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Dimensions of ethnic identity as protective factors for substance use and sexual risk behaviors in African American college students

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ABSTRACT

Objective: To examine ethnic identity and ethnic socialization as potential protective factors for risk behaviors among US college students. **Participants**: Participants were 398 African American and Afro-Caribbean students recruited from 30 colleges and universities during September 2008–October 2009. **Methods**: Data on hazardous alcohol use, substance use, sexual behaviors, ethnic identity, and ethnic/racial socialization were collected. Hierarchical linear and negative binomial regression analyses were conducted to determine the degree to which ethnic identity and ethnic/racial socialization predicted the risk behaviors. **Results**: Ethnic Identity affirmation, belonging, and commitment (EI-ABC) significantly predicted lower substance use and hazardous alcohol use. Ethnic/racial socialization was not a significant predictor of substance use or sexual risk behaviors. **Conclusions**: Components of ethnic identity are potentially protective against alcohol and substance use behaviors. Additional research is recommended to determine effective intervention strategies.

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Introduction

Emerging adulthood has been identified as a period of increased risk for potential health compromising behaviors such as heavy episodic drinking,[1] unsafe sexual behavior,[2,3] and drug use.[4] Arnett has identified this developmental period as occurring roughly between the ages of 18 and 29. Additionally, Arnett explained increases in these risky behaviors as part of a developmental process marking a transition from adolescence to adulthood.[5] Many individuals in this developmental stage are enrolled in college with recent estimates of almost 40% of emerging adults attending a college or university.[6] Studies of hazardous alcohol use, drug use, sexual risk, and related adverse consequences may provide needed information on prevention strategies for college students during this vulnerable developmental period.

Heavy drinking is an ongoing concern on college campuses. Several studies have examined the relationships among health and behavioral consequences of alcohol use in college students including academic problems, unprotected sex, injuries, and assaults.[7] Similar health and behavioral consequences have been noted for individuals using illicit substances. For example, in a systematic review of the literature, Shuper et al found that substance users are more likely to engage in behaviors such as unprotected sex while under the influence of alcohol or other drugs. This places them at greater risk for negative health consequences (such as HIV and other sexually transmitted infections).[8] Several other studies provide further evidence of the link between substance use and sexual risk behaviors among college students (sex with multiple partners and failing to use a condom during sex).[7,9,10] The primary health risk behavior identified in these studies has been the use of alcohol or another substance at the time of sexual activity.[2] It has been posited that these behaviors are the result of lowered inhibitions and cognitive impairment from substance use.[11,12] The importance of continued research in this area is illustrated by evidence that, although the incidence of HIV infection overall has seen some minimal decline in recent years, the decline in infection rates in college-aged students is not proportionate to that seen in the general population.[13] These data include individuals who are considered to be college-aged but also includes emerging adults who are not college students. Unfortunately, results of studies specific to college students from ethnic minority groups are insufficiently reported in the research literature.[14,15]

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The occurrence of these risk behaviors in ethnic minority college students may be of particular interest to researchers. Research suggests sexual risk patterns and substance abuse may vary by ethnic group.[16–17] For example, in one study researchers reported findings of inconsistent condom use and multiple sexual partners in African American college students.[18] However, another study of college students found higher rates of condom use in African American college students when compared to Hispanic and White students.[19] Additionally, researchers have found that African American adolescents and college students in emerging adulthood tend to engage in hazardous alcohol use less frequently than their White peers but are more adversely affected by alcohol and other substance use in adulthood.[20–22]

According to Adefuye et al, differences in risk behaviors exist when factors such as age, gender, and on or off campus status are considered.[3] These and other within-group differences point to the heterogeneous nature of this population. Thus, membership in a specific ethnic group should not be the primary factor to consider in predicting risky behaviors or in planning interventions for African American college students in emerging adulthood.

Scholars suggest that cultural factors such as ethnic identity and ethnic socialization may account for variability in the prevalence of and adverse effects of risky sexual behaviors and substance use within specific ethnic minority groups.[23] The frequency of high-risk behaviors among college students combined with the unique cultural experiences of African American students highlights the importance of identifying culturally specific protective factors for substance use, namely, problematic drinking and sexual risk behaviors. The current study seeks to understand the conditions under which ethnic identity and ethnic socialization are related to substance use, problematic drinking, and risky sexual behaviors in African American college students.

Scholars in the area of disparities research recognize that the unique experiences of ethnic minorities in the United States necessitate an exploration of cultural factors when considering appropriate prevention and intervention programs.[23,24] However, it is also recognized that continued research is needed to identify the mechanisms responsible for promoting these culturally based protective factors.[25] This underscores the need for continued exploration regarding the potential protective nature of ethnic identity and ethnic socialization when examining substance use and sexual risk behaviors.

Ethnic identity

Ethnic identity is the degree to which one feels a sense of belonging to one's ethnic group; interest and involvement in the ethnic group's activities and customs, and positive evaluation of the ethnic group.[26] Theorists conceptualize ethnic identity formation as a developmental process that changes over time and varies across individuals.[27] Researchers have hypothesized that ethnic identity can act as a protective factor against potentially harmful behavioral and social experiences. This protective effect has been shown in studies on alcohol, marijuana, and other drug use[28] and risky sexual behaviors[16] in ethnic minority college student samples. It has been posited that African Americans with higher ethnic identity have a greater awareness of negative stereotypes associated with substance use in their community and may be motivated by ethnic pride to avoid behaviors that reinforce those stereotypes.[28] These studies indicate that higher ethnic identity may be associated with lower levels of drug and alcohol use and decreased likelihood of engaging in risky sexual behaviors.

Varying methods of measuring ethnic identity across studies have limited the ability to adequately identify the potentially protective nature of the construct. A commonly used measure of ethnic identity is the Multigroup Ethnic Identity Measure (MEIM).[26] In early psychometric research on the MEIM, Phinney[26] combined components identified in factor analysis into one index score. Subsequent research has identified a two-factor solution comprising ethnic identity search (or exploration) which is a developmental cognitive component and affirmation, belonging and commitment (or simply commitment) which is an affective or attitudinal component of ethnic identity.[29] The search component includes items that measure an individual's efforts to learn more about their ethnic group and to participate in cultural practices. The affirmation, belonging and commitment component includes items intended to measure positive affirmation and a sense of commitment to one's ethnic group.[30] In the current study, we propose to examine the EI-ABC subscale and the ethnic identity search (EI-Search) subscale separately to determine whether they influence risk behaviors in different ways.

Ethnic socialization as a potential protective factor

The process by which parents or other family caregivers communicate with their children about their ethnic background, including messages about the values and accepted behaviors of their culture, is commonly referred to as racial or ethnic socialization.[31] The terms racial socialization and ethnic socialization have been applied to different groups to describe somewhat different practices. The racial socialization literature originated with researchers' attempts to understand how African American parents transmit messages preparing their children for racial barriers and stereotypes and instilling a sense of racial pride. The ethnic socialization literature

originated in studies of the experiences of immigrant groups (of different races and various countries of origin) in the United States and the messages those families transmitted to their children about the importance of retaining cultural norms and values and managing pressures to assimilate into the majority culture.[32] Since African American parents likely socialize their children about both race and ethnicity, the terms are often used interchangeably or combined in research with African Americans.[33]

Ethnic-Racial socialization has been defined as "the transmission of parents' world views about race and ethnicity to children by way of subtle, overt, deliberate, and unintended mechanisms."[34] Research indicates that African Americans reported receiving preparation for racism as children felt it was beneficial to their development and sense of identity.[35] It is not known how or whether ethnic-racial socialization relates directly to substance use and sexual risk behaviors. However, ethnic-racial socialization has been posited as a protective factor in the relationship between perceived discrimination and substance use.[23] Although studies have examined issues of ethnic-racial socialization as a possible protective factor in several mental health related issues,[32] very few studies have examined it as it relates to risk behaviors that may impact physical health and none have attempted to examine the more complex relationships among ethnic-racial socialization, sexual risk behaviors, alcohol and drug use, and ethnic identity. Although much of previous research on both ethnic identity development and ethnic-racial socialization have focused on adolescent populations, research indicates that ethnic-racial socialization continues to have an important impact during emerging adulthood.[33,36]

The present study

The purpose of the present study is to examine the relationships among risk behaviors, ethnic identity, and ethnic-racial socialization. First, we sought to test the direct association between alcohol and other drug use and risky sexual behaviors among African American and Afro Caribbean college students. As in previous studies, we expect a positive relationship between alcohol and other drug use and sexual risk behaviors. Second, we sought to examine the relationship between the cultural variables and the identified risk behaviors. Specifically, we examined the degree to which affirmation, belonging and commitment, ethnic identity search, and ethnic-racial socialization predicted risk behaviors in this sample. The risk behaviors of interest for this study were illicit drug use, risky sexual behaviors (sex with multiple partners or with individuals not well known and sex without a condom) and hazardous alcohol use. Previous reports from epidemiological data have shown these behaviors to be among the leading behavioral risks for illness, injury, and death in the United States.[37] We hypothesized that ethnic-racial socialization and EI-ABC would act as protective factors in hazardous alcohol, illicit drug use and risky sexual behaviors. As there is mixed information in the literature on the protective ability of ethnic identity search (EI-Search), we are treating this as an exploratory variable with no a priori hypothesis.

Methods

Participants

Data for this study were collected as a part of the University Study of Multi-Site Identity and Culture (MUSIC) research collaborative.[38] The study included participants from a racially and ethnically diverse group of undergraduate students from 30 participating universities across the United States. The original sample consisted of 10,573 (M age = 20.3 years, SD = 3.37 years; 73% women) and was collected from 2008 to 2009. For the present study, the working sample consisted of 398 students. All participants self- identified as being African American (n = 271) or Afro-Caribbean (n = 127). 27.1% of participants identified as male and 72.9% identified as female. The mean age was 20.8 years (SD = 3.85).

Measures

Alcohol use

To assess hazardous alcohol use, we used responses on the Alcohol Use Disorders Identification Test (AUDIT).[39] The AUDIT asks questions about the extent of and consequences of hazardous alcohol use during the previous year. The AUDIT score is derived by summing responses to 10 items. Sample items include "How often do you have a drink containing alcohol?" and "How often during the last year have you found that you were not able to stop drinking once you had started?" Previous studies have shown evidence for validity and reliability of the AUDIT in college student samples.[40] Cronbach's alpha for the scale in the current study was .88.

Drug use

Drug use was assessed using the illicit drug use subscale of the Youth Risk Behavior Surveillance Survey (YRBSS).[41] Participants were asked about hazardous drug use with questions like "In the last 30 days, how many times have you smoked marijuana?" Additional questions captured the use of other illicit drugs including injection drug use, hard drugs (such as ecstasy, cocaine, speed, meth, and ice), and prescription misuse. This

subscale presented a 5-point Likert scale ranging from 1 (*never*) to 5 (*11 or more times*) in determining risk behaviors. This subscale has been successfully used with a college sample in previous research studies.[40] Cronbach's alpha for the scale in the current study was .78.

Sexual risk taking

Risky sexual behaviors were assessed using the sexual risk-taking subscale of the YRBSS).[41] Participants were asked about sexual behaviors with questions like "In the last 30 days, how many times have you had sex without using a condom?" This subscale presented a 5-point Likert scale ranging from 1 (*never*) to 5 (*11 or more times*) in determining risk behaviors. This subscale has been successfully used with a college student sample in previous research.[40] Cronbach's alpha for the scale in the current study was .62.

Ethnic identity

Ethnic identity was measured with the MEIM.[26] This measure comprises of 12 items that provide a total score representing the degree to which the respondent identifies with his/her ethnic group. There are also two identified subscales indicating that the MEIM can assess for two factors of ethnic identity: 1) Ethnic Identity – Search (EI-Search); and 2) EI-ABC. An example of an item in the MEIM includes "I have a lot of pride in my ethnic group." Participants indicated the degree to which they agreed with each statement with higher scores indicating a greater sense of ethnic identity. Cronbach's alpha for the full scale in the current study was .91, for the EI-ABC subscale .91, and for the EI-Search subscale .93.

Ethnic-racial socialization

The revised version of the Familial Ethnic Socialization Measure[42] was used to examine the participants' beliefs about the subtle, overt, deliberate, or unintended transmission of their parent's world view about race and ethnicity. The scale comprises 12 items that consist of questions like "My family teaches me about my ethnic/cultural background" and "My family participates in activities that are specific to my ethnic group." Questions are scored on 5-point Likert scale ranging from 1 (*not at all true)* to 5 (*very true).* Higher scores indicate greater levels of ethnic-racial socialization. Cronbach's alpha within the current study is .93.

Procedures

Participants were recruited through psychology, sociology, education, and business courses at all participating universities. Participants were directed to an online survey and received extra credit in exchange for their participation in the study. After reading a description of the study, participants provided consent and proceeded to the online survey. All study procedures were approved by the institutional review boards at each of the study sites.

Approximately 31% of participants were missing data on the risk behaviors (hazardous alcohol use, sexual risk, and drug use) and 14–18% of data were missing on the cultural variables (ethnic identity and ethnic socialization). We used multiple imputation to maximize the inclusion of all participants in the data analysis.[43] Missing data were assumed to be missing at random. Data are assumed to be missing at random when the probability of the missing data on *Y* is unrelated to the value of Y. The difficulty with this assumption is that it cannot be tested due to not knowing the actual values of the missing data. Therefore, it is necessary to rely on theory and what is known about the data that were collected. To determine the appropriateness of deeming the data to be missing at random, an analysis of the patterns of missingness was conducted. Missing data on the sex risk items were found to be related to the response on an item asking "In the past 30 days, how many different sexual partners have you had?" Of the participants who indicated zero (0) on this response, 62.5-63.6% did not answer the sex risk questions or the substance use risk questions. These non-response items account for the majority of missing data on the risk variables.

Using SAS version 9.4 and the multiple imputation procedure, PROC MI, we imputed 10 datasets and summarized the results using PROC MIANALYZE, a SAS procedure that averages parameter estimates across the results from the imputed datasets and makes appropriate adjustments to the standard errors to account for the imputations.

Results

Risk behavior engagement

Rates of engagement in each risk behavior were dichotomized to indicate whether or not the participant had been involved in the behavior during the 30 days prior to completing the questionnaire. Each behavior was recoded as zero (0) if the participant indicated that they had not engaged in the behavior and as one (1) if the participant indicated that they had engaged in the behavior. Following a procedure similar to one used in previous research with data from the parent study,[38] dichotomization of the risk behaviors was conducted only for the purpose of providing descriptive information on the sample and not to test any of the study hypotheses.[40] Similarly, hazardous alcohol use was coded as one (1) for individuals scoring at or above 8 on the

Table 1. Health risk behavior *engagement by gender and by ethnic group*.

	Gender			Ethnicity		
Behavior	Male	Female	x^2	African American	Afro-Caribbean	x^2
Hazardous alcohol use	55.3	36.6	4.23*	39.8	43.4	.192
Illicit drug use Marijuana use	26.6	19.9	1.50	20.0	25.0	.923
Hard drug use	7.7	7.2	.02	8.2	5.5	.653
Inhalant use	6.4	3.9	.83	5.1	3.3	.445
Injecting drug use	7.8	3.4	2.47	5.6	2.2	1.65
Prescription drug misuse	7.7	6.8	.08	7.7	5.5	.447
Unsafe sexual behavior						
Oral sex	64.1	63.6	0.01	63.6	62.6	.024
Anal sex	23.4	12.6	4.94*	16.9	12.2	1.04
Unprotected sex	39.7	61.2	10.50**	56.4	52.7	.337
Casual sex	30.8	12.6	12.85**	17.4	17.6	.001
Sex while drunk/high	41.0	26.6	5.58*	33.2	25.3	1.819

Note. Numbers refer to the percentage of participants in each gender and ethnic group who reported any engagement in the behavior in question.
*$p < .05$. **$p < .01$.

AUDIT as recommended in prior research.[44] Within our sample of individuals who identified themselves as being a member of a Black ethnic group, we used the two largest subgroups (African American and Afro-Caribbean) for the current study. We cross-tabulated rates of risk behaviors across gender and ethnic group identification. Significant differences in health risk behavior participation emerged when examined by gender but no significant ethnic group differences emerged. Men reported higher rates of hazardous alcohol use and sexual risk behaviors including casual sex, anal sex, and sex while drunk or high. Women reported significantly higher rates of unprotected sex than men (See Table 1).

Hypothesis tests

For the purposes of the following correlation and regression analyses related to the hypothesis tests, the risk variables were used in their scaled score forms.[40] Hazardous alcohol use was treated as a continuous variable and analyzed through multiple linear regression. For all other risk behaviors, we used a negative binomial model because responses to these items were positively skewed with zero being the most frequent response.

Spearman's correlation coefficients and descriptive statistics for all study variables are presented in Table 2. Spearman's rho was appropriate because the risk variables were measured on an ordinal scale. Given that the initial chi square analyses found no significant difference between African American and Afro Caribbean students on the variables of interest, the two groups were combined for the remaining regression analyses. In testing the direct association between alcohol and other drug use and risky sexual behaviors among students in our sample, the expected positive relationships between hazardous alcohol use and sexual risk behaviors ($r = .522$, $p<.001$) and drug use and sexual risk behaviors ($r = .574$, $p<.001$) were supported.

Hierarchical linear regression analyses were conducted to test for the effects of ethnic-racial socialization and ethnic identity, on hazardous alcohol use. Participants' age and gender were entered in Step 1 as covariates. In Step 2, EI-ABC and ethnic identity-search were entered. In Step 3, ethnic socialization was entered.

Results of the hierarchical regression are provided in Table 3. Results of this analysis indicated that age and gender accounted for a significant amount of variability in hazardous alcohol use, $R^2 = .02$, F (2, 390) = 3.03, $p = .049$). The addition of the ethnic identity measures (EI-ABC along with EI-Search) significantly improved the model, total $R^2 = .04$, R^2 change = .02, F (4, 388) = 3.44, $p = .023$. The addition of ethnic socialization in

Table 2. Spearman's rank order correlations and descriptive statistics for the study variables.

	1	2	3	4	5	6
1. Alcohol use		.650**	.522**	−.074	−.167**	−.084
2. Illicit drug use			.574**	−.107	−.176**	−.061
3. Risky sexual behavior				−.086	−.073	−.013
4. EI-search					.623**	.546**
5. EI-ABC						.538**
6. Familial ethnic socialization						
Means	10.72	1.58	4.21	3.63	4.21	46.44
Standard deviations	8.46	2.26	3.07	.839	.753	9.62

*$p < 0.05$ level, **$p < .01$,

Table 3. Hierarchical multiple regression analysis predicting hazardous alcohol use.

Variable	*B*	SE *B*	*β*	*Parameter p*	R^2 *model*
Block 1					.018
Age	−.14	.12	.05	.223	
Gender	−2.21	1.01	.05*	.028	
Block 2					.038
Age	−.15	.12	.05	.204	
Gender	−1.90	.99	.05	.056	
EI-ABC	−2.20	.82	.07**	.008	
EI-search	.46	.76	.07	.550	
Block 3					.000
Age	−.15	.12	.05	.202	
Gender	−1.90	1.00	.05	.058	
EI-ABC	−2.17	.85	.07*	.012	
EI-search	.48	.85	.08	.574	
Ethnic socialization	−.01	.07	.07	.921	

*$p < .05$. **$p < .01$

Step 3 did not improve the model. The full model predicted a statistically significant proportion of the variability in hazardous drinking after controlling for the effects of age and gender, total $R^2 = .04$, F (5, 387) = 2.76, $p = .018$.

We specified a negative binomial regression model to examine the degree to which EI-ABC, EI-Search, and ethnic socialization predicted the other risk variables. The data for the outcome variables (sex risk and drug risk), are treated as count data. Responses to these items are nonnegative integers and positively skewed. According to Hilbe, appropriate analyses for this type of data can include Poisson Regression. However, a characteristic of the Poisson model is equality in the mean and variance. When the variance is greater than the mean, the data are considered to be overdispersed which can result in biased parameter estimates. Indicators of an overdispersed model is a Pearson χ 2 much greater than 1 and a standard deviation score greater than the mean.[45] Preliminary examination of the data indicated a Pearson χ 2 = 2.241. We specified a negative binomial regression model to accommodate for overdispersion. Examination of the model fit using negative binomial regression yielded a Pearson χ 2 = 1.05. Therefore, the negative binomial model was deemed a better fit for the data.

According to Schwartz et al, the incidence rate ratio (IRR) is an index of effect size representing the effect of a unit change on the expected count for the dependent variable. For example, in the current study, predicting risk behaviors, values of IRR less than 1 indicate a negative relationship between the predictor and engagement in the risk behavior. Values greater than 1 indicate a positive relationship. In this study, values less than 1 on the cultural variables (Ethnic identity and Ethnic socialization) are considered protective for the risk behaviors. Results of the negative binomial regression analysis predicting risk indicated that Ethnic Identity–ABC was negatively related to substance use risk (IRR = ÷ .49, 95% CI [−0.85, −0.12], $p < .01$). This indicates that higher scores on EI-ABC predicts lower expected substance use risk behaviors.

Comment

The purpose of the current study was to examine the relationships among risk behaviors including substance use, hazardous alcohol use, and risky sexual behaviors and the degree to which cultural variables such as ethnic identity and ethnic-racial socialization predict the risk behaviors. A greater understanding of these risk factors and whether ethnic identity and ethnic-racial socialization may have potentially protective effects on drug use, hazardous alcohol use, and risky sexual behaviors may be important in decreasing the negative health consequences of these behaviors.

This finding of a positive relationship among alcohol, other drug use, and risky sexual behaviors is consistent with the extensive evidence that hazardous alcohol use is associated with risk behaviors for this African American sample of college students. Since research has shown that African American adolescents and young adults consume less alcohol than their White peers and yet experience more of the negative consequences,[21] it has become important to examine these issues within a prevention framework. The exploration of within-group cultural variations adds to the understanding of potential protective factors for hazardous alcohol consumption and substance use.

Our hypotheses that ethnic identity and ethnic-racial socialization would be protective against illicit drug use, risky sexual behaviors, and hazardous drug use were partially supported. Examining bivariate correlations, Ethnic Identity – ABC was found to be negatively associated with alcohol use and illicit drug use. After controlling for age and gender, Ethnic Identity -ABC was found to have a significant protective effect for drug use but not risky

sexual behaviors with individuals higher on the affirmation, belonging, and commitment component of ethnic identity reporting a lower likelihood of engaging in drug use and lower hazardous alcohol use.

The research literature has indicated that ethnic identity has a potentially protective impact on substance use and sexual risk behaviors in African American emerging adults. The current findings indicate that this holds true for alcohol use and illicit drug use in this sample when examining the EI-ABC component of ethnic identity. This provides some insight into the possible mechanism of the protective effect of ethnic identity. EI-ABC is intended to measure positive affirmation for and sense of commitment to one's ethnic group. This may indicate that, for this sample, the ability to affirm personal and cultural pride leads to a tendency to avoid potentially harmful behaviors. The use of a college student sample illuminates the continued need for effective prevention efforts and educational programs targeting these risk factors in emerging adults.

The present results may have important implications for working with African American college students. The finding that the affirmation, belonging, and commitment components of ethnic identity were protective against substance use and hazardous alcohol use is consistent with previous studies supporting an assertion that the development of a strong ethnic or racial identity is related to healthier psychological functioning.[16,28]

It is known that ethnic minority individuals are more likely to participate in interventions that are culturally relevant.[46,47] However, there are few prevention programs available to address issues of substance use and sexual risk behaviors in African American emerging adults and even fewer that specifically target ethnic identity as a protective mechanism. The results of the current study further highlight the importance of developing interventions that promote positive elements of ethnic identity and cultural heritage adapted specifically for use with African American college students in emerging adulthood.

Based on our results, African American emerging adults who seek counseling for substance use and sexual risk issues may benefit from interventions that promote the affirmation, belonging, and commitment aspects of ethnic identity. One potential intervention focus area is in self affirmation. Self-affirmation tasks require an individual to focus on and affirm sources of personal pride and have been shown to reduce feelings of social rejection and mistrust and reduce the negative effects of perceived discrimination and stereotype threat on academic performance in ethnic minority individuals.[48–50] The most common way these interventions have been studied is through writing tasks in which individuals are asked to write about core personal values. Typically, participants are given a list of core values and instructed to choose one or a few that they identify as being most important to them and write an essay on why these values are important with specific examples of times when the value has been important.[51] Although these types of interventions have thus far not targeted ethnic identity specifically, they have shown benefits for college students and ethnic minority adults and adolescents.[51] Thus, it seems plausible that they may be adapted to target EI-ABC to improve the experience of African American college students in prevention interventions or to improve treatment engagement in this population.

Limitations

Although this study has provided valuable findings, the limitations must be considered. Missing data on risk variables was an area of concern for this study. Although we have attempted to preserve information available through multiple imputation methods, obtaining accurate and complete information on these types of behavioral variables remains a challenge for researchers. It is uncertain whether these omissions are due to the sensitive nature of the questions or the wording of the sex and drug risk questions. Additionally, the lower internal consistency of the sex risk scale relative to the other measures in the study is an area of concern. This may also be associated with the level of missing data on this measure. Future studies may consider using methods that encourage participants to provide complete data or include a plan for follow up to attempt to collect missing data on variables of interest. The current study's cross-sectional design does not allow for causal inferences about the relationships found in the study. Future studies might consider employing a longitudinal study design to better understand the potential causal relationships among the variables. Additionally, controlled trials testing interventions targeting ethnic identity as a mechanism for behavioral change may be helpful in developing programs aimed at enhancing protective factors in this population.

Additionally, although the finding that the addition of EI-ABC to the regression model predicting hazardous alcohol use was statistically significant, the effect size was small. Therefore, this result should be interpreted with caution and future studies should consider whether there are other unexplored variables not include in the model that may contribute to the variance.

The current study has specific relevance for university counselors or others who work closely with or plan interventions for ethnic minority college students. The use of college students, however, does limit the generalizability

of the results. It is known that emerging adults in the community differ from college students in a number of areas. Therefore, to increase generalizability to more adults in this age group, researchers might consider using both college attending and noncollege emerging adults in future studies.

Conclusion

Overall, the present study adds to the rather limited literature on ethnic identity and risky health behaviors in African American students by providing important information on within-group differences that may contribute to health disparities. These considerations point toward the importance of continued research and the urgent need to create programs that support emerging adults from various cultural backgrounds who may benefit from interventions aimed at preventing the negative consequences of substance use, risky sexual behavior, and hazardous alcohol use. Future studies might also examine whether the ethnic identity domains examined in the current study may provide an additional protective barrier in the relationship between discrimination experiences and risky behaviors. From a clinical perspective, the results of the study highlight the importance of utilizing a culturally relevant prevention framework in the development of behavioral interventions aimed at reducing risk and promoting healthier behaviors.

References

1. Dawson DA, Grant BF, Stinson FS, Chou PS. Another look at heavy episodic drinking and alcohol use disorders among college and noncollege youth. *J Stud Alcohol*. 2004;65(4):477–488. doi:10.15288/jsa.2004.65.477.
2. Anderson PB, Mathieu DA. College students' high-risk sexual behavior following alcohol consumption. *J Sex Marital Ther*. 1996;22(4):259–264. doi:10.1080/00926239608404404.
3. Adefuye AS, Abiona TC, Balogun JA, Lukobo-Durrell M. HIV sexual risk behaviors and perception of risk among college students: implications for planning interventions. *BMC Public Health* 2009;9:281–293. doi:10.1186/1471-2458-9-281.
4. White HR, McMorris BJ, Catalano RF, Fleming CB, Haggerty KP, Abbott RD. Increases in alcohol and marijuana use during the transition out of high school into emerging adulthood: the effects of leaving home, going to college, and high school protective factors. *J Stud Alcohol* 2006;67:810–822. doi:10.15288/jsa.2006.67.810.
5. Arnett JJ. The developmental context of substance use in emerging adulthood. *J Drug Issues* 2005;35(2):235–254. doi:10.1177/002204260503500202.
6. U.S. Department of Education, Digest of Education Statistics: 2013. In: Institute of Education Sciences NCfES, ed2013.
7. Hingson RW, Zha W, Weitzman ER. Magnitude of and trends in alcohol-related mortality and morbidity among U.S. college students ages 18–24, 1998–2005. *J Stud Alcohol Drugs Suppl.* 2009;(16):12–20. doi:10.15288/jsads.2009.s16.12.
8. Shuper PA, Neuman M, Kanteres F, Baliunas D, Joharchi N, Rehm J. Causal considerations on alcohol and HIV/AIDS — A systematic review. *Alcohol Alcohol* 2010;45(2):159–166. doi:10.1093/alcalc/agp091.
9. Mundt MP, Zakletskaia LI, Fleming MF. Extreme college drinking and alcohol-related injury risk. *Alcohol Clin Exp Res* 2009;33(9):1532–1538. doi:10.1111/j.1530-0277.2009.00981.x.
10. Gullette DL, Lyons MA. Sexual sensation seeking, compulsivity, and HIV risk behaviors in college students. *J Community Health Nurs* 2005;22(1):47–60. doi:10.1207/s15327655jchn2201_5.
11. Fergusson DM, Lynskey MT. Alcohol misuse and adolescent sexual behaviors and risk taking. *Pediatrics* 1996;98(1):91–96.
12. Santelli JS, Robin L, Brener ND, Lowry R. Timing of alcohol and other drug use and sexual risk behaviors among unmarried adolescents and young adults. *Fam Plann. Perspect* 2001;33(5):200–205. doi:10.2307/2673782.
13. Centers for Disease Control and Prevention. HIV/AIDS surveillance report: cases of HIV infection and AIDS in the United States. 2011.
14. Heads AM, Dickson JW, Asby AT. Correlates of HIV risk-taking behaviors among African-American college students: HIV knowledge and ethnic identity. *J Health Care Poor Underserved* 2017;28(2):155. doi:10.1353/hpu.2017.0058.
15. Younge SN, Corneille MA, Lyde M, Cannady J. The paradox of risk: Historically Black college/university students and sexual health. *J Am Coll Health* 2013;61(5):254–262. doi:10.1080/07448481.2013.799480.
16. Espinosa-Hernandez G, Lefkowitz ES. Sexual behaviors and attitudes and ethnic identity during college. *J Sex Res* 2009;46(5):471–482. doi:10.1080/00224490902829616.
17. Smith SM, Stinson FS, Dawson DA, Goldstein R, Huang B, Grant BF. Race/ethnic differences in the prevalence and co-occurence of substance use disorders and independent mood and anxiety disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychol Med* 2006;36(7):987–998. doi:10.1017/S0033291706007690.
18. Bazargan M, Kelly EM, Stein JA, Husaini BA, Bazargan SH. Correlates of HIV risk-taking behaviors among African-American college students: the effect of HIV knowledge, motivation, and behavioral skills. *J Natl Med Assoc* 2000;92(8):391–404.
19. Valentine PA, Wright DL, Henley GL. Patterns of safer sex practices among allied health students at historically black colleges and universities. *J Allied Health* 2003;32(3):173–178.
20. Chartier K, Caetano R. Ethnicity and health disparities in alcohol research. *Alcohol Research and Health* 2010;33(1-2):152–160.
21. Nasim A, Belgrave FZ, Jagers RJ, Wilson KD, Owens K. The moderating effects of culture on peer deviance and alcohol use among high-risk African-American adolescents. *J Drug Educ* September 1, 2007;37(3):335–363. doi:10.2190/DE.37.3.g.

22. Randolph ME, Randolph ME, Torres H, Gore-Felton C, Lloyd B. Alcohol use and sexual risk behavior among college students: understanding gender and ethnic differences. *Am J Drug Alcohol Abuse* 2009;35(2):80–84. doi:10.1080/00952990802585422.
23. Neblett EW, Terzian M, Harriott V. From racial discrimination to substance use: the buffering effects of racial socialization. *Child Dev Perspect*. 2010;4(2):131–137. doi:10.1111/j.1750-8606.2010.00131.x.
24. Jones SCT, Neblett EW. Racial–ethnic protective factors and mechanisms in psychosocial prevention and intervention programs for Black youth. *Clin Child Fam Psychol Rev*. 2016;19(2):134–161. doi:10.1007/s10567-016-0201-6.
25. Neblett EW, Rivas-Drake D, Umaña-Taylor AJ. The promise of racial and ethnic protective factors in promoting ethnic minority youth development. *Child Dev Perspect*. 2012;6(3):295–303. doi:10.1111/j.1750-8606.2012.00239.x.
26. Phinney JS. The multigroup ethnic identity measure: a new scale for use with diverse groups. *J Adolesc Res* 1992;7 (2):156–176. doi:10.1177/074355489272003.
27. Phinney JS. Understanding ethnic diversity: the role of ethnic identity. *Am Behav Sci* 1996;40(2):143–152. doi:10.1177/0002764296040002005.
28. Pugh LA, Bry BH. The protective effects of ethnic identity for alcohol and marijuana use among Black young adults. *Cult Divers Ethnic Minor Psychol* 2007;13(2):187. doi:10.1037/1099-9809.13.2.187.
29. Blozis SA, Villarreal R. Analytic Approaches to the Multigroup Ethnic Identity Measure (MEIM). *Appl Psychol Meas* 2014:0146621614536769. doi:10.1177/0146621614536769.
30. Roberts RE, Phinney JS, Masse LC, Chen YR, Roberts CR, Romero A. The structure of ethnic identity of young adolescents from diverse ethnocultural groups. *J. Early Adolesc*. 1999/08/01 1999;19(3):301–322. doi:10.1177/0272431699019003001.
31. Umaña-Taylor AJ, Zeiders KH, Updegraff KA. Family ethnic socialization and ethnic identity: a Family-Driven, Youth-Driven, or Reciprocal Process? *J Fam Psychol*. 2013;27(1):137–146. doi:10.1037/a0031105.
32. Hughes D, Rodriguez J, Smith EP, Johnson DJ, Stevenson HC, Spicer P. Parents' ethnic-racial socialization practices: a review of research and directions for future study. *Dev Psychol*. 2006;42(5):747. doi:10.1037/0012-1649.42.5.747.
33. Reynolds JE, Gonzales-Backen MA, Allen KA, et al. Ethnic–racial identity of black emerging adults: the role of parenting and ethnic–racial socialization. *J Fam Issues* 2016.
34. Hughes D. Correlates of African American and Latino parents' messages to children about ethnicity and race: a comparative study of racial socialization. *Am J Community Psychol* 2003;31(1-2):15–33. doi:10.1023/A:1023066418688.
35. Demo DH, Hughes M. Socialization and racial identity among Black Americans. *Soc Psychol Q* 1990:364–374. doi:10.2307/2786741.
36. Anglin DM, Wade JC. Racial socialization, racial identity, and Black students' adjustment to college. *Cult. Divers Ethnic Minor Psychol* 2007;13(3):207. doi:10.1037/1099-9809.13.3.207.
37. Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. *JAMA* 2004;291 (10):1238–1245. doi:10.1001/jama.291.10.1238.
38. Weisskirch RS, Zamboanga BL, Ravert RD, et al. An introduction to the composition of the Multi-Site University Study of Identity and Culture (MUSIC): a collaborative approach to research and mentorship. *Cult Divers Ethnic Minor Psycho*. 2013;19(2):123–130. doi:10.1037/a0030099.
39. Saunders J, Aasland O, Babor T, De La Fuente J, Grant M. Development of the AUDIT: WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction* 1993;88:791–804. doi:10.1111/j.1360-0443.1993.tb02093.x.
40. Schwartz SJ, Weisskirch RS, Zamboanga BL, et al. Dimensions of acculturation: associations with health risk behaviors among college students from immigrant families. *J Couns Psychol* 2011;58(1):27–41. doi:10.1037/a0021356.
41. Kann L, Kinchen SA, Williams BI, et al. Youth risk behavior surveillance—United States, 1997. *J Sch Health* 1998;68 (9):355–369. doi:10.1111/j.1746-1561.1998.tb07202.x.
42. Umaña-Taylor AJ, Yazedjian A, Bámaca-Gómez M. Developing the Ethnic Identity Scale using Eriksonian and social identity perspectives. *Identity: Intl J Theory Res*. 2004;4(1):9–38. doi:10.1207/S1532706XID0401_2.
43. Schlomer GL, Bauman S, Card NA. Best practices for missing data management in counseling psychology. *J Couns Psychol* 2010;57(1):1–10. doi:10.1037/a0018082.
44. Babor T, de la Fuente J, Saunders J, Grant M. *AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Health Care*. Geneva: World Health Organization; 1989. WHO/MNH/DAT 89.4;1989.
45. Hilbe JM. *Negative Binomial Regression*. Cambridge University Press; 2011.
46. Roosa MW, Dumka LE, Gonzales NA, Knight GP. Cultural/ethnic issues and the prevention scientist in the 21st century. *Prev Treat* 2002;5(1):Article ID 5. doi:10.1037/1522-3736.5.1.55a.
47. Metzger I, Cooper SM, Zarrett N, Flory K. Culturally sensitive risk behavior prevention programs for African American adolescents: a systematic analysis. *Clin Child Fam Psychol. Rev* 2013;16(2):187–212. doi:10.1007/s10567-013-0133-3.
48. Burgess DJ, Taylor BC, Phelan S, et al. A brief self-affirmation study to improve the experience of minority patients. *Appl Psychol Health Well Being* 2014;6(2):135–150. doi:10.1111/aphw.12015.
49. Cohen GL, Garcia J, Apfel N, Master A. Reducing the racial achievement gap: a social-psychological intervention. *Science* 2006;313(5791):1307–1310. doi:10.1126/science.1128317.
50. Cook JE, Purdie-Vaughns V, Garcia J, Cohen GL. Chronic threat and contingent belonging: protective benefits of values affirmation on identity development. *J Pers. Soc. Psychol* 2012;102(3):479. doi:10.1037/a0026312.
51. Cohen GL, Sherman DK. The psychology of change: self-affirmation and social psychological intervention. *Annu Rev Psychol*. 2014;65(1):333–371. doi:10.1146/annurev-psych-010213-115137.