children whose sociometric status worsened over time, but decreases in direct aggression were found for children whose sociometric status improved over time (Pettit et al. 1996). To our knowledge previous research has not addressed the question of how changes in centrality or leadership are related to behavioral adjustment. It is plausible that changes in social standing may predict subsequent behavior; for example, if adolescents perceive that their social standing has declined they may be motivated to engage in behaviors that they believe might enhance their social standing again. Taken together, previous research leads to the current hypotheses that aggression and alcohol use in grade 7 will predict improvements in social standing from grade 7 to grade 8. The extant

research does not allow us to draw a clear hypothesis about whether changes in social standing over this time period will predict grade 8 behavior, above and beyond grade 7 behavior, but we sought to investigate the possibility.

Moderating Effects of Gender and Ethnicity on Links Between Behavior and Social Standing

Several studies have found gender differences in links between behavior (especially physical and relational aggression) and social standing. For example, Sandstrom and Coie (1999) followed into the fifth grade a group of 44 children who were rejected in the fourth grade. Boys (but not girls) who were rejected in fourth grade were less likely to be rejected in fifth grade if they had higher levels of peer-nominated fourth grade aggression. Ethnographic work has found that girls who are perceived as being popular are also described as being mean and relationally aggressive, and boys who are perceived as being popular are sometimes described as being both physically aggressive and socially skilled (Eder and Kinney 1995; Merten 1997). Physically aggressive girls tend not to be perceived as popular, even if they have other characteristics that are valued in the peer group (Vaillancourt and Hymel 2006). The present study extends prior research by examining gender as a moderator of links between alcohol use and social standing and expanding the scope of inquiry to include centrality and leadership as additional indicators of social standing, beyond social preference and perceived popularity.

Although previous research has not examined ethnicity as a moderator of the specific behavior-social standing links examined in the present study, studies on similar topics suggest that ethnicity is a potentially important moderator. For example, academic achievement has been found to predict higher perceived popularity for African-American girls and lower perceived popularity for African-American boys than for European-American youth (Graham et al. 1998; Kennedy 1995). Likewise, aggression or alcohol use might enhance or diminish the social standing of African-American adolescents more than the social standing of European-American adolescents.

The Present Study

Although many studies have examined stability in social preference, fewer studies have considered the stability of perceived popularity, network centrality, or leadership. One contribution of the present study is to provide a richer picture of the range of simultaneous markers of standing within the peer group. Measures of social preference, perceived popularity, centrality, and leadership were analyzed separately because they are conceptually distinct aspects of social standing that would not necessarily be expected to be highly correlated with one another. We chose to focus on changes and stability between grades 7 and 8 because the salience and influence of peer groups have been found to be especially important early in adolescence (Dodge et al. 2006).

The specific research questions are as follows. First, how stable is social standing in the peer group (social preference, perceived popularity, centrality, and leadership) from grade 7 to 8? On the basis of previous research, we hypothesized that social standing would be moderately stable over this one-year period; previous research has not investigated which of these aspects of social standing are more stable than others, but we sought to address this issue. Second, is change in social standing from grade 7 to 8 predictable from adolescents' grade 7 behavior? On the basis of research suggesting that behaviors not sanctioned by adults become more valued by the peer group in early adolescence, we hypothesized that adolescents who engaged in higher levels of problem behaviors in grade 7 (particularly alcohol use) would increase in social standing from grade 7 to grade 8. Third, are grade 8 behaviors predictable from change in social standing from grade 7 to 8, controlling for grade 7 behaviors? We did not hypothesize that change in social standing would predict change in behavior above and beyond prior behavior.

For each of these questions, we examined whether gender and ethnicity moderate associations between change in social standing and behavior. On the basis of previous research suggesting that links between problem behaviors (including physical and relational aggression) and social standing may differ for boys and girls, we hypothesized that we may find gender differences as well, although prior research has not been consistent enough to specify the precise nature of these interactions. Ethnic differences in links between behavior and changes in social standing over time have not been tested in previous research, to our knowledge, but we sought to address this question.

Method

Participants

The study took place in a magnet school comprising grades 6–12 in a mid-size Southeastern city. Approximately 21% of students in the school receive free or reduced price school lunch. All seventh grade students in two consecutive school-year cohorts were invited to participate in the study. Eighty percent of the total grade-wide body across the two cohorts consented to participate. The participants included 182 girls and 145 boys who ranged in age at time 1 from 11 to 14 years ($M = 12.23$). The race/ethnic composition of the combined grade-wide population was 49% Black/African–American, 37.5% White/European–American, 6.5% Hispanic, 4.5% multi-racial/multi-ethnic, 2% Asian, and 0.5% other race/ethnicity. Participants were followed from the fall of their seventh grade year to the fall of their eighth grade year, with 91% of the students providing data at both time points.

Procedure and Measures

After receiving approval from the university Institutional Review Board and a research approval board in the school district, project staff administered a paper and pencil self-report survey and a sociometric peer nomination measure to consented students during a 100-min class period. Students received a small incentive (5 dollars in cash) for completing the study measures.

Social Cognitive Map—We utilized Social Cognitive Map (SCM) procedures developed by Cairns et al. (Cairns et al. 1988, 1985) to identify social groups within the seventh grade. The students were first asked: “Are there some kids here in seventh (year 1)/eighth (year 2) grade who hang around together a lot?” The students were then instructed to list together the names of the children who hang around together and to name all of the groups of seventh/eighth graders that they could. A composite SCM of the peer group network was then formed by using a computer program to combine the information across all students. The software (SCM version 4.0) was used to find groups within a social network based on the Cairns et al. SCM procedure. This program uses a co-occurrence matrix of the number of nominations each student received for being a member of a clique along with other particular peers to define individuals’ level of centrality within the group (ranging from the peripheral members who are infrequently nominated as being members of the clique to the nuclear members who are frequently nominated as being members of the clique).

Sociometric Nominations—The students were provided with a roster of all of the students in their grade (7th in year 1, 8th in year 2) in their school and asked to make unlimited nominations of peers who fit various behavioral and social influence descriptors. Students were first instructed to name students that they “liked the most” and “liked the least”. Individual standardized scores were derived for social preference by taking the standardized number of liked most nominations and subtracting the standardized number of liked least nominations. We also originally ran all analyses with the separate liked most and liked least scores, but the results for those two measures were nearly identical, so in the results reported below we used

the more widely used social preference score that combines the two types of nominations. Perceived popularity was assessed through students' nominations of students who "are the most popular students in the seventh/eighth grade". Leadership was derived from nominations of students who "are leaders and good to have in charge". A packaged computer program, SCAN (Sociometric Collection and Analysis version 5.0.5; DeRosier and Thomas 2003) was used for data entry and to create standardized scores for individual items within cohort.

Aggression and Alcohol Use—Measures of *physical aggression* and *relational aggression* were derived from separate subscales of a 25-item measure adapted from items from the National Youth Survey (Elliot et al. 1985, 1989). This measure assesses the number of occasions on which respondents have engaged in various deviant behaviors over the 6 months prior to survey administration. A dichotomous variable code was created for each item, where 1 = at least one occurrence of the behavior, and the mean of these items was taken to create the scale score. Scale scores were created only when 66% or more of the responses were non-missing. Higher scores indicated greater engagement in the behavior. The physical aggression subscale included five items (e.g., "hit, slapped, or shoved other kids or gotten into a physical fight", "attacked someone with the intent to hurt them"; Cronbach's alpha for cohorts 1 and 2 = .78/.92). The relational aggression subscale included three items (e.g., "tried to keep others from liking another kid by saying mean things about him/her", "spread a false rumor about someone"; Cronbach's alpha for cohorts 1 and 2 = .56/.51).

Alcohol use was measured with the item, "Have you ever had a drink of alcohol, even just one sip?" and was coded, no = 0 (62% at time 1) and yes = 1 (38%). Recent studies suggest that self-report of substance use among adolescents is a reliable, if imperfect, indicator of use (O'Malley et al. 2000), and single item measures have demonstrated reliability and predictive power similar to other more complex measures such as frequency—quantity indexes (LaBrie et al. 2005).

Results

Preliminary Analyses

Means, standard deviations, and bivariate correlations for the study variables are presented in Table 1. In all analyses we controlled for cohort, gender, and ethnicity. We also tested the interactions between cohort, gender, and ethnicity and the other study variables. The cohort interactions were not significant and are not reported below; the significant gender and ethnicity interactions are described below.

Stability of Social Standing

To address our first research question, we examined the stability of social standing from grade 7 to grade 8. Bivariate correlations showed moderate to high rates of stability in social standing between grades 7 and 8 ($r = .42, .48, .29$, and $.73$ for social preference, perceived popularity, centrality, and leadership, respectively, all $ps < .001$). Regressions were conducted to predict grade 8 social standing from grade 7 social standing, gender, ethnicity, and the interactions between gender and ethnicity and social standing. Ethnicity was dummy-coded as African-American, European-American, and other. In these regressions, grade 7 social standing predicted grade 8 social standing ($\beta = .47, .36, .27$, and $.77$ for social preference, perceived popularity, centrality, and leadership, respectively, all $p < .01$); there were no significant main effects or interactions involving gender or ethnicity.

Grade 7 Behavior and Change in Social Standing from Grade 7 to Grade 8

Our second research question was whether changes in social standing from grade 7 to grade 8 were predictable from grade 7 behavior. Separate analyses were conducted to predict changes

in social preference, perceived popularity, centrality, and leadership. Independent variables included cohort, ethnicity, gender, physical aggression, relational aggression, alcohol use, and interaction terms of the behaviors with gender and with ethnicity. The dependent variable was the change score for each indicator of social standing.

As shown in Table 2, there was a significant main effect of gender and a significant effect of alcohol use in the prediction of change in social preference from grade 7 to grade 8. In this model, the main effects were qualified by a significant interaction between gender and alcohol use ($B = -.72$, $SE = .27$, $t = -2.63$, $p < .01$). Follow-up analyses run separately by gender indicated that boys who used alcohol in grade 7 were more likely to increase in social preference from grade 7 to grade 8 ($B = -.52$, $SE = .22$, $p < .05$), but alcohol use in grade 7 was unrelated to change in social preference by grade 8 for girls ($B = .22$, $SE = .16$, $p > .10$).

There was a significant main effect of ethnicity in the prediction of change in centrality from grade 7 to grade 8. In this model, there was also a significant interaction between ethnicity and relational aggression ($B = .33$, $SE = .10$, $t = 3.35$, $p < .001$). Analyses run separately by ethnicity indicate that for African-American students, higher levels of relational aggression in grade 7 were related to a nonsignificant decrease in centrality between grade 7 and grade 8 ($B = .17$, $SE = .15$, $p > .10$), but for European-American students, higher levels of relational aggression in grade 7 were related to a nonsignificant increase in centrality between grade 7 and grade 8 ($B = -.16$, $SE = .12$, $p > .10$).

There were no significant main effects or interactions predicting change in perceived popularity or change in leadership status from grade 7 to grade 8.

Change in Social Standing from Grade 7 to Grade 8 and Grade 8 Behavior

Our third research question was whether changes in social preference, perceived popularity, centrality, and leadership from grade 7 to grade 8 predicted grade 8 physical aggression, relational aggression, and alcohol use. Along with cohort, gender, ethnicity, and interactions with gender and ethnicity, changes from grade 7 to grade 8 in social preference, perceived popularity, centrality, and leadership were examined as predictors of grade 8 student behavior (physical aggression, relational aggression, and alcohol use); each regression controlled for the corresponding grade 7 behavior to test whether change in social standing from grade 7 to grade 8 predicted grade 8 behavior above and beyond behavior in grade 7. Prediction of alcohol use was examined in a logistic regression model.

As shown in Table 3, all three of the regressions were significant. Grade 7 behaviors were significant predictors of the corresponding grade 8 behaviors. Changes in social preference, perceived popularity, centrality, and leadership from grade 7 to grade 8 were not significant predictors of grade 8 behavior above and beyond the grade 7 behaviors. None of the interactions involving gender and ethnicity were significant.

Discussion

Our findings support three main conclusions about the stability of social standing from grade 7 to grade 8 and behavioral correlates of changes in social standing. First, social preference, perceived popularity, network centrality, and leadership were all moderately to highly stable across this one-year period during early adolescence. Second, alcohol use in grade 7 predicted an increase in social preference from grade 7 to grade 8 for boys. Third, a significant relational aggression by ethnicity interaction indicated that relational aggression in grade 7 was related to a nonsignificant decrease in centrality from grade 7 to grade 8 for African-American students but a nonsignificant increase in centrality for European-American students.

In several respects these findings replicate results from previous studies. For example, our estimate of the stability of social preference over this one-year period was similar to that reported in Jiang and Cillessen's (2005) meta-analysis. These findings also build incrementally on our knowledge to advance understanding of stability and change in social standing during early adolescence. In particular, although stability in social preference has been the focus of many studies (e.g., Franzoi et al. 1994; Maassen and Verschueren 2005), there is much less attention in previous research to the stability of perceived popularity, centrality, and leadership over time (but see Cairns et al. 1995). Our findings suggest that perceived popularity and social preference are similar in their degree of stability over time but that network centrality is less stable and leadership is more stable. Centrality may be less stable than other indicators of social standing because networks themselves change over time (e.g., Shrum and Cheek 1987), and an individual's standing within a new network may be defined in relation to a new set of peers. Leadership, on the other hand, may be more stable than other indicators of social standing if leadership is perceived by adolescents as more defined by personality traits and individually-defined dispositions than by reference to the social group (Schneider et al. 2002).

Our analyses to examine grade 7 behavior in relation to change in social standing from grade 7 to grade 8 revealed two main findings. First, alcohol use in grade 7 predicted an increase in social preference from grade 7 to grade 8 for boys but was unrelated to change in social preference for girls. Adolescents sometimes report using alcohol to "fit in" with their peers (Coleman and Cater 2005), and our findings seem to suggest that using alcohol may indeed serve this function for boys. Second, relationally aggressive African-American students decreased in centrality over time, whereas European-American students increased in centrality over time. Several researchers have studied gender differences in relational aggression (e.g., Salmivalli et al. 2000), but it is interesting that in our study the link between relational aggression and change in centrality over time was moderated not by gender but by ethnicity. If replicated in future research, this finding would suggest that the use of relational aggression is less accepted by the peer group for African-American than for European-American youth.

Unlike previous studies showing links between physical aggression and changes in social status during elementary school (e.g., Sandstrom and Coie 1999), we did not find physical aggression to be related to changes in social standing during early adolescence. One possibility is that the association between physical aggression and social standing depends on the norms of a particular peer group, so that youth will enhance their social standing by using physical aggression if their peers value such behavior, whereas youth will detract from their social standing by using physical aggression if their peers do not value physical aggression (Chang 2004). Given changing norms about physical aggression during adolescence (Cillessen and Borch 2006), there may have been no consistent pattern of associations between physical aggression and changes in social standing. Because many of the links between social standing and adolescent behaviors were not significant, an alternate interpretation would be that social standing is relatively stable over time and that social standing may be mostly unaffected by either antisocial or conventional behavior (Coie 1990).

Interestingly, changes in social standing from grade 7 to grade 8 did not predict grade 8 physical aggression, relational aggression, or alcohol use after controlling for the adolescents' engagement in these behaviors in grade 7. Of course, it is never possible to prove a null finding so this lack of association should be approached with caution. Nevertheless, our findings provide more support for the role of behavior in predicting changes in social standing than for the role of changes in social standing in predicting behaviors.

Our conclusions should be considered in light of the study's limitations. Although we used peer nominations for our measures of social preference, perceived popularity, centrality, and leadership, only self-report data were used for physical aggression, relational aggression, and

alcohol use. It is possible that other reporters might have viewed adolescents' behavior differently from the way the adolescents themselves reported it to be. As in any longitudinal study, it is possible that responses remembered from Time 1 might have affected responses provided at Time 2, artificially inflating the extent of stability over time; however, any pretesting effects are likely minimized for our measures of social standing by our use of peer nominations and social cognitive maps, which rely on input from an entire class of students rather than any individual student. We focused on social standing and behavior in grades 7 and 8, so the findings may not generalize to other developmental periods. Cairns et al. (1995) found greater stability in social standing during adolescence than earlier in childhood; a question for future research will be whether changes in social standing during early adolescence are related similarly to problem behaviors during developmental stages prior to and after the early adolescent period. An additional interesting direction for future research would be to compare stability over different time intervals to gain a better understanding of short-term versus long-term stability and behavioral correlates of each. Our measure of alcohol use was also limited to whether the adolescent had ever drunk alcohol; future research would benefit from including a wider range of information about adolescents' alcohol use (e.g., frequency of use, quantity consumed). Cronbach's alphas of .56 and .51 for cohorts 1 and 2, respectively, were lower than would be ideal for the relational aggression scales, suggesting that the relational aggression findings should be interpreted with caution. As in any correlational study, we cannot make causal inferences from our findings.

Despite these limitations, our study also had a number of strengths. The range of indicators of social standing enabled us to provide a more comprehensive picture of the nature of social standing during early adolescence than would have been possible had we used a more narrow set of measures. The longitudinal design afforded the opportunity to study changes in social standing over the course of a year during early adolescence, a developmental period in which peer influence is especially salient. Another contribution is our use of an ethnically diverse sample to be able to test for moderation of the findings by ethnicity.

Our findings, in conjunction with findings in previous research, have several implications for the development of interventions and policy addressing aggression, alcohol use, and social standing of adolescents. First, given adolescents' perceptions that using alcohol will enhance their status in the peer group (Coleman and Cater 2005) and our finding that using alcohol does increase boys' social preference early in adolescence, any intervention designed to prevent adolescents' alcohol use must recognize the power of the peer context. Therefore, instead of adopting a "just say no" approach that would ask adolescents to reject their perceptions of peer norms and expectations, approaches that attempt to harness the power of the peer group to encourage adolescents not to use alcohol might meet with more success (see Botvin 2000). Violence prevention programs would similarly benefit from taking into account the adolescent peer context that might bestow high social standing on physically or relationally aggressive youth; programs that focus on changing group norms regarding the desirability of aggressive behavior (e.g., Davis and Davis 2007) provide a promising direction for prevention efforts. Finally, interventions could take better advantage of research findings regarding peer group structures during adolescence. For example, we found higher stability in leadership than in other aspects of social standing from grade 7 to grade 8. Given the largely stable and prominent social position of peer leaders, they could be enlisted as agents of change in interventions designed to prevent problem behavior. Because adolescents most often engage in problem behavior when they are in peer groups (Dodge et al. 2006), understanding the nature of adolescent peer groups (including stability and change in these groups) and how peer standing relates to problem behaviors has the potential to enhance efforts to prevent adolescent problem behaviors.

Our study contributes to the understanding of adolescent development in three key ways. First, we found moderate stability in four meaningful indicators of adolescents' standing in their peer groups over the course of a year in early adolescence. Network centrality was the least stable of these indicators, and leadership was the most stable. Second, we found that relational aggression and alcohol use in grade 7 predicted change in social standing from grade 7 to grade 8, but these effects differed as a function of race and gender. Third, we found that changes in social standing from grade 7 to 8 did not predict grade 8 behavior, after controlling for grade 7 behavior. Taken together, these findings suggest that over the developmental course of early adolescence, problem behaviors may enhance social standing or detract from social standing, depending on adolescents' personal characteristics such as race and gender.

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Biographies

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Shari Miller is a Research Psychologist in RTI's Crime, Violence, and Justice Program. She received her Ph.D. in Clinical Psychology from the University of Virginia in 1991. Dr. Miller's program of research focuses on youth violence and aggression. Her major research interests include etiological work on pathways and risk processes leading to youth violence and design, implementation, and evaluation of preventive interventions.

Philip R. Costanzo is Professor of Psychology and Neuroscience at Duke University. He received his Ph.D. in Psychology from the University of Florida in 1967. His major research interests include the study of the dynamics of peer influence in adolescence—particularly as these influences affect substance use and abuse, the determinants of life course trajectories in alcohol use, and the parental socialization of values and obesity prone behaviors and beliefs.

Table 1

Bivariate correlations, means, and standard deviations for study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Social preference (7)														
2. Social preference (8)	.42***													
3. Perceived popularity (7)	.43***	.22***												
4. Perceived popularity (8)	.25***	.42***	.48***											
5. Centrality (7)	.27***	.13*	.18**	.14*										
6. Centrality (8)	.20**	.24***	.20**	.21***	.29***									
7. Leadership (7)	.52***	.27***	.53***	.29***	.31***	.19**								
8. Leadership (8)	.42***	.23***	.46***	.31***	.29***	.33***	.73***							
9. Physical aggression (7)	.04	-.09	.28***	.20*	-.06	-.06	-.07	-.06						
10. Physical aggression (8)	.15	.09	.31***	.24**	-.09	.01	.02	.00	.48***					
11. Relational aggression (7)	.15	.10	.17*	.15	.08	.03	.16*	.12	.32***	.24**				
12. Relational aggression (8)	.10	.08	.05	.01	.02	.05	.01	.00	.08	.33***	.46***			
13. Alcohol use (7)	.13	.12	.25**	.21*	.12	-.05	.27**	.23**	-.02	.06	.20*	-.08		
14. Alcohol use (8)	.16*	.16*	.25**	.30***	.08	-.05	.18*	.18*	-.07	.06	.07	-.10	.56***	
Mean	-.01	-.02	-.01	.03	.68	.64	.06	.07	.22	.24	.36	.36	.39	.50
SD	1.01	1.02	.97	1.02	.31	.32	1.02	1.06	.26	.25	.33	.34	.49	.50

Numbers in parentheses represent grade in which variable was assessed

* $p < .05$;
** $p < .01$;
*** $p < .001$

Table 2
Regressions predicting change in social standing from grade 7 to grade 8 from student behavior in grade 7, gender, and ethnicity

Grade 8 student behavior											
Social preference				Perceived popularity				Centrality		Leadership	
B	SE	t		B	SE	t		B	SE	B	t
Gender	.46			.32	.17	1.88		-.01	.08	-.08	.21
Ethnicity (EA = ref)		2.15*									
African-American	-.07		-.47	-.12	.11	-1.13		-.15	.06	-.05	.17
Other	.29		1.83	.01	.11	.11		.04	.06	-.06	.15
Physical aggression	-.43		-.93	-.48	.34	-1.44		.03	.17	-.43	.44
Relational aggression	-.05		-.18	-.03	.19	-.14		-.04	.10	-.05	.26
Alcohol use	.41		2.09*	-.10	.14	-.74		-.11	.07	-.05	.23
F	1.72*			1.18				1.80*		.85	
R ²	.09			.07				.12		.05	

Contribution of ethnicity to prediction in each model was tested using a 2 *df* *F* test. Analyses controlled for cohort and included gender by behavior and ethnicity by behavior interactions; significant interactions are described in the text

EA European-American

* *p* < .05

Table 3
Regressions predicting grade 8 student behaviors from change in social standing from grade 7 to grade 8, gender, and ethnicity

Grade 8 student behavior									
Physical aggression					Relational aggression			Alcohol use	
B	SE	t	B	SE	t	OR	CL (lo-hi)	OR	χ ²
Gender	.03	1.06	-.04	.04	-.84	.78	0.44–1.65		.23
Ethnicity (EA = ref)									
African–American	.04	1.82	-.02	.03	-.53	1.33	0.76–2.31		1.04
Other	.00	.08	.03	.04	.73	.46	0.24–0.90		5.21*
Grade 7 behavior	.38	6.26***	.48	.06	7.76***	17.38	8.27–36.51		56.84***
Social preference G7–G8	-.03	-1.68	-.01	.02	-.37	.74	0.53–1.02		3.33
Perceived popularity G7–G8	.01	.85	-.02	.02	-.64	.92	0.64–1.32		.21
Centrality G7–G8	.06	1.44	.02	.06	.29	.85	0.27–2.75		.06
Leadership G7–G8	.02	-1.51	.01	.03	.38	1.15	0.76–1.76		.45
	F = 8.49***		F = 7.46***			χ ² = 60.71***			
	R ² = .27		R ² = .26			–			

EA European–American

*
p < .05;

p < .001