Protective Behavioral Strategies, Alcohol Consumption, and Negative Alcohol-Related Consequences: Do Race and Gender Moderate these Associations?

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To cite this article: Michael B. Madson & Virgil Zeigler-Hill (2013) Protective Behavioral Strategies, Alcohol Consumption, and Negative Alcohol-Related Consequences: Do Race and Gender Moderate these Associations?, Journal of Ethnicity in Substance Abuse, 12:3, 242-258

To link to this article: http://dx.doi.org/10.1080/15332640.2013.798848

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Protective Behavioral Strategies, Alcohol Consumption, and Negative Alcohol-Related Consequences: Do Race and Gender Moderate these Associations?

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White, non-Hispanic college students tend to drink more alcohol and experience more negative consequences than African American college students. However, racial differences have not been examined for protective behavioral strategies. This study examined whether race and gender moderated the associations that protective behavioral strategies had with alcohol consumption and negative alcohol-related consequences. In general, the use of protective behavioral strategies were associated with greater decreases in consumption, harmful drinking, and negative consequences for White, non-Hispanic students than African American students, which suggests important racial differences related to protective strategy use. Research and clinical implications are provided.

KEYWORDS race, college drinking, protective behavioral strategies, negative consequences

College students in the United States consistently report amounts and frequencies of alcohol consumption that exceed those of any other subset or age group, with 37% to 50% of college students in national surveys report participating in heavy episodic drinking (i.e., 4 or more drinks for women and 5 or more drinks for men in 2 hours) (National Institute of Alcohol Abuse and Alcoholism, 2004) within the past 2 weeks (Johnston, O’Malley,
Bachman, & Schulenberg, 2011). Alcohol consumption patterns such as these have been of considerable interest to researchers because of the relatively high rates of alcohol-related negative consequences reported by these individuals (e.g., failing grades, unplanned pregnancies, death) (Borden et al., 2011). In fact, alcohol-related negative consequences among college students are commonly recognized as one of the most serious health problems facing this group (Ham & Hope, 2003; Hingson, Zha, & Weitzman, 2009).

Race and gender have been identified as moderators for alcohol use that should be further examined in research (Borsari, Murphy, & Barnett, 2007). Differences between African American and White, non-Hispanic students and between male and female students have been documented for the amount of alcohol consumed (Paschall, Bersamin, & Flewelling, 2005; Strada & Donahue, 2006), motivation for drinking (Paschall & Flewelling, 2002), expected outcomes (Jung & Rojas, 2000), and use of harm reduction strategies (Delva et al., 2004). African American students reported having fewer friends who engage in heavy drinking than White, non-Hispanic students and that college enrollment further decreased the likelihood of drinking for African American students (Paschall et al., 2005). In contrast, college enrollment actually increased the likelihood that White, non-Hispanic students would drink. Similarly, Mielman, Presley, and Cashin (1995) found that African American students at historically Black colleges and universities were half as likely to drink alcohol then students at universities with predominantly White, non-Hispanic student populations. Peralta and Steele (2009) speculated that these lower levels of consumption among African American students likely stemmed from differences in the social structure between those racial groups. With regard to gender, researchers have demonstrated that men consistently consume more alcohol than women and experience more negative consequences (Johnston et al., 2009). Given that increased alcohol consumption is often associated with negative consequences, it is important to gain a better understanding of the consumption–consequence association among different groups and examine the active strategies that students can use to reduce the harm associated with drinking alcohol (Borden et al., 2011).

Recent research has highlighted the role that protective behavioral strategies may play in reducing the negative consequences associated with alcohol use among college students. Martens et al. (2004) found that the number of college students who engaged in the different protective behavioral strategies varied from 36.9% (alternating non-alcoholic & alcoholic drinks) to 92.3% (eating before drinking). Higher levels of protective behavioral strategy use are associated with reduced alcohol consumption and fewer negative consequences (Araas & Adams, 2008; Benton et al., 2004; Borden et al., 2011; Martens et al., 2005). For example, Borden et al. (2011) concluded that increased use of protective behavioral strategies significantly reduced the instances of heavy episodic drinking and negative consequences in college
students. Labrie, Lac, Kenney, and Mirza (2011) found that protective behavioral strategy use differed between men and women and between White, non-Hispanic and Asian American students, suggesting that there may be gender and racial influences on protective behavioral strategy use. Results of these studies suggest the importance of examining race in conjunction with protective behavioral strategy use, but this is an understudied topic as it relates to African American college students.

The current study will extend the results of previous studies by examining racial differences between White, non-Hispanic and African American college students with regard to protective behavioral strategies, alcohol consumption, and negative alcohol-related consequences. Although many researchers recognize African American students as a demographic group with low levels of alcohol consumption, studies examining the factors that contribute to these findings are limited (Peralta & Steele, 2009) and there is little research regarding racial differences in the type and amount of protective behavioral strategy used. Because race and gender have been identified as important factors in college students’ alcohol use (Borsari et al., 2007), the purpose of this study was to investigate the extent to which race and gender moderated the associations that protective behavioral strategy use had with alcohol consumption, harmful alcohol use, and negative alcohol-related consequences. We expected that the combination of being male, being White, non-Hispanic, and failing to use various types of protective behavioral strategies would result in increased alcohol consumption, higher levels of problematic drinking, and the most negative consequences.

METHOD

Participants and Procedure

Participants were 435 undergraduates (92 men, 343 women) at a university in the southern region of the United States who were enrolled in psychology courses and participated in return for partial fulfillment of a research participation requirement. Although a low number of men participated, this pattern is consistent with research at this university and closely resembles the demographic profile of students taking psychology courses at this university. After completing an Institutional Review Board–approved informed consent online, participants who self-selected to participate in the study completed measures concerning amount of alcohol consumed, protective behavioral strategy used when consuming alcohol, and negative consequences associated with alcohol use via a secure Web site. The three criteria for participation were that the individuals had to be between ages 18 and 25 years, have reported their racial/ethnic background as either White, non-Hispanic (i.e., Caucasian of European heritage) or African American (i.e., individuals of
sub-Saharan biological ancestry), and have consumed alcohol within the past 30 days. The average age for our participants was 19.90 years (standard deviation $[SD] = 1.79$ years), and the racial/ethnic composition of our sample was 68% White, non-Hispanic and 32% African American.

Measures

PROTECTIVE BEHAVIORAL STRATEGIES

The Protective Behavioral Strategies Scale (Martens et al., 2005) is a 15-item instrument that was developed to identify the form and extent of protective behavioral strategy used by individuals when they are consuming alcohol. Participants responded to the items using scales ranging from 1 (never) to 6 (always). This instrument consists of three subscales that are referred to as serious harm reduction (SHR) (3 items; e.g., “Use a designated driver”; $\alpha = .72$), limiting/stopping drinking (LSD) (7 items; e.g., “Alternate alcoholic and non-alcoholic drinks”; $\alpha = .87$), and manner of drinking (MOD) (5 items; e.g., “Avoid drinking games”; $\alpha = .73$). Previous research has shown that the subscales of the Protective Behavioral Strategies Scale are associated with less alcohol use and fewer alcohol-related problems among college students (Benton et al., 2004; Martens et al., 2005; Martens, Pedersen, LaBrie, Ferrier, & Cimini, 2007).

AMOUNT OF ALCOHOL CONSUMED

The amount of alcohol consumed by participants was assessed using the Daily Drinking Questionnaire (Collins, Parks, & Marlatt, 1985), which identifies the amount of alcohol consumed by respondents by asking them to report their drinking behavior for the past week. The total number of alcoholic drinks consumed during the past week was calculated by summing the number of drinks reported for each day. A standard drink was defined as a shot of hard liquor, 5 oz. of wine, 10 oz. of a wine cooler, or 12 oz. of beer. Scores for the Daily Drinking Questionnaire have been found to be associated with other instruments designed to measure the amount of alcohol consumed, such as the Drinking Practices Questionnaire (Collins et al., 1985).

HARMFUL DRINKING PATTERNS

The Alcohol Use Disorders and Identification Test (AUDIT) (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993) is a 10-item instrument that assesses harmful drinking patterns (e.g., “How often do you have six or more drinks on one occasion?”). The AUDIT is the leading instrument for the detection of early-phase risky drinking patterns across different cultures and age groups (e.g., Bradley, Bush, McDonell, Malone, & Fihn, 1998; Fiellin, Reid, & O’Connor, 2000; Reinert & Allen, 2002). The internal consistency estimate for the AUDIT was .81 for the current study.
NEGATIVE CONSEQUENCES OF DRINKING

The Brief Young Adult Alcohol Consequences Questionnaire (Kahler, Strong, & Read, 2005) consists of 24 yes/no items that assess the negative alcohol-related consequences that individuals have experienced during the past year (e.g., “I’ve not been able to remember large stretches of time while drinking heavily”). This instrument has been found to be a reliable and valid indicator of negative alcohol-related consequences among college students (Kahler et al., 2005). The internal consistency estimate for this instrument was $\alpha = .91$ for the current study.

RESULTS

Table 1 presents the means, SDs, and intercorrelations for the current measures. Consistent with previous studies (Johnston et al., 2009), White, non-Hispanic participants compared with African American participants reported higher levels of alcohol consumption ($M = 1.04$ vs. $M = 0.42$, respectively; $t = 5.43$, $p < .001$, $d = .52$), more harmful drinking patterns ($M = 0.67$ vs. $M = 0.44$, respectively; $t = 5.36$, $p < .001$, $d = .52$), and more negative consequences associated with drinking ($M = 7.48$ vs. $M = 5.27$, respectively; $t = 3.83$, $p < .001$, $d = .37$). White, non-Hispanic participants compared with African American participants reported less reliance on LSD strategies ($M = 24.20$ vs. $M = 26.76$, respectively; $t = 2.82$, $p < .01$, $d = .27$) and MOD strategies ($M = 19.08$ vs. $M = 20.69$, respectively; $t = 2.87$, $p < .01$, $d = .28$). No racial difference emerged for the SHR strategies ($M_{WNH} = 15.44$, $M_{AA} = 15.00$, respectively; $t = 1.44$, not significant). These analyses indicate that there are important racial differences

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<tr>
<th>TABLE 1 Intercorrelations and Descriptive Statistics</th>
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<tr>
<td>1. Serious Harm Reduction</td>
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<td>2. Limiting/Stopping Drinking</td>
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<td>3. Manner of Drinking</td>
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<td>4. Amount of Alcohol Consumed</td>
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<td>5. Harmful Drinking Patterns</td>
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<td>6. Negative Consequences of Drinking</td>
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<td>$M_{WNH}$ Participants</td>
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<td>$SD_{WNH}$ Participants</td>
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<td>$M_{AA}$ Participants</td>
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<td>$SD_{AA}$ Participants</td>
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Note. Correlations for African American (AA) participants ($n = 141$) are presented above the diagonal and correlations for the White, non-Hispanic (WNH) participants ($n = 294$) are presented below the diagonal. *$p < .05$; **$p < .01$; ***$p < .001$. 

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in the amount of alcohol consumed, the consequences stemming from alcohol consumption, and the strategies that individuals use to protect themselves from the negative consequences of alcohol use.

Race, Gender, and Protective Behavioral Strategies as Predictors of Alcohol Use, Harmful Drinking Patterns, and Negative Consequences of Drinking

A series of hierarchical multiple regression analyses were used to examine the possibility that protective behavioral strategies would moderate the associations between race and alcohol-related outcomes (i.e., amount of alcohol consumed, harmful drinking patterns, and negative consequences of drinking). The main effect terms for race (0 = White, non-Hispanic, 1 = African American), gender (0 = female, 1 = male), and protective behavioral strategies were entered on Step 1 with higher-order interactions entered on subsequent steps. Gender was included in these analyses because men have been found to consume more alcohol, use fewer protective strategies, and experience more negative alcohol-related consequences than women (Borden et al., 2011; Borsari et al., 2007). Continuous predictor variables were centered to test interactions, and these analyses were followed by the simple slopes tests recommended by Aiken and West (1991) to describe the interaction of continuous variables. The results of these analyses are presented in Table 2.

AMOUNT OF ALCOHOL CONSUMED

Main effects emerged for race ($\beta = -.19, t = -4.28, p < .001, d = -.42$), gender ($\beta = .20, t = 4.42, p < .001, d = .43$), and MOD ($\beta = -.20, t = -3.43, p < .001, d = -.33$), indicating that the highest levels of alcohol consumption were observed for White, non-Hispanic individuals, men, and those who reported low scores on the manner of drinking protective behavioral strategies. The main effects of race and gender were qualified by the two-way interactions that emerged from this analysis: race × SHR ($\beta = .13, t = 2.22, p < .05, d = .22$), race × LSD ($\beta = .14, t = 2.44, p < .05, d = .24$), and gender × SHR ($\beta = .15, t = 2.56, p < .05, d = .25$).

The predicted values for the race × SHR interaction are presented in Panel A of Figure 1. Simple slopes tests showed that the slope of the line representing the association between SHR and amount of alcohol consumed was negative for White, non-Hispanic individuals ($\beta = -.13, t = -2.41, p < .05, d = -.23$) but was positive for African American individuals ($\beta = .19, t = 3.24, p < .001, d = .32$). This pattern shows that the use of SHR strategies was associated with less consumption among White, non-Hispanic individuals, but African American individuals who reported greater reliance on SHR strategies actually consumed more alcohol than those who did not use this
TABLE 2 Analyses Regressing Alcohol-Related Outcomes onto Race, Gender, and Protective Behavioral Strategies

<table>
<thead>
<tr>
<th></th>
<th>Amount of alcohol consumed</th>
<th>Harmful drinking patterns</th>
<th>Negative alcohol consequences</th>
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<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$\Delta R^2$</td>
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<td><strong>Step 1</strong></td>
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<tr>
<td>Race</td>
<td>.17***</td>
<td>.17***</td>
<td>-.19***</td>
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<tr>
<td>Gender</td>
<td></td>
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<td>.20***</td>
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<tr>
<td>Serious Harm Reduction (SHR)</td>
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<tr>
<td>Limiting/Stopping Drinking (LSD)</td>
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<td>-.10</td>
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<tr>
<td>Manner of Drinking (MOD)</td>
<td>-.20***</td>
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<td><strong>Step 2</strong></td>
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<tr>
<td>Race $\times$ Gender</td>
<td>.21***</td>
<td>.04*</td>
<td>.30***</td>
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<tr>
<td>Race $\times$ SHR</td>
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<td>.13*</td>
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<tr>
<td>Race $\times$ LSD</td>
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<td>Race $\times$ MOD</td>
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<td>-.03</td>
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<tr>
<td>Gender $\times$ SHR</td>
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<td>Gender $\times$ LSD</td>
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<td>Gender $\times$ MOD</td>
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<td><strong>Step 3</strong></td>
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<tr>
<td>Race $\times$ Gender $\times$ SHR</td>
<td>.21***</td>
<td>.00</td>
<td>.30</td>
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<tr>
<td>Race $\times$ Gender $\times$ LSD</td>
<td>-.10</td>
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<td>-.10</td>
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<tr>
<td>Race $\times$ Gender $\times$ MOD</td>
<td>.06</td>
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<td>.06</td>
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<tr>
<td>Race $\times$ Gender $\times$ MOD</td>
<td>.00</td>
<td></td>
<td>-.03</td>
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*p < .05; **p < .01; ***p < .001.

protective behavioral strategy. This finding may have been influenced by the low levels of alcohol consumption among African American and the increased emphasis for African American students to reduce serious harm associated when drinking larger amounts of alcohol.

Panel B of Figure 1 shows the predicted values for the race $\times$ LSD interaction. The slope of the line representing the association between LSD and the amount of alcohol consumed was negative for White, non-Hispanic individuals ($\beta = -.20$, $t = -3.36$, $p < .001$, $d = -.33$) but was not significant for African American individuals ($\beta = .00$, $t < 1$, not significant). This pattern shows that the use of LSD strategies was associated with less consumption for White, non-Hispanic individuals but not for African American individuals. The lack of association between alcohol consumption and LSD among African American individuals was most likely affected by the relatively low alcohol consumption rates for these individuals.

The predicted values for the gender $\times$ SHR interaction are presented in Panel C of Figure 1. Simple slopes tests showed that the association between SHR and the amount of alcohol consumed was positive for men ($\beta = .24$, $t = 4.38$, $p < .001$, $d = .43$) but was not significant for women ($\beta = -.08$, $t = 1.24$, $p > .05$).
FIGURE 1 Predicted values for the amount of alcohol consumed illustrating the interaction of race × SHR (Panel A), race × LSD (Panel B), and gender × SHR (Panel C) at values that are one standard deviation above and below their respective means.
not significant). This pattern shows that the use of SHR strategies was associated with greater alcohol consumption for men. This finding may be influenced by the fact that SHR strategies do not focus on consumption but focus on behaviors such as using a designated driver.

HARMFUL DRINKING PATTERNS

Main effects emerged for race ($\beta = -0.20$, $t = -4.74$, $p < .001$, $d = -0.46$), SHR ($\beta = -0.12$, $t = -2.43$, $p < .05$, $d = -0.24$), and MOD ($\beta = -0.35$, $t = -6.50$, $p < .001$, $d = -0.63$), indicating that the most harmful drinking patterns were observed for White, non-Hispanic individuals, those who reported low scores on the serious harm reduction protective behavioral strategies, and those who reported low scores on the manner of drinking protective behavioral strategies. The main effect of race was qualified by the two-way interactions that emerged from this analysis: race × gender ($\beta = 0.11$, $t = 2.02$, $p < .05$, $d = 0.20$), race × SHR ($\beta = 0.14$, $t = 2.48$, $p < .05$, $d = 0.24$), and race × LSD ($\beta = 0.15$, $t = 2.80$, $p < .01$, $d = 0.27$).

The predicted values for the race × gender interaction are presented in Panel A of Figure 2. The slope of the line representing the association between gender and harmful drinking patterns was positive for African American individuals ($\beta = 0.14$, $t = 2.38$, $p < .05$, $d = 0.23$) but was not significant for White, non-Hispanic individuals ($\beta = 0.04$, $t < 1$, not significant). This pattern shows that African American women reported less harmful drinking patterns than the other participants in the study (i.e., White, non-Hispanic women, African American men, or White, non-Hispanic men).

Predicted values for the race × SHR interaction are presented in Panel B of Figure 2. Simple slopes tests showed that the slope of the line representing the association between SHR and harmful drinking patterns was negative for White, non-Hispanic individuals ($\beta = -0.17$, $t = -2.67$, $p < .01$, $d = -0.26$) but was not significant for African American individuals ($\beta = -0.03$, $t < 1$, not significant). This pattern shows that the use of SHR strategies was associated with less harmful drinking patterns for White, non-Hispanic individuals but not for African American individuals. The lack of association between harmful drinking patterns and SHR among African American individuals may have been due to the low levels of harmful drinking patterns reported by African American individuals.

Panel C of Figure 2 presents the predicted values for the race × LSD interaction. Simple slopes tests showed that the association between LSD and harmful drinking patterns was negative for White, non-Hispanic individuals ($\beta = -0.12$, $t = -2.38$, $p < .05$, $d = -0.23$) but was positive for African American individuals ($\beta = 0.16$, $t = 2.67$, $p < .01$, $d = 0.26$). This pattern shows that the use of LSD strategies was associated with less harmful drinking patterns among White, non-Hispanic individuals but African American individuals who reported greater reliance on LSD strategies actually reported more problematic drinking patterns than those who did not use this protective behavioral strategies.
FIGURE 2 Predicted values for harmful drinking patterns illustrating the interaction of race × SHR (Panel A), race × LSD (Panel B), and gender × SHR (Panel C) at values that are one standard deviation above and below their respective means.
NEGATIVE CONSEQUENCES OF DRINKING

Main effects emerged for race \((\beta = -0.12, t = -2.88, p < .01, d = .28)\), SHR \((\beta = -0.15, t = -3.01, p < .01, d = .29)\), and MOD \((\beta = -0.36, t = -6.67, p < .001, d = -.65)\), indicating that the most negative consequences of drinking patterns were reported by White, non-Hispanic individuals, those who reported low scores on the serious harm reduction protective behavioral strategies, and those who reported low scores on the manner of drinking protective behavioral strategies. The main effect of race was qualified by the three-way interaction that emerged for race, gender, and LSD \((\beta = -0.14, t = -2.09, p < .05, d = .20)\). The predicted values for this interaction are presented in Figure 3. As suggested by Cohen, Cohen, West, and Aiken (2003), this interaction was probed by first examining whether the two-way interaction of gender and LSD was significant for White, non-Hispanic individuals and African American individuals separately. These analyses found that the interaction of gender and LSD emerged for African American individuals \((\beta = -0.18, t = -2.39, p < .05, d = .23)\) but not for White, non-Hispanic individuals \((\beta = 0.09, t = 1.10, \text{not significant})\). Simple slopes tests were then conducted, which found that the slope of the line representing the association between LSD and the negative consequences of drinking was negative for African American men \((\beta = -0.25, t = -2.84, p < .01, d = -.28)\), White, non-Hispanic men \((\beta = -0.12, t = -2.24, p < .05, d = -.22)\), and White, non-Hispanic women \((\beta = -0.17, t = -2.64, p < .01, d = -.26)\), but it was not significant for African American women \((\beta = 0.06, t < 1, \text{not significant})\). Taken together, these results show that using the LSD strategy was associated with lower levels of negative consequences for everyone except African American women.

FIGURE 3 Predicted values for the negative consequences of drinking illustrating the interaction of race, gender, and LSD at values that are one standard deviation above and below their respective means.
DISCUSSION

As expected, White, non-Hispanic students consumed more alcohol than their African American peers. In addition, the results of this study are consistent with research suggesting that African American students experience fewer negative consequences than White, non-Hispanic students. The use of protective behavioral strategies was also associated with decreases in alcohol consumption, harmful drinking, and negative consequences for both groups, but significant differences emerged indicating that African American students used more LSD and MOD strategies than White, non-Hispanic students. These results highlight the importance of considering the influence of race when studying protective behavioral strategy use.

The primary purpose of this study was to examine the degree to which race and gender moderated the associations that protective behavioral strategies had with alcohol consumption, problem drinking, and negative consequences. As expected, the highest levels of alcohol consumption were observed for White, non-Hispanic individuals, men, and those who reported low scores on the manner of drinking protective behavioral strategies. This pattern is consistent with previous findings showing that men consume more alcohol than women and that White, non-Hispanic students consume more than African American students. Furthermore, the MOD strategies emphasize slowing down the ingestion of alcohol (e.g., “drink slowly rather than gulping or chugging, avoiding shots”), and those who use these strategies tend to consume less alcohol (Martens et al., 2005; Walters et al., 2007). The use of SHR strategies was associated with greater alcohol consumption for men. This finding may be influenced by the fact that SHR strategies do not focus on alcohol consumption but rather on behaviors such as “using a designated driver” or “knowing where your drink is at all times” (Martens et al., 2004). It is also possible that men and women may differ in their understanding of SHR strategies. Walters et al. (2007) suggested that women may understand the “knowing where your drink is at all times” strategy as a way to avoid harm, such as receiving a drink spiked with a date rape drug, but for men this strategy may be understood as a way to make drinking more convenient.

Interestingly, the use of SHR strategies was associated with less consumption among White, non-Hispanic individuals, but African American individuals who used more SHR strategies actually consumed more alcohol than those who did not use this protective behavioral strategy. Culturespecific socialization may explain this pattern. It has been documented that African American students tend to have less positive attitudes toward alcohol consumption and lack positive models for integrating alcohol into their social lives (Cooper et al., 2008). As a result, African American students may have a stronger desire to protect themselves from serious harm when drinking increased amounts of alcohol. That is, increased alcohol consumption may have triggered SHR strategies among African American individuals. The use
of LSD strategies was associated with less consumption for White, non-Hispanic individuals but not for African American individuals. Relatively low alcohol consumption rates for African American students may explain this result. In addition, African American students may use alcohol as a means for coping with negative mood states related to oppression and racism (Griffin, Botvan, Nichols, & Sheier, 2004) and, as a result, may be more likely to drink in isolation at home rather than in social settings. Martens (2007) suggested that protective behavioral strategy use may be minimized when drinking away from others because many protective behavioral strategies are relatively social in nature (e.g., “have a friend let you know when you’ve had too much to drink,” which is a LSD strategy).

Overall, African American women reported less harmful drinking patterns than the other participants in the study. Although the use of LSD strategies was associated with less harmful drinking patterns among White, non-Hispanic students, African American students who used more LSD strategies reported more problematic drinking patterns. This pattern may reflect the possibility that the reliance on protective behavioral strategies is a consequence of more modest alcohol-related problems for African American individuals based on their perception of alcohol consumption and their concern about developing alcohol problems later in life (Cooper et al., 2008). In other words, African American individuals who report modestly harmful drinking patterns may try to mitigate these problems using LSD strategies. The most negative consequences were reported by White, non-Hispanic students, those who reported low scores on the serious harm reduction protective behavioral strategies, and those who reported low scores on the manner of drinking protective behavioral strategies. Using the LSD strategy was associated with lower levels of negative consequences for everyone except African American women. The reason for the lack of association between LSD and negative consequences among African American women was most likely due to their relatively low levels of negative consequences. Taken together, these results highlight the importance of protective behavioral strategies in reducing negative consequences, but there may be different motives or factors facilitating protective behavioral strategy use for African American and White, non-Hispanic students. Different interpretations of protective behavioral strategy use between men and women have been suggested by Walters et al. (2007) and may require additional examination in future studies.

The current results contribute to the literature concerning protective behavioral strategies, alcohol consumption, and negative alcohol-related consequences by demonstrating the role that race and gender play in their associations. The associations that protective behavioral strategies have with alcohol consumption and negative consequences among college students have been clearly documented (Araas & Adams, 2008; Benton et al., 2004; Borden et al., 2011; Martens et al., 2004), and the current study highlights two potential variables that qualify these associations: gender and race. Based on our results, it appears that
interventions and prevention initiatives that target college drinking may benefit from being individualized and incorporating the potential influence of gender and race. Interventions may also benefit by providing specific feedback about protective behavioral strategy use and the relation of protective behavioral strategy use to harmful drinking patterns and negative consequences.

Limitations of this study indicate that our findings should be interpreted with caution. One limitation is that our sample was a convenience sample drawn from a single university. It is also important to note that the majority of the sample were women, which is important because men tend to consume more alcohol than women and use fewer protective behavioral strategies (Benton et al., 2004). Our study focused only on White, non-Hispanic and African American students, which limits the understanding of these relationships among other racial groups. Also, the data were collected in the southern region of the United States, which tends to have lower rates of alcohol consumption than other regions of the country (Johnston et al., 2009). These limitations suggest that the participants in the current study may represent lower rates of drinking and higher rates of protective behavioral strategies than would have been obtained in a broader sample that included more men and representing multiple regions of the country.

Our results also pointed to some areas that deserve further investigation. Future studies should include more racial groups to glean a broader understanding of the degree to which race moderates the associations that protective behavioral strategies have with alcohol consumption and negative alcohol-related consequences. Another direction for future research may be to examine the degree to which racial and gender differences in drinking motives may influence protective behavioral strategy use and its link with negative consequences. Also, it might be valuable to examine how cultural variables such as values, practices, and perceptions of alcohol may influence protective behavioral strategy use, as well as acculturation and racially based experiences, such as oppression, racism, and microaggressions. Furthermore, research concerning racial differences in the perceptions of the negative consequences of drinking may be beneficial because cultural differences could lead to alternative evaluations of these consequences, which may, in turn, influence racial differences in protective behavioral strategy use. Future research could also investigate whether there are race-specific protective strategies that are not captured by the existing measures of protective behavioral strategies.

REFERENCES


