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Adolescent Alcohol Use in Context: The Role of Parents and Peers among African American and European American Youth

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Abstract

African American youth are less likely to use alcohol than their European American counterparts; however, the greater consequences of use for African American youth highlight the need for greater research attention to this group. Two social contexts which have been linked with adolescent alcohol use are parents and peers, yet these studies have rarely included African American youth or failed to examine potential racial differences. This study examined the main and interactive effects of parents and peers, as well as the moderating role of race, on alcohol use in African American and European American rural adolescents (n = 71) identified as at high-risk for alcohol use. Contrary to study hypotheses, however, parents were not a more robust moderator for African American than European American youth. Clinical implications for prevention and intervention programming for both African American and European American youth are discussed.

Keywords

Adolescent; Alcohol Use; Parents; Peers; Race

Although alcohol use among adolescents is illegal, youth aged 12 to 20 years old drink approximately 20% of all alcohol that is consumed in the United States (Foster, Vaughan, Foster, & Califano, 2003). On average, adolescents consume more alcohol per drinking occasion than adults, with 1 in 4 adolescents reporting that they have engaged in binge drinking (Grunbaum et al., 2004). Moreover, earlier age of initiation of alcohol use during adolescence is associated with greater risk for alcohol use and dependence in adulthood (Grant & Dawson, 1997; Grunbaum et al., 2004). Accordingly, a better understanding of the predictors of adolescent alcohol use is necessary for the advancement of prevention and intervention programming.

A developmental psychopathology framework posits that disordered behavior, including risky behaviors such as adolescent alcohol use, develops over time as a function of complex interactions among genetic, biological, psychological, and social dynamic processes that influence individual adaptation at different developmental transitions (see Cumming, Davies, & Campbell, 2000, for a review). Consistent with a developmental psychopathology perspective, contextualism further underscores that adolescent behaviors such as alcohol use

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can only be understood by considering the interconnected series of contexts in which such behaviors are embedded, each of which is dynamic and changing, including the intraindividual context (e.g., affect, cognition, biology), the interpersonal context (e.g., family, peers), and ecological or sociocultural context (e.g., neighborhood, culture;Cummings, Davies, & Campbell, 2000). Two contexts that have received considerable attention in the study of adolescent alcohol use are the family and the adolescent's peer network (Windle, 1999). Families have been shown to increase the propensity for adolescents to use alcohol through well-established biopsychosocial risk processes, including genetic vulnerabilities and parental modeling, as well as compromised monitoring which increases adolescent access to alcohol and alcohol using peers (Chassin & Ritter, 2003). In turn, peers influence adolescent alcohol use through the combination of both peer pressure and modeling. Reciprocal influences have also been noted as growing evidence indicates the tendency for adolescents who use alcohol to seek out or select substance using friends (Bauman & Ennett, 1994).

Notably, most studies which examine the roles of *both* parents and peers on adolescent substance use conceptualize parental behavior as a gateway to selection and/or affiliation with substance using peers, who, in turn, are theorized to be a more proximal influence on adolescent alcohol use (e.g., Chassin, Curran, Hussong, & Colder, 1996; Goldstein, Davis-Kean, & Eccles, 2005). A growing body of literature suggests, however, that parental behaviors may also moderate the influence of peer problem behavior, including substance use (e.g., Barnes et al., 2006; Galambos, Barker, & Almeida, 2003; Kung & Farrell, 2000; Nash, McQueen, & Bray, 2005). For example, in their study of European American working-to-middle-class families, Galambos et al. (2003) reported that adolescents were less likely to evidence the deviant behaviors of their peers if their parents engaged in higher levels of firm, behavioral control than if parents engaged in lower levels.

Consistent with a developmental psychopathology perspective (Cummings, Davies, & Campbell, 2000), the current study aimed to replicate and extend research on the main and interactive effects of these two critical contexts within which adolescent alcohol use must be studied, the family and the peer network, on adolescent substance use in two significant ways. First, whereas prior research has tended to examine only non-alcohol specific parenting behaviors (see Barnes et al., 2006 for a notable exception), such as monitoring, as a moderator of peers' substance use or deviant use (e.g., Galambos, Barker, & Almeida, 2003; Kung & Farrell, 2000; Nash, McQueen, & Bray, 2005), the current study examined parental problems with alcohol as a moderator. Given the wide ranging vulnerabilities associated with parental problems with alcohol, including genetics, modeling, and access to deviant peers via compromised monitoring (Chassin & Ritter, 2003; Sher, 1991), we expected that parental problems with use would amplify the association between peer and adolescent use.

Second, when the interaction of parents and peers on adolescent substance use has been examined in European American (Galambos et al., 2003), predominately African American (Kung and Farrell, 2000) and racially-mixed (Barnes et al., 2006; Nash et al., 2005) samples, little theoretical or empirical attention has been devoted to the role of race in these investigations. Although African American youth are less likely to use alcohol than their White peers (e.g., French et al., 2002; Johnson, O'Malley, & Bachman, 2003; Reifman et al., 1998), they do experience more negative consequences of use, including increased involvement with the criminal justice system, school dropout, and engagement in risky sexual behavior (Belenko, Sprott, & Peterson, 2004; Pavkov, McGovern, & Geffner, 1993). One explanation for these race differences in alcohol use among adolescents has been offered by Wallace (1999a) who suggests that through a racialized social system (e.g., poverty, lack of education, prejudice) American society exposes African American youth to

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the negative consequences of substance use, including alcohol use, at earlier ages than their European American peers. Consistent with this theory, African American youth are reportedly more likely than European American youth to see people who are drunk in their own neighborhoods (National Institute on Drug Abuse, 1995), likely attenuating any positive images they may have of use or people who use (Boyle & Brunswick, 1980). Similarly, African Americans are more likely to be arrested when high or drunk than European Americans (e.g., Chasnoff et al., 1990; Neuspiel, 1996), decreasing the likelihood that African American youth will believe that they can "get away" with use. Of course, witnessing the negative consequences of alcohol use may act as an even stronger deterrent for African American youth whose parent or parents are the one(s) experiencing problems with use, particularly given the growing literature to suggest that the family context may even be more central to the psychosocial adjustment of African American than European American youth (e.g., Giordano, Cernkovich, & Demaris, 1993; Wallace & Muroff, 2002). Accordingly, we predicted that parental problems with alcohol use would ameliorate, rather than exacerbate, the effect of peer use for African American youth. However, given the relatively small sample size and, in turn, limited power to detect a 3-way interaction, the aforementioned analyses were considered exploratory.

Given that contextual processes are thought to vary as a function of stage of development (Cummings, Davies, & Campbell, 2000), we examined the proposed hypotheses in a sample of preparing for the transition to high school identified as at high-risk for alcohol use. Importantly, the high school transition is considered a relatively stressful period of development, characterized by social reorganization and new peer affiliations (Brown, 2004), as well as increased access and models for alcohol use (Johnston, O'Malley, & Bachman, 2003). In addition, the current study examined the associations among parents', peers', and adolescents' substance involvement among rural youth, given that African Americans residing in rural areas are at greater risk for substance use than their urban peers (Kogan, Berkel, Chen, Brody, & Murry, 2005).

Method

Participants

Participants were recruited through a two-stage design. In stage 1, 399 of 436 8th grade students in participating schools completed classroom-administered surveys. In stage 2, we recruited a subset of stage 1 participants to complete a more intensive series of assessments conducted in a delimited period of time to capture summer activities (between 8th and 9th grade) and to accommodate the intensity of the experience sampling paradigm and concerns with maintaining privacy in a school setting. To increase the potential for assessing drinking behavior in our stage 2 assessments, we oversampled participants at risk for drinking behavior in the summer. We established risk for drinking using a six-point scale comprised of self-reported lifetime alcohol use, current drinking (i.e., in the past six months) and peer drinking, with endorsement of all three forming the highest risk category.[1] We then formed a recruitment list by rank ordering all stage 1 participants on this risk status indicator (i.e., from high to low), ranking at random those sharing equivalent scores on the risk indicator. We recruited participants in the order of their rank on this list, with flow of contact determined by study resources.[2] We attempted to contact the first 196 participants on the

[1]The second level of risk (2) was defined by those reporting current and lifetime adolescent drinking, followed by those reporting (3) current adolescent drinking and peer drinking only, (4) current adolescent drinking only, (5) lifetime use and peer drinking only, and (6) lifetime drinking only.

[2]We targeted a total stage 2 sample of n=100 but due to a change in the school calendar, our recruitment period was shorter than anticipated, reducing our sample size. Although we could have tried to overcome this challenge by increasing recruitment attempts, our resources would not permit us to actually complete more interviews than we did within this shorter study period. Thus, we had a total of n=81 rather than 100 participants in the study out of 196 contacted stage one participants.

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recruitment list (including all 169 participants who listed any level of risk on the 6-point index as well as 27 participants who indicated no risk on this index), with 81 completing the study (i.e., 41% of those targeted for recruitment, $n = 196$, or 57% of those eligible and contacted for recruitment, $n = 142$). Primary reasons for non-participation were inability to contact ($n = 33$), ineligibility ($n = 21$, language barrier, moving, did not pass grade, child death), limited availability ($n = 17$), discomfort with recruitment procedures ($n = 5$), or privacy concerns ($n = 11$). Remaining non-participants ($n = 28$) provided no explanation.

For the current study, we analyzed data from 71 of the total 81 stage 2 participants who had complete data on all relevant measures (i.e., 36% of those targeted for recruitment and 50% of eligible participants contacted for recruitment). Of the 81 stage 2 participants, 8 youth self-identified a race that was something other than European American or African American or reported being mixed race. These youth were excluded from the analyses, resulting in a sample of 73 participants. Of the 73 participants, one participant had missing data on more than one of the variables of interest and a second participant endorsed scores on the outcome of interest that were significantly greater than the rest of the sample; therefore, these two participants were excluded from the current project, yielding a sample of 71 youth who self-identified as European American (68%) or African American (32%) for analysis. This analysis sample had a mean age of 13.9 ($SD = .52$) and was 56% male. Most participating parents were mothers (90%) and together more than half of parents earned a college (19%) or an advanced (38%) degree.

To assess whether we successfully oversampled risk for drinking in this analysis sample, we compared how the analysis sample (N = 71) differed from their peers in stage 1 (the remaining N = 328). Results showed that participants in the stage 2 analysis sample reported more frequent alcohol use ($t(393) = 4.50$, $p < .001$; $M = 1.44$ vs. 0.69) and more friends who used substances ($t(393) = 2.83$, $p < .01$; $M = 0.96$ vs. 0.66) as well as higher levels of depressive symptoms ($t(395) = 3.25$, $p < .001$; M=0.64 vs. 0.44), delinquency ($t(394) = 2.57$, $p = .01$; $M = 0.50$ vs. 0.32), physical aggression ($t(394)$= 3.29, $p < .01$; $M = 0.78$ vs. 0.47), and non-physical conduct problems ($t(393) = 2.13$, $p < .05$; $M = 0.87$ vs. 0.66). There were no gender ($\chi^2(1, N = 399) = 1.21$, $p = .27$) or ethnicity ($\chi^2(1, N = 399) = 1.70$, $p = .19$) differences. As such, we successfully recruited an elevated risk sample.

To assess recruitment biases, we next compared our analysis sample (N = 71) with the remaining adolescents who we attempted to contact for stage 2 participation (N = 125). Compared to non-participants whom we attempted to contact, participants in the stage 2 analysis sample were more likely to be female ($\chi^2(1, N = 196) = 3.76$, $p = .05$). There were no recruitment biases as a function of ethnicity ($\chi^2(1, N = 196) = 0.67$, $p = .41$), peer substance use ($t(193) = -0.86$; $M = 1.43$ vs. 1.72), adolescent alcohol use ($t(192) = -1.35$; $M = 0.96$ vs. 1.08), delinquency ($t(193) = -0.25$; M =.50 vs. 0.53), physical aggression ($t(193) = -0.03$; M =.78 vs. 0.78), or non-physical conduct problems ($t(192) = -0.50$; $M = .87$ vs. 0.94). Thus, our analysis sample is highly representative of our targets for recruitment on indicators of substance use, though it may over-represent girls relative to boys.

Procedures

In stage 1, seven of nine schools housing eighth graders in a rural, school district agreed to participate in the study. Parents were informed about the study through letters mailed to their homes, as well as sent home directly with students, which asked parents to contact the PI if they did not want their children to participate. Information about the study was also made available for parents to review in each school. If a parent did not opt-out of their children's participation by contacting the PI, then the child was included in a classroom based assessment of 8th graders conducted by two research assistants. Research assistants explained the study to eligible students, obtained informed consent, and administered

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surveys. Teachers were invited to stay during testing, but were asked not to interact with students to protect confidentiality. Students received a token gift, and schools received a financial gift for participating in the study. One make-up day per school was also held to assess students absent on the original testing day.

In stage 2, target adolescents and their parents were recruited via mail and telephone. Participants completed a three-week protocol, during which pairs of research assistants conducted two home visits or met with the participants at the university. Only data from the initial visit is used in the current study. During this visit, research assistants met with the target adolescents and their parents, obtained written consent and assent, and interviewed them in separate rooms, using a noise machine to protect privacy. Research assistants read aloud questions to participating adolescents who entered their responses privately into a computer. To increase privacy, research assistants did not read questions about substance use; instead these questions were computer-administered to adolescents who heard the questions read to them over headphones via a computer program prior to entering their responses directly into the computer. These procedures followed recommendations to increase the validity of adolescents' substance use reports (Brener, Billy & Grady, 2003). Research assistants also read questions aloud to parents who recorded their responses using paper-and-pencil methods. Adolescents and their parents each received $15 for completing the interview. All study procedures were reviewed and approved by the University Institutional Review Board.

Measures

Demographics and covariates—In stage 1, target adolescents reported their gender, age, and race. In stage 2, the participating parent reported mother and father educational status, with the higher of these two forming the parent education indicator used to assess family socioeconomic status. In addition, given the well-established association between *parental monitoring* and adolescent alcohol use, parental monitoring was examined as a covariate in the proposed model. Adolescent-report on three items designed to measure the degree to which parents are aware of their adolescent's plans for the day; interests, activities and whereabouts; and people with whom the adolescent associates outside the home (Chassin et al., 1993) were included in larger investigation. The three items were summed to create a parental monitoring covariate (alpha = .49) in the current study.

Peer substance use—Adolescents reported on peer substance involvement in order to determine the amount of substance use in the adolescent's peer group. Four items adapted from the Monitoring the Future study (Johnston, O'Malley, & Bachman, 1995) asked participants to report on the number of their friends who had tried cigarettes, alcohol, marijuana, and illegal drugs other than marijuana and alcohol. The response scale ranged from none (0) to all (4). An average of these items formed the scale for subsequent analysis, with total possible scores ranging from 0 to 4 (Cronbach's α= .77). Higher scores reflected greater peer use.

Parental problems with use—Parents reported on parental drinking history. Due to IRB concerns regarding secondary participation by the non-participating parent, we could not ask participating parents to report on themselves and their spouses separately. Therefore, we asked the participating parent to answer a single set of items about the heaviest drinking parent in the family (without disclosing whether that parent was themselves or their spouse). Participants responded no (0) or yes (1) to each of thirteen items adapted from the Michigan Alcoholism Screening Test (Selzer, 1971). These items were used to assess the reporter's perceptions of alcohol use and to characterize parental drinking problems within the home. An average of these items formed the scale for subsequent analysis, with total possible

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scores ranging from 0 to 1 (Cronbach's α= .89). Higher scores reflected greater problems with alcohol use

Adolescent alcohol use—Four items which were adapted from Chassin, Rogosch, and Barrera (1991) were used to assess adolescent alcohol use in the past three months: frequency of use (0 = not at all to 7 = every day); typical quantity of use (0 = 0 drinks to 8 = 9 or more drinks); frequency of having had 5 or more drinks at one time (0 = not at all to 7 = every day); and frequency of getting drunk (0 = not at all to 7 = every day). Preliminary analyses revealed that each of the alcohol use items was highly skewed. Accordingly, an alcohol use index was constructed by standardizing and summing each of the four alcohol use items (Cronbach's α= .71). Examination of the alcohol index scores revealed an extreme (high) score on the alcohol use index for one youth; thus, this adolescent was excluded from the current analyses, yielding a final sample of 71.

Results

Preliminary Analyses

Descriptive statistics for and correlations among demographic and major study variables are reported in Table 1. No demographic variables (other than race) were associated with adolescent alcohol use, therefore, no demographic variables were statistically controlled in the regression analyses. The association between parental monitoring, a covariate in the current study, and adolescent use was marginal (r =-.22, p = .07). As expected, higher levels of monitoring were associated with lower levels of adolescent alcohol use. Accordingly, parental monitoring was included as a covariate in the primary analyses.

With regard to primary study variables, the association between race and alcohol use was also marginal (r = -.20, p = .09), suggesting that European American adolescents reported higher levels of alcohol use than African Americans. Consistent with prior literature, peer use was significantly associated with adolescent alcohol use (r = .58, p < .001). Adolescents who reported that their peers engaged in higher levels of substance use reported greater alcohol use than adolescents whose peers reportedly engaged in lower levels of use. In contrast, parental alcohol abuse was not associated with adolescent alcohol use (r = .19, *n.s.*). Because adolescent age, adolescent gender and parent education were not significantly associated with the alcohol use index, they were not included as covariates in subsequent analyses.

Primary Analyses

Bivariate analyses were followed by hierarchical regression analyses in order to test the proposed interactive roles of race, parent alcohol abuse, and peer substance use (see Table 2). Parental monitoring (covariate) and race were entered in Block 1; the main effects of parental alcohol abuse and peer use were entered in Block 2; all possible two-way interactions, including the proposed two-way interaction of parental alcohol abuse × peer use, were entered in Block 3; and the three-way interaction of parental alcohol abuse × peer use × race was entered in Block 4. All continuous variables were centered prior to creating interaction terms.

After controlling for parental monitoring, adolescent race was still marginally associated with adolescent alcohol use, β = -.19, p < *.10*. Consistent with bivariate associations, peer use was a significant correlate of adolescent use, β = .53, p < *.001*. Adolescents who reported that their peers were more likely to use were more likely to report alcohol use themselves. Also consistent with bivariate analyses, parental problems with use was not a significant correlate of adolescent use in this sample, β = .10, *n.s.*. In addition, race did not

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interact with parent and peer substance involvement to predict adolescent alcohol use, β = .01, *n.s.*. However, a significant two-way interaction between parental alcohol abuse and peer substance use was obtained, β = .36, $p < .01$. As demonstrated in Table 2, none of the other two- or three-way interactions in the model achieved statistical significance.

To better understand the nature of this interaction, we probed this effect using Preacher, Curran, and Bauer's (in press) web-based calculator that uses the Aiken and West (1991) approach to determine the significance of simple slopes reflecting the relation between peer substance use and adolescent alcohol use at high (one S.D. above the mean), medium (at the mean), and low (one S.D. below the mean) levels of parent problems with use. As demonstrated in Figure 1, peer substance use was associated with greater adolescent alcohol use at all levels of parental problems with use. However, the strength of this relation varied, such that the strongest association between peer and adolescent substance involvement was evident at the highest ($t = 4.84$, $p < .001$) levels of parental problems with alcohol.

Discussion

Consistent with developmental psychopathology theory, this study examined adolescent alcohol use within the contexts of family, the peer network, and race (Cummings, Davies, & Campbell, 2000). After controlling for parental monitoring, parental problems with alcohol use exacerbated the association between peer substance use and adolescent alcohol use. Adolescents who reported that their peers engaged in higher levels of substance use were least likely to drink if their parents reported fewer problems with use and most likely to drink if their parents reported greater problems with use. Adolescent alcohol use did not vary by race, and race did not further qualify the interactive roles of parental and peer use.

Notably, studies that examine both parents and peers have traditionally focused on inadequate parenting as a gateway to deviant peers (e.g., Chassin, Curran, Hussong, & Colder, 1996; Goldstein, Davis-Kean, & Eccles, 2005). Consistent with this research, peer substance use was a significant correlate of adolescent alcohol use in this study. Adolescents who reported that their peers engaged in greater substance use reported greater alcohol use themselves. Accordingly, our findings confirm the importance of the peer context for understanding adolescent behavior.

In contrast, parental problems with alcohol use were not directly associated with adolescent alcohol use. Although parental problems with alcohol use is typically associated with adolescent use (e.g., Chassin & Ritter, 2003), one explanation for the null findings in this study may be our inclusion of only one parent who was asked to report on the alcohol use behaviors of the heaviest drinking parent. Associations between parent and adolescent alcohol use tend to be largest in studies when parental drinking is assessed directly from both mothers and fathers, including a structured diagnostic interview (e.g., Chassin et al., 1996). Thus, a more comprehensive assessment of parental problems with alcohol use may have strengthened the current findings. Limitations in power also did not afford the opportunity to include parental monitoring, an established correlate of adolescent alcohol use, as a primary predictor variable in the analytical model (Chassin & Ritter, 2003). Future studies with larger sample sizes will further advance the literature by examining parental monitoring, parental problems with alcohol use, and peer use in theoretically driven studies of alcohol use among European American and African American adolescents.

Although parental problems with alcohol use did not have a main effect on adolescent alcohol use, there was a significant interaction of parental problems with alcohol use and peer substance use. In contrast to prior studies which have tended to focus more on alcohol non-specific parenting behavior (i.e., control, monitoring expectations; e.g., Galambos et al.,

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2003; Kung & Farrell, 2000; Nash et al., 2005; also see Barnes et al., 2006 for notable exception), this study examined parental problems with alcohol use as a moderator. Findings confirm that in addition to peers, “parents do matter” (Galambos et al., 2003, p. 578) when it comes to adolescent alcohol use. In the context of substance using peers, adolescents were at greatest risk for alcohol use if their parents reported greater levels of problems with alcohol use and were at least risk if their parents reported lower levels of problems with use. Importantly, our findings suggest that studies that consider only the main effects of parents and peers, but not their interaction, may underestimate the role of parents.

Notably, adolescent race was only marginally associated with alcohol use in the current study. Although African American youth often report lower rates of alcohol use and lower rates of heavy drinking than European American youth (Johnston et al., 2003; Reifman et al., 1998), the non-significant difference in the rates of alcohol use in the current study may be due to the rural nature of the sample. Much of the research on substance use among African Americans has focused on urban areas, but relatively recent research suggests rural African American youth report greater substance use than those living in suburban, as well as urban areas (Kogan et al., 2005). Again, Wallace's theory suggests that a racialized social system accounts for increased alcohol use among African American relative to European American adults and, in turn, greater exposure of African American relative to European American youth to the negative consequences of use (e.g., public drunkenness, arrest etc). Although similar and, perhaps, even greater disparities may be seen among rural African American communities relative to the more typically studied urban communities (Cronk & Sarvela, 1997; National Center on Addiction and Substance Abuse, 2000; Tickamyer & Duncan, 1990), the negative consequences of use may not be as observable to rural youth as they are to urban youth. That is, whereas urban residences are often in close proximity with resources such as schools, shops, and places of employment within walking distance or on public transportation lines, rural families and youth are often more geographically isolated. Accordingly, rural youth may be less likely to witness public drunkenness or arrests associated with alcohol use and, in turn, afforded less protection from such experiences than their urban African American peers. In addition to the geographic nature of the study, the lack of association between race and alcohol use may be due to the high risk nature of the sample. As previously noted, stage 2 participants were selected from the larger study due to their high-risk status. That is, the youth were selected for stage 2 of the study based on their responses to earlier questions regarding self-reported lifetime alcohol use, current drinking (i.e., in the past six months) and peer drinking, which indicated that they were at high-risk for alcohol use. Accordingly, racial differences may be present even among rural samples among youth more generally.

Contrary to the proposed hypothesis, race also did not further qualify the interaction of parental alcohol abuse and peer substance use. Although prior empirical work suggests that the family may be a more important correlate of problem behavior for African American than European American youth (e.g., Wallace & Muroff, 2002), our findings suggest that the moderating role of parents is similar for both groups. One explanation for this finding may be that we examined only one indicator of alcohol-specific parenting, parental problems with alcohol use, rather than family relationship qualities more generally or other indicators of alcohol non-specific parenting. Thus, the current findings suggest that risky parental behavior, in this case parental problems with alcohol use, operates similarly regardless of adolescent race.

The findings of the study must be interpreted within the context of the study's limitations. First, the study was cross-sectional. Consistent with a developmental psychopathology perspective, future studies should examine the dynamic interplay of parents, peers, and race with adolescent alcohol use over time. For example, although we hypothesized that parental

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substance use would influence adolescent use, it could be the case that the stress and challenges of parenting youth who are affiliating with deviant peers and using more substances is associated with parental reliance on alcohol to cope and, even more likely, both processes are operating simultaneously. In addition, the current analyses were conducted with a relatively small sample of youth, limiting statistical power to detect multiple two-way interactions, including the exploratory three-way interaction of parental problems with alcohol use × peer use × race.[3] Third, the study included only one parent and relied on the participating parent to report on the non-participating parents' alcohol use; however, our confidence in the accuracy of the participating parents' reports is increased by research suggesting that spousal-reports and self-reports of health and disability are highly correlated (Brissette, Leventhal, & Leventhal, 2003). Also related to parents, our measure of parental monitoring, which was controlled in the analyses due to the well-established relation of monitoring and adolescent alcohol use, yielded a relatively low level of reliability in this sample (alpha = .49). Further analyses revealed that the items on the monitoring scale yielded a better reliability for European American youth in the sample (alpha = .63, if delete item 1, then .74) than African American youth (alpha = .43, if delete item 3, then .68), suggesting that the scale and/or particular items on the scale may have been more/less relevant depending on ethnicity. Importantly, future replication efforts should consider alternative measures of monitoring that yield more equivocal alphas across both European American and African American samples. Finally, participating youth reported on peer substance use, introducing the possibility that significant findings are due to common reporter variance.

The strengths of the study also merit attention. Importantly, this study extends the literature on adolescent alcohol use by examining a family factor specific to substance abuse, parental problems with alcohol, as a moderator of peer influences (see also Barnes et al., 2006 for a study that takes this approach), after controlling for the established role of parental monitoring. Findings suggest that adolescent alcohol use depends on both parental and peer levels of drinking, rather than one or the other. Moreover, few studies of the interactive roles of parents and peers have included both European American and African American youth. Finally, this study incorporated both parent- (i.e., parental alcohol abuse) and adolescent- (i.e., peer use and adolescent alcohol use) reports of primary study variables, decreasing the likelihood that significant findings were due to reliance on a single reporter. Although it would have been ideal to also include peer-reports of their own use, the relatively small sample size prohibited that level of methodological rigor.

In conclusion, studies of the parental and peer contexts associated with adolescent alcohol use typically focus on European American youth or fail to examine racial/ethnic differences in studies that include African American youth as well. Thus, we know little about the generalizability of contextual models of alcohol use for African American youth who tend to experience greater detrimental consequences of use, including involvement with juvenile justice, higher rates of school drop-out, and risky sexual activity and its correlates, such as higher rates of sexually transmitted diseases and teen pregnancy (Belenko, Sprott, & Peterson, 2004; Pavkov, McGovern, & Geffner, 1993; National Institute on Drug Abuse, 2003; Wallace, 1999). The current findings need to be replicated before clinical implications can confidently be discussed. However, study findings suggest that the efficacy of family-based alcohol use prevention programs targeting high risk and rural European American and African American youth may be enhanced by addressing parental problems with alcohol use, in addition to the more typically targeted parenting behaviors (e.g., monitoring,

[3]Post-hoc power analyses revealed that a sample of 103 would be necessary to afford adequate power (.80) to detect the proposed exploratory 3-way interaction.

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communication, relationship quality (Brody et al., 2004; Jones, Olson, Forehand, Gaffney, Zens, & Bau, 2005; Spoth, Redmond, & Shin, 2001).

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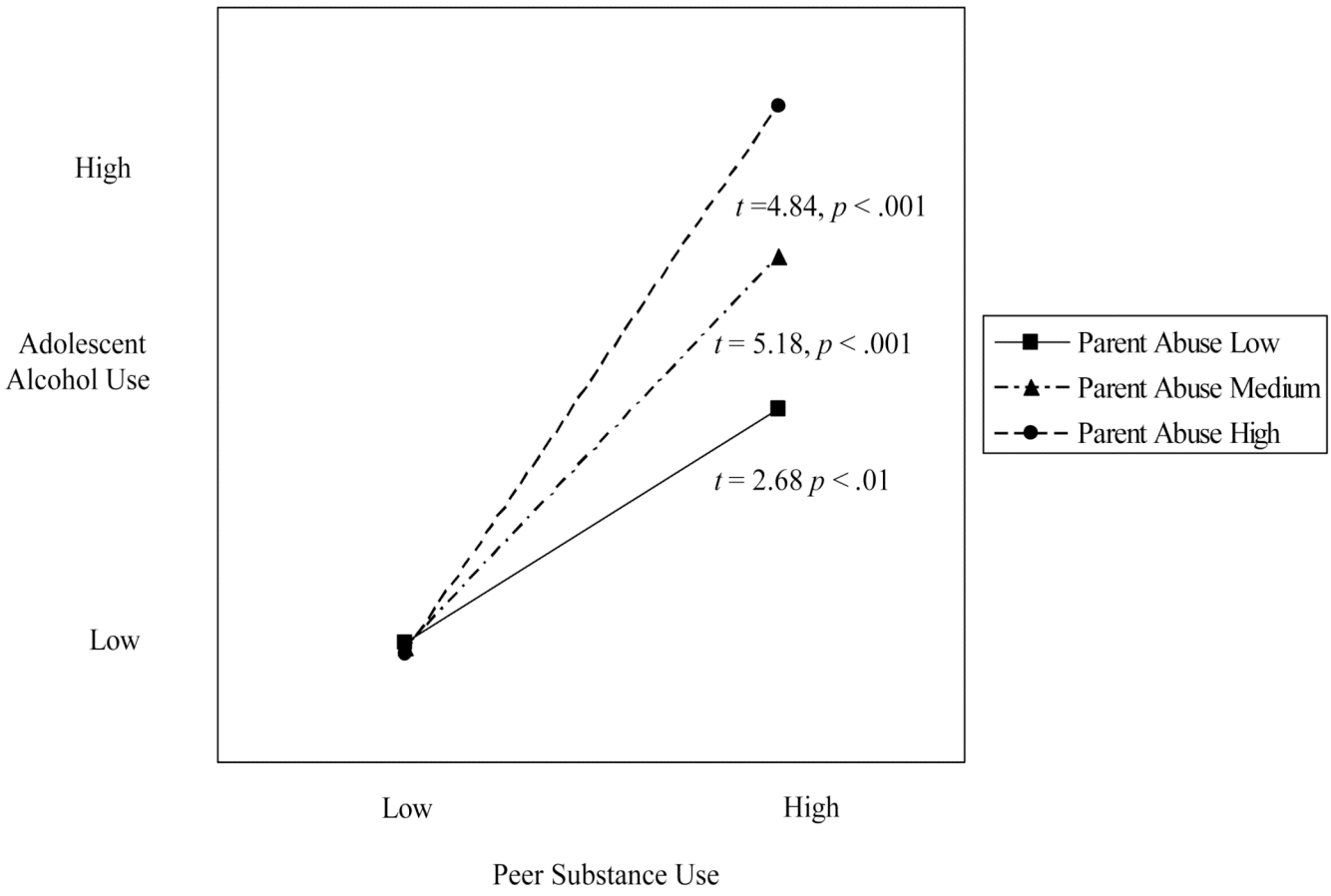

Figure 1.
Explication of the 2-way interaction of peer substance use × parental problems with use predicting adolescent alcohol use.

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Table 1

Descriptive statistics for demographic and major study variables and correlations with alcohol use index

	M (*SD*)	N (%)	Correlations with Alcohol Use Index *r*
1. Adolescent age	13.93 (.52)		-.01
2. Adolescent gender (% boys)		40 (56%)	.04
3. Adolescent race (% European American)		49 (68%)	-.20[a]
4. Parent gender (% Mothers)		66 (90%)	.001
5. Parent education			.08
Less than high school		1 (1%)	
High school graduate		13 (18%)	
Some vocational/technical school		6 (8%)	
Some college		14 (19%)	
College/vocational/technical graduate		27 (38%)	
Graduate/professional school		10 (15%)	
6. Parental monitoring[b]	4.17 (.63)		-.22[a]
7. Peer substance use[c]	.81 (.62)		.58[***]
8. Parental problems with use[d]	.14 (.22)		.19
9. Adolescent alcohol use index[e]	-.07(.57)		

[a] $p < .10$;

[***] $p < .001$;

[b] Range 2 -5;

[c] Range 0 - 2.25;

[d] Range 0 – 1;

[e] Range -.42 – 2.25

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Table 2

Hierarchical regression analyses examining associations among parental problems with use, peer use, and adolescent alcohol use

	F	ΔR^2	β	t
Block 1: Demographics & Covariates	3.10[a]	.08		
Parental Monitoring			-.21	-1.79 *
Race			-.19	-1.63*
Block 2: Social Contexts	9.76***	.29		
Peer use			.53	4.96***
Parental problems with use			.10	.99
Block 3: 2-way Interactions	7.19***	.07		
Peer use × Parental problems			.36	2.70**
Peer use × Race			-.05	-.29
Parent use × Race			.24	1.45
Block 4: 3-way Interaction	6.19***	.00		
Peer use × Parent use × Race			.01	.03

[a] p = .05;

* p < .10;

** *p* ≤ .01;

*** p < .001