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Short Communication

Racial differences in the link between alcohol expectancies and adolescent drinking

Devin E. Banks *, Tamika C.B. Zapolski

Indiana University-Purdue University Indianapolis, 420 University Blvd., Indianapolis, IN 46202, United States

HIGHLIGHTS

- White and African American adolescents did not differ in expectancy endorsement.
- The relationship between alcohol expectancies and alcohol use varied by race.
- Positive expectancies were only related to alcohol use among White adolescents.
- African American youth may not benefit from interventions targeting these expectancies.

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ABSTRACT

Introduction: Alcohol expectancies are important determinants and predictors of adolescent alcohol use. Research with African Americans has shown that the endorsement of positive alcohol expectancies differs from that of Whites during childhood and predicts different alcohol outcomes during young adulthood. However, limited research has explored racial differences in the relationship between expectancy endorsement and alcohol use in school-aged adolescents. The current study examines the effect of White or African American race on the relationship between positive alcohol expectancies and alcohol use.
Methods: Participants were 104 adolescents ages 12–18 who identified as either non-Hispanic White or non-Hispanic African American. Participants completed self-report measures of alcohol consumption and positive social alcohol expectancies.
Results: Preliminary analyses revealed no racial differences in alcohol expectancies or consumption. However, race moderated the relationship between alcohol expectancies and alcohol use such that more positive expectancies predicted alcohol use among White youth, but not African American youth.
Conclusions: These results suggest that alcohol expectancies, which were thought to be important mediators of the relationship between social and personality factors and adolescent alcohol use may not be as impactful for African Americans. Future research should focus on identifying factors posing unique risk for alcohol consumption in this population.

1. Introduction

Positive alcohol expectancies, defined as beliefs that alcohol use will result in positive personal consequences, are important determinants of the initiation and maintenance of alcohol use among adolescents (Christiansen, Smith, Roehling, & Goldman, 1989; Dunn & Goldman, 2000; Fisher, Miles, Austin, Camargo, & Colditz, 2007; Smith, Goldman, Greenbaum, & Christiansen, 1995). Positive alcohol expectancies have also been shown to prospectively predict drinking quantity (Bauman, Fisher, Bryan, & Chenoweth, 1985; Christiansen et al., 1989), drinking frequency (Christiansen et al., 1989; Tobler, Livingston, & Komro, 2011), and binge drinking (Fisher et al., 2007; Jester et al., 2015) among adolescents (i.e., middle and high school students). Yet, research with diverse child (i.e., elementary school student) samples has demonstrated racial differences in developmental trends of expectancy endorsement. For example, despite reporting lower rates of alcohol use, African American children have been found to endorse more positive alcohol expectancies than White children (Hipwell et al., 2005). This disparity appears to narrow overtime however, as positive alcohol expectancies increase sharply in White children, but only marginally in African American children, from third to fifth grade (Chung, Hipwell, Loeber, White, & Stouthamer-Loeber, 2008; Hipwell et al., 2005).

* Corresponding author at: Department of Psychology, Indiana University Purdue University-Indianapolis, 402 N. Blackford St., LD 124, Indianapolis, IN 46202, United States.
E-mail address: debanks@iupui.edu (D.E. Banks).

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Although endorsement of alcohol expectancies converges among Whites and African Americans before adolescence, research exploring the relationship between positive alcohol expectancies and alcohol use suggest that the effect of expectancies on use diverges to some degree later in development. For example, among an adolescent sample, Meier, Slutske, Arndt, and Cadoret (2007) found that positive alcohol expectancies for social enhancement were more strongly related to drinking initiation among White adolescents, but more strongly related to drinking frequency and binge drinking among African American adolescents. Among young adults, Reese and Friend (1994) also found that positive alcohol expectancies for social enhancement were more predictive of frequency and quantity of beer drinking for White college students than their African American counterparts. Finally, a prospective study of older adolescents and young adults found no racial differences in the effect of positive alcohol expectancies on drinking frequency, but found that they predicted the age of onset of regular drinking among Whites, but not African Americans (Chartier, Hesselbrock, & Hesselbrock, 2009).

Overall, although limited, the majority of research examining the moderating effect of race on the relationship between positive alcohol expectancies and alcohol use has been explored among young adult samples (Chartier et al., 2009; Reese & Friend, 1994). Moreover, the one study conducted among an exclusively adolescent sample was mixed based on the outcome variables (i.e., drinking initiation, drinking frequency, binge drinking) and examined expectancies as a pathway from delinquency to alcohol use (Meier et al., 2007). It is critical to examine these relationships during adolescence as alcohol use during this period is associated with later alcohol abuse and related problems (Gruber, DiClemente, Anderson, & Lodico, 1996), including the development of alcohol use disorder in adulthood (DeWit, Adlaf, Offord, & Ogborne, 2000; Grant & Dawson, 1997). Moreover, examination of positive social expectancies throughout this developmental period is important, as children tend to endorse positive expectancies for social enhancement more than other alcohol expectancies (Hipwell et al., 2005), and these expectancies are stronger predictors of adolescent alcohol consumption than others (e.g., negative expectancies; Christiansen et al., 1989; Jester et al., 2015; Settles, Zapolski, & Smith, 2014).

Further, understanding potential racial differences in risk during this developmental period is important, as positive alcohol expectancies are thought mediate the effect of social influences (e.g., peer and familial modeling, attitudes and norms; Scheier & Botvin, 1997; Treloar, Pedersen, & McCarthy, 2015) and personality factors (Settles et al., 2014; Treloar et al., 2015) on adolescent alcohol use. Thus, they provide an important framework for understanding possible etiological differences in the course of alcohol use throughout childhood and adolescence for African Americans and Whites. Moreover, because expectancies are modifiable (Cruz & Dunn, 2003; Dunn, Lau, & Cruz, 2000), gaining a better understanding of the role they play in the etiology of alcohol use could provide insight into the types of interventions that would be most effective for each racial group. Thus, the current study aims to fill these gaps in the literature by examining the interaction of race and positive alcohol expectancies on alcohol use among adolescents. Based on previous findings demonstrating that racial differences in alcohol expectancies disappear before middle school (Hipwell et al., 2005) and evidence of a critical period for expectancy development in third and fourth grade (Miller, Smith, & Goldman, 1990), we examined these effects among middle school and high school students ages 12–18.

2. Methods

2.1. Participants

A convenience sample of adolescents ages 12–18 ($M = 15.44$, $SD = 1.94$) was recruited from six tuition-free after-school programs in an urban, mid-western city. Research staff administered self-report measures of alcohol expectancies and past year alcohol use to participants at their respective afterschool programs. The current study used a subsample of 104 adolescents who identified their race as non-Hispanic African American (62.5%) or non-Hispanic White. The majority of this subsample were male (66.3%).

2.2. Measures

2.2.1. Positive alcohol expectancies

The Memory Model Based Expectancy Questionnaire (MMBEQ; Dunn & Goldman, 1996) measured positive alcohol expectancies among youth on a 4-point Likert scale. We used the 18-item positive social subscale (e.g., beliefs that drinking makes people, "friendly," "fun" or "outgoing"), as expectancies regarding social facilitation have been shown to be those most strongly predictive of adolescent alcohol consumption (Christiansen et al., 1989). Accordingly, the positive social subscale was the only scale of the MMBEQ significantly associated with alcohol consumption in our sample ($r_s = 0.31$, $p < 0.001$; $\alpha = 0.88$).

2.2.2. Alcohol use

The Alcohol Use Disorders Identification Test-Consumption (AUDIT-C; Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998) is a brief screener for alcohol consumption measuring drinking frequency, drinking quantity, and frequency of binge drinking in the past year on a scale of 0–4. Because the data showed slightly lower internal consistency than acceptable ($\alpha = 0.63$) and scores were positively skewed, AUDIT-C scores were treated as count data.

2.3. Data analysis

Zero-inflated Poisson (ZIP) regression in SAS 9.4 was used to examine the interaction of race and expectancies on AUDIT-C scores. Poisson regression is used to model count variables, but carries the assumption that the mean and variance of the data are equivalent (Atkins & Gallop, 2007). When studying maladaptive behaviors among adolescents, such as alcohol use, the variance of the data often exceeds the mean (i.e., overdispersion) due to a large number of zero values. ZIP models can serve as an alternative to Poisson models in such cases. These models simultaneously estimate two regression equations: 1) a logistic regression predicting a subpopulation of adolescent participants who are unable to receive scores other than zero (i.e., abstainers) and 2) a Poisson regression predicting the value of the behavior of interest among the subpopulation of participants who can receive scores of zero and above (i.e., drinkers). Thus, ZIP models allow for the possibility that different variables predict whether or not one drinks and to what extent they drink (Atkins & Gallop, 2007). Although 32.7% of the present sample reported lifetime alcohol use, only 23.1% scored higher than 0 on the AUDIT-C. Thus, we specified a ZIP model to 1) estimate past year use among the entire sample, and 2) model consumption scores among those estimated to be drinkers. Both models were predicted by race, expectancies and their interaction. Based on preliminary analyses, the zero-inflated model adjusted for sex, whereas the AUDIT-C model adjusted for age, sex, and recruitment site.

3. Results

Preliminary analyses revealed differences in lifetime alcohol use by age ($r_{pb} = 0.22$, $p = 0.023$), but not sex or recruitment site. Lifetime use was also unrelated to race ($x^2 = 0.06$, *ns*) with 33.3% of African American and 30.8% of White adolescents reporting use. However, positive alcohol expectancies ($M = 37.38$, $SD = 9.21$) were significantly related to lifetime use ($r_{pb} = 0.26$, $p = 0.008$). With respect to AUDIT-C scores ($M = 0.43$, $SD = 0.99$), no differences were observed based on age, sex or race ($U = 972.5$, *ns*); however, scores significantly differed