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Ethnic Differences in Associations Among Popularity, Likability, and Trajectories of Adolescents' Alcohol Use and Frequency

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Abstract

Two-part latent growth models examined associations between two forms of peer status (popularity, likability) and adolescents' alcohol use trajectories throughout high school; ethnicity was examined as a moderator. Ninth-grade low-income adolescents (N = 364; M_{age} = 15.08; 52.5% Caucasian; 25.8% African American; 21.7% Latino) completed sociometric nominations of peer status and aggression at baseline, and reported their alcohol use every 6 months. After controlling for gender, aggression, ethnicity, and socioeconomic status, popularity—but not likability—prospectively predicted alcohol use trajectories. However, these effects were moderated by ethnicity, suggesting popularity as a risk factor for alcohol use probability and frequency among Caucasian and Latino, but not African American adolescents. Results suggest that developmental correlates of peer status should be considered within cultural context.

Adolescents' health risk behaviors develop within a social context. Adolescents engage in most health risk behaviors with their peers, and increases in adolescents' health risk behavior are linked strongly with growing sensitivity to social rewards, such as acceptance or recognition by peers (Somerville, 2013). However, investigators rarely have examined the association between peer status and adolescent health risk behaviors; research incorporating contemporary theoretical conceptualizations of peer status is especially lacking. In addition, few studies have considered peer status in the context of other co-occurring developmental systems (Bukowski, 2011). Specifically, peer status is embedded within a cultural context. A developmentally sensitive approach, examining interplay between social and cultural systems, may inform an understanding of the role of peer status in the longitudinal development of health risk behaviors.

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This study examined peer status as a prospective predictor of alcohol use probability and frequency within an ethnically heterogeneous sample of low-income adolescents. This study had two main goals. First, to understand social factors that are relevant for alcohol use, two forms of peer status (i.e., popularity and likability) were examined as potential predictors. Differences between these two forms of status recently articulated within the developmental literature may have special relevance for understanding the dramatic rise in alcohol use at this developmental stage. Second, this study investigated how the role of peer status may vary across ethnic groups, given previously observed ethnic differences in the rates of alcohol use that indicate differences in descriptive social norms (e.g., Chen & Jacobson, 2012). Each of these goals is discussed in more detail next.

Adolescent alcohol use is a remarkably common risk behavior that may even be considered developmentally normative. Approximately 33% of U.S. 8th-grade students, 56% of 10th-grade students, and 70% of 12th-grade students have consumed alcohol (Johnston, O'Malley, Bachman, & Schulenberg, 2012). The peer context has been highlighted as perhaps the strongest predictor of substance use among adolescents, including alcohol consumption (e.g., Chassin, Hussong, & Beltran, 2009). More specifically, the transition to adolescence is accompanied by an increase in motivation to engage in behaviors that are normative and/or valued within the peer milieu, which may confer social rewards in the form of social status (e.g., Brechwald & Prinstein, 2011; for an evolutionary perspective, see Ellis et al., 2012). Thus, to the extent that alcohol use is normative and valued in the peer context, adolescents may learn to associate it with high social status.

Indeed, researchers, youth, and even the media have long associated alcohol use with adolescents' high popularity (e.g., Cillessen, Schwartz, & Mayeux, 2011). However, a developmentally sensitive understanding of the role of peer status in adolescents' alcohol use warrants a consideration of different forms of status. Decades ago, developmentalists operationalized high peer status as a preference-based construct, reflecting youth's overall level of likability (i.e., social preference) within the peer group (Coie & Dodge, 1983). Research suggested that children low in peer status (i.e., rejected youth) were at greatest risk for aggression, school dropout, and substance use, including alcohol use (see Prinstein, Rancourt, Guerry, & Browne, 2009). Yet, more recent work has demonstrated a developmental transition in youth's perceptions of high-status peers. Beginning in middle childhood, youth increasingly differentiate peer likability from a distinct form of status, referred to as peer popularity (Cillessen & Mayeux, 2004). Popularity is a reputation-based construct of high peer status, reflecting dominance, potential for influence, and access to resources (Cillessen et al., 2011; Parkhurst & Hopmeyer, 1998). In contrast with the effects of likability, higher levels of popularity are associated with higher levels of aggression (see Cillessen & Rose, 2005).

Thus far, preliminary research supports the predictive value of both adolescents' likability (e.g., Allen, Porter, McFarland, Marsh, & McElhaney, 2005) and popularity (e.g., Mayeux, Sandstrom, & Cillessen, 2008) in the development of alcohol use; however, given the moderate overlap between the two peer status constructs, the unique effect of each construct above and beyond the other remains remarkably understudied (see Schwartz & Gorman, 2011). Based on theoretical models from developmental and social psychology, it may be

expected that adolescents who are high in popularity (rather than likability) are at greater risk for the development of alcohol use. One theory relevant to the connection between popularity and alcohol use is Moffitt's (1993) maturity gap theory, which posits that during the developmental gap between youth's biological maturation and society's provision of adult privileges, adolescents may engage in behaviors that demonstrate maturity. Youth high in popularity, who by definition are high in visibility and dominance in the peer network, may feel especially motivated to prove their maturity in order to maintain peer status; alcohol use (i.e., explicitly only permitted among adults in the United States) may be one tool used to demonstrate maturity (Allen, Schad, Oudekerk, & Chango, 2014; Mayeux et al., 2008).

Relatedly, the popularity socialization hypothesis (see also the person-group similarity hypothesis; Wright, Giammarino, & Parad, 1986) suggests that high-status youth may be particularly susceptible to engage in behaviors that are supported within the peer milieu (e.g., alcohol use; Allen et al., 2005). In other words, relative to their peers, popular youth may be especially attuned to and motivated by social norms, perhaps due to augmented conformity pressures to maintain high levels of status (Schwartz & Gorman, 2011). Descriptive norms (i.e., perceptions of peers' drinking frequency) constitute one important type of social norm associated with alcohol use (see Borsari & Carey, 2003). In a social context in which alcohol use is common, popular adolescents may be at greatest risk for alcohol use, compared to lower status peers. Importantly, while past theories regarding status and alcohol use have not differentiated between likability and popularity, these theories are expected to be more relevant to youth high in popularity. Insofar as popularity is associated with dominance and visibility in the social network, and is based on *reputations* across the wide peer network as opposed to preference-based ratings of liking, popularity (rather than likability) might exert specific risk for the development of alcohol use. Consistent with this hypothesis, one prior cross-sectional study examining behavioral correlates of peer status variables among seventh graders found that the association between likability and substance use was no longer significant when controlling for peer-perceived admiration (a similar construct to peer-perceived popularity; Becker & Luthar, 2007).

Examining the association between peer status (especially popularity) and alcohol use is important for two reasons. First, if research supports theory in documenting a unique, longitudinal association between popularity and alcohol use trajectories, then this would suggest that popular youth are at heightened risk for using alcohol. In other words, popularity may be a risk factor for drinking. Second, if popular youth indeed use alcohol at high rates relative to their peers, then this phenomenon would have potential implications for a wider network of peers. Popular youth serve as reference groups and models for other adolescents' behavior, helping to define norms regarding substance use (Cohen & Prinstein, 2006), dictating what is "cool" (Pirkle & Richter, 2006) and modeling socially desirable substance use for other youth (Moffitt, 1993).

While popularity is broadly expected to be associated with alcohol use, it is important to consider ethnicity as a potential moderator of this association. Remarkably little work has conceptualized peer status within a cultural context (for a review, see Bellmore, Nishina, &

Graham, 2011). Thus, a second primary goal of the current study was to understand whether ethnicity moderated the association between popularity and alcohol use.

There are several reasons to predict that the association between popularity and alcohol use may differ by ethnicity. First, evidence suggests that alcohol use may not be as normative for African American adolescents as for Caucasian or Latino adolescents. In the United States, African American adolescents engage in lower rates of alcohol use than Caucasian or Latino adolescents (e.g., Centers for Disease Control and Prevention, 2011). Nationally representative data indicate that Caucasian youth report the steepest growth in alcohol use during adolescence, while African Americans report relatively modest growth and Latinos report an intermediate pattern (e.g., Chen & Jacobson, 2012). Second, African American youth view alcohol less positively than do Caucasians (e.g., Rinehart, Bridges, & Sigelman, 2006). If popular adolescents are more susceptible to engage in behaviors that are normative and positively viewed in their social context (e.g., Allen et al., 2005), popular youth from ethnic groups with less positive views of alcohol and lower actual and perceived alcohol use norms therefore may not be especially at risk (Bellmore et al., 2011).

Third, note that there may be broader cultural values, such as Africentric values (i.e., cultural beliefs and dispositions of people of African descent) that are associated with lower alcohol and substance use (Belgrave & Allison, 2014; Belgrave, Townsend, Cherry, & Cunningham, 1997; Nasim, Belgrave, Jagers, Wilson, & Owens, 2007; Neblett, Terzian, & Harriott, 2010). Africentric values also are associated with drug knowledge and delayed alcohol initiation among African American adolescents (Belgrave, Brome, & Hampton, 2000; Belgrave et al., 1997; Nasim et al., 2007). Religious practice and spiritual beliefs are among these values that are associated with lower risk for substance use among African American youth (Belgrave et al., 1997; Steinman & Zimmerman, 2004), perhaps due to reduced exposure to deviant peers (Belgrave & Allison, 2014), increased socialization toward prosocial behavior, or encouragement of alternative adaptive coping strategies (e.g., prayer; Constantine, Alleyne, Wallace, & Franklin-Jackson, 2006) that may be antithetical to alcohol use (Belgrave & Allison, 2014). In sum, there are many reasons to suspect that cultural factors may alter the magnitude of the association between peer status (i.e., likability, popularity) and alcohol use. Yet differential associations between peer status and alcohol use across ethnic groups have not been examined previously, and this is a critical initial step for understanding transactions between cultural and social factors that may predict adolescent alcohol use.

Consistent with findings and theories reviewed above, this study hypothesized that the prospective association between popularity and alcohol use would be strongest among Caucasian and lowest among African American adolescents. It may be especially important to consider this possibility in an ethnically heterogeneous school context, in which same-ethnicity peer groups likely emerge (see Graham, Taylor, & Ho, 2009), perhaps yielding different sets of social norms. Preliminary cross-sectional research suggests stronger associations between peer-perceived admiration and substance use among U.S. Caucasians and Latinos than among African American adolescents (Becker & Luthar, 2007), but these associations have not yet been examined longitudinally or in a school context that includes all three ethnic groups.

An additional important contribution of this study was the use of a developmentally sensitive approach to the assessment of adolescents' alcohol use. Correlates of the occurrence of a risk behavior (e.g., alcohol use vs. nonuse) likely differ from the correlates of higher frequency engagement. For instance, findings suggest that experimentation with substances is associated with more adaptive social-psychological functioning than are either abstinence or excessive use (e.g., Shedler & Block, 1990). Accordingly, social norms and peer approval also may vary for experimentation versus higher frequency use of alcohol. Although preliminary evidence suggests that peer status predicts increases in alcohol use, it remains unknown whether peer status confers risk for the *occurrence* (or *probability*) of alcohol use (vs. nonuse) as well as for the *frequency* of alcohol use (among those reporting any use).

Thus, this study examined the prospective association between two forms of peer status (i.e., popularity and likability) and adolescents' development of alcohol use throughout the high school years (9th–12th grades), in an ethnically diverse sample of Caucasian, African American, and Latino youth. This study extends past work by examining the unique predictive effects of 9th-grade popularity and likability on adolescents' trajectories of alcohol use, and the role of adolescents' ethnicity in moderating the effects of peer status on alcohol use. Importantly, to ensure that peer status did not merely serve as a marker for aggressive behavior (see Cillessen & Rose, 2005), the effects of peer status constructs as predictors of alcohol use were examined above and beyond the effects of both relational and overt aggression. Socioeconomic status (SES) also was controlled in analyses. Hypotheses were tested using two-part latent growth models (LGMs), which allowed the simultaneous investigation of the development of both the probability of alcohol use and the frequency of use (given any alcohol use; e.g., Brown, Catalano, Fleming, Haggerty, & Abbott, 2005; Capaldi, Stoolmiller, Kim, & Yoerger, 2009).

Two main hypotheses guided the current study. First, given that popularity is associated with dominance and visibility in the peer hierarchy (e.g., Cillessen et al., 2011), and may confer increased pressure to conform to normative behaviors in order to demonstrate maturity (e.g., Mayeux et al., 2008), popularity, but not likability, was expected to confer risk for the development of alcohol use (probability and frequency) when the unique effects of both peer status constructs were examined simultaneously. Second, given that popular youth may be susceptible to social norms (e.g., Allen et al., 2005), and insofar as popular adolescents may be especially susceptible to the norms of their specific peer context (e.g., Bellmore et al., 2011), ethnicity was expected to moderate the association between peer status and alcohol use. Specifically, it was hypothesized that associations between popularity and trajectories of alcohol use would be weaker among African American, as compared to Caucasian youth, given previously demonstrated differences in adolescents' rates of alcohol use and growth in alcohol use across these groups. Hypotheses regarding Latino youth were less clear, given evidence that growth in alcohol use may be moderate compared to other ethnic groups. Additionally, the moderating role of gender on the effects of peer status on alcohol use was explored, based on theoretical and empirical work indicating that peer relationships may confer different developmental benefits and risks for girls and boys (e.g., boys may have more status-oriented social goals than girls; see Ellis et al., 2012; Rose & Rudolph, 2006).

Method

Participants

Participants were 364 adolescents (53.6% females) enrolled in Grade 9 (M_{age} = 15.08, SD = 0.55; age range = 14–18 [approximately 90% age 14–15]) at study onset. Of these, 52.5% identified as Caucasian, 25.8% as African American, and 21.7% as Latino. The within-school breakdown was as follows: In the first school, 54.0% identified as Caucasian, 25.0% as African American, and 21.0% as Latino; in the second, 53.7% Caucasian, 25.7% African American, and 20.6% Latino; and in the third, 44.2% Caucasian, 28.8% African American, and 26.9% Latino. According to school records, approximately 67% of students in the district were eligible for free or reduced-price lunch. Approximately 19% of adolescents reported that their parents were never married; 31% reported their parents had separated or divorced. About half of the participants reported living with both biological parents, 24% with a single parent, 22% with a biological parent plus another adult, and 4% with other caregivers.

Procedure

All students in Grade 9 from three lower-middle-class, ethnically heterogeneous public rural high schools were recruited for participation (N = 712), with the exception of students in self-contained special educational classes. Schools were recruited from a rural, ethnically heterogeneous, low-income school district, based on the aims of the study (i.e., to understand longitudinal peer influence processes and health risk behaviors, as well as ethnic differences in those processes and behaviors). The superintendent of the identified school district was contacted and agreed to conduct the study in all three district high schools.

Initially, a letter of consent was mailed to each adolescent's family, followed by a series of reminders and additional letters distributed by school and research personnel. Response forms included an option for parents to grant or deny consent; adolescents were encouraged to return the signed response forms regardless of their parents' decision. Numerous adolescent-, teacher-, and school-based incentives were used to ensure the return of these consent forms. Consent forms were returned by 75% of families (n = 533); of these, 79% of parents (59% of those originally recruited) gave consent for their child's participation (n = 423). Adolescent assent also was requested at the start of data collection, following written and verbal descriptions of the study procedures. Data were unavailable for 24 participants due to students' changing schools (n = 18), absenteeism on testing days (n = 2), and declining to participate (n = 4), yielding a baseline sample of 399 adolescents (56% of total population). Of these participants, 35 identified themselves as belonging to mixed ethnic groups or minority ethnic groups that were underrepresented in the school district (e.g., Asian); these participants were excluded from the final sample, yielding an analytic sample of 364 adolescents belonging to the three most represented ethnic groups in the school district (i.e., Caucasian, African American, and Latino). All procedures were approved by the university human subjects committee.

Baseline assessment occurred in the spring of Grade 9 and repeated assessments occurred every 6 months for a total of six time points (until the fall of Grade 12). Retention varied

between 90% and 94% between adjacent time points. Retention between Times 1 and 6 was 72.5%; 44% of attrition was due to students withdrawing from school. A nonsignificant Little's missing completely at random test, $\chi^2(374) = 405.94$, $p = .12$, indicated that missing data did not depend on the primary variables observed in this study. Thus, all 364 participants were included in the analyses and missing data were handled using full information maximum likelihood procedures under the assumption of missing at random (MAR).

Measures

Adolescents completed sociometric nominations of peer status and aggression, and reported their sociodemographic information (i.e., gender, ethnicity, parental education) at Time 1. Adolescents reported their alcohol use at all six time points.

Peer Status—At Time 1, adolescents were presented with an alphabetized roster of all grademates from which they were asked to nominate an unlimited number of peers whom they "like the most" and "like the least" (Coie & Dodge, 1983). Adolescents also were asked to nominate peers who were "most popular" and "least popular" (e.g., Parkhurst & Hopmeyer, 1998). The order of alphabetized names on rosters was counterbalanced (i.e., A through Z; Z through A) to control for possible order effects on nominee selection (see Cillessen, 2009). Grade-wide peer status scores were computed as the standardized difference between standardized tallies of "like most" and "like least" nominations for each participant (i.e., social preference or likability), and between "most popular" and "least popular" nominations for each participant (i.e., popularity). Higher scores indicated higher levels of *social preference* and *popularity*, respectively. These sociometric nomination procedures are considered the most reliable and valid measures of peer status (Coie & Dodge, 1983; see also Cillessen, 2009).

Aggression—Consistent with past work (e.g., Crick & Grotpeter, 1995), peer-perceived aggression also was measured using sociometric nomination procedures. At Time 1, adolescents nominated an unlimited number of grademates who "threaten or physically hurt others —for instance, hitting, kicking, or pushing others, teasing or calling names." For each participant, the sum of the number of nominations received was standardized within grade, with higher scores indicating higher levels of *overt aggression.* Additionally, students nominated peers who "act mean to others by spreading gossip, telling people that they will not be their friend, excluding someone from their group of friends, giving someone the "silent treatment," or saying mean things behind someone's back." For each participant, the sum of the number of nominations received was standardized, with higher scores indicating higher levels of *relational aggression.*

Alcohol Use—Alcohol use was measured with three items— frequency of having "at least one drink of alcohol," having "five or more alcohol drinks on a single occasion (within a few hours)," and getting "sick or hungover after drinking alcohol." Response options for each item ranged between 0 (*0 days*) and 4 (*10 or more days*). An overall measure of alcohol use was computed by averaging the three items (Cronbach's as ranged from .75 at Time 2 to .87 at Time 6).

Sociodemographics—Participants reported their gender, ethnicity— that is, White or Caucasian, African American, Latino(a) or Hispanic, and educational level of their parents (i.e., "What is the highest level of education your mother/father received?"). Median household income (MHI) was obtained from the 2000 U.S. Census Bureau based on participant addresses gathered from school records (range = $12,600–$89,000). The average MHI of participants in the sample did not differ from the SES of the recruitment community. A measure of SES was computed for each participant based on up to three indices: (a) mother's level of education (available for 64% of the sample), (b) father's level of education (available for 57.4% of the sample), and (c) MHI (available for 85.4% of the sample). These indices first were standardized, and then for each participant the available indices were averaged to create a composite SES variable, with higher scores indicating higher SES.

Data Analyses

To test the primary study hypotheses, a series of two-part LGMs were conducted in Mplus version 7.0 (Muthén & Muthén, 1998–2012). Two-part models are designed to accommodate semicontinuous variables, in which a considerable proportion of responses assume a value of zero while the other responses approximate a continuous distribution (Olsen & Schafer, 2001). These models allow the simultaneous examination of the development of the probability that a certain behavior occurs, as well as the development of the frequency of the behavior, among individuals who report any occurrence. To do so, two parallel growth functions were specified (see Figure 1). In each of the five models (discussed next), the first function (Part 1) modeled the growth in the probability of alcohol use by treating each alcohol assessment as a dummy variable, distinguishing between use and nonuse. The second function (Part 2) modeled the frequency of alcohol use among adolescents who reported some use at a specific assessment. In Part 2, adolescents who did not report any alcohol use at a specific assessment were treated as missing, under the assumption of MAR (Muthén & Muthén, 1998–2012; Olsen & Schafer, 2001). The growth of alcohol use frequency was modeled using log-transformed values to correct for positive skewness in the frequency of alcohol use. Models were estimated using full information maximum likelihood estimation with robust standard errors. Two-part models have been successfully employed to examine substance use development (e.g., Brown et al., 2005; Capaldi et al., 2009).

Because two-part models do not yield traditional model fit indices (e.g., comparative fit index [CFI]), to identify the best fitting model, the growth of the probability and frequency of alcohol use from Grades 9 to 12 were first examined in two separate unconditional models. Model fit of Part 1 was evaluated comparing an intercept-only model, a model including a linear growth factor, and a model with a quadratic growth factor. Model fit of Part 2 was evaluated with the chi-square test (acceptable if $\chi^2/df < 2$), CFI (critical value ≥ 0.90), Tucker–Lewis index (TLI; critical value ≥ 0.90), and root mean square error of approximation (RMSEA; critical value ≤ 0.08; see Kline, 2005). Once the best fitting models had been identified, they were combined in an unconditional two-part LGM, in which the intercepts and slopes of Parts 1 and 2 were allowed to covary (see Figure 1).

Next, baseline predictors were introduced in the analyses and five conditional two-part LGMs were estimated. These five models allowed the investigation of (a) the separate, independent effects of social preference (Model 1) and popularity (Model 2) on the development of alcohol use, controlling for gender, ethnicity, SES, and overt and relational aggression; (b) the unique predictive effects of each peer status construct, through the simultaneous investigation of both social preference and popularity in one model (Model 3); and (c) the moderating effects of gender (Model 4) and ethnicity (Model 5) on the association between the peer status constructs (i.e., social preference and popularity simultaneously) and the development of alcohol use. In all models, ethnicity was entered as two dummy-coded variables each comparing African American and Latino adolescents to Caucasian adolescents, respectively. Model 5 also was performed comparing African American and Latino adolescents. As discussed earlier, each of the five models included two parts, examining the growth in the probability (Part 1) and frequency (Part 2) of alcohol use, respectively.

Significant interaction effects were probed by calculating simple slopes for different groups of adolescents (e.g., Caucasian, African American, and Latino) at different levels of peer constructs (i.e., mean, +1 *SD*, −1 *SD*; see Preacher, Curran, & Bauer, 2006).

Results

Descriptive Statistics

Table 1 presents prevalence rates and frequency of alcohol use (among adolescents who reported any alcohol use at that specific assessment) for the total sample and separately by ethnicity (i.e., Caucasian, African American, and Latino) and gender. No significant gender differences were observed either in rates or frequency of alcohol use. Significant ethnic differences were observed only in the spring of Grade 11 for frequency; Caucasian adolescents reported higher frequency than African American and Latino adolescents. Note, however, a consistent trend for African American adolescents, as compared to Caucasian adolescents, to report lower frequencies of alcohol use at Times 4, 5, and 6 (median effect size $d = 0.42$).

Significant correlations were observed among the baseline predictors and between the predictors and alcohol use at each assessment (see Table 2). Whereas social preference was weakly associated with alcohol use only in the fall of Grade 11, the association between popularity and alcohol use increased linearly over time. That is, popularity and alcohol use were not correlated at Grade 9, weakly correlated at Grade 10, and moderately correlated at Grades 11 and 12. A moderate positive correlation was observed between social preference and popularity.

Alcohol Use Growth From Grades 9 to 12: Unconditional Two-Part LGMs

The unconditional model for the probability of alcohol use (Part 1) including a linear slope fit the data better than an intercept-only model, $\Delta\chi^2$ (3) = 56.21, $p < .001$. The addition of a quadratic term resulted in a nonsignificant mean and variance for both the linear and the quadratic slope factors; therefore, a linear model was selected for subsequent analyses.

Similarly, the unconditional model for the frequency of alcohol use (Part 2) including a linear slope yielded a good fit to the data, χ^2 (16) = 22.37, p = .13, CFI = 0.95, TLI = 0.96, RMSEA = 0.04, and the addition of a quadratic growth factor did not improve model fit, $\Delta\chi^2$ (1) = 0.45, p = .50. Thus, the unconditional two-part model included a linear growth factor for both Parts 1 and 2 of the model.

The means of the slope factors were both significant and positive, indicating an average increase in both alcohol use probability (b = 0.20, SE = 0.06, p < .01) and frequency (b = 0.07, SE = 0.02, p < .01) from Grades 9 to 12. Significant variances for the intercept (b = 6.31, SE = 1.17, p < .001, and b = 0.30, SE = 0.07, p < .001, for Parts 1 and 2, respectively) and slope (b = 0.36, SE = 0.11, p < .01, and b = 0.02, SE = 0.004, p < .001, for Parts 1 and 2, respectively) factors also were observed, suggesting interindividual variability in alcohol use probability and frequency at Grade 9 as well as growth in probability and frequency from Grades 9 to 12. The intercepts and slopes of the two parts of the model were highly correlated (rs = .79 and .92, respectively), indicating that a higher probability of alcohol use was associated with a higher frequency of use in Grade 9, and increases in probability over time were accompanied by increases in frequency. The other covariances were nonsignificant and were fixed at zero.

Peer Status and Alcohol Use: Main-Effects Models

The first three conditional two-part LGMs (see Models 1–3 in Table 3) examined the main effects of baseline predictors on the development of alcohol use probability (Part 1) and frequency (Part 2). In the first model, social preference (i.e., likability) was examined as a predictor of alcohol use probability and frequency, independent of the effects of popularity (i.e., without popularity included in the model). Results for Part 1 revealed that social preference predicted the intercept but not the slope of alcohol use, indicating that higher levels of social preference were associated with a higher initial probability of alcohol use. Other significant effects revealed that adolescents from lower SES families and with higher levels of overt aggression were more likely to use alcohol in Grade 9 (i.e., intercept). Moreover, gender (male) and relational aggression were associated with steeper alcohol use slopes. No significant effects of ethnicity (i.e., African American vs. Caucasian; Latino vs. Caucasian) were found on the intercept or slope.

With regard to Part 2 of Model 1, no predictors were associated with the intercept of alcohol use frequency, with the exception of SES, suggesting that adolescents from lower SES families had higher initial frequency in Grade 9. However, results suggested that higher levels of social preference predicted steeper growth in the frequency of alcohol use from Grades 9 to 12. Significant effects on alcohol use frequency slopes also were found for ethnicity (i.e., African American vs. Caucasian) and relational aggression. Caucasian adolescents showed greater increases in alcohol use frequency than African American adolescents; moreover, higher levels of relational aggression were associated with steeper increases in frequency from Grades 9 to 12.

The second model was conducted to examine the effects of popularity on alcohol use probability and frequency, independent of social preference. In Part 1 of Model 2, a significant positive effect of popularity was revealed on both the intercept and slope of the

probability of alcohol use, indicating that higher levels of popularity in Grade 9 were associated with a higher probability of Grade 9 alcohol use and with greater longitudinal increases in alcohol use probability. The effects of the covariates on the intercept and slope of alcohol use were highly similar to those observed in Model 1. A significant effect on the slope of Part 2 indicated that higher levels of popularity predicted steeper growth in alcohol use frequency from Grades 9 to 12. As in Model 1, SES predicted the intercept of alcohol use frequency; however, different from Model 1, no effects of ethnicity (i.e., African American vs. Caucasian) and relational aggression were found on the slope. Moreover, the effect of overt aggression on the intercept reached significance, suggesting that higher levels of overt aggression were associated with a higher initial frequency of alcohol use in Grade 9.

To determine the unique predictive effects of social preference and popularity simultaneously, the third model included both peer status constructs. In this model, popularity predicted the intercept of alcohol use probability (Part 1), as well as the slope of frequency (Part 2). Conversely, social preference was not associated significantly with intercepts or slopes of alcohol use probability or frequency. The effects of the covariates were similar to those observed in Model 2, with the exception that the effects of relational aggression on the slope of alcohol use probability and overt aggression on the intercept of alcohol frequency were no longer significant.

Peer Status and Alcohol Use Across Gender and Ethnicity: Interaction-Effects Models

The fourth and fifth models examined moderators of the associations between peer status and alcohol use (see Models 4–5 in Table 3). In Model 4 (when gender was examined as a moderator), only the interaction effect between popularity and gender on the intercept of alcohol frequency reached significance. Probing this interaction indicated that among male adolescents, but not female adolescents, higher levels of popularity were associated with higher initial frequency of alcohol use in Grade 9.

Finally, in Model 5 (when ethnicity was examined as a moderator), significant interaction effects between peer status (popularity as well as social preference) and ethnicity were observed. With regard to popularity, significant interactions were found between popularity and the dummy-coded ethnicity variable comparing African American to Caucasian adolescents on the slope of both alcohol use probability and frequency. Simple slopes analyses revealed that among Caucasian adolescents, average and, more strongly, high levels of popularity in Grade 9, but not low levels, were associated with significant increases in the probability (Figure 2a) as well as the frequency (Figure 2d) of using alcohol from Grades 9 to 12. Notably, among Caucasian adolescents, at high levels of popularity (i.e., 1 *SD* above the mean), the probability of engaging in alcohol use increased from about 19% in Grade 9 to 87% in Grade 12 (vs. 7% in Grade 9 and 8% in Grade 12 at low levels of popularity). Conversely, among African American adolescents, high levels of popularity in Grade 9 did not increase risk for engaging in alcohol use over time, with popular and unpopular adolescents showing similar probability (Figure 2b) and frequency (Figure 2e) of alcohol use in Grade 12. The two interaction effects between the dummy-coded ethnicity variable comparing Latino to Caucasian adolescents and popularity did not reach significance. However, a significant interaction effect was observed on the slope of alcohol use

probability—but not frequency —when comparing Latino to African American adolescents (interaction effect not shown in Table 3: $b = 0.44$, $SE = 0.23$, $p = .05$). Simple slope analyses indicated that among Latino adolescents, similar to Caucasian adolescents, high levels of popularity, but not low levels, were associated with significant increases in alcohol use probability and frequency (Figure 2c and f respectively).

Concerning social preference, a significant interaction effect was found between the dummy-coded ethnicity variable comparing Latino to Caucasian adolescents and social preference on the probability, but not frequency, of alcohol use. Simple slopes analyses showed that among Caucasian adolescents different levels of social preference were identically associated with increases in the frequency of alcohol use (Figure 2g); however, among Latino adolescents, average levels of social preference and more strongly low levels, but not high levels, were significantly associated with increases in the probability of alcohol use (Figure 2i). The effects of social preference on alcohol use probability as well as frequency also differed among Latino as compared to African American adolescents (interaction effects not shown in Table 3: $b = 0.52$, $SE = 0.26$, $p < .05$ and $b = 0.15$, $SE = 0.07$, $p < .05$ for alcohol use probability and frequency, respective). Simple slopes analyses indicated that different from Latino adolescents, among African American adolescents high levels of social preference tended to be more strongly associated with increases in alcohol use probability (Figure 2h). However, whereas among Latino adolescents low levels, but not high levels, of social preference also were associated with significant increases in alcohol frequency (simple slope: $b = 0.15$, $p < .05$), simple slopes for African Americans were all nonsignificant (because these effects were highly similar to those that emerged for alcohol probability, they are not displayed in figure format). Finally, it should be noted that the effect of social preference on alcohol use probability and frequency did not differ among African American and Caucasian adolescents.

To further test the validity of the moderating effects of ethnicity, a series of additional models were conducted examining: (a) the interaction effects between peer status and SES (i.e., Popularity × SES, and Social Preference × SES), to ensure that the moderating role of ethnicity was not confounded by adolescents' SES, and (b) the interaction effects between ethnicity and same-ethnicity measures of peer status (computed using same-ethnicity nominations; e.g., Rock, Cole, Houshyar, Lythcott, & Prinstein, 2011). These models revealed that: (a) none of the interaction effects between popularity and SES reached significance, indicating that the moderation effects were specific to ethnicity, and (b) analyses with same-ethnicity peer status revealed a highly similar pattern of findings, indicating that ethnic differences were not due to the fact that African American and Latino adolescents were in the numerical minority within the overall peer context and therefore mathematically less likely to receive scores indicating high overall peer status (see Rock et al., 2011).

Discussion

This study examined peer status as a predictor of alcohol use within an ethnically heterogeneous sample of low-income adolescents. A series of two-part LGMs were examined to stringently test both the independent and simultaneous effects of popularity and

likability on the development of alcohol use probability and frequency, examining ethnicity as a moderator. Two primary findings emerged. First, in the overall sample, popularity—but not likability— emerged as a strong prospective predictor of alcohol use. Second, the effect of popularity on alcohol use trajectories differed across ethnic groups. Results from this study extend previous work on peer status and substance use, and have important implications for theory and future research on the role of popularity in adolescents' health risk behaviors. Findings indicate that associations between peer status and alcohol use may be strongly affected by adolescents' cultural context.

Consistent with hypotheses, results suggest that popularity is an important predictor of adolescents' alcohol use. Within the overall sample, higher levels of adolescents' popularity in their 1st year of high school were associated with a higher probability of concurrent alcohol use, and more dramatic increases in the frequency of alcohol use across the high school years. These effects emerged both when popularity was examined independently and when likability was included as a competing predictor, even while controlling for adolescents' aggression, ethnicity, SES, and gender, all of which have been linked to alcohol use in past work. Findings extend past research on peer status and substance use in five important ways. First, this study simultaneously examined the development of alcohol use probability and frequency, with results suggesting that higher levels of popularity not only increase adolescents' likelihood of using alcohol—perhaps a developmentally normative phenomenon—but also predict higher frequencies of alcohol use, indicating higher levels of risk. Second, results elucidate previously discrepant findings regarding the role of popularity and likability in alcohol use (cf. Allen et al., 2005; Mayeux et al., 2008); likability emerged as a significant predictor, but only when examined alone. Third, analyses stringently controlled for both relational and overt aggression, which is critical given previously established links between aggression and alcohol use, and between aggression and popularity. Fourth, this study examined the effects of popularity on longitudinal trajectories of alcohol use, illuminating the importance of popularity in predicting alcohol use development over the high school years. Finally, results provide much-needed evidence for the importance of considering cultural context in studies of peer status and alcohol use, as discussed further below.

Results regarding popularity as a predictor of adolescents' alcohol use in the overall sample have both theoretical and practical implications. Consistent with the popularity socialization hypothesis (Allen et al., 2005), results suggest that popularity may be a risk factor for adolescent alcohol use. This has potential implications not only for popular adolescents, but also a wider network of peers. Research consistently indicates that popular youth are highly influential within the broader peer group (e.g., Cohen & Prinstein, 2006); nonpopular adolescents may increase their own alcohol use in an effort to emulate popular peers and perhaps increase their own status (Brechwald & Prinstein, 2011). Thus, findings may help explain the high rates of alcohol use seen in U.S. high schools today —especially those rates seen among Caucasians (e.g., Centers for Disease Control and Prevention, 2011; Chen & Jacobson, 2012).

Importantly, however, findings indicate that popularity was not a relevant predictor of alcohol use for all ethnic groups. Rather, popularity was associated with alcohol use only

among Caucasian and Latino adolescents. Popularity was an especially strong predictor of alcohol use among Caucasians; at high levels of popularity, the probability of engaging in alcohol use increased from about 19% in 9th grade to 87% in 12th grade, whereas at low levels of popularity, alcohol use only increased from about 7% in 9th grade to 8% in 12th grade. A similar pattern, albeit weaker, was observed among Latino youth. Among African Americans, popularity was not a significant predictor of alcohol use.

The primary goal regarding ethnicity in this study was to determine *whether* associations between peer status and alcohol use differed across ethnic groups, and not *why* such differences may occur. Findings addressed a long-standing gap in the literature by demonstrating differences by ethnicity often speculated but rarely demonstrated with regard to popularity and alcohol use. Results were consistent with multiple theories and past research from the literature on culture and adolescents' health risk behaviors, and thus have important implications for advancing work on adolescent development.

First, results may be interpreted in the context of the popularity socialization hypothesis (Allen et al., 2005), and its potential limited generalizability to different ethnic groups. Note that this hypothesis relies on two related tenets suggesting first that popular youth respond to social norms regarding alcohol use, and second, that popular youth are susceptible to those norms. Extant research suggests that each of these tenets may differ across ethnic groups. With regard to social norms, data from nationally representative U.S. samples indicate that African American adolescents use alcohol at lower rates and show less steep longitudinal growth in alcohol use than their Caucasian peers, with Latinos showing an intermediate pattern (Chen & Jacobson, 2012). Past work suggests that adolescents perceive these differences; African American adolescents report lower perceived levels of their peers' alcohol use, compared to Caucasian perceptions (Wallace & Muroff, 2002). Differences in social norms across ethnic groups may contribute to differential associations between popularity and alcohol use (Bellmore et al., 2011). Indeed, data from the current study demonstrate that the longitudinal associations between popularity and alcohol use were strongest for Caucasians, followed by Latinos, and then African Americans. Prior research also suggests that African American youth are less susceptible to peer drinking norms than their Caucasian peers (e.g., Wallace & Muroff, 2002). Studies have yet to examine ethnic differences in susceptibility between Latino adolescents and either Caucasian or African American adolescents, but research suggests that U.S. Latino college students are less susceptible to both broad and ethnicity-specific alcohol peer norms than their Caucasian peers (LaBrie, Atkins, Neighbors, Mirza, & Larimer, 2012). Future work will need to directly examine whether social norms and susceptibility are mechanisms of the observed associations between popularity and alcohol use.

Second, results may be interpreted in light of past research on ethnic differences in attitudes toward alcohol use. Prior work in the United States indicates that African American children (Rinehart et al., 2006) and adults (e.g., Caetano & Clark, 1999) report more negative views toward alcohol use than do Caucasians. Among females specifically, Caucasian girls are more likely than African American girls to increase in their positive attitudes toward alcohol use (including endorsing alcohol use as "cool") between the ages of 8 and 10 (Hipwell et al.,

2005). Findings from the current study are consistent with ethnic differences in youth's alcohol-related attitudes.

Third, findings may be interpreted in the context of prior research regarding ethnic differences in consequences of drinking. Compared to Caucasian adolescents who use alcohol, African American adolescents who use alcohol experience more negative academic and social consequences, and suffer more serious health consequences as adults (e.g., see Wallace & Muroff, 2002). It is possible that African American adolescents' popularity is less relevant as a predictor of drinking due to ethnic differences in the consequences of alcohol use.

In addition to the aforementioned possibilities regarding ethnic differences in adolescents' alcohol norms, attributions, and consequences, several theories regarding African Americans' experience of adolescence more broadly also may be relevant for interpreting study findings. For instance, prior work suggests that African American adolescents with higher levels of traditional Africentric values (e.g., spirituality, communalism, harmony; Randolph & Banks, 1993) report lower levels of substance use (e.g., Belgrave et al., 2000; Nasim et al., 2007; see also Belgrave & Allison, 2014). Reasons for the negative association between Africentrism and alcohol use may include a general promotion of prosocial behavior associated with Afrocultural values (e.g., Woods & Jagers, 2003), high levels of religiosity (e.g., Wallace, Brown, Bachman, & Laveist, 2003), and family factors and processes (e.g., Watt & Rogers, 2007), all of which have been identified as protective factors against African American adolescents' substance use.

Finally, ethnic identity may be relevant to African American adolescents' alcohol use (e.g., Nasim et al., 2007) and has been implicated in numerous studies of substance use among African American youth (see Rivas-Drake et al., 2014). African American adolescents high in ethnic identity may be especially likely to embrace social norms that are relevant within the African American community and eschew norms that typify majority peer cultures (i.e., Caucasians), perhaps especially when African Americans represent a numerical minority in a majority peer culture (e.g., Stock et al., 2013; Umaña-Taylor et al., 2014). Positive ethnic identity also may serve a protective function against the risk of alcohol use by bolstering self-concept (Neblett et al., 2010), which may promote social support and other compensatory factors (e.g., adaptive coping) that counteract risk factors for alcohol use (e.g., Wills & Cleary, 1996). Collectively, the past bodies of work on differences between African American and Caucasian youth with regard to risk and protective factors provide possible insight into why popularity was not associated with African American adolescents' alcohol use in the current study, and these possible mechanisms will need to be tested in future studies.

The association between popularity and alcohol use among Latino adolescents was significant, but not as strong as among Caucasian adolescents. Notably, national rates of Latino adolescents' alcohol use also are moderate as compared to Caucasians and African Americans, again consistent with the idea that popularity is a risk factor for behaviors that are normative within relevant ethnic groups. Unexpectedly, Latino adolescents' alcohol use also was associated with *lower* levels of likability (i.e., peer rejection). This finding is

broadly consistent with work suggesting that *childhood* peer rejection is associated with adolescent alcohol use, presumably due to increased risk for deviant peer affiliations as a mediating factor (Dishion, Capaldi, & Yoerger, 1999). Findings regarding adolescent peer rejection as a predictor of adolescent alcohol use are rare, however, and it is somewhat unclear why this pattern was revealed only for Latino youth. Latino adolescents in the United States may be at risk for experiencing discrimination (e.g., Alva & Jones, 1994), lower perceived chances for success in life (e.g., Griffin, Botvin, Nichols, & Scheier, 2004), and acculturative stress (Gil, Wagner, & Vega, 2000), which are associated with increased alcohol use. Some research suggests that these stressors may be more likely among Latino adolescents who have poor peer relationships (e.g., Forster et al., 2013). Further work is needed to examine peer-related risks for alcohol use among Latino youth.

In sum, this study offered an important examination of peer and cultural factors that may be relevant for adolescents' alcohol use. Future research would benefit by addressing some of the limitations of this study. First, while this study offered a rare opportunity to understand the intersection of peer and cultural factors in an ethnically heterogeneous sample followed longitudinally, future research would benefit from greater attention to variability within ethnic groups, and from examining peer status and alcohol use in groups that were not represented in the current sample. Indeed, past work in the United States has identified differences in alcohol use behaviors and attitudes among subgroups of both Latinos (e.g., Mills & Caetano, 2010) and African Americans (e.g., Strunin & Demissie, 2001), as well as ethnic groups that were not represented in this study (e.g., Asian American). Second, further research examining adolescents' cultural values, attitudes toward alcohol use, motivations for drinking, and levels of ethnic identity would help elucidate mechanisms that may help explain the ethnic differences observed in this study. Additionally, while this study offered an examination of adolescents' peer status and alcohol use in a rural, low-income, ethnically heterogeneous context, results may not generalize to urban schools or settings with lower levels of ethnic diversity.

In addition to the above limitations regarding the examination of ethnic differences, future research should directly test the mechanisms that may underlie this study's findings regarding the connection between popularity and alcohol use. For example, researchers should directly examine different types of perceived social norms, with attention to friendship ties between popular youth and others (e.g., using social network analysis). When examining friendship ties, researchers should consider the role of cross-ethnicity friendships, given past work indicating that rates of alcohol use are lower in peer groups with higher numbers of African American adolescents, and higher in peer groups with higher numbers of Caucasian youth (e.g., Seffrin, 2012). Finally, future work should test the assumptions about why adolescents use alcohol (e.g., to gain or preserve social status), by examining whether drinking is associated with longitudinal increases in popularity; this research should also examine possible curvilinear associations between alcohol use and popularity (e.g., levels of alcohol use well above peer mean levels may be associated with *decreases* in popularity, as has been shown with likability; Balsa, Homer, French, & Norton, 2011).

Overall, findings underscore the need for contextualist approaches in the study of health risk behaviors (Cicchetti & Aber, 1998). Results suggest that adolescent alcohol use can be

understood by examining peer status predictors of adolescents' behavior, but these interpersonal experiences should be conceptualized within a cultural framework that may alter the correlates of specific risk behaviors in adolescence.

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References

Allen JP, Porter MR, McFarland F, Marsh P, McElhaney K. The two faces of adolescents' success with peers: Adolescent popularity, social adaptation, and deviant behavior. Child Development. 2005; 76:747–760. DOI: 10.1111/j.1467-8624.2005.00875.x [PubMed: 15892790]

Allen JP, Schad MM, Oudekerk B, Chango J. What ever happened to the "cool" kids? Long-term sequelae of early adolescent pseudomature behavior. Child Development. 2014; Advance online publication. doi: 10.1111/cdev.12250

Alva S, Jones M. Psychosocial adjustment and self-reported patterns of alcohol use among Hispanic adolescents. Journal of Early Adolescence. 1994; 14:432–448. DOI: 10.1177/0272431694014004002

Balsa AI, Homer JF, French MT, Norton EC. Alcohol use and popularity: Social payoffs from conforming to peers' behavior. Journal of Research on Adolescence. 2011; 21:559–568. DOI: 10.1111/j.1532-7795.2010.00704.x [PubMed: 21860582]

Becker BE, Luthar SS. Peer-perceived admiration and social preference: Contextual correlates of positive peer regard among suburban and urban adolescents. Journal of Research on Adolescence. 2007; 17:117–144. DOI: 10.1111/j.1532-7795.2007.00514.x [PubMed: 18193097]

Belgrave, FZ., Allison, KW. African American psychology: From Africa to America. 3rd. Thousand Oaks, CA: Sage; 2014.

Belgrave FZ, Brome D, Hampton C. The contribution of Afrocentric values and racial identity to the prediction of drug knowledge, attitudes, and use among African American youth. Journal of Black Psychology. 2000; 26:386–401. DOI: 10.1177/0095798400026004003

Belgrave FZ, Townsend TG, Cherry VR, Cunningham DM. The influence of an Africentric worldview and demographic variables on drug knowledge, attitudes, and use among African American youth. Journal of Community Psychology. 1997; 25:421–433. DOI: 10.1002/(SICI)1520-6629(199709)25:5<421::AID-JCOP4>3.0.CO;2-V

Bellmore, A., Nishina, A., Graham, S. Peer popularity in the context of ethnicity. In: Cillessen, AN.Schwartz, D., Mayeux, L., editors. Popularity in the peer system. New York, NY: Guilford Press; 2011. p. 193-215.

Borsari B, Carey K. Descriptive and injunctive norms in college drinking: A meta-analytic integration. Journal of Studies on Alcohol. 2003; 64:331–341. Retrieved from http://www.jsad.com/. [PubMed: 12817821]

Brechwald WA, Prinstein MJ. Beyond homophily: A decade of advances in understanding peer influence processes. Journal of Research on Adolescence. 2011; 21:166–179. DOI: 10.1111/j.1532-7795.2010.00721.x [PubMed: 23730122]

Brown EC, Catalano RF, Fleming CB, Haggerty KP, Abbott RD. Adolescent substance use outcomes in the Raising Healthy Children project: A two-part latent growth curve analysis. Journal of Consulting and Clinical Psychology. 2005; 73:699–710. DOI: 10.1037/0022-006X.73.4.699 [PubMed: 16173857]

Bukowski, WM. Popularity as a social concept: Meanings and significance. In: Cillessen, AN.Schwartz, D., Mayeux, L., editors. Popularity in the peer system. New York, NY: Guilford Press; 2011. p. 3-24.

Caetano R, Clark CL. Trends in situational norms and attitudes toward drinking among Whites, Blacks, and Hispanics: 1984–1995. Drug and Alcohol Dependence. 1999; 54:45–56. DOI: 10.1016/S0376-8716(98)00148-3 [PubMed: 10101616]

Capaldi DM, Stoolmiller M, Kim HK, Yoerger K. Growth in alcohol use in at-risk adolescent boys: Two-part random effects prediction models. Drug and Alcohol Dependence. 2009; 105:109–117. DOI: 10.1016/j.dru-galcdep.2009.06.013 [PubMed: 19625141]

Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance System. 2011. Retrieved from www.cdc.gov/yrbs

Chassin, L., Hussong, A., Beltran, I. Adolescent substance use. In: Lerner, RM., Steinberg, L., editors. Handbook of adolescent psychology. 3rd. Vol. 1. Hoboken, NJ: Wiley; 2009. p. 723-763.Individual bases of adolescent development

Chen P, Jacobson KC. Developmental trajectories of substance use from early adolescence to young adulthood: Gender and racial/ethnic differences. Journal of Adolescent Health. 2012; 50:154–163. DOI: 10.1016/j.jado-health.2011.05.013 [PubMed: 22265111]

Cicchetti D, Aber JL. Contextualism and developmental psychopathology. Development and Psychopathology. 1998; 10:137–141. Retrieved from http://journals.cambridge.org/action/displayJournal?jid=DPP. [PubMed: 9635218]

Cillessen, AN. Sociometric methods. In: Rubin, KH.Bukowski, WM., Laursen, B., editors. Handbook of peer interactions, relationships, and groups. New York, NY: Guilford Press; 2009. p. 82-99.

Cillessen AN, Mayeux L. From censure to reinforcement: Developmental changes in the association between aggression and social status. Child Development. 2004; 75:147–163. DOI: 10.1111/j.1467-8624.2004.00660.x [PubMed: 15015681]

Cillessen AN, Rose AJ. Understanding popularity in the peer system. Current Directions in Psychological Science. 2005; 14:102–105. DOI: 10.1111/j.0963-7214.2005.00343.x

Cillessen, AN., Schwartz, D., Mayeux, L. Popularity in the peer system. New York, NY: Guilford Press; 2011.

Cohen GL, Prinstein MJ. Peer contagion of aggression and health-risk behavior among adolescent males: An experimental investigation of effects on public conduct and private attitudes. Child Development. 2006; 77:967–983. DOI: 10.1111/j.1467-8624.2006.00913.x [PubMed: 16942500]

Coie JD, Dodge KA. Continuities and changes in children's social status: A five-year longitudinal study. Merrill-Palmer Quarterly. 1983; 29:261–282. Retrieved from http://wsupress.wayne.edu/journals/detail/merrill-palmer-quarterly.

Constantine MG, Alleyne VL, Wallace BC, Franklin-Jackson DC. Africentric cultural values: Their relation to positive mental health in African American adolescent girls. Journal of Black Psychology. 2006; 32:141–154. DOI: 10.1177/0095798406286801

Crick NR, Grotpeter JK. Relational aggression, gender, and social-psychological adjustment. Child Development. 1995; 66:710–722. DOI: 10.2307/1131945 [PubMed: 7789197]

Dishion TJ, Capaldi DM, Yoerger K. Middle childhood antecedents to progressions in male adolescent substance use: An ecological analysis of risk and protection. Journal of Adolescent Research. 1999; 14:175–205. DOI: 10.1177/0743558499142003

Ellis BJ, Del Giudice M, Dishion TJ, Figueredo A, Gray P, Griskevicius V, Wilson D. The evolutionary basis of risky adolescent behavior: Implications for science, policy, and practice. Developmental Psychology. 2012; 48:598–623. DOI: 10.1037/a0026220 [PubMed: 22122473]

Forster M, Dyal SR, Baezconde-Garbanati L, Chou C, Soto DW, Unger JB. Bullying victimization as a mediator of associations between cultural/familial variables, substance use, and depressive symptoms among Hispanic youth. Ethnicity & Health. 2013; 18:415–432. DOI: 10.1080/13557858.2012.754407 [PubMed: 23297708]

Gil AG, Wagner EF, Vega WA. Acculturation, familism and alcohol use among Latino adolescent males: Longitudinal relations. Journal of Community Psychology. 2000; 28:443–458. DOI: 10.1002/1520-6629(200007)28:4<443::AID-JCOP6>3.0.CO;2-A

Graham, S., Taylor, AZ., Ho, AY. Race and ethnicity in peer relations research. In: Rubin, KH.Bukowski, WM., Laursen, B., editors. Handbook of peer interactions, relationships, and groups. New York, NY: Guilford Press; 2009. p. 394-413.

Griffin KW, Botvin GJ, Nichols TR, Scheier LM. Low perceived chances for success in life and binge drinking among inner-city minority youth. Journal of Adolescent Health. 2004; 34:501–507. DOI: 10.1016/j.jadohealth.2003.07.026 [PubMed: 15145407]

Hipwell AE, White HR, Loeber R, Stouthamer-Loeber M, Chung T, Sembower MA. Young girls' expectancies about the effects of alcohol, future intentions and patterns of use. Journal of Studies on Alcohol. 2005; 66:630–639. Retrieved from http://www.jsad.com/. [PubMed: 16331848]

Johnston, LD., O'Malley, PM., Bachman, JG., Schulenberg, JE. Monitoring the Future national results on adolescent drug use: Overview of key findings, 2011. Ann Arbor: Institute for Social Research, The University of Michigan; 2012.

Kline, RB. Principles and practice of structural equation modeling. New York, NY: Guilford Press; 2005.

LaBrie JW, Atkins DC, Neighbors C, Mirza T, Larimer ME. Ethnicity specific norms and alcohol consumption among Hispanic/Latino/a and Caucasian students. Addictive Behaviors. 2012; 37:573–576. DOI: 10.1016/j.addbeh.2012.01.007 [PubMed: 22293207]

Mayeux L, Sandstrom MJ, Cillessen AN. Is being popular a risky proposition? Journal of Research on Adolescence. 2008; 18:49–74. DOI: 10.1111/j.1532-7795.2008.00550.x

Mills BA, Caetano R. Hispanic Americans Baseline Alcohol Survey (HABLAS): Predictors of alcohol attitudes and expectancies in Hispanic national groups. Alcoholism: Clinical and Experimental Research. 2010; 34:790–799. DOI: 10.1111/j.1530-0277.2010.01151.x

Moffitt TE. Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. Psychological Review. 1993; 100:674–701. DOI: 10.1037/0033-295X.100.4.674 [PubMed: 8255953]

Muthén, LK., Muthén, BO. Mplus user's guide. 7th. Los Angeles, CA: Author; 1998–2012.

Nasim A, Belgrave FZ, Jagers RJ, Wilson KD, Owens K. The moderating effects of culture on peer deviance and alcohol use among high-risk African-American adolescents. Journal of Drug Education. 2007; 37:335–363. DOI: 10.2190/DE.37.3.g [PubMed: 18047186]

Neblett EW Jr, Terzian M, Harriott V. From racial discrimination to substance use: The buffering effects of racial socialization. Child Development Perspectives. 2010; 4:131–137. DOI: 10.1111/j.1750-8606.2010.00131.x [PubMed: 23750178]

Olsen MK, Schafer JL. A two-part random-effects model for semicontinuous longitudinal data. Journal of the American Statistical Association. 2001; 96:730–745. DOI: 10.1198/016214501753168389

Parkhurst JT, Hopmeyer A. Sociometric popularity and peer-perceived popularity: Two distinct dimensions of peer status. Journal of Early Adolescence. 1998; 18:125–144. DOI: 10.1177/0272431698018002001

Pirkle EC, Richter L. Personality, attitudinal and behavioral risk profiles of young female binge drinkers and smokers. Journal of Adolescent Health. 2006; 38:44–54. DOI: 10.1016/j.jadohealth.2004.09.012 [PubMed: 16387247]

Preacher KJ, Curran PJ, Bauer DJ. Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. Journal of Educational and Behavioral Statistics. 2006; 31:437–448. DOI: 10.3102/10769986031004437

Prinstein, MJ., Rancourt, D., Guerry, JD., Browne, CB. Peer reputations and psychological adjustment. In: Rubin, KH.Bukowski, WM., Laursen, B., editors. Handbook of peer interactions, relationships, and groups. New York, NY: Guilford Press; 2009. p. 548-567.

Randolph SM, Banks H. Making a way out of no way: The promise of Africentric approaches to HIV prevention. Journal of Black Psychology. 1993; 19:204–214. DOI: 10.1177/00957984930192009

Rinehart CS, Bridges LJ, Sigelman CK. Differences between Black and White elementary school children's orientations toward alcohol and cocaine: A three-study comparison. Journal of Ethnicity in Substance Abuse. 2006; 5:75–102. DOI: 10.1300/J233v05n03_05

Rivas-Drake D, Seaton EK, Markstrom C, Quintana S, Syed M, Lee RM, Yip T. Ethnic and racial identity in adolescence: Implications for psychosocial, academic, and health outcomes. Child Development. 2014; 85:40–57. DOI: 10.1111/cdev.12200 [PubMed: 24490891]

Rock PF, Cole DJ, Houshyar S, Lythcott M, Prinstein MJ. Peer status in an ethnic context: Associations with African American adolescents' ethnic identity. Journal of Applied Developmental Psychology. 2011; 32:163–169. DOI: 10.1016/j.appdev.2011.03.002

Rose AJ, Rudolph KD. A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. Psychological Bulletin. 2006; 132:98–131. DOI: 10.1037/0033-2909.132.1.98 [PubMed: 16435959]

Schwartz, D., Gorman, A. The high price of high status: Popularity as a mechanism of risk. In: Cillessen, AN.Schwartz, D., Mayeux, L., editors. Popularity in the peer system. New York, NY: Guilford Press; 2011. p. 245-270.

Seffrin P. Alcohol use among Black and White adolescents: Exploring the influence of interracial friendship, the racial composition of peer groups, and communities. Sociological Quarterly. 2012; 53:610–635. DOI: 10.1111/j.1533-8525.2012.01244.x

Shedler J, Block J. Adolescent drug use and psychological health: A longitudinal inquiry. American Psychologist. 1990; 45:612–630. DOI: 10.1037/0003-066X.45.5.612 [PubMed: 2350080]

Somerville LH. The teenage brain: Sensitivity to social evaluation. Current Directions in Psychological Science. 2013; 22:121–127. DOI: 10.1177/0963721413476512 [PubMed: 24761055]

Steinman KJ, Zimmerman MA. Religious activity and risk behavior among African American adolescents: Concurrent and developmental effects. American Journal of Community Psychology. 2004; 33:151–161. DOI: 10.1023/B:AJCP.0000027002.93526.bb [PubMed: 15212175]

Stock ML, Gibbons FX, Gerrard M, Houlihan AE, Weng C, Lorenz FO, Simons RL. Racial identification, racial composition, and substance use vulnerability among African American adolescents and young adults. Health Psychology. 2013; 32:237–247. DOI: 10.1037/a0030149 [PubMed: 23088177]

Strunin L, Demissie S. Cultural identification and alcohol use among “Black” adolescents. Substance Use & Misuse. 2001; 36:2025–2041. DOI: 10.1081/JA-100108435 [PubMed: 11794582]

Umaña-Taylor AJ, Quintana SM, Lee RM, Cross WE, Rivas-Drake D, Schwartz S, Ethnic Racial Identity in the 21st Century Study Group. Ethnic and racial identity during adolescence and into young adulthood: An integrated conceptualization. Child Development. 2014; 85:21–39. DOI: 10.1111/cdev.12196 [PubMed: 24490890]

Wallace JM, Brown TN, Bachman JG, Laveist TA. The influence of race and religion on abstinence from alcohol, cigarettes and marijuana among adolescents. Journal of Studies on Alcohol. 2003; 64:843–848. Retrieved from http://www.jsad.com/. [PubMed: 14743948]

Wallace JM, Muroff JR. Preventing substance abuse among African American children and youth: Race differences in risk factor exposure and vulnerability. Journal of Primary Prevention. 2002; 22:235–261. DOI: 10.1023/A:1013617721016

Watt T, Rogers J. Factors contributing to differences in substance use among Black and White adolescents. Youth & Society. 2007; 39:54–74. DOI: 10.1177/0044118X06296701

Wills T, Cleary SD. How are social support effects mediated? A test with parental support and adolescent substance use. Journal of Personality and Social Psychology. 1996; 71:937–952. DOI: 10.1037/0022-3514.71.5.937 [PubMed: 8939042]

Woods LN, Jagers RJ. Are cultural values predictors of moral reasoning in African American adolescents? Journal of Black Psychology. 2003; 29:102–118. DOI: 10.1177/0095798402239231

Wright JC, Giammarino M, Parad HW. Social status in small groups: Individual–group similarity and the social “misfit”. Journal of Personality and Social Psychology. 1986; 50:523–536. DOI: 10.1037/0022-3514.50.3.523

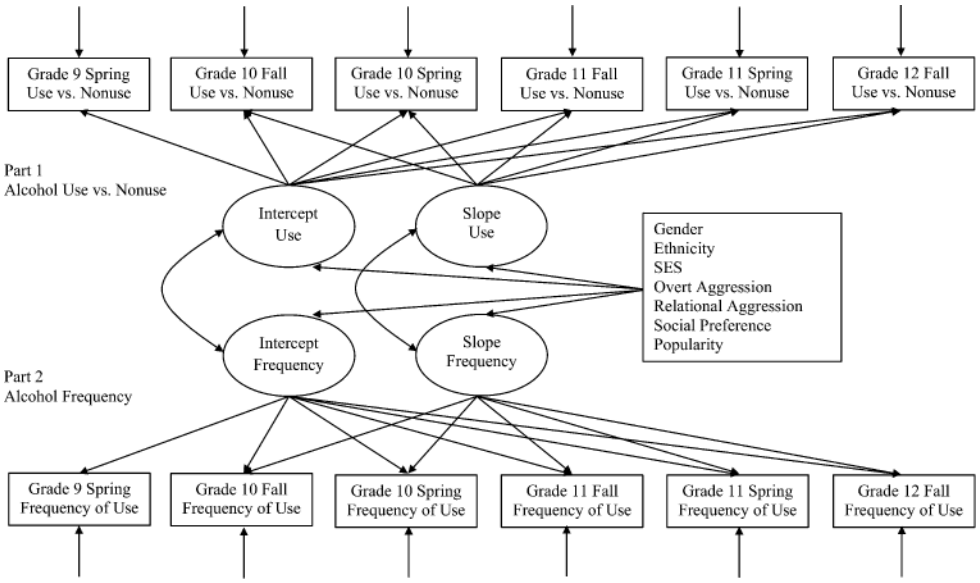

Figure 1.
Graphical representation of the conditional two-part latent growth model of alcohol use.

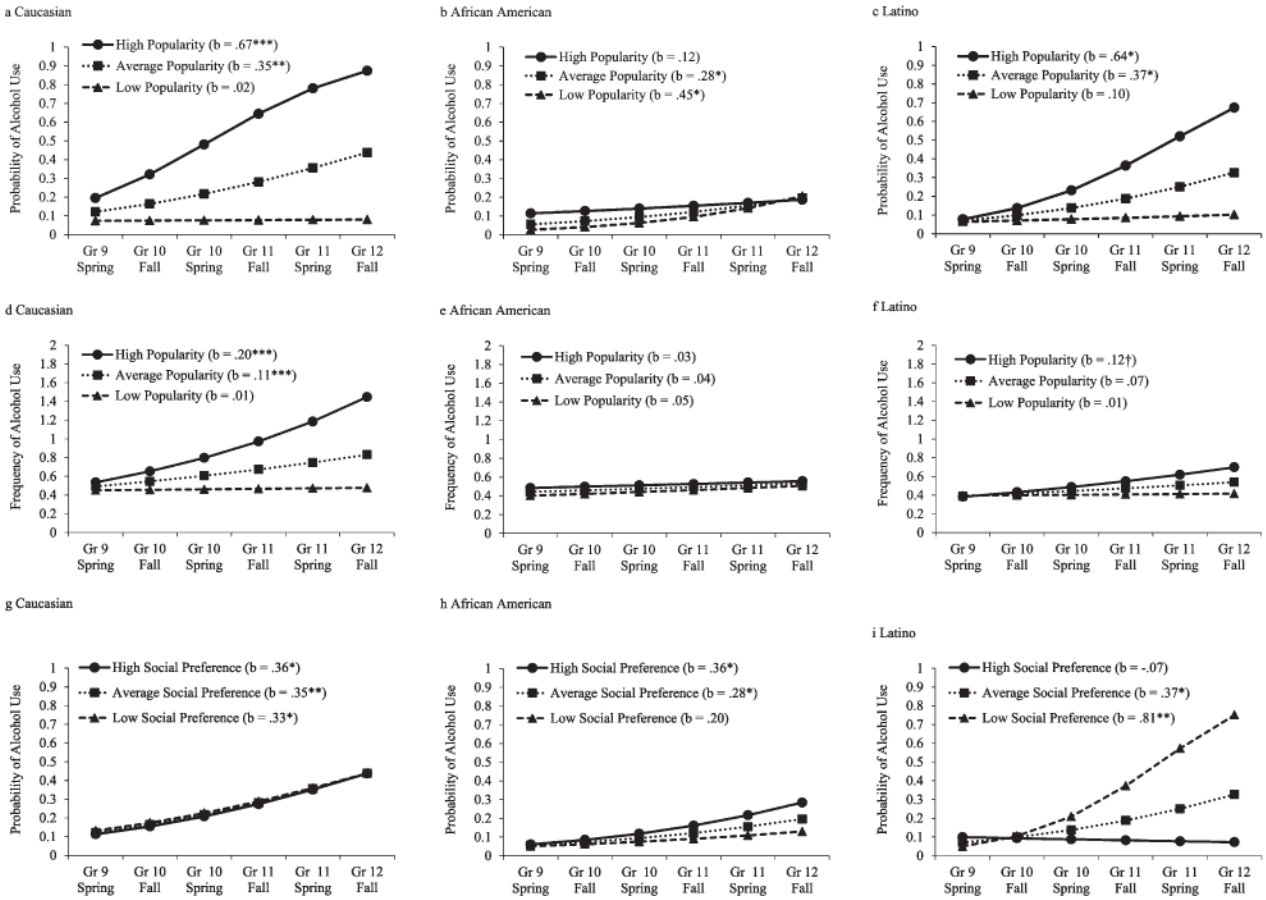

Figure 2.

Effects of popularity (a–f) and social preference (g–i) on alcohol use probability (a–c and g–i) and frequency (d–f) by ethnic group.

Table 1

Prevalence and Frequency of Alcohol Use From Grade 9 to Grade 12 by Ethnic Groups and Gender

	Caucasian (*N* = 191) % (*n*)	**African American (*N* = 94) % (*n*)**	**Latino (*N* = 79) % (*n*)**	**Females (*N* = 195) % (*n*)**	**Males (*N* = 169) % (*n*)**	**Total (*N* = 364) /)% (*n*)**
Grade	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**
Grade 9 spring	25.0 (47) 0.92 (0.93)	29.2 (26) 0.74 (0.42)	21.8 (17) 0.61 (0.54)	28.0 (54) 0.72 (0.67)	22.2 (36) 0.94 (0.85)	25.4 (90) 0.81 (0.75)
Grade 10 fall	26.9 (46) 0.83 (0.62)	25.0 (22) 0.71 (0.73)	27.4 (20) 0.72 (0.61)	27.9 (50) 0.77 (0.66)	24.8 (38) 0.79 (0.64)	26.5 (88) 0.78 (0.64)
Grade 10 spring	34.5 (57) 1.08 (0.90)	37.2 (29) 1.06 (0.74)	33.9 (21) 0.85 (0.76)	36.5 (61) 0.95 (0.78)	33.3 (46) 1.13 (0.90)	35.1 (107) 1.03 (0.83)
Grade 11 fall	34.9 (52) 1.29 (0.92)	32.9 (25) 0.91 (0.88)	30.8 (16) 1.10 (0.80)	37.8 (56) 1.01 (0.80)	28.7 (37) 1.37 (0.98)	33.6 (93) 1.15 (0.89)
Grade 11 spring	36.9 (52) 1.56 (0.93)	40.6 (26) 0.74 (0.76)	36.5 (19) 0.68 (0.34)	36.8 (50) 1.07 (0.86)	38.8 (47) 1.27 (0.94)	37.7 (97) 1.17 (0.90)
Grade 12 fall	41.4 (60) 1.48 (1.06)	34.3 (23) 1.12 (0.90)	30.8 (16) 0.98 (0.64)	36.1 (52) 1.19 (1.00)	39.2 (47) 1.45 (0.95)	37.5 (99) 1.31 (0.98)

Note. For each time point, the top row displays the percentage and number of participants who reported any alcohol use (i.e., probability of alcohol use) and the bottom row displays the mean and standard deviation of alcohol use frequency among adolescents who reported any use. Raw scores of alcohol use frequency are presented, yet, to correct for positive skewness, log-transformed values were used to examine group differences (e.g., ethnic differences) in the frequency of alcohol use.

Table 2

Bivariate Correlations Among Main Study Variables

Variables	1	2	3	4	5	6	7	8	9	10
Alcohol use[a]										
1. Grade 9 spring	—									
2. Grade 10 fall	.45***	—								
3. Grade 10 spring	.42***	.58***	—							
4. Grade 11 fall	.30***	.46***	.64***	—						
5. Grade 11 spring	.35***	.52***	.60***	.79***	—					
6. Grade 12 fall	.18**	.44***	.46***	.64***	.72***	—				
Predictors at Grade 9 spring										
7. Overt aggression	.15**	.16**	.17**	.15*	.09	.14*	—			
8. Relational aggression	.07	.16**	.18**	.23***	.27***	.26***	.44***	—		
9. Social preference	.001	.07	.09	.12*	.06	.11	.11*	.11*	—	
10. Popularity	.06	.19***	.23***	.35***	.38***	.39***	.19***	.45***	.57***	—

Note. SE = same-ethnicity.

[a]Alcohol use was log-transformed to correct for positive skewness.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Table 3

Unstandardized Estimates From Conditional Two-Part Latent Growth Models of Alcohol Use

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Intercept	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**
Part 1: Use versus nonuse										
Gender[a]	.49	−.33*	.66	−.28*	.65	−.27*	.69	−.24	.65	−.23
African American	−.92	−.13	−.75	−.10	−.79	−.07	−.77	− .09	−.86	−.06
Latino	− .51	−.03	−.54	−.04	−.55	−.03	−.54	− .05	−.61	.03
SES	−.83**	.12	−.84***	.09	− .85***	.10	−.83***	.10	−.81**	.05
Overt aggression	.79***	− .06	.74**	−.06	.75**	−.07	.77**	− .03	.75**	−.02
Relational aggression	.05	.23**	−.26	.14*	−.24	.12	− .28	.06	−.25	.07
Social preference	.41*	.09			.05	− .04	.27	.02	−.09	.02
Popularity			.60**	.16*	.56*	.19	.48	.08	.56	.33**
Social Preference × Gender							− .43	−.09		
Popularity × Gender							.12	.25		
Social Preference × African American									.18	.06
Social Preference × Latino									−.46	−.46*
Popularity × African American									.22	−.49**
Popularity × Latino									−.46	−.06
Part 2: Frequency										
Gender	−.24	−.05	−.23	−.04	−.22	−.04	−.21	−.03	−.21	−.03
African American	− .17	−.08*	− .19	−.06	− .15	− .06	− .17	− .06	−.11	−.07
Latino	−.18	−.05	−.19	−.06	−.18	− .06	− .20	−.05	−.23	−.04
SES	− .24**	.02	−.23**	.02	−.23**	.02	−.24**	.02	−.24**	.004
Overt aggression	.13	− .01	.14*	−.02	.13	− .01	.12	−.02	.13	−.002
Relational aggression	.08	.04*	.07	−.004	.05	− .001	.09	− .01	.03	−.01
Social preference	− .02	.05**			− .05	.01	− .12	.02	−.04	.01
Popularity			.01	.08***	.05	.07**	.16	.05*	.09	.09***
Social Preference × Gender							.15	− .03		

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Intercept	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**	**Intercept**	**Slope**
Popularity × Gender							−.24 *	.04		
Social Preference × African American									−.18	.06
Social Preference × Latino									.13	−.10
Popularity × African American									.01	−.10 *
Popularity × Latino									−.10	−.04

Note. SES = socioeconomic status.

[a]Male was the reference group (coded as 0).

* $p < .05$.

** $p < .01$.

*** $p < .001$.