

# National College Health Assessment Measuring Negative Alcohol-Related Consequences among College Students

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**Abstract** Alcohol-related consequences among students have been a source of concern for colleges nationwide. Prior research shows that alcohol may lower a person's inhibitions and reduce their capacity to make responsible, safe decisions [1]. As such, as a student's alcohol consumption increases, so may his or her odds of engaging in risky behaviors that may yield negative consequences such as alcohol poisoning, and sexual related consequences (e.g. STIs, pregnancies, rape, etc.). In the present study, 923 college students were surveyed at a regional university in the South (67% female, 31% male) about their alcohol consumption and negative alcohol-related consequences they have experienced. Older female college students reported experiencing more negative alcohol-related consequences than males. Students who participated in intramural sports, were associated with a Greek organization, were involved in an abusive relationship, had increased perceived stress, or who suffered from depression reported significantly more alcohol use and negative alcohol-related consequences. In contrast, college students that received higher grade point averages reported less consumption of alcohol and experienced fewer negative alcohol-related consequences.

**Keywords:** college health, NCHA, alcohol use, self-report survey

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## 1. Introduction

For traditional students in higher education, the college years are a period of both academic and personal growth that generally represents their first foray into independence. While the college experience includes intensive academic classes and rigorous examinations, students are also exposed to an active party scene, which can involve alcohol usage, criminal behaviors and engagement in sexual risk taking [2]. Student drinking patterns have received a great deal of attention because research has shown that college students who frequently participate in drinking games and associated activities are increasingly at risk for alcohol poisoning, sexual assault and other sexual related consequences such as sexually transmitted infections (STIs), HIV, and unwanted pregnancies [2,3,4]. Other negative alcohol-related consequences include getting arrested, harming oneself, harming other people or causing destruction to property [5].

Although participation in drinking activities has become the social norm on college campuses, other elements, such as psychosocial factors (e.g. coping skills, stress, and the desire for acceptance), may contribute to the likelihood that a student may experience negative alcohol-related consequences [6]. Certain risk factors increase student participation in consuming hazardous amounts of alcohol, which can result in negative outcomes.

For example, students that perceive positive alcohol expectancy outcomes from drinking games and have a higher level of behavioral willingness of accepting a consequence after drinking are at risk for experiencing negative alcohol related consequences [1,7]. In contrast, research shows that certain factors protect students from engaging in consuming alcohol. High social capital, strong protective behavioral strategies (PBS), self-regulation and positive subjective norm perspective, protect students from experiencing negative alcohol related consequences [2,4,8,9].

The current study uses the American College Health Association-National College Health Assessment (NCHA) to examine the variety of risk and protective factors associated with negative alcohol-related consequences among college students. We hypothesized that risk factors for students would include association with a Greek organization, being involved in an abusive relationship and suffering from higher levels of perceived stress and depression. We also hypothesized that protective factors would include a high GPA, which might indicate a student's unwillingness to engage in activities that might detract from scholastic achievement.

## 2. Methods

The NCHA was administered during the fall semester of 2010. The sample consisted of 923 participants. The

majority of the sample was female (70%). The age range varied from eighteen to twenty-five years ( $M = 19.7$   $SD = 1.8$ ) with the bulk age range of participants ranging from 18-20 years of age (72%). With regard to race/ethnicity, 91% of participants self-identified as Caucasian ethnicity, 3% self-identified as African Americans and the remaining participants self-identified as American Indian or Alaskan Native (2%), Hispanic or Latino (2%), Asian or Pacific Islander (2%) or "Other" (1%). Finally, the class standing of participants was as follows: freshmen (39%), sophomores (21%), juniors (18%), seniors (13%), fifth year or more (5%), graduate or professional (5%) and other (< 1%).

## 2.1. Design and Procedure

Data for this study came from the NCHA survey, which has been used in over 500 universities nationwide since 2000. This survey was administered in an online format to students at a mid-sized, regional university in the south. The institutional-review board approved the NCHA survey. Students provided informed consent prior to voluntarily participating in the confidential and anonymous survey. The questionnaire consisted of 66 questions that included inquires about mental and physical health, precautions used (e.g., wearing a seat belt), alcohol, drugs and other substances consumed, sex behavior, and alcohol-related consequences among college students in the past 30 days to 12 months. The questionnaire also included the standard demographic variables, such as age, class standing and ethnicity.

### 2.1.1. Outcomes

This study had two outcomes of interest. The first outcome measure, *Alcohol use in the past 30 days*, was measured with the item, "Within the last thirty days, on how many days did you use alcohol (beer, wine, liquor)?" Responses to this item were coded 0 "Never used," 1 "Have used, but not in the last 30 days," 2 "1-2 days," 3 "3-5 days," 4 "6-9 days," 5 "10-19 days," 6 "20-29 days," and 7 "Used daily." Our second outcome of interest, *Consequences of alcohol use*, was based on a series of 9 items that began with, "Within the past 12 months have you experienced any of the following as a consequence of your drinking," followed by items such as, "Forgot where you were or what you did," "Did something you later regretted," and "Had unprotected sex?" These 9 items were originally coded 0 "No" and 1 "Yes" (Cronbach's  $\alpha = 0.68$ ). These items were summed to create a measure of the number of consequences each participant experienced as a result of their alcohol drinking behavior.

### 2.1.2. Predictors

Two scales were used as predictors of negative consequence of student drinking behaviors. *The depressive symptoms* scale included 11 items such as, "Have you ever felt very lonely," "Have you ever felt very sad," and "Have you ever felt so depressed it was difficult to function?" These items were coded, 0 "Never," 1 "Not in the last 12 months," 2 "In the past 12 months," 3 "In the last 30 days," 4 "In the last 2 weeks." The mean of these 11 items was computed to represent a mean depressive symptom score (Cronbach's  $\alpha = 0.87$ ). *The stress scale* included a series of 12 items which began, "Within the

last 12 months, has any of the following been traumatic or very difficult for you to handle" and continued with items such as, "Academics," "Family problems," and "Finances." These items were coded 0 "No" and 1 "Yes." A sum score was computed to indicate the number of stressful life events that each participant experienced in the past 12 months (Cronbach's  $\alpha = 0.82$ ). Finally, the predictor *Emotional abuse* was measured with the item, "Within the past 12 months, have you been in an intimate (couple/partnered) relationship that was emotionally abusive? (e.g. called derogatory names, yelled at, ridiculed?)" Responses to this item were coded 0 "No" and 1 "Yes".

### 2.1.3. Control Variables

A measure of age was included as a control measure. Since many of the participants were over the age of 21, this may have had an influence on the amount and frequency of alcohol that they consumed compared to those less than 21 years of age. A measure of gender was included as a binary measure (0 = male and 1 = female). Membership in a Greek organization has also been associated with alcohol consumption and was included as a binary measure (0 = No, 1 = yes) [8]. A binary measure (0 = No, 1 = Yes) of participation in intramural sports was also included as a proxy for students' involvement in extracurricular activities. Students' also reported their approximate cumulative grade point average (1 = D/F, 2 = C, 3 = B, 4 = A) and this was included as a control for academic performance.

### 2.1.4. Data Analysis

All data analyses for the current study were conducted using STATA 11 [10]. After the primary predictor variables were computed (i.e. depressive symptoms and stress), two multiple linear regression models were used to determine if these scales were associated with the outcome variables (i.e. alcohol use in the past 30 days and consequences of alcohol use). The control variables were simultaneously entered into the full models to determine if these predictor variables had explanatory power above and beyond these covariates.

## 3. Results

Descriptive statistics are presented in Table 1. The proportion of participants that reported Greek affiliation was similar to the overall University population from which this sample was drawn.

Table 1. Descriptive statistics

Variable	Percentage	M(SD)	Range
Female	70%		
Greek involvement	9%		
Participation in intramural sports	24%		
Emotional abuse	13%		
Age		19.68(1.79)	18-25
GPA		3.33(0.70)	1-4
Depressive symptoms		1.52(0.85)	0-3.73
Perceived stress		3.13(2.99)	0-12
Dependent variables			
Alcohol use		1.80(1.77)	0-7
Consequences of alcohol use		0.61(1.16)	0-6

Nearly one quarter (24%) of participants reported participation in intramural sports. Students reported

relatively high grade point averages ( $M = 3.33$ ,  $SD = 0.70$ ). 13% of students reported involvement in an emotionally abusive relationship in the past 12 months. Mean levels of perceived stress were fairly low ( $M = 3.13$ ,  $SD = 2.99$ ) and depressive symptoms were also relatively low ( $M = 1.52$ ,  $SD = 0.85$ ). On average, students reported having used alcohol infrequently in the past 30 days, ( $M = 1.80$ ,  $SD = 1.77$ ). Likewise, recent experiences of negative consequences related to alcohol use were relatively low

with student reports of an average of less than one negative alcohol-related outcome ( $M = 0.61$ ,  $SD = 1.16$ ).

### 3.1. Alcohol Use in the Past 30 Days

The results of the regression model predicting alcohol use in the past 30 days demonstrated depression, perceived stress, and involvement in an emotionally abusive relationship did not influence alcohol use (Table 2).

**Table 2. Prediction of Alcohol use in the Past 30 Days**

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	$R^2$	Adjusted $R^2$
Age	0.32	0.04	0.33	9.07**	0.18	0.17
Gender	-0.12	0.14	-0.03	-0.84		
GPA	-0.27	0.09	-0.11	-2.95**		
Greek	0.73	0.23	0.12	3.19**		
Intramural sports	0.35	0.15	0.08	2.30*		
Emotional abuse	0.35	0.20	0.07	1.74		
Depressive symptoms	0.01	0.01	0.03	0.60		
Perceived stress	0.03	0.03	0.06	1.29		

Among the control variables included in the model, older students were more likely to drink more frequently ( $B = 0.32$ ,  $p < .01$ ), students with better grades were less likely to drink ( $B = -0.27$ ,  $p < .01$ ), students involved in Greek organizations were more likely to drink ( $B = 0.73$ ,  $p < .01$ ), and participation in intramural sports was also associated with more frequent alcohol consumption ( $B = 0.35$ ,  $p < .05$ ).

### 3.2. Consequences of Students' Alcohol Consumption

The results from the regression model predicting the consequences of students' alcohol consumption are presented in Table 3. Students in an emotionally abusive relationship in the past 12 months were more likely to experience negative consequences of their alcohol use compared to their peers who were not in this type of intimate relationship ( $B = 0.50$ ,  $p < .01$ ). In contrast to the model predicting alcohol use, greater levels of perceived stress also accompanied a greater number of consequences of drinking ( $B = 0.06$ ,  $p < .01$ ).

**Table 3. Prediction of Consequences of Alcohol Use**

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	$R^2$	Adjusted $R^2$
Age	0.07	0.02	0.11	2.88**	0.15	0.14
Gender	-0.28	0.10	-0.11	-2.90**		
GPA	-0.16	0.06	-0.10	-2.64**		
Greek	0.49	0.15	0.12	3.19**		
Intramural sports	0.37	0.10	0.13	3.60**		
Emotional abuse	0.50	0.13	0.14	3.75**		
Depressive symptoms	0.01	0.01	0.06	1.19		
Perceived stress	0.06	0.02	0.15	3.16**		

Several of the control variables were also associated with drinking consequences. Older students experienced a greater number of consequences ( $B = 0.07$ ,  $p < .01$ ). Males experienced fewer consequences than females ( $B = -0.28$ ,  $p < .01$ ), and members of Greek organizations ( $B = 0.49$ ,  $p < .01$ ) and students that participated in intramural sports ( $B = 0.37$ ,  $p < .01$ ) were more likely to experience alcohol-related consequences compared to their peers who were not involved in these organizations or activities. In contrast, students with a high GPA were less likely to experience negative alcohol related consequences ( $B = -0.16$ ,  $p < .01$ ).

## 4. Comment

The objective of the present study was to identify risk factors that contributed to both alcohol use and negative outcomes related to alcohol use among college students. The identification of these risk factors will help inform interventions and policies targeted towards the reduction of alcohol-related consequences. The results of our analysis can be readily summarized.

Perhaps the most noteworthy finding of the present study is that while both students in abusive relationships and students who had higher levels of perceived stress were not significantly more likely to engage in drinking over a 30 day period, they were more likely to experience consequences when they did consume alcohol. These findings suggest that while these students do not drink more frequently, they may be more prone to drinking more recklessly when they do engage in alcohol consumption. In fact, it is well established that drinking for the purpose of coping or escapism leads to heavier levels of alcohol consumption [11,12,13]. As such, perhaps interventions focused towards helping students recognize abusive relationships and assisting them with their stress coping skills would be more fruitful in reducing negative consequences of drinking rather than directly targeting drinking behaviors themselves.

A second noteworthy finding was that older students reported having a higher number of negative consequences related to heavy alcohol consumption. This finding was consistent with other research, which showed that older students were more likely to drink and engage in several different types of high-risk activities as a result of

their drinking. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) reported that older college students, ages ranging from 21-24, were more likely to binge drink (i.e., four or more alcoholic beverages for females, and five or more alcoholic beverages for males), drive under the influence and experience more negative alcohol-related consequences than younger college students, ages ranging from 18-20 in the years from 1999 through 2005 [14]. Results also showed that male college students were less likely to experience negative alcohol-related consequences compared to females. Males who engage in sexual behaviors after the consumption of alcohol reported *positive* alcohol-related experiences, such as pleasure and a boost in status among peers compared to females [15]. Female college students may be more likely to feel guilt, regret and experience a sense of committing a violation against societal expectancies. These negative alcohol-related experiences increased depression among females more than males [15]. Similar results were found in the study conducted by Gaher & Simons (2007) that examined the relationship between gender and the evaluation of the expected likelihood of experiencing negative alcohol-related consequences among college students [16]. Males were more likely to evaluate and expect positive alcohol-related consequences when consuming large amounts of alcohol than females [16]. Males also reported that avoiding negative alcohol-related problems was less important than it was to females [3,16].

Increased involvement in intramural sports (24%), and Greek organizations (9%) increased student alcohol consumption in the past 30 days. Findings also suggest that members of intramural sports and Greek organizations are more likely to experience negative alcohol-related consequences. Students who have a close affiliation with certain groups, to the extent that their social identity is defined by this group membership, may be more likely to follow the norms established by the group. Thus, individuals who are a part of an organization that engages in abundant alcohol use are more likely to consume alcohol and experience more negative alcohol-related consequences [17].

In contrast, students who had a high GPA were less likely to consume alcohol, and experience negative alcohol-related consequences. This finding may be explained by Hirshi's *Social Bond Theory*, which outlined four protective factors that may reduce an individual's engagement in delinquent behaviors. These factors included attachment, commitment, involvement and belief. Hirschi (1969) stressed that if an individual's bonds to society based on these four elements are weak, the likelihood that an individual will engage in delinquent increases [18]. Arguably, having a high GPA among college students represents an individual's commitment to ensuring that all assignments are completed, tests are thoroughly studied for, and perhaps the lack of down time prevents an individual from engaging in deviant behavior such as binge drinking. Increasing students' commitment to the positive outcomes associated with scholastic achievement may directly reduce both alcohol use and negative consequences experienced as a result of increased consumption.

Considering that a number of alcohol-related consequences can have lifelong ramifications, a number of school-sponsored interventions can be implemented to

reduce hazardous alcohol consumption (i.e., four or more alcoholic beverages for females and five or more for males) and the subsequent negative alcohol-related consequences that often result, some of which were outlined above. The findings of this study suggest that if the university community addresses the presence of abusive relationships and provides assistance with high stress levels, negative consequences of alcohol use should naturally decline. These interventions coupled with policies directly addressing drinking behaviors would arguably have a greater impact than solely targeting alcohol use on college campuses.

#### 4.1. Limitations

Despite the knowledge gained from this study, there are several limitations that deserve mention. First, only a small portion of college students from the university participated in the survey (9%). Additionally, the female to male ratio of the study was not representative of the university population. According to the Student Body Profile of 2010, gender was almost evenly divided on the campus surveyed with females comprising a slight majority (53%). Also, students in the sample had fairly high GPA's (M = 3.3). According to the Student Body Profile of Fall 2010 reported that the average GPA for undergraduate students was 2.60. The resulting self-selection bias may limit the ability to generalize the results to the entire student body.

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