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Examination of the Indirect Effect of Alcohol Expectancies on Ethnic Identity and Adolescent Drinking Outcomes

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Abstract

Although overall rates of alcohol use tend to be lower among racial/ethnic minority youth compared to White youth, consequences associated with use tend to be more severe. Identifying factors that prevent alcohol use is crucial to reducing its impact among minority adolescents. One such factor is ethnic identity, which involves gaining clarity about one's ethnic background and regard toward one's ethnic group. Strong ethnic identity has been found to work through antidrug beliefs to decrease minority youth's substance use. The current study extends previous literature by examining whether specific alcohol cognitions—alcohol expectancies—explain the promotive effect of ethnic identity on alcohol use and severity of alcohol use among minority youth.

Participants were 113 ethnic minority youth ages 12–18 ($M = 15.27$). Most participants were male (66%) and identified as non-Hispanic African American/Black (70%), followed by Hispanic/Latino (15%), multiracial (12%), and American Indian/Native American (3%). Participants completed self-report measures of ethnic identity, positive and negative alcohol expectancies, and hazardous drinking, which were analyzed in an indirect effects model. Results indicated that ethnic identity was inversely related to negative alcohol expectancies. A significant indirect effect of ethnic identity on severity of alcohol use through negative alcohol expectancies was found. However, no indirect effect was found for positive alcohol expectancies. Findings suggest that strong ethnic identity serves as a promotive factor preventing alcohol use for ethnic minority youth, in part through more negative alcohol expectancies, and may be a beneficial target for intervention programs to reduce alcohol use among this group.

Keywords

ethnic identity; racial identity; adolescent drinking; alcohol expectancies

Alcohol is the most commonly used substance among adolescents, with 64% of youth engaging in alcohol use by the end of high school (Miech, Johnston, O'Malley, Bachman, & Schulenberg, 2016). Although adolescents who belong to racial/ethnic minority groups have historically used alcohol at lower rates than White youth (Chen & Jacobson, 2012; Miech et al., 2016)—suggesting they are at lower risk for alcohol-related consequences—research has documented that racial/ethnic minority youth may experience more negative consequences as a result of their use (Horton, 2007), including risk for alcohol use disorders (Wu, Woody, Yang, Pan, & Blazer, 2011). These racial disparities in alcohol-related consequences also extend to adulthood (Witbrodt, Mulia, Zemore, & Kerr, 2014; Zapolski, Pedersen, McCarthy, & Smith, 2014), as racial/ethnic minorities who use alcohol during adolescence are more likely to transition to chronic alcohol use and dependence in early adulthood (Finlay, White, Mun, Cronley, & Lee, 2012; Swendsen et al., 2012). Thus, examining risk and protective factors for these vulnerable populations during adolescence is a critical step in preventing alcohol-related health disparities over the lifecourse.

Over the past two decades, a growing body of research has been conducted examining risk for alcohol use among racial/ethnic minority youth. However, these studies have highlighted that many of the traditional individual and environmental factors posited as important risk factors for engagement in substance use, such as distress tolerance and alcohol exposure, have been inadequate at explaining variance in risk for minority youth (Daughters et al., 2009; Rinehart, Bridges, & Sigelman, 2006). Thus, researchers have begun to examine more culturally relevant factors that may better explain risk or protection from alcohol use among ethnic minority youth. One promotive factor that has garnered support in the literature is ethnic identity, a social identity or self-concept related to the racial and/or ethnic group that an individual socializes and affiliates with (Kaya, Iwamoto, Clinton, & Grivel, 2016). Ethnic identity has been conceptualized as a developmental process that involves three components: gaining clarity and resolution about one's ethnic background, affect and regard toward one's ethnic group, and behavioral engagement with one's ethnic heritage (Phinney, 1992). The development of strong ethnic identity and high regard for that identity has been theorized to serve as a competency that assists youth in avoiding risky behaviors (Castro, Stein, & Bentler, 2009). Accordingly, ethnic identity has been identified as a promotive and protective factor for risk behavior such as substance use among African American, Hispanic/Latino, and Native American youth (Rivas-Drake et al., 2014).

Specific to alcohol use, ethnic identity has also been associated with lower rates of alcohol use among ethnic minority adolescents (Rivas-Drake et al., 2014). Strong ethnic identity is also linked to less frequent alcohol use and fewer drinking-related consequences among African American (Nasim, Belgrave, Jagers, Wilson, & Owens, 2007; Pugh & Bry, 2007; Stock et al., 2013), Hispanic/Latino (Castro et al., 2009; Marsiglia, Kulis, & Hecht, 2001; Marsiglia, Kulis, Hecht, & Sills, 2004), Native American (Skewes & Blume, 2015; Yu & Stiffman, 2007), Asian American (Choi, Harachi, Gillmore, & Catalano, 2006), and multiracial youth (Choi et al., 2006; Marsiglia et al., 2001). Further, the promotive effect of ethnic identity on drinking outcomes among youth appears specific to racial/ethnic minority youth, as it has been found to pose risk for alcohol and other substance use among White youth (Marsiglia et al., 2001; Zapolski, Fisher, Banks, Hensel, & Barnes-Najor, 2016).

Although there is growing support for the protective effect of ethnic identity on substance use outcomes among ethnic minority youth, to date little is known of mechanisms by which this promotive process operates. A theory of cultural identity proposed by Unger (2011) suggests that ethnic identity and other shared cultural characteristics prevent health-risk behavior via cultural values characterized by decreased norms for and cognitions favoring risk behavior. Applied to alcohol, Unger's (2011) model posits that cultural values aligned with strong ethnic identity prevent alcohol use by shaping protective or less risky attitudes toward alcohol use. It is plausible that this process operates through ethnic socialization processes. Adolescents who are socialized to identify adaptively with their race/ethnicity may develop more negative attitudes about alcohol because minorities tend to use substances to a lesser degree than Whites (Stock et al., 2013). Socialization toward ethnic identity has also been associated with future orientation, which in turn is associated with more negative beliefs about the consequences of substance use (Brody et al., 2004). Lastly, identification with cultural values of one's ethnicity that do not condone substance use may lead to negative views of substance users (Brody et al., 2004; Wills, Gibbons, Gerrard, Murry, & Brody, 2003; Zapolski et al., 2014).

Although few studies have tested the mechanisms underlying the relationship, there is some evidence to support the theory of a relationship between ethnic identity, alcohol beliefs, and alcohol use. Among minority youth, ethnic identity has been associated not only with decreased alcohol and substance use behavior, but also with negative personal beliefs toward use (Wallace & Fisher, 2007). Such beliefs have even been found to play a role in the relationship between ethnic identity and substance use. For example, Zapolski et al. (2016) found that antialcohol and drug attitudes accounted for the relationship between ethnic identity and substance use frequency among African American, Hispanic/Latino, Asian American, and multiracial adolescents. However, this study collapsed measures of alcohol and drug use behaviors, and measures of alcohol and drug use beliefs. Thus, it provided limited understanding on the effects of ethnic identity on specific substance use cognitions and outcomes, such as alcohol-specific cognitions and drinking.

When examining alcohol-related beliefs and attitudes, researchers have often turned to alcohol expectancies, or beliefs about the personal consequences of alcohol use, which are further differentiated as positive or negative based on beliefs regarding the favorable or unfavorable outcomes related to drinking. Positive alcohol expectancies, such as beliefs that drinking will enhance social experiences, have been found to prospectively predict drinking frequency (Settles, Zapolski, & Smith, 2014) and binge drinking among adolescents (Maggs, Staff, Patrick, Wray-Lake, & Schulenberg, 2015). Conversely, negative alcohol expectancies, such as beliefs that drinking will have an unpleasant sedative effect, have been found to protect against drinking initiation and hazardous drinking among adolescents (Bekman, Anderson, et al., 2011; Maggs et al., 2015). Although the magnitude of the relationship between alcohol expectancies and alcohol use has been found to vary by race/ethnicity, alcohol expectancies have been significantly associated with adolescent drinking among African American, Native American, Asian, and Hispanic youth (Meier, Slutske, Arndt, & Cadoret, 2007).

Although there is evidence that alcohol expectancies develop in part from learning within a youth's social environment (Smit et al., 2018), few studies have examined alcohol expectancies in relation to ethnic identity among adolescents. However, other aspects of social identity related to race/ethnicity have been associated with alcohol expectancies. Acculturation, a social identity characterized by identifications and values that are shaped through contact with a new culture or by growing up as an immigrant (Berry, 1997), and enculturation, the degree to which one maintains the values of one's culture of origin despite contact with a new culture (Kaya et al., 2016), have been associated with decreased positive alcohol expectancies among minority youth (Des Rosiers, Schwartz, Zamboanga, Ham, & Huang, 2013; Shih, Miles, Tucker, Zhou, & D'Amico, 2012). These decreases in positive alcohol expectancies were, in turn, found to partially explain the link between these aspects of cultural identity and decreased alcohol use among minority youth. Given that acculturation (vs. assimilation) and enculturation are characterized by stronger identification with the values of one's culture or ethnicity, we expect that the relationship between ethnic identity, positive alcohol expectancies, and alcohol use will operate similarly. With regard to negative alcohol expectancies, no research has examined the relationship between social or cultural identity and negative expectancies. However, as mentioned above, strong racial identity has been associated with more negative drug and alcohol-related cognitions, which have been found to have an indirect effect within the relationship between racial identity and substance use. As negative alcohol expectancies are negative cognitions regarding the outcomes of alcohol use, we expect that they will similarly account for the relationship between racial identity and alcohol use.

The current study aims to examine whether ethnic identity among minority youth is associated with alcohol use and severity of alcohol use by way of positive and negative alcohol expectancies. Although alcohol expectancies are important cognitive determinants of alcohol use development among diverse adolescents, research regarding the relationship between alcohol expectancies and ethnic identity is limited. Given evidence that ethnic identity protects against substance use via attitudes about substance use, the current study expands on this literature to examine the specific effect of ethnic identity on alcohol use via positive and negative alcohol expectancies among a diverse sample of racial/ethnic minority youth. Specifically, we hypothesize that ethnic identity will be inversely related to positive alcohol expectancies (positive social and wild and crazy expectancies), and positively related to negative alcohol expectancies (negative arousal and sedation/impairment expectancies). We also hypothesize that ethnic identity will be related to decreased likelihood of alcohol use and decreased severity of alcohol use, and that these relationships will operate indirectly through decreased negative and increased positive alcohol expectancies. If our hypotheses are supported, findings may inform prevention programming among racial/ethnic minority adolescents by supporting the inclusion of techniques to encourage ethnic identity development in order to influence alcohol expectancies and subsequent alcohol use among this population of youth.

Method

Participants and Procedures

Participants were derived from a sample of 143 youth age 12–18 recruited from six tuition-free afterschool programs in a large, Midwestern city. Afterschool programs were housed in public community centers or public schools in an urban setting. Parental consent was obtained through opt-out consent letters distributed to parents; all child participants assented to the current study and were compensated with a \$10 gift card. Participants were administered self-report questionnaires including demographic questions (i.e., race, ethnicity, age, gender), measures of alcohol and other substance use, positive and negative alcohol expectancies, ethnic identity, and other constructs unrelated to the current study. For the current study, only racial/ethnic minority youth were included given that the study aim was to examine the indirect effect of alcohol expectancies on the relationship between ethnic identity and alcohol use outcomes among racial/ethnic minority youth. Thus, 30 youth who identified as White or who did not identify their race/ethnicity were excluded from the study for a final sample size of 113. Most participants identified themselves as non-Hispanic African American/Black (69.9%), followed by Hispanic/Latino (15.0%), multiracial (12.4%), and American Indian/Native American, Eskimo/Alaskan (2.7%). Most participants were male (65.5%) and the average participant age was 15.27 ($SD = 1.81$). All recruitment measures and procedures were approved by the Indiana University IRB, 1408770341, Adolescent Study on Drug Use and Health.

Measures

Ethnic identity.—The Multigroup Ethnic Identity Measure-Revised (MEIM-R; Roberts et al., 1999) is a 12-item measure of ethnic identity that can be utilized across racial/ethnic groups. The MEIM-R measures two components of ethnic identity: exploration and affirmation. Examples of items from each subscale include, “In order to learn more about my ethnic background, I have often talked to other people about my ethnic group” for exploration, and “I feel good about my cultural or ethnic background” for affirmation. Participants rated items on a 4-point scale from *strongly disagree* (1) to *strongly agree* (4). Although there is evidence of a two-factor solution of the MEIM-R, there is also support for the use of a composite, one-factor solution depending on the research objective (Phinney & Ong, 2007). Given that our objective was not to examine the relationship between the two components, but rather to assess the common variance between the two that exemplifies ethnic identity, we chose to use a composite variable for the present study, which had high internal consistency ($\alpha = .94$).

Alcohol expectancies.—The Memory Model-Based Expectancy Questionnaire (Dunn & Goldman, 1996) assessed positive and negative alcohol expectancies in four domains: positive social (18 items), “wild and crazy” (7 items) behaviors, negative arousal (7 items), and sedation/impairment (7 items). The scale begins with the stem, “Drinking alcohol makes people ____.” Participants provided responses on a 4-point scale from *never* (1) to *always* (4). Examples of stems in each domain include: “friendly” and “fun” for positive social, “goofy” and “hyper” for wild/crazy, “mad” and “sad” for negative arousal, and “sleepy” and “stupid” for sedation. The positive social and wild/crazy domains were considered positive

alcohol expectancies, and the negative arousal and sedation domains, negative alcohol expectancies (Dunn & Goldman, 1996; Settles et al., 2014). Internal consistency estimates for each subscale were strong (positive social: $\alpha = .86$, wild/crazy: $\alpha = .72$, negative arousal: $\alpha = .82$, sedation: $\alpha = .79$).

Alcohol use and severity of alcohol use.—The Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) is a 10-item screener for hazardous drinking. The AUDIT comprises four types of questions measuring alcohol consumption, drinking behavior, adverse psychological reactions, and alcohol-related problems. Each item is scored from 0–4 for a scaled score ranging from 0–40. The AUDIT was originally validated among adults in primary care settings (Saunders et al., 1993), but has also been validated as a screening tool in diverse samples of adolescents (Knight, Sherritt, Harris, Gates, & Chang, 2003). The AUDIT showed strong internal consistency in the current sample ($\alpha = .91$).

Data Analysis

Descriptive analyses, including estimates of internal consistency, bivariate correlations, and tests of demographic differences, were conducted in SPSS 24.0. The hypothesized model (see Figure 1) was tested using MPlus (Muthén & Muthén, 2015). Given the overdispersion of AUDIT scores and the high proportion of zeros (72%), model coefficients were estimated using a zero-inflated Poisson (ZIP) distribution. Unlike Poisson regression, which carries the assumption that the mean and variance of the outcome are equivalent, ZIP regression can handle overdispersed data in which the variance exceeds the mean due to a large number of zero values. ZIP models simultaneously estimate two regression equations: (a) a logistic regression predicting a subpopulation of subjects unable to receive scores other than zero (i.e., alcohol abstainers vs. alcohol users), and (b) a Poisson regression predicting the count variable (i.e., AUDIT scores) among the subpopulation of participants who were determined to receive scores above zero (i.e., alcohol users). Ethnic identity and all four domains of expectancies were entered as predictors in both the zero-inflated model and the hypothesized model.

In the hypothesized models, all four domains of alcohol expectancies and their standard errors were allowed to covary, as preliminary analyses showed they were correlated (see Table 1). Although the proportion of missing data was low (5.3%), full information maximum likelihood was used to correct for missing data. RMediation (Tofighi & MacKinnon, 2011) was used to generate estimates of indirect effects and confidence intervals based on model coefficients estimated in MPlus. The RMediation package implements a so-called product of moments approach to testing indirect effects, which demonstrates high coverage rates with small sample sizes relative to other methods used to detect indirect effects and has been recommended as the most accurate method available for determining confidence intervals around indirect effects in simple mediation models (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; MacKinnon, Lockwood, & Williams, 2004). Additionally, we used this approach rather than the popular bootstrapping approach that is available in Mplus given the discrete and zero-inflated nature of the data. Resampling methods such as bootstrapping may be less accurate than the product of

moments approach with such data, as resampling with replacement may result in several bootstrapped samples comprised only of zeros (Manly, 2011).

Results

Bivariate correlations between the variables of interest are presented in Table 1. Only negative alcohol expectancies (negative arousal and sedation) were significantly related to AUDIT scores in these analyses, with an inverse relationship found between negative expectancies and AUDIT scores. Mann–Whitney *U* tests revealed no differences in AUDIT scores based on gender ($U = 1210.50, p = .165$). Results of Kruskal-Wallis H tests also indicated no differences in AUDIT scores based on race, $\chi^2(3) = 1.63, p = .654$, or recruitment site, $\chi^2(5) = 4.90, p = .428$. Most participants (72.1%) received a score of 0 on the AUDIT, which is consistent with previous research examining the AUDIT among similar-aged U.S. adolescents (Fairlie, Sindelar, Eaton, & Spirito, 2006). Thus, ZIP regression was used to estimate the zero and count models as described previously.

Results of the both models indicated that ethnic identity was significantly positively related to negative alcohol expectancies (negative arousal: $b = .09, SE = .04, p = .048$; sedation: $b = .10, SE = .04, p = .017$). However, ethnic identity was not related to positive alcohol expectancies (positive social: $b = .07, SE = .10, p = .474$; wild/crazy: $b = .01, SE = .04, p = .743$). Results of the logistic, zero-inflated model indicated that only sedation expectancies were significantly positively related to alcohol abstinence ($b = .23, SE = .09, p = .009$) controlling for the other variables, whereas the other domains of alcohol expectancies were not related to abstinence (negative arousal: $b = .10, SE = .09, p = .291$; positive social: $b = -.01, SE = .04, p = .841$; wild/crazy: $b = -.02, SE = .09, p = .839$). There was also a significant direct effect of ethnic identity on alcohol use such that ethnic identity was negatively related to alcohol abstinence ($b = -.08, SE = .03, p = .014$). Analyses of indirect effects in the zero-inflated model revealed a significant indirect effect of ethnic identity on alcohol abstinence through sedation expectancies ($b = .024, SE = .01, 95\% CI [.002, .057]$). No other significant indirect effects were observed.

Results of the count model indicated that negative alcohol expectancies were significantly associated with severity of alcohol use, with a negative association found for negative arousal expectancies ($b = -.17, SE = .06, p = .004$) and a positive association for sedation expectancies ($b = .16, SE = .01, p = .003$).¹ There was also a significant direct effect of ethnic identity on severity of alcohol use ($b = -.09, SE = .03, p = .005$),² controlling for the expectancies variables. See Figure 1 for all path coefficients. Analyses of indirect effects revealed an indirect pathway from ethnic identity to severity of alcohol use through negative alcohol expectancies, holding the other domains of expectancies constant. The indirect effect via sedation expectancies was significant ($b = .017, SE = .01, 95\% CI [.002, .038]$) whereas the indirect effect through negative arousal expectancies trended toward significance ($b = -.$

¹Given the negative association of sedation expectancies and alcohol use severity in bivariate analyses and its positive association with alcohol abstinence in the zero-inflated model, we hypothesized that the positive association between sedation expectancies and alcohol use severity in the count model was due to a suppression effect. Post-hoc analyses revealed that this effect is largely driven by negative arousal expectancies.

²Ethnic identity and alcohol severity also had a null association in bivariate analyses but a significant association in the count model likely due to a suppression effect. Post-hoc analyses revealed that this effect is largely driven by positive social expectancies.

015, $SE = .01$, 95% CI[.000, .037]). The indirect effects through both domains of positive expectancies were not significant.

Discussion

Previous research has shown that ethnic identity among minority adolescents protects against substance use through attitudes that reject substance use (Zapolski et al., 2016). Although useful information can be gained from this work, it is limited in its use of composite measures for substance use and the examination of global substance beliefs rather than substance-specific cognitions. The current study extended upon previous research by examining the indirect effect of ethnic identity on alcohol use and severity of alcohol use through specific alcohol-related cognitions (i.e., positive and negative alcohol expectancies). First, we hypothesized that ethnic identity would be inversely related to positive alcohol expectancies and positively related to negative alcohol expectancies; however, only the latter part of this hypothesis was supported. That is, we found that ethnic identity was significantly related to negative alcohol expectancies but was unrelated to positive alcohol expectancies. Second, we hypothesized that the protective effect of ethnic identity on alcohol use and severity of alcohol use would operate through positive and negative alcohol expectancies. Again, only the latter part of this hypothesis was supported; we found a significant indirect effect of ethnic identity on alcohol use and severity of alcohol use through negative alcohol expectancies but not positive alcohol expectancies.

Our findings provide further support for the indirect role of substance-related cognitions, particularly negative alcohol expectancies, in the promotive effect of ethnic identity on substance use among minority adolescents (e.g., Zapolski et al., 2016). For example, previous literature has documented that strong ethnic identity is associated with less substance use and stronger antidrug norms among minority adolescents (Marsiglia et al., 2004; Wallace & Fisher, 2007). Results are also consistent with previous research that has connected the promotive effect of other cultural variables to decreased alcohol use through alcohol expectancies among minority adolescents (Des Rosiers et al., 2013; Shih et al., 2012). Our findings expand on this research by demonstrating the relationship between ethnic identity and negative alcohol expectancies.

It is plausible that by exploring what it means to be a racial/ethnic minority and building connections with one's community, youth are exposed to normative beliefs and attitudes regarding alcohol that tend to be more conservative than what is found among majority White communities (Wallace & Muroff, 2002; Zapolski et al., 2014). In turn, this exposure may be influencing the youth's personal beliefs regarding alcohol use, explaining the relationship between ethnic identity and negative alcohol expectancies. However, to date, no known study has explicitly tested the link between community norms, ethnic identity, and alcohol expectancies to better understand the process through which ethnic identity influences alcohol expectancies.

These findings can also inform clinical practice, as there is a growing body of literature on intervention programming aimed at increasing racial/ethnic identity among minority youth, with such programs showing efficacy for improving psychosocial functioning, including

self-esteem and mental health, and decreasing relational aggression and risky sexual behavior (Loyd & Williams, 2017; Umaña-Taylor, Kornienko, Douglass Bayless, & Updegraff, 2018). As part of larger interventions, strategies to increase racial/ethnic identity use educational and interactive activities to convey messages that encourage preservation of one's culture, promotion of racial/ethnic pride, and building a positive collective identity (Loyd & Williams, 2017). Although these studies have shown promise in reducing negative health outcomes among racial/ethnic minority youth, they have not been extended to examine alcohol use as an outcome of increased ethnic identity. Given the current study's finding on the promotive role of racial/ethnic identity on reducing risk for alcohol use among minority youth, such studies that include alcohol use as an outcome are warranted.

Interventions that target negative alcohol expectancies may also be beneficial to reduce alcohol use among ethnic minority youth as alcohol expectancies have been found modifiable in just one session of an expectancy challenge intervention (Cruz & Dunn, 2003). Expectancy challenge interventions present children information about the effects of alcohol that undermine common beliefs about its positive social and arousing effects and increase attention to its negative effects (Cruz & Dunn, 2003). However, few alcohol expectancy challenge interventions have been tested with minority youth, and those that have targeted minority youth have focused on challenging positive alcohol expectancies (e.g., Elek, Wagstaff, & Hecht, 2010; Weinstein, Lisman, & Johnson, 2015). Given our findings of an indirect effect of ethnic identity on severity of alcohol use only through negative alcohol expectancies, research is needed to test the effectiveness of interventions targeted at bolstering negative alcohol expectancies among minority youth.

In contrast to the significant effect of negative alcohol expectancies, we found a nonsignificant effect for positive expectancies. These results may be explained by differential influences in the development of positive and negative alcohol expectancies. For example, researchers have found that positive alcohol expectancies are influenced by perceptions of peer use, whereas negative alcohol expectancies are not (Bekman, Goldman, Worley, & Anderson, 2011). Thus, it is possible that having a greater affinity toward one's race/ethnicity and the values associated with that culture, such as spirituality and collective work/responsibility (i.e., the idea that people of the same ethnic group are responsible for one another and should work together to improve their family and community), can bolster negative outcome expectancies but may not influence positive outcome expectancies (Belgrave, Townsend, Cherry, & Cunningham, 1997). Accordingly, minorities tend to endorse similar rates of positive alcohol expectancies as Whites by early adolescence (Hipwell et al., 2005; Meier et al., 2007; Shih, Miles, Tucker, Zhou, & D'Amico, 2010). However, positive alcohol expectancies have been shown to have a stronger effect on adolescent drinking among White adolescents than minority adolescents (Banks & Zapolski, 2017; Chartier, Hesselbrock, & Hesselbrock, 2009; Meier et al., 2007). It is possible that this effect is explained by increased promotive factors among minority adolescents such as ethnic identity and negative alcohol expectancies.

These findings should be interpreted considering the study's limitations. First, this data is cross-sectional, so although the direction of indirect effects is based on previous theory, directionality could not be tested. Prospective research confirming this pathway is needed.

Second, this study used a convenience sample of urban adolescents, which may limit the generalizability of the findings. Third, the results must be interpreted cautiously given the high correlations observed between some of the alcohol expectancy domains, which may have led to problems related to collinearity in the models. For example, the relationship between sedation and severity of alcohol use was negative in bivariate analyses but positive in multivariate analyses when adjusting for the other expectancies, likely because of a suppression effect driven by negative arousal expectancies. Thus, the indirect effect of ethnic identity on severity of alcohol use through any given expectancy domain may vary based on the value of other expectancies. These potential interactive effects between alcohol expectancy domains warrant further investigation. Fourth, the current study used the MEIM to assess ethnic identity. As noted by Cokley (2007), the MEIM has limitations in the measurement of ethnic identity; however, a growing body of literature has found support for the factor structure and measurement invariance of the MEIM among African Americans and other racial/ethnic groups (Avery, Tonidandel, Thomas, Johnson, & Mack, 2007; Brown et al., 2014; Chakawa, Butler, & Shapiro, 2015; Feitosa, Lacerenza, Joseph, & Salas, 2017). These studies are still limited in that all have been conducted among adult populations, warranting the need for more research examining the psychometric properties of the MEIM among minority youth. Additionally, the MEIM does not capture all aspects of racial identity development, such as individual awareness and internalization of racism. Thus, future studies are warranted that utilize other measures of racial identity, such as the People of Color Racial Identity Attitudes Scale (Helms, 1995). Finally, due to small sample size, we were unable to stratify results by race/ethnicity. There is some evidence that the pathway from ethnic identity to substance use through attitudes varies in direction and magnitude by race/ethnicity (Zapolski et al., 2016), but the current sample comprised mostly African Americans. Thus, these results may not generalize to other racial/ethnic minority groups. Future research with larger sample sizes is needed to examine this pathway for alcohol use by race/ethnicity.

In conclusion, the current study adds to the extant literature on culturally relevant factors in substance use risk among African American youth by examining potential mechanisms of the relationship between ethnic identity and alcohol use. Our findings suggest that programs that aim to foster stronger ethnic identity and endorsement of cultural values may be effective in reducing alcohol use risk among ethnic minority youth, and that this process may operate by increasing negative alcohol expectancies. Given that ethnic minority youth who use alcohol experience disproportionate consequences relative to their White peers, additional research is needed to better understand cultural factors that reduce risk for alcohol use and the mechanisms through which these processes operate. Such research, including the current study, can inform intervention programming for this vulnerable group of youth and serve as an important step toward reducing racial/ethnic health disparities in alcohol outcomes.

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Public Policy Relevance Statement

Ethnic identity, or high regard for and exploration of one's own race/ethnicity, can serve as a promotive factor preventing alcohol use among racial/ethnic minority youth. This study suggests that this effect works, in part, through negative alcohol expectancies. Developing strong ethnic identity may promote the development of beliefs that alcohol has negative effects, and thus, these factors can be beneficial targets for alcohol prevention among ethnic minority youth.

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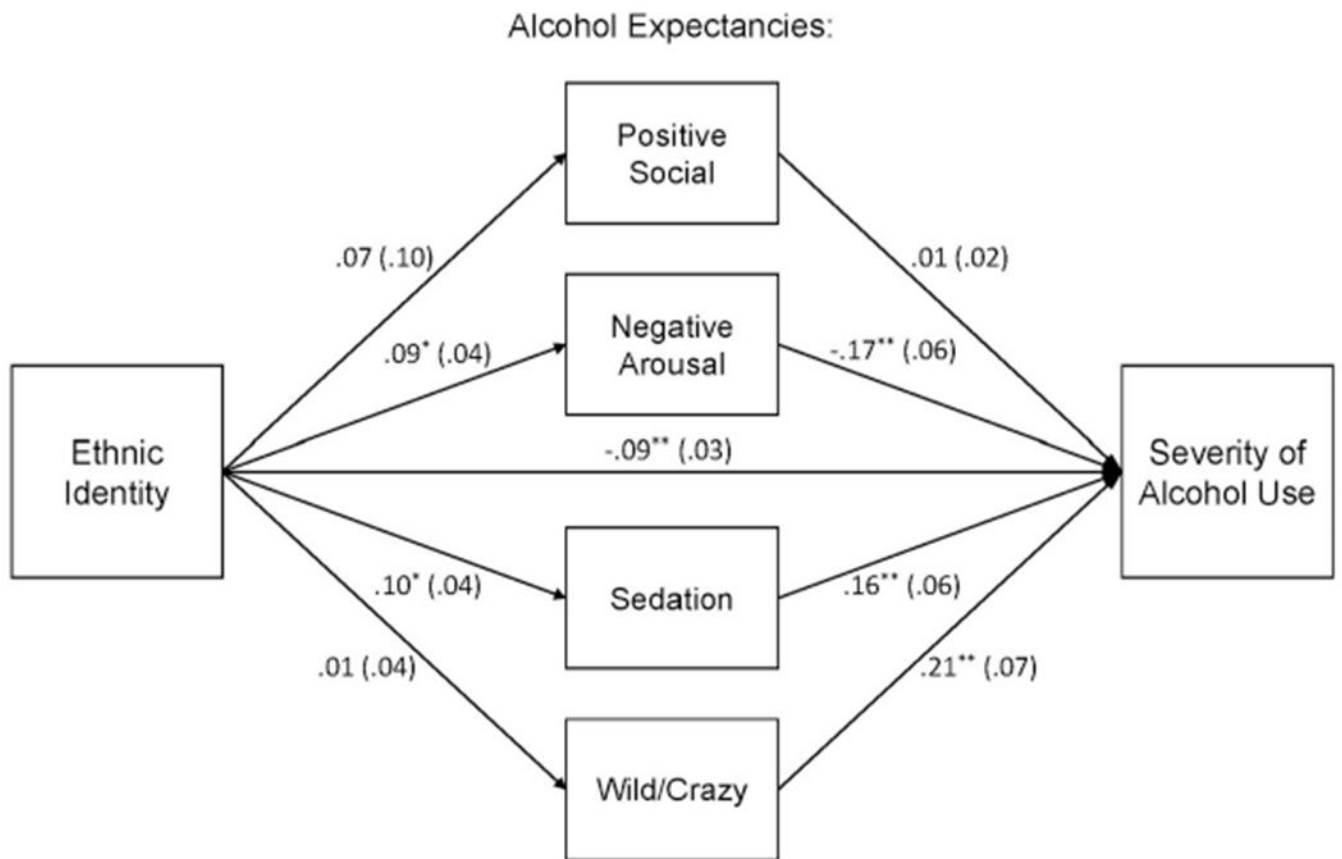


Figure 1.

Results of the count model estimating the effect of ethnic identity on severity of alcohol use via four domains of alcohol expectancies. Regression coefficients are listed first; values in parentheses are standard errors. Note that residual covariances among the four domains of alcohol expectancies are not shown. * $p < .05$. ** $p < .01$.

Table 1.

Descriptive Statistics and Bivariate Correlations of Study Variables

Variables	M or Median	SD or Range	1	2	3	4	5	6
1. Ethnic identity	32.39	9.53	—	.18	.01	.17	.22*	-.04
2. Positive social	36.83	8.38		—	.08	.09	.08	.10
3. Wild/crazy	20.59	3.73			—	.55***	.62***	-.07
4. Negative arousal	17.56	4.28				—	.73***	-.26**
5. Sedation	18.57	4.44					—	-.24*
6. Severity of alcohol use ^a	0	34						—

^aCorrelations for severity of alcohol use are Spearman's rank coefficients.

* $p < .05$.

** $p < .01$.

*** $p < .001$.