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Behavioral Changes Predicting Temporal Changes in Perceived Popular Status

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Abstract

The primary objectives of this investigation were to determine the extent to which young adolescents are stable in high perceived popular status across the middle school transition and to examine whether changes in social behaviors predict the stability, gain, and loss of perceived popular status after the transition. The sample included 672 young adolescents (323 boys) who completed peer-nomination assessments of social behavior and perceived popularity at the end of elementary school (5th grade) and the beginning of middle school (6th grade). Findings indicated that 62 percent of perceived popular adolescents remained stable in their high popular status across the middle school transition. Multinomial logistic regression analyses revealed that a combination of aggression and arrogance/conceit was associated with *stable* and *newly-gained* perceived popular status after the middle school transition. Taken together, findings highlight the significance of contextual and temporal changes in adolescents' perceived popular status.

Keywords

popularity; middle school transition; social behaviors; peers

Behavioral Changes Predicting Temporal Changes in Perceived Popular Status Research over the past three decades has clearly indicated that there are two types of popularity during late childhood and early adolescence: (1) sociometric popularity (which is assessed by asking

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adolescents who they "like the most"; Coie, Dodge, & Coppotelli, 1982); and more recently, (2) perceived popularity (which is assessed by asking adolescents to nominate who is "popular"; for recent review, see Asher & McDonald, 2009). Sociometric popularity refers to popularity derived from liking and social preference whereas perceived popularity refers to popularity derived from social visibility and reputation (e.g., Cohen & Prinstein, 2006). Studies of the behavioral correlates and consequences of these two types of popularity have consistently shown that sociometric popularity is associated with positive (e.g., prosocial behaviors) social behaviors (e.g., Coie et al., 1982) whereas perceived popularity is a strong correlate of both positive and negative (e.g., aggressive behavior) social behaviors (e.g., Lease, Kennedy, & Axelrod, 2002; Rodkin, Farmer, Pearl, & Van Acker, 2000). The fact that perceived popularity is associated with both positive and negative behaviors may begin to explain why perceived popular adolescents are well-known, but not necessarily well-liked.

However, recent investigations have also revealed that the behavioral correlates of perceived popularity vary across the middle school transition (e.g. Rose, Swenson, & Waller, 2004). Cillessen and Mayeux (2004a), for example, found that aggressive behaviors become more strongly associated with perceived popularity after the middle school transition. Given that perceived popularity is relatively stable during late childhood and early adolescence, even across school transitions (e.g., Sandstrom & Cillessen, 2006), these combined findings may suggest that changes (or lack thereof) in the extent to which adolescents engage in positive and negative behaviors across the middle school transition might help to explain stability in high perceived popularity status. This manuscript reports on the first study to test this hypothesis.

Middle School Transition and Changes in Adjustment

In the United States, the developmental shift from childhood to adolescence is often marked by the experience of a transition from elementary to middle school. Both individual and contextual changes coincide with this transition. At the individual level, social-cognitive abilities become more advanced (Selman, 1980), and many biological-psychosocial changes occur with the onset of puberty (Crockett & Petersen, 1987). Contextually, elementary schools in the United States often differ from middle schools with youth moving from small classrooms to large schools, and being introduced to new unfamiliar peers and school staff, along with new rules and expectations (Akos, 2002; Harter, Whitesell, & Kowalski, 1992).

Among the notable peer relations changes that occur as young adolescents move from elementary to middle school is the increasing acceptance of antisocial behavior (e.g., Bukowski, Sippola, & Newcomb, 2000). Adolescents' self-reported negative attitudes towards bullying decrease after the transition (Pellegrini & Long, 2002), and aggression becomes increasingly associated with social prominence (Bukowski et al., 2000). A related change is that the association between aggressive behavior and perceived popularity becomes particularly strong after the middle school transition (e.g., Cillessen & Mayeux, 2004a; Rose et al., 2004). Additionally, there is a considerable increase in substance use during middle school (Oetting & Beavais, 1990) and perceived popular adolescents, in particular, are likely to increase their alcohol and drug use (e.g., Mayeux, Sandstrom, & Cillessen, 2008). Lastly, all adolescents face the challenge of reestablishing their group memberships and reputations after the transition, given that the move to middle school is accompanied by the introduction of many unfamiliar peers (Brown, 1990)

If it is the case that perceived popular adolescents in middle school demonstrate behaviors, such as aggression, that appear to be less well-accepted in elementary school, one may surmise that the phenomenon of perceived popularity must be less than stable across the middle school transition. And yet, as noted above, this is not the case. Cillessen and colleagues have reported moderate-to-high stability of perceived popularity across grade level and school (e.g.,

Sandstrom & Cillessen, 2006). In one study, for instance, Cillessen and Mayeux (2004a) reported a .70 correlation coefficient for perceived popularity across the middle school transition (5th to 6th grade). Although stability appears to be relatively high, the correlation noted above suggests that there is flux in the system. Many perceived popular adolescents must assuredly lose their popular status, and at the same time, some adolescents who were not initially considered popular must gain perceived popular status upon new school entry.

Researchers have not thoroughly examined the extent to which such temporal changes in high perceived popular status occur across the middle school transition. Thus, the first goal of this investigation was to examine the stability of high perceived popular status for adolescents identified as highly perceived popular in the final semester of elementary school (5th grade). We also identified those adolescents who were not-perceived popular in the 5th grade and followed these popular and not-popular adolescents longitudinally as they made the transition into middle school (6th grade). Based on their perceived popularity status in the 6th grade, adolescents were further classified into one of the three popular status groups: (1) adolescents were who consistently viewed as highly perceived popular by their peers in the 5th and 6th grades (*Stable*); (2) adolescents who gained high status in the 6th grade when they were of lower status in the 5th grade (*Gain*); and (3) adolescents who lost their high perceived popular status when they entered the middle school (*Lost*). Only a sizable minority of adolescents were expected to be stable in their high perceived popular status because it was reasoned that maintaining one's high social position would be somewhat difficult when entering a new school in which the peer group comprised many previously unfamiliar peers in a much larger academic venue.

Behavioral Change and Changes in Popular Status

The second goal of this investigation was to examine how changes in social behaviors relate to the stability of adolescents' perceived popular status across the middle school transition. According to Moffitt's theory of adolescence-limited delinquency (1993, 2006), antisocial and aggressive behaviors serve as a declaration of independence, autonomy, and maturity for many adolescents. Therefore, it may follow that those adolescents who defy authority figures by demonstrating antisocial behaviors become highly regarded and respected by their peers. In support of this notion, researchers have consistently demonstrated that many perceived popular adolescents engage in behaviors with a significant "antisocial edge" (Cillessen & Mayeux, 2004b, p. 12), such as physically and relationally aggressive behaviors, and snobby or arrogant/stuck-up behaviors, during the middle school years (e.g., de Bruyn & Cillessen, 2006; Farmer, Estell, Bishop, O'Neal, & Cairns, 2003; Gorman, Kim, & Schimmelbusch, 2002; Rodkin et al., 2000).

Yet, it appears that highly perceived popular status is often best achieved when antisocial behaviors are accompanied by such "positive" social behaviors as prosocial (i.e., helping, sharing) and leadership behaviors (Hawley, 2003). This may also be in keeping with notions pertaining to Moffit's (1993) ideas about adolescent-limited antisocial behavior. Some limit-testing and risk-taking may be carried out by confident, popular adolescents who have a previous history of demonstrating socially competent behavior and being accepted by peers. Peers may also be more willing to tolerate or accept aggression when it is accompanied by prosocial or leadership behaviors, both of which are valued by peers and positively associated with peer acceptance (e.g., Puckett, Aikins, & Cillessen, 2008; Rubin, Bukowski, & Parker, 2006; Vaillancourt & Hymel, 2006). These ideas have been previously supported by studies showing that social competence and peer acceptance in elementary predict substance use in high school (e.g., Rubin, Chen, McDougall, Bowker, & McKinnon, 1995), and perceived popularity is the highest when aggression is coupled with high levels of peer-perceived leadership, cooperation, or peer sociability (Puckett et al., 2008).

Although there has been no research directly examining behavioral change across the middle school transition in relation to stable and changing high perceived popular status, Moffit's (1993,2006) notions may be used to develop hypotheses. Prosocial behaviors are strong correlates of perceived popularity before and after the middle school transition (e.g., Parkhurst & Hopmeyer, 1998), and therefore, adolescents who remain highly perceived popular after the middle school transition (*Stable*) may maintain their level of prosocial behaviors but increase their level of aggressive behaviors. These adolescents might appropriately adjust their levels of aggressive behaviors to fit with the perceived "norms" of middle school and adolescence (Bukowski et al., 2000;Moffit, 1993). Although leadership and arrogance have been associated with perceived popularity before and after the middle school transition (e.g., Estell, Farmer, Pearl, Van Acker, & Rodkin, 2008;Puckett et al., 2008;Rodkin et al., 2000), it is not clear whether these specific behaviors become more strongly associated with perceived popularity after the middle school transition. However, we reasoned that increases in these behaviors after the transition may also be viewed by peers as reflecting social confidence at a time when many adolescents are feeling uncertain about their social position (Cillessen & Mayeux, 2007) and as a result, may help popular adolescents quickly re-establish their "old" perceived popular status in a new school.

In contrast, the attainment of new perceived popular status for adolescents who were previously not perceived popular (*Gain*) may require increases in both antisocial (aggression or arrogance) and positive (leadership or prosocial) behaviors. And finally, it may follow that adolescents who lose their status as perceived popular (the *Lost* group) fail to increase their aggressive or antisocial behaviors as they make the transition to middle school, even if they maintain their displays of positive behaviors.

The fact that no investigators have explored whether behavioral changes are associated with changes in perceived popularity status after the transition to middle school is surprising given recent speculation about the importance of increases in aggressive behavior for obtaining new perceived popular status (Cillessen & Mayeux, 2004a), and calls for additional research on developmental changes in the behavioral correlates of popular status (Rubin et al., 2006). A better understanding of the role of antisocial and aggressive behaviors in maintaining or achieving perceived popularity in early adolescence is important because numerous investigators have shown that adolescents imitate each other's risky or oppositional behavior (e.g., Alexander, Piazza, Mekos, & Valente, 2001; Dishion & Dodge, 2005; Vitaro, Tremblay, Keer, Pagani, & Bukowski, 1997), particularly when the imitated adolescent is perceived to be popular (Cohen & Prinstein, 2006). Furthermore, programs aimed at reducing adolescent antisocial behaviors often employ popular adolescents to act as peer models (e.g., Bellamy, Springer, Sale, & Espiritu, 2004; Henry, Farrell, & The Multisite Violence Prevention Project, 2004; Smith, Gorman-Smith, Quinn, Rabiner, Tolan, et al., 2004) with the hope that these adolescents will induce positive behavioral changes in their peers. However, there is much inconsistency in evaluation results (Bellamy et al., 2004), perhaps due to the instability in high perceived popular status and the potential of perceived popular adolescents themselves to be aggressive and arrogant. Taken together, it appears important and timely to better understand why some adolescents have lasting high perceived popular status and influence whereas others do not.

Summary of Research Purposes

In summary, the purpose of this study was to examine stability and change in high perceived popular status and to test whether increased social behaviors predict perceived popularity status change (or stability) after the middle school transition. Perceived popularity in this study was assessed by a single-item, "*Someone everyone likes to be with*." Although the wording for the assessment of perceived popularity is different from other studies in which adolescents were

asked who it is that they think is "popular" (e.g., Parkhurst & Hopmeyer, 1998; Rose & Swenson, 2009; Rose et al., 2004), similar wording has been used recently elsewhere (e.g., "Who do others like to be associated with?"; Dijkstra, Cillessen, Lindenberg, & Veenstra, 2009). In addition, consistent with theory on perceived popularity, the item "everyone likes to be with" reflects perceived status in the group and social visibility (Cillessen & Mayeux, 2004b). Also consistent with studies in which adolescents were asked about popular classmates (e.g., LaFontana & Cillessen, 2002), our assessment of perceived popularity was found to be only moderately correlated with sociometric popularity (likes most-rather not be with; Rubin, Chen, McDougall, Bowker, & McKinnon, 1995) in the spring of the 5th grade (r (670) = .46, $p < .001$) and fall of the 6th grade (r (670) = .32, $p < .001$).

In accord with recommendations by Dodge, Coie, and Lynam (2006) and recent perceived popularity research (e.g., de Bruyn & Cillessen, 2006; Puckett et al., 2008), we distinguished between two types of antisocial behaviors, specifically aggression and arrogance (e.g., being conceited or overly-confidant), and two types of positive behaviors, leadership and prosocial behaviors (e.g., helping, sharing). Given the lack of consistent sex differences in the associations between aggression and perceived popularity (e.g., Farmer, Leung, Pearl, Rodkin, Cadwallader, & Van Acker, 2002; Rose & Swenson, 2009), sex differences were examined in an exploratory fashion.

Method

Participants

Participants were drawn from a larger normative sample of 5th and 6th graders from eight public elementary schools and three public middle schools in a large metropolitan area (Grade 5: N = 827, 406 boys; Grade 6: N = 1,210; 592 boys). Fifth grade marks the end of elementary school for youth in this sample; 6th grade is the first year of middle school. The average fifth grade in our study comprised 90 young adolescents; the average sixth grade comprised 280 young adolescents. Data were collected in the spring of the 5th grade (Time 1) and the fall of the 6th grade (Time 2). The Time 1 assessment took place in the months of April and May; the Time 2 assessment occurred in late October/early November to allow adolescents ample time to become familiar with their classmates after the school transition. The mean age of the sample was 10.33 years (SD = .52) in 5th grade and 11.39 years (SD = .51) in 6th grade; all participants had parental consent (consent rate = 84 percent). The present study focused on participants with complete data at both time points: N= 672 young adolescents (323 boys). Attrition analyses (MANOVAs) did not reveal any significant differences on the peer nomination measure (see below) at Time 1 between adolescents who participated at Time 1 *and* Time 2 and those who only participated at Time 1, F (5,794) = 0.39, *ns*. Although demographic information was not collected from participants, available school information indicated similar county-wide ethnic and racial compositions of the elementary (40 percent Caucasian, 22 percent Hispanic/Latino, 22 percent African American, 15 percent Asian) and middle schools (43 percent Caucasian, 19 percent Hispanic/Latino, 23 percent African American, 15 percent Asian).

Measures

Social behaviors—At both time points, participants completed an extended version of the *Revised Class Play* (*RCP*; Masten, Morison, & Pellegrini, 1985). Items were added to the original *RCP* to more fully capture different types of aggression (e.g., "Someone who spreads rumors"), assess peer victimization (e.g., "Someone who is hit/kicked"), and better distinguish between active isolation (e.g., "Someone who is often left out") and social withdrawal (e.g., "Someone who prefers to be alone"). In both grades, only nominations for participating adolescents were considered, and to eliminate possible sex-stereotyping, only same-sex nominations were utilized (Zeller, Vannatta, Schafer & Noll, 2003). For each participant, the

number of nominations received for each role was summed, proportionalized, and then standardized separately by sex. These same procedures were followed for the peer nomination items described below. Exploratory principal components and confirmatory factor analyses yielded five identical orthogonal factors in the 5th and 6th grades**:** Aggression, Shyness/Withdrawal, Victimization/Exclusion, Prosocial Behaviors, and Sociability (for additional information about the measure and analyses, see reference removed for review). Based on the extant literature demonstrating linkages between aggressive and prosocial behaviors and popularity, we focused on the 7-item Aggression (e.g., "Someone who hits and kicks others"; "Someone who picks on others"; "Someone who teases others") and 6-item Prosocial Behavior (e.g., "Someone who helps others"; "Someone who is polite"; "Someone who always plays fair") factors in the present study. The Cronbach alphas for the Aggression factor were: Time 1: .91; Time 2: .93. The Prosocial Behaviors factor alphas were .83 and .88, for Time 1 and Time 2 respectively.

Arrogance, leadership, and perceived popularity—On the extended RCP, participants were also asked to nominate their peers for two items descriptive of arrogance/conceit: (1) "Someone who shows off," and (2) "Someone who thinks he or she is great". Neither of these items was included in the final five-factor model because of inconsistent factor loadings with the Sociability and Aggression factors over time and across grade. Yet, these items were consistently and highly correlated with each other (Time 1: $r = .66$; Time 2: $r = .82$, $ps < .001$). Therefore, for purposes of data analyses, we created a single Arrogance/Conceit score by averaging the standardized scores of these two items.

Leadership was assessed by a single peer-nomination item: "Someone who is a good leader," which also was excluded from the final five-factor model because of inconsistent factor loadings. Lastly, perceived popularity was assessed by a single-item, "Someone everyone likes to be with." Because of the multiple-informant nature of peer nominations, single-item peer nomination assessments are considered reliable (Coie, Dodge, & Kupersmidt, 1990).

Procedure

Questionnaires were group-administered in large rooms (e.g., cafeterias) by trained graduate research assistants. Each session lasted approximately one hour. Non-participating adolescents typically remained in their classrooms, working on homework or other class work. Adolescents were informed that their answers were confidential and were instructed not to discuss their answers with classmates. Participants were also told that they could choose to stop completing their questionnaire at any time. Students were read aloud one example question, "Someone who is very tall."

Group Identification and Data Analytic Strategies

To focus on high perceived popular status, young adolescents were first identified as perceived to be popular at Times 1 and 2 if their scores on the perceived popular item were greater or equal to that of the 67th percentile (calculated separately by school, sex, and time point). Young adolescents whose scores were below the 67th percentile were considered not to be perceived popular at each time point. These cut-offs and procedures are similar to those employed by previous peer relations researchers (e.g., Farmer et al., 2003) and this typological approach is recommended for studies of dominance and high social status during adolescence (Hawley, 2003).

Next, to examine stability and change in perceived popular status across the middle school transition, two different methodological approaches were employed. First, to examine stability and change, stable and changing perceived popular status groups (*Stable, Gain, Lost*) were identified and descriptive statistics reported. Then, to determine which behaviors predicted

change or stability in perceived popular status (*Stable, Gain, Lost*) across the school transition, a series of multinomial logistic regression analyses was performed with residual scores as a measure of change in social behaviors. Standardized residual scores for aggressive, prosocial, leadership, and arrogant behaviors were calculated by regressing the Time 1 scores on Time 2 scores. Residual scores are commonly used in peer relations studies to explore the significance of changes or differences for psychosocial adjustment (e.g., Brendgen, Vitaro, Turgeon, Poulin, & Wanner, 2004; Cronbach & Furby, 1970). The larger the positive residual score, the greater the positive change or increase in behavior across the middle school transition. Sex (coded as 0=boys, 1=girls), and the aggression, prosocial, leadership, and arrogance residual scores were included as predictors, along with all potential 2-way interactions. All predictor variables were centered (by subtracting the mean) prior to the formation of interactions. Some of the peer nomination variables (e.g., arrogance/conceit) and the residual scores were moderately and positively skewed (Tabachnick & Fidell, 2007). However, untransformed variables were used in the analyses because predictors do not need to be normally distributed in logistic regression analyses and no assumptions of logistic regression analyses were violated (e.g., linearity in the logit, absence of outliers; Tabachnick & Fidell, 2007). Predictor variables with individual χ^2 values that were non-significant were removed, one at a time, using a χ^2 difference test at each iteration to ensure the model fit was not harmed by dropping a variable.

Results

Preliminary Analyses

For descriptive purposes, intercorrelations among relevant measures at Times 1 and 2 are shown in Table 1. Results revealed moderate stability of the behavioral and perceived popularity measures; for example, the correlation between Times 1 and 2 for the Aggression factor was r (670) = .60, $p < .001$. Correlations among the behavioral measures were moderate, suggesting that the constructs were relatively independent.

Identifying Patterns of Stability and Change in Highly Perceived Popular Status

Based on the procedures described above, at Time 1, 209 young adolescents (94 boys) were considered highly perceived popular and 453 (224 boys) young adolescents were considered not-perceived popular. At Time 2, 242 young adolescents (90 boys) were considered highly perceived popular and 430 (233 boys) young adolescents were considered not-perceived popular.

The three groups of young adolescents reflecting stable or changing perceived popular group status were then identified: (1) Adolescents who remained stable in their highly perceived popular status from Time 1 to Time 2 (*Stable; n* = 128; 44 boys); (2) adolescents who were not highly perceived popular at Time 1 but gained highly perceived popular status by Time 2 (*Gain*; *n* = 103; 41 boys); and (3) adolescents who were highly perceived popular at Time 1 but not-perceived popular at Time 2 (*Lost*; adolescents*; n* = 80; 50 boys). The *Stable* group represented 62 percent of those adolescents who were identified as highly perceived popular at Time 1, the *Gain* group comprised 23 percent of those adolescents identified as not-perceived popular at Time 1, and the *Lost* group represented 38 percent of adolescents who were highly perceived popular at Time 1. Results from a chi-square analysis exploring for possible sex differences in group membership revealed that boys were more likely to lose popular status and girls were less likely to lose popular status than was expected by chance, χ^2 (2) = 16.97, $p < .001$, $\phi = 0.22$.

Predicting Changes in Popular Status across the Middle School Transition

The final predictors from the series of multinomial logistic regression analyses are presented in Tables 2 and 3, along with the regression coefficients, Wald statistics, odds ratios, and 95

percent confidence intervals for each of the predictors. Table 2 presents results when the *Stable* group was the reference group; Table 3 displays results when the *Lost* group served as the reference group. A test of the final model against a constant-only model was statistically significant, χ^2 (16) = 134.01, $p < .001$ (Nagelkerke $R^2 = 0.39$), indicating that the predictors as a set reliably distinguished between the perceived popular group membership. Overall correct group classification with the final predictors was 57 percent, with 85 percent correct for the *Stable* group, 73 percent for the *Lost* group, and 10 percent for the *Gain* group.

In order to interpret the individual predictors of this model, the *Gain* group was first contrasted with the *Stable* group (as the reference group). No predictors significantly distinguished between these two groups. When the *Lost* group was compared to the *Stable* group, adolescent sex, and the residual scores of leadership, arrogance, and aggression emerged as significant predictors, along with: (1) the interaction between the residual scores of aggression and prosocial behavior, (2) the interaction between the residual scores of aggression and arrogance, and (3) the interaction between sex and the residual score of arrogance. Interpretation of these effects was based on procedures outlined by Jaccard (2001) and the inspection of the beta coefficients and odds ratio. Adolescents who increased their display of leadership behaviors across the middle school transition by 1 *SD* were less likely (with 57 percent decreased odds) to be in *Lost* group than the *Stable* group. For those adolescents who increased their display of aggressive behaviors, increases in prosocial behavior significantly improved their chances (by 140 percent) of being in the *Lost* group relative to the *Stable* group. For adolescents who increased in aggressive behavior, increases in arrogant behaviors decreased the odds (by 58 percent) that they would *lose* rather than maintain their highly perceived popular status. Boys who increased their display of arrogant behaviors had decreased odds of *losing* than remaining stable in their popular status relative to girls who increased their display of arrogant behaviors.

Regarding the *Gain* group relative to the *Lost* group, the findings indicated that adolescents who increased in leadership *or* aggression had increased odds of being in the *Gain* group (see Table 3). For young adolescents who increased their display of aggressive behaviors, increases in arrogant behaviors improved their odds (by 140 percent) that they would gain rather than lose status. Compared to girls who increased their display of arrogant behaviors, boys who increased their display of arrogant behaviors after the middle school transition had increased chances of *gaining* rather than losing high popular status.[1]

Discussion

The overarching goal of this short-term longitudinal study was to examine stability and change in high perceived popular group status during late childhood and early adolescence. This study was unique in its focus on the middle school transition, and its prospective analysis of the influence of changes in positive and negative behaviors on the stability of young adolescents' perceived popular status across the transition from elementary into middle school. Although a few investigators have previously examined the stability of perceived popularity during early adolescence (e.g., Cillessen & Mayeux, 2004a), the present study is the first to examine heterogeneity in *stable* status within a highly perceived popular group of young adolescents and thus adds to the growing literature on temporal changes in peer relations experiences (e.g.,

[1]Different forms of aggression were not examined as predictors of popular status in the primary analyses because factor analyses results supported an overall aggression factor. However, it is important to note that exploratory logistic regression analyses were performed with the overt (6-items; e.g., hitting, kicking, yelling) and relational aggression (1-item; spreads rumors) items separated into two factors. Results indicated no significant main or interaction effects for the residual score of relational aggression. We also considered changes in sociometric popularity as a possible covariate in the logistic regression analyses. Results revealed that the residual sociometric score was not a significant predictor of perceived popular group status. When the residual sociometric popularity score was included in the final model, the magnitude of effects was slightly reduced but no major changes were evident. Output is available from the first author upon request.

Wojslawowicz Bowker et al., 2006). Consistent with Moffit's notions of adolescent-limited delinquency and antisocial behavior (1993, 2006), our findings strongly suggest that specific types of behavioral change play an important role in the attainment and maintenance of perceived popular status upon entry into middle school.

In our first set of analyses, we examined the proportion of young adolescents who were identified by their peers as highly perceived popular at two time points: (1) the spring of the 5th grade year (or the final semester of elementary school); and (2) the fall of the 6th grade year (or the first semester of middle school). Analyses revealed evidence of moderate stability in perceived popular group status across the middle school transition; 62 percent of the high status 5th graders maintained their perceived popularity status. Considering that four elementary schools fed into each of the three participating middle schools, making the ratio of familiar to unfamiliar peers 1:4, it was rather surprising that so many adolescents remained stable in their popular status across this school transition. However, similar stability rates have been reported by previous researchers, albeit when examining perceived popularity as a *continuous* variable (e.g., Cillessen & Mayeux, 2004a; Prinstein & Cillessen, 2003). Thus, it appears that many highly perceived popular young adolescents have little difficulty maintaining their reputations in social settings comprising both familiar and unfamiliar peers.

Significantly, a sizable percentage of young adolescents were not able to maintain their highly perceived popular status over the transition (38 percent). Boys appeared to have greater difficulty maintaining their perceived popular status relative to girls. Although this finding was not expected, some previous researchers have shown that perceived popularity, when assessed continuously, is more stable for girls than for boys (Cillessen & Mayeux, 2004a). It has been suggested that achieving and maintaining popular status and positive peer approval is especially important for girls (Cillessen & Mayeux, 2004a; Rose & Rudolph, 2006), which in turn, may lead to less "flux" in the high status of girls. Very little is known however about the possible psychosocial consequences of unstable perceived popular status. Yet, it seems likely that many adolescents who lose high status during the early adolescent period are able to discern this loss, and that perhaps losses in perceived popularity are accompanied by, or predictive of, maladjustment of one form or another. Indeed, given the many other biological, cognitive, and emotional changes co-occurring during this period (e.g., Eccles, Lord, & Buchanan, 1996), a loss in high perceived popular status may be particularly detrimental to adjustment. In keeping with Moffitt's work on adolescent-limited delinquency (Moffitt 1993; 2006) and recent evidence that perceived popularity in the 10th grade predicts increases in alcohol use and sexual activity in the 12th grade (Mayeux et al., 2008), it seems likely that adolescents looking to re-gain their high status after a loss may opt to engage in antisocial acts as a demonstration of their "maturity" and in an attempt to fit in once again with the popular group.

Unlike previous studies, we also examined whether behavioral change (or lack thereof) might explain why some highly perceived popular young adolescents are able to maintain and/or attain new perceived popular status upon entry into middle school but others are not. The most important finding was perhaps the result that peer perceived increases in both aggressive and arrogant/conceited behavior together predicted *Stable* and *Gain* group status. This finding is consistent with evidence that aggression and arrogance are independently associated with perceived popularity during early adolescence (e.g., de Bruyn & Cillessen, 2006; Rodkin et al., 2000), with the linkages between aggression and peer group successes beginning in early and middle childhood (e.g., Vaughn, Vollenweider, Bost, Azria-Evans, & Snider, 2003), and suggestions that aggressive and other antisocial behaviors may reflect attempts to re-establish and gain new status in a new peer context (e.g., Cillessen & Mayeux, 2007; Cillessen & Mayeux, 2004b). However, an interaction between aggressive and arrogant behaviors has not been previously reported. One possible explanation for this interaction is that the combination of increases in aggression and arrogant behaviors together better reflect autonomy and

confidence than either type of behavior alone in a developmental period during which most adolescents are beginning to struggle with the uncomfortable "maturity gap" and feeling insecure about their social status and position (Moffitt, 1993; 2006). Arrogance may also contribute to more positive perceptions of aggression. For example, aggressive behavior, when it is coupled with arrogance, may be judged as more "intentional" than aggressive behavior in isolation. Although we were not able to distinguish between proactive and reactive aggression in our investigation, there is evidence suggesting that proactive aggression, which is typically judged as intentional aggressive behavior, is associated with perceived popularity but reactive aggression is not (e.g., Prinstein & Cillessen, 2003).

Arrogance alone however does appear to contribute positively to high perceived popularity status, and our results indicated that this was especially true for boys. Although perceived popular girls are more often characterized as snobby and "stuck-up" than popular boys (e.g., Closson, 2009), it may be that increased arrogant behaviors upon entry into middle school by boys are more positively regarded by their same-sex peers, and thus, better help with their new and continued popular status. This interpretation is consistent with evidence that boys develop more positive attitudes towards bullying and dominance after the middle school transition than do girls (Pellegrini & Long, 2002), and perceptions of "toughness" are more strongly associated with perceived popularity and social power for boys than girls (Vaillancourt & Hymel, 2006). And, ethnographic research (Adler, Kless, & Adler, 1992) suggests that boys are more likely to achieve popularity due to such characteristics as toughness and coolness than girls. Clearly additional research is needed to test their hypotheses. Nevertheless, results provide clear evidence that increased antisocial and aggressive behaviors are critical for new and continued high perceived popular status after the transition from elementary into middle school.

We also found that adolescents who entered into middle school without any previous history of high status (*Gain* youth) appeared to gain some respect and social position when they are perceived as more aggressive or more of a leader than in elementary school. In light of recent evidence that adolescents who perceive themselves as disliked increase their aggressive behaviors (e.g., Mayeux & Cillessen, 2008), it may be that *gain* adolescents were aware of their low perceived popular status in the 5th grade, and deliberately changed their behavior in attempt to gain status. Despite being socially rewarded for such socially confident behavior at the start of middle school, it seems unlikely that these newly-acquired perceived popular statuses will be maintained across the school year unless these adolescents begin to direct *both* positive and negative behaviors toward their classmates.

Although we also found that increases in leadership behaviors were related to *stable* popular status, our findings indicated that there may be some social "costs" for already-perceived popular adolescents when they increase their displays of both aggressive and prosocial behaviors after the middle school transition. In particular, results indicated that adolescents who were perceived by their peers as increasing in both aggression and prosocial behaviors are more likely to lose their status than they were to maintain it. Previous researchers have shown that high levels of certain prosocial behaviors, such as cooperative behavior, appear to positively contribute to aggressive adolescents' perceived popularity (Puckett et al., 2008), and that children and adolescents who use a combination of prosocial and antisocial resource control strategies are often rewarded by their peers with high social status (e.g., Hawley, 2003). Unlike these previous studies however, we examined *changes* in aggressive and prosocial behaviors in relation to changing or stable perceived popular status. Thus, our findings may suggest that there is something uniquely problematic about *increases* in both prosocial and aggressive behaviors over time, and specifically after the middle school transition. Given that there is some evidence that prosocial behaviors become less valued by peers upon entry into middle school (Bukowski et al., 2000), one possible interpretation may be that adolescents who become more aggressive *and* more prosocial after the middle school

transition lose status because they are perceived by their 6th grade peer group as inconsistent in their adherence to the new behavioral standards; while they have appropriately increased their display of aggressive behaviors, they have inappropriately increased their display of prosocial behaviors. Yet, since the combination of increased aggression and prosocial behaviors did not predict *Gain* status, it may be that peer-relationship histories influence adolescents' perceptions of increased displays of aggression-prosocial behaviors such that the combination of these behaviors are only viewed negatively when displayed by adolescents who already have some "clout."

Although the present findings replicated and extended prior studies (e.g., Cillessen & Mayeux, 2004a), several limitations and future directions should be emphasized. First, we acknowledge that the prediction of *Gain* status was not impressive and no differences emerged when the *Stable* and *Gain* groups were compared. Thus, it appears likely that researchers will need to consider other characteristics, such as physical attractiveness (LaFontana & Cillessen, 2002), and particularly attractiveness to the other-sex (Bukowski et al., 2000), participation in romantic other-sex relationships (Carlson & Rose, 2007), social-cognitive abilities, social intelligence (Meijs, Cillessen, Scholte, Segers, & Spijkerman, 2008) or more subtle social skills (i.e., ability to communicate effectively; Asher & McDonald, 2009), to better understand why it is that some adolescents are able to gain new perceived popular status after the middle school transition and how these *Gain* adolescents differ from those who maintain their statuses. Second, a significant limitation was that our assessment of perceived popularity differed from that used by most perceived popularity researchers (i.e., perceived popularity is typically indexed by the standardized number of "popular" nominations received; e.g., Parkhurst & Hopmeyer, 1998; Rose & Swenson, 2009; Rose et al., 2004; or, more recently, by the difference between the standardized number of "least popular" and "most popular" nominations received to order to create comparable perceived popularity and sociometric popularity scores; Mayeux et al., 2008; for recent review, see Cillessen, 2009). Thus, it will be critical to confirm our findings with more traditional perceived popularity assessments. However, it is worth noting that our assessment was conceptually consistent with theory on perceived popularity (e.g., Cillessen & Mayeux, 2004b), and our findings regarding aggression and arrogance meshed well with the extant perceived popularity literature. Third, no information was available on adjustment difficulties, but it seems likely that popularity derived from aggression and arrogance might be associated with truancy, poor grades, bullying, or drug and alcohol use.

One strength of our study was the focus on the middle school transition. However, in future research, comparisons should be made between same-age adolescents who make a school transition and those who do not to determine whether increases in aggression and arrogance play important roles in stable and newly-gained perceived popular status only when a transition has occurred or also in the beginning of any school year. Furthermore, it appears important to carefully consider other possible reasons that some adolescents lose their perceived popular status after the transition to middle school. Do some adolescents become overwhelmed by the size of the school and the presence of familiar and unfamiliar peers and thus act differently (e.g., Cillessen & Mayeux, 2007)? Do some adolescents choose not to *try* to re-establish their high perceived-as-popular status in middle school? These questions have yet to receive any empirical attention.

Despite these limitations however, findings from the present study extend our knowledge about the extent to which young adolescents lose their "old" high perceived popular status and gain "new" perceived popular status across the middle school transition. This temporal change approach to the study of perceived popularity also highlighted the significance of social behavioral changes for the maintenance and attainment of high status among familiar and unfamiliar peers. Findings from this study provide clear evidence that the majority of young adolescents who are initially perceived as highly popular continue to enjoy social success and

that they change their behaviors after the middle school transition. Thus, results set the stage for future investigations of whether stably highly popular adolescents use their positions to influence their classmates in primarily positive or negative ways - before and after the middle school transition. Our results also have important intervention implications. It is well-known that many adolescents are concerned and insecure about their social positions after the transition into middle school (e.g., Cillessen & Mayeux, 2007). Although engaging in increased aggressive and arrogant behaviors may help some adolescents re-establish and gain new high perceived popular status after the transition, our findings also indicated that increased leadership behaviors improves the chances that adolescents will be stable or new gain perceived popular status. Thus, individuals who work with young adolescents may do well to discuss the leadership "method" of achieving perceived popularity, which may have fewer long-term social and academic "costs" than perceived popularity acquired from aggressive-arrogant behaviors. Furthermore, findings may suggest that adolescents who maintain and achieve perceived popularity by way of their leadership behavior could serve as better role models for interventions than those whose perceived popularity is gained by being arrogant and aggressive.

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Table 1

Intercorrelations of Variables for Adolescents in Popular Status Groups across the School Transition

	Pop(T1)	Agg(T1)	Pro(T1)	Lead(T1)	Arr(T1)	Pop(T2)	Agg(T2)	Pro(T2)	Lead(T2)
Pop(T1)									
Agg(T1)	.11**								
Pro(T1)	.43***	−.25***							
Lead(T1)	.52***	−.06	.64***						
Arr(T1)	.24***	.67***	−.12***	.13***					
Pop(T2)	.49***	.07	.15***	.25***	.17***				
Agg(T2)	.13***	.60***	−.22***	−.05	.45***	.31***			
Pro(T2)	.33***	−.25***	.44***	.38***	−.07	.50***	−.08*		
Lead(T2)	.41***	−.01	.29***	.42***	.15***	.67***	.20***	.65***	
Arr(T2)	.25***	.40***	−.13***	.02	.45***	.55***	.76***	.10**	.40***

Note. T1 = Time 1; T2 = Time 2; Pop = Perceived Popularity; Agg = Aggression; Pro = Prosocial Behaviors; Lead = Leadership; Arr = Arrogant Behaviors; *df* = 670

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2

Multinomial Logistic Regression Analysis Predicting to Popular Group Status

A. Gain group					
Predictor	**Wald (df)**	***B***	**SE**	**Odds ratio (eb)**	**95% CI**
Sex	2.88 (1)	−0.31	0.18	0.74	(0.51, 1.05)
Prosocial residual	0.20 (1)	0.07	0.15	1.07	(0.80, 1.45)
Leadership residual	1.13 (1)	−0.17	0.16	0.84	(0.61, 1.16)
Arrogant residual	0.80 (1)	−0.21	0.24	0.81	(0.51, 1.29)
Aggression residual	0.86 (1)	−0.20	0.21	0.86	(0.54, 1.25)
Aggression x Prosocial	1.01 (1)	0.20	0.20	1.22	(0.83, 1.81)
Aggression x Arrogant	0.02 (1)	0.02	0.10	1.02	(0.84, 1.23)
Arrogant x Sex	1.83 (1)	0.35	0.26	1.41	(0.86, 2.33)
B. Loss group					
Sex	18.86 (1) **	−1.19	0.28	0.30	(0.18, 0.52)
Prosocial residual	0.64 (1)	0.17	0.21	0.85	(0.56, 1.28)
Leadership residual	12.40 (1) **	−0.86	0.24	0.43	(0.26, 0.68)
Arrogant residual	10.28 (1) **	−1.36	0.43	0.26	(0.11, 0.59)
Aggression residual	8.02 (1) **	−0.99	0.35	0.37	(0.19, 0.74)
Aggression x Prosocial	5.93 (1) *	0.88	0.36	2.41	(1.19, 4.89)
Aggression x Arrogant	5.15 (1) *	−0.87	0.38	0.42	(0.20, 0.88)
Arrogant x Sex	12.13 (1) **	1.92	0.55	6.79	(2.31,19.93)

Note. Odds ratio refers to the *stable* group as the reference group

* $p < .05$.

** $p < .001$.

Table 3

Multinomial Logistic Regression Analysis Predicting to Popular Group Status

A. Gain group					
Predictor	**Wald (df)**	***B***	**SE**	**Odds ratio (eb)**	**95% CI**
Sex	9.97 (1) **	0.89	0.28	2.43	(1.40, 4.21)
Prosocial residual	1.26 (1) **	0.24	0.21	1.98	(1.23, 3.20)
Leadership residual	7.88 (1) **	0.68	0.24	1.98	(1.23, 3.20)
Arrogant residual	7.57 (1) *	1.15	0.42	3.16	(1.39, 7.16)
Aggression residual	5.13 (1) *	0.80	0.35	2.22	(1.11, 4.41)
Aggression x Prosocial	3.61 (1)	−0.68	0.36	0.51	(0.25, 1.02)
Aggression x Arrogant	5.56 (1) *	0.89	0.38	2.43	(1.15, 5.11)
Arrogant x Sex	8.28 (1) **	−1.57	0.55	0.21	(0.07, 0.61)

Note: Odds ratio refers to the *loss* group as the reference group

* $p < .05$

** $p < .001$