An Examination of Drunkorexia: Calorie Regulation Prior to Alcohol Consumption among College Students

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Abstract

Due to the high rates of underage drinking and disordered eating on college campuses, researchers have labeled the combination of these behaviors as "drunkorexia." It describes excessive weight control methods prior, during, and after alcohol consumption. Various studies have explored the popularity of drunkorexia among college students, but few have investigated the relation of this behavior to organizations such as athletics or the Greek community. The purpose of this study was to determine whether a potential relationship exists between Greek affiliation, sex, class rank, alcohol consumption, eating patterns, and drunkorexia behaviors. This study also explored athletic affiliation and drunkorexia. All participants (n = 224) completed an online survey that included demographic questions, questions from the Eating Attitudes Test (EAT), College Life Alcohol Salience Scale (CLASS), and Drunkorexia Motives and Behaviors Scale (DMBS). Results indicated that higher levels of alcohol consumption were associated with Greek affiliation and higher levels of drunkorexia were associated with both Greek affiliation and athletic participation. Overall, there were weak gender and class differences for drunkorexia behaviors. The findings suggest that individuals who engage with the Greek or collegiate athletic community are more likely to consume excessive amounts of alcohol and exhibit drunkorexia behaviors. The results of the current study were generally consistent with previous literature that examined drunkorexia among college campuses. Noted are the implications for this study to tailor educational and intervention programs on eating and drinking behaviors for at-risk groups to reduce the prevalence of this harmful pattern on college campuses.

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It is well-known that underage drinking is a common part of university culture. More specifically, the time period known as the "college years" (ages 18 to 24) is marked by extreme alcohol consumption (Substance Abuse and Mental Health Services Administration, 2004). Annually, alcohol use in 18 to 24 year olds plays a part in 97,000 sexual assaults, 1,800 deaths, 599,000 injuries, and 646,000 assaults (Hingson, Zha, & Weitzman, 2009). Excessive alcohol consumption is much higher in the 18 to 24-year-old age group, specifically those in college, when compared to 18 to 24 year olds not enrolled (White & Hingson, 2014).

Results from a 2002 study by O'Malley and Johnston found that around 40% of college students have reported binge drinking in the previous 30 days, which is recognized as four or more drinks for females and five or more drinks for males in one occasion. The consequences that stem from high intakes of alcohol include sexual assault, unsafe sex, alcohol poisoning, harmful eating behaviors, and violent behavior (White & Hingson, 2014). Despite these negative consequences, students have expressed positive consequences of alcohol consumption, such as the ability to unwind, withdraw from the stresses of school, and a boost in social interactions (Park & Grant, 2005). Furthermore, the structure of a four-year university allows students to have more free time, easier access to alcohol, limited communication with parents, and diminished reinforcement of drinking laws (Weitzman, Nelson, & Wechsler, 2003). These factors contribute to the popularity of alcohol misuse with college students (Crawford & Novak, 2006).

A fundamental aspect of the university culture is the endorsement of alcohol consumption and frequent heavy drinking. The increase in freedom and a social climate that embraces alcohol

prompts students to view alcohol as essential for an ideal college experience (Crawford & Novak, 2006). Excessive alcohol consumption is regarded as a "rite of passage" among students before they begin to take on more responsibility as an adult (Crawford & Novak, 2006). Those who do engage in heavy drinking believe alcohol will add to their college experience and consider it to be customary to the university culture (Crawford & Novak, 2006).

Research has shown that in particular, first-year college students consume more alcohol and drink more regularly than older college peers (Weitzman, Nelson, & Wechsler, 2003). Freshmen are susceptible to encountering severe alcohol-associated problems during their first few months on a college campus (Larimer & Cronce, 2002). The stress from an increase in academic rigor, the acceptance of underage drinking as part of the university culture, and a lack of parental control all contribute to first-year students' increase in alcohol consumption and frequency (Baer, 1994). Additionally, freshmen students comprise the majority of party-goers at social gatherings on campus and Greek houses where excessive alcohol consumption is common (Harford, Weschler, & Seibring, 2002).

College students who consider alcohol to be vital to their college experience are prone to be heavy drinkers, have friends who engage in heavy drinking, and be in danger of suffering from alcohol-related issues (Crawford & Novak, 2006). Osberg et al. (2010) created The College Life Alcohol Salience Scale (CLASS), which assesses the degree to which students believe drinking is a necessary part of college life. Using that scale, Osberg and colleagues found that college students with the view that alcohol is essential to their time in college are likely to choose social settings that promote high levels of alcohol consumption (Osberg, Insana, Eggaert, & Billingsley, 2011).

The characteristics of participating in heavy drinking, a view that alcohol is crucial to college, and a setting that encourages drinking appear to be representative of social Greek organizations. Members of Greek organizations are more likely to regard alcohol as an essential part of the college experience than those who are not members and they choose the Greek community because of its affiliation with drinking (Ham & Hope, 2003). Previous research has suggested that those who are members of the Greek community are heavier and more frequent drinkers than those not affiliated (Routon & Walker, 2014). Fraternity and sorority members who engage in heavy alcohol consumption have a higher chance of suffering from the negative consequences of drinking, which include physical injuries, sexual assault, and driving under the influence (Ragsdale et al., 2012).

Along with alcohol abuse being prevalent among college students, unhealthy eating behaviors are also common (Eisenberg, Nicklett, Roeder, & Kirz, 2011). Research has found a co-occurrence between alcohol consumption and harmful eating patterns (Bulik et al., 2004). College females are more vulnerable to body dissatisfaction and likely to develop unhealthy eating behaviors than college males (Grossbard, Lee, Neighbors, & Larimer, 2009). Moreover, roughly 60% of college females report taking up binge eating and habitual dieting (Tylka & Sulbich, 2002). College-aged males who engaged in heavy drinking displayed an increased desire for masculinity and self-esteem, which was subject to weight-related factors (Grossbard et al., 2009). First-year college students, specifically, were found in a study to be at a higher risk for developing harmful eating patterns (Hoffman, Policastro, Quick, & Lee, 2006). This is evidence that the “freshman 15,” which is a popular term describing weight gain during a student’s first year in college, is more than just a myth.

Due to the demands of both athletics and academics, student athletes often experience higher levels of stress than non-athletes (Kimball & Freysinger, 2003). A study found that student athletes who have greater levels of stress are more likely to engage in bad health habits (Hudd et al., 2000). Female college athletes exhibited more body dissatisfaction than female non-athletes and both male and female college athletes displayed more disordered eating habits than their respective counterparts (Pritchard, Milligan, Elgin, Rush & Shea, 2007). Furthermore, a comparison study of binge-drinking between student athletes and non-athletes found that athletes participated in more alcohol consumption and binge drinking than non-athletes (Tewksbury, Higgins, & Mustaine, 2008). It has been suggested that an increase in unhealthy drinking behaviors among college athletes may be due to the attitude of "work hard, play hard" that is popular in the athletic culture (Leichliter, Meilman, Presley, & Cashin, 1998).

Recently, a study found that both females and males in college reported that they take part in extreme dieting and exercise to offset excessive amounts of alcohol consumption (Bryant, Darkes, & Rahal, 2012). This particular behavior has been labeled with the colloquial term "drunkorexia" by the media to characterize individuals who use extreme weight control methods such as starvation, binge eating, or purging to offset excessive alcohol use (Jennings, 2010). Drunkorexia can be represented through (a) neglecting meals to conserve calories or make up for the calories consumed through alcohol, (b) extreme weight loss methods to offset heavy drinking, and/or (c) drinking large amounts of alcohol to induce sickness that will lead to purging the already consumed food (Chambers, 2008). Students have reported participating in disproportionate eating behaviors before, during, and after consumption of alcohol (Ward & Galante, 2015). A study of a nationally representative sample of US college students found a significant association between exercise, alcohol consumption, and restrictive eating behaviors

(Barry & Piazza-Gardner, 2012). Drunkorexia behavior occurs for the purpose of avoiding weight gain as well as increasing one's intoxication in a short period of time (Burke, Cremeens, Vail-Smith, & Woolsey, 2010). Giles et al. (2009) discovered that the chances of intoxication for males and female were 99% and 137% higher, respectively, for those limiting their caloric intake than for those who did not.

Just as there are relationships between gender, age, Greek membership, and binge drinking, there are also relationships between these groups and drunkorexia behaviors. In noting gender differences, another study by Eisenberg et al. (2014) reported that females had significantly higher chances of engaging in disordered eating preceding alcohol consumption than males. With regard to Greek affiliation, recent research revealed that membership in a Greek organization was associated with higher levels of unhealthy eating behaviors and higher levels of drunkorexia (Ward, Galante, Trivedi, Kahrs, 2015). In considering class rank, there is a particular study that focused on freshmen, which found 14% of first-years reported engaging in drunkorexia behaviors (Burke et al., 2010).

The combination of restrictive eating and extreme alcohol consumption can have severe health consequences, specifically with females (Barry, Whiteman, Pizza-Gardner, Jensen, 2013). In general, females have less body water and less alcohol metabolism activity than males (Frezza et al., 1990). These characteristics make females more susceptible to higher blood alcohol concentration levels than males. A study in Canada found that for females, engaging in drunkorexia was related to harmful eating behaviors, alcohol problems, and symptoms of depression and anxiety (Roosen & Mills, 2015).

Despite what we know about the prevalence of drunkorexia on college campuses, there has been limited research on the motivating factors for college students exhibiting drunkorexia.

Burke et al. (2010) gathered five common reasons from students for restricting caloric intake prior to alcohol consumption that included (1) an increased ability to drink, (2) an avoidance of sickness, (3) forgetting to eat, (4) lacking hunger, and (5) not having the money for both food and drinking.

Current Study

In the past decade, there has been a vast amount of literature and research published about "drunkorexia." Few studies explored in-depth the association of various college student demographics and drunkorexia. To account for these limitations, the primary goal of the current study was to examine the relationship between Greek affiliation, sex, class rank, alcohol consumption, eating patterns, and drunkorexia behaviors. To that end, I posited three research hypotheses: 1) Members of Greek life would be more likely to exhibit drunkorexia behaviors than those who are not members (Ward et al., 2015); 2) Females would be more likely to exhibit drunkorexia behaviors than males (Eisenberg et al., 2014); 3) Freshmen would be more likely to exhibit drunkorexia behaviors than upperclassmen (Burke et al., 2010).

In addition to these hypotheses, I also had one exploratory research question. The question extended the hypotheses to participation in collegiate athletics. There is a reason to suspect that athletic affiliation might also be related to drunkorexia on college campuses due to the dual demands of academics and athletic performance among student athletes. While studies have explored the drinking and eating behaviors of student athletes in comparison to non-athletes, few have researched the particular behavior of drunkorexia. Therefore, I also examined the relationship between athletes and drunkorexia behavior.

Method

Participants

Following Institutional Review Board approval (Appendix A), this study recruited 224 participants from Appalachian State University's Psychology Department Psychology Recruitment tool SONA (see Table 1). These participants were college students, aged 18 - 26. There were 15.2% males, 84.4% females, and 0.4% non-binary. For the purpose of this study, only those who identified as males and females were examined. Of the 219 participants in the sample who indicated their age, the average age was 19.45 (*SD* = 1.36). The majority of participants were White/Caucasian (87.1%). Other races/ethnicities were: Hispanic Latino (6.3%), Black/African American (2.7%), Asian or Pacific Islander (3.1%), and not listed (0.9%). Participants comprised all academic years (freshmen, *n* = 90, 40.2%; sophomore, *n* = 69, 30.8%; junior, *n* = 43, 19.2%; senior, *n* = 22, 9.8%). About a sixth (*n* = 37, 16.5%) of the sample was a member of a fraternity or sorority and a ninth (*n* = 25, 11.2%) of the sample was an athlete (either club or varsity). Participants received 1 ELC credit for their participation.

Procedures

Upon reading the consent form (Appendix B), agreeing to participate, and confirming that they were 18-years-old or older, participants were asked to answer demographic questions about themselves. Following the demographic questions, participants were informed that the next set of questions would pertain to eating and drinking behaviors. To promote honest responding, they were reminded that the study was confidential and their names were not attached to their answers, so there was no way to know that a participant responded a certain way. Afterwards, participants were asked about alcohol consumption. A total of 52 participants were exempted from further questioning because they responded 'no' to consuming alcohol. If applicable,

participants were then asked about their alcohol consumption in the previous 30 days. A total of 11 participants were exempted from further questioning because they responded 'no.'

Next, participants were given the definition of caloric intake, the average amount of calories needed to maintain one's current weight, and asked if they restrict their caloric intake on days when they knew they would consume alcohol. If applicable, participants completed a portion of the DMBS that was specific to motivation and behaviors for drunkorexia. A total of 118 participants were exempt from that portion because they responded 'no' to the caloric intake restriction questions. All participants completed the rest of the DMBS that was specific to behaviors during and after alcohol consumption. Finally, all participants, including those exempted from questions pertaining to drinking or eating behavior, completed the CLASS and EAT (see Appendix C).

Measures

Alcohol Consumption. Following the definition of a standard drink and binge drinking, two items were included to measure alcohol consumption. The two questions asked, "During the past 30 days, how many days have occurred where you had at least one drink?" and "On average, how many days do you binge drink in a month?" Participants responded to questions using a 6-item scale with choices including, "0 days", "1-2 days", "3-5 days", "6-9 days", "10-19 days", and "20+ days."

Drunkorexia Motives and Behaviors Scales (DMBS; Ward & Galante, 2015). The DMBS contains a total of 52 items that evaluate participants' engagement in drunkorexia. Each item includes the prompt "Rate the frequency of each statement" and the items are on a Likert type-scale including never (1), seldom (2), sometimes (3), often (4), and very often (5). It includes five factors: Drunkorexia Motives (15 items) classified into the reasons why individuals

engage in drunkorexia (example: “Because it helps me enjoy a party”), Drunkorexia Behaviors (8 items) that relate to different behaviors associated with drunkorexia (example: “By exercising more than normal”), Drunkorexia Fails (10 items) classified into avoidance/approach behaviors used when drunkorexia fails (example: “Avoid drinking beer” and “Drink hard liquor because it has lower calories”), Drunkorexia During an Alcohol Consumption Event (9 items) that related to drinking behaviors and calories (example: “Drink as much as your friends drink” and “Will make yourself throw up so that you don’t have as many calories in your system”), and Post-Drinking Compensation (10 items) classified into behavior following a night of drinking (example: “Purge or vomit to get rid of the extra calories.”)

The original scale used first-person and for the purpose of this study, the DMBS was adapted to second-person to ensure clarity in the participants’ responses. In addition, one item was revised for clarity: the statement “So that I would get high when I drank” was modified to “So that I would get drunk faster when I drank” to resolve any confusion that participants might have about whether the item was referring to drugs rather than alcohol. Before conducting analyses on the three hypotheses, we reduced the data collected from this scale. For each of the five factors, we computed the average of the items scores to create seven values: Motives, Behaviors, Avoidance, Approach, Drinking Behaviors, Calories, and Post-Drinking.

College Life Alcohol Salience Scale (CLASS; Osberg et al., 2010). The CLASS evaluated subjects’ views in regards to how fundamental alcohol consumption is within the university culture (Osber et al., 2010). The CLASS consists of 15 items with the prompt “To what extent do you agree with the following statements based on alcohol use during college?” followed by statements, such as “Parties with alcohol are an integral part of college life” and “To become drunk is a college rite of passage.” Participants responded to items using a 5-point Likert

scale with choices including, “Strongly Disagree,” “Disagree,” “Neither Agree nor Disagree,” “Agree,” and “Strongly Agree.” Internal consistency within the current sample was .83 (M = 50.37, SD = 12.97, range = 15.0 - 105.00).

Eating Attitudes Test (EAT; Garner, Olmsted, Bohr & Garfinkel, 1982). The EAT is a 26-item questionnaire that is used to measure irregular eating behaviors and concerns about weight. The participants rated their feelings towards eating behavior and weight concerns. The EAT is scored for a total of all of the items (example items: “I am preoccupied with a desire to be thinner,” “I feel extremely guilty after eating,” and “I have the impulse to vomit after meals”). Additionally, the EAT has three subscales: Dieting, Bulimia and Food Preoccupation, and Oral Control. Participants responded to the items using a 6-point Likert scale with choices including, “Never,” “Rarely,” “Sometimes,” “Often,” “Very Often,” and “Always.” The choices of “Never,” “Rarely,” and “Sometimes” were scored as zero and the rest of the choices were scored 1, 2, and 3 respectively. A score above 20 is viewed as a sign of an eating disorder problem. In the current sample, Cronbach’s alpha for the total scale was .89, with a mean and standard deviation of 8.95 and 9.75, respectively.

Results

Alcohol Consumption

Approximately 76.8% (n = 172) of the sample reported consuming alcohol and 93.6% (n = 161) of those participants reported consuming alcohol in the past 30 days. The most common response from participants was that 3-5 days (36.6%) had occurred where they had at least one drink in the past 30 days. The most common response from participants for engaging in binge drinking was an average of 1-2 days (35.5%) in a month.

Eating Behaviors

In addition, 22 participants met the criteria for a potential eating disorder (i.e., EAT ≥ 20). Out of those 22 participants, 90.9% (n = 20) were females, 0.9% (n = 9) were freshmen, 13.6% (n = 3) were Greek members, and 9.1% (n = 2) were athletes.

Gender Differences and Differences across Greek Affiliation with Alcohol Consumption

Independent t-tests examined the study variables for gender differences. No significant difference was found between males and females for both alcohol consumption variables (standard drink + binge). Greek members typically consumed more standard drinks in the past 30 days and engaged in more binge drinking in a month than non-Greek members (see Table 2*)*. Male students reported higher scores on the College Life Alcohol Salience Scale (CLASS) than female students (see Table 2*)*.

Drunkorexia Motives and Behaviors Scales

We tested the hypothesis that members of Greek life would be more likely to exhibit drunkorexia behaviors than those who are not members. To test this hypothesis, we conducted independent sample t-tests on all five factors of the Drunkorexia Motives and Behaviors Scales. Of the five factors of the DMBS, we found statistical significance for two of the five factors. We found that people displayed higher motivations to engage in drunkorexia if they were a Greek member (M = 2.59, SD = 0.90) than if they were not a Greek member (M = 1.95, SD = 0.57), $t(54) = 2.90$, p = 0.005, d = 0.87 (see Figure 1). We also found that people displayed higher engagement in disordered drinking during alcohol consumption if they were a Greek member (M = 2.82, SD = 0.62) than if they were not a Greek member (M = 2.43, SD = 0.75), $t(172) = 2.77$, p = 0.006, d = 0.57 (see Figure 3).

Next, we tested the hypothesis that females would be more likely than males to exhibit drunkorexia behaviors. To test this hypothesis, we conducted independent sample t-tests on all five factors of the Drunkorexia Motives and Behaviors Scales. Of the five factors of the DMBS, we found statistical significance for only one. We found that females (M = 1.88, SD = 0.76) displayed higher values of avoidance drunkorexia behaviors than males (M = 1.57, SD = 0.61), $t(54) = -2.01$, p = 0.042, d =0.45 (see Figure 2).

We then tested the hypothesis that freshmen would be more likely to exhibit drunkorexia behaviors than upperclassmen. We combined sophomores, juniors, and seniors to establish the "upperclassmen" value for this analysis. To test this hypothesis, we conducted independent sample t-tests on all five factors of the Drunkorexia Motives and Behaviors Scales. Of the five factors of the DMBS, we found statistical significance for only one. We found that freshmen (M = 2.05, SD = 0.81) displayed higher values of approach drunkorexia behaviors than upperclassmen (M = 1.68, SD = 0.64), $t(172) = 3.06$, p = 0.001, d = 0.51 (see Figure 2).

Lastly, we included an exploratory question in this study. Our exploratory analysis examined the relationship between athletes and drunkorexia behavior. To test this question, we conducted independent samples t-tests on all five factors of the Drunkorexia Motives and Behaviors Scales. Of the five factors of the DMBS, we found statistical significance for two of the five factors. We found that people displayed higher values of drunkorexia behaviors if they were an athlete (M = 3.48, SD = 0.92) than if they were not an athlete (M = 2.26, SD = 0.85), $t(54) = 2.97$, p = 0.004, d = 1.38 (see Figure 1). We also found that people displayed higher values of post-drinking drunkorexia behaviors following an alcohol consumption event if they were an athlete (M = 2.18, SD = 0.96) than if they were not an athlete (M = 1.81, SD = 0.73), $t(172) = 2.03$, p = 0.044, d = 0.44 (see Figure 4).

Discussion

The current study examined the relationship between Greek affiliation, sex, class rank, alcohol consumption, eating patterns, and drunkorexia behaviors. Drunkorexia, a colloquial term that has become popular through the media, has been used to describe individuals who use extreme weight loss methods, including but not limited to starvation, binge eating, or purging to counteract excessive alcohol consumption (Jennings, 2010). This study accounted for the limitations of the previous literature by exploring potential at-risk groups. Our findings illustrated that membership in a social Greek organization and participation as an athlete predicted alcohol consumption and drunkorexia. Specifically, higher levels of alcohol consumption were linked to Greek affiliation and higher levels of drunkorexia behaviors were linked to both Greek affiliation and athletic participation. Consistent with previous findings, females had higher chances of engaging in drunkorexia behaviors when compared to males (Eisenberg et al., 2014) and freshmen reported more engagement in drunkorexia behaviors when compared to upperclassmen (Burke et al., 2010). Due to the disturbing prevalence of drunkorexia, it is crucial for college intervention programs to be tailored to reducing drunkorexia behaviors.

As hypothesized, members of Greek life were more likely to participate in drunkorexia behaviors than non-members. Specifically, there was significance between drunkorexia motives (DMBS Scale #1), which consisted of statements such as “to fit in with a group I like” or “because it makes social gatherings more fun,” when compared between Greek members and non-members. Likewise, there was also significance between drinking behaviors during an alcohol consumption event (DMBS Scale #3), which consisted of statements such as “drinking as much as my friends drink” or “drink until I feel really good.” The results from this current study

match that of a previous study that found Greek affiliated participants were associated with higher levels of disordered eating behaviors and drunkorexia (Ward et al., 2015).

In terms of alcohol consumption, Greek members generally consumed more standard drinks in the past 30 days and took part in more binge drinking within the past month than non-Greek members. Ham and Hope (2003) found that individuals who consumed more alcohol in high school were more likely to associate with social Greek organizations. Indeed, it could be possible that Greek life does not promote these behaviors but, alternatively, heavy drinkers are more drawn to Greek organizations. Furthermore, there was no significant difference between the scores on the CLASS for Greek members versus non-members, meaning Greek affiliation did not predict the fundamentality of alcohol consumption to the university culture.

Our second hypothesis that females would be more likely to engage in drunkorexia behaviors than males was moderately supported. Particularly, females only reported higher engagement in avoidance drunkorexia behaviors (DMBS Scale #2), which consisted of statements such as “avoid drinking beer” or “not drink as much because I don’t want the extra calories.” None of the other DMBS scales had significant gender differences. Previous literature found that females had a significantly higher likelihood of engaging in harmful eating behaviors before consuming alcohol than males (Eisenberg et al., 2014). Another study reported that college females are more susceptible to body dissatisfaction and more likely to establish disordered eating patterns than college males (Grossbard et al., 2009). Precisely, weight control interests accounted for the sex differences in avoidance drunkorexia behaviors that appeared in the current study.

Interesting to note are the results of the Eating Attitudes Test. The current study found that 90.9% of the participants who met the criteria for a potential eating disorder were females.

This lends support to the findings that females engaging in more drunkorexia than males were influenced by females need to manage their weight. With regards to alcohol consumption, there were no overall gender differences for average standard drinks consumed in the past 30 days and binge drinking in the past month. However, males reported higher scores on the College Life Alcohol Salience Scale (CLASS) than the females. This suggests that male college students believe alcohol consumption has a larger relevance to the college experience than females.

An additional hypothesis was that freshmen would be more likely to exhibit drunkorexia behaviors than upperclassmen. This hypothesis was moderately supported. In the current study, freshmen only reported more engagement in approach drunkorexia behaviors, which consisted of statements such as "drink to fit in" or "drink hard liquor because it has lower calories," when compared to upperclassmen. The findings of this study are consistent with a previous study that found 14% of first-years engage in drunkorexia behaviors (Burke et al., 2010). Moreover, the results are not startling as a study on individual variation in college drinking indicated that stress from an escalation in academic rigor, the acceptance of underage drinking as part of the university culture, and a decrease in parental control all play a part in freshmen students' boost in alcohol consumption (Baer, 2002). Naturally, the added physical and psychological stressors of being a freshman in college justifies, specifically, the class difference in approach drunkorexia behaviors in the present study.

In considering freshmen students when it comes to disordered eating, previous research found that first-year students were at a greater risk of establishing harmful eating behaviors (Hoffman et al., 2006). The results of the current study for the Eating Attitudes Test found that 35.2% of the participants who met the criteria for a potential eating disorder were freshmen. This furthers the notion that the fear of the "freshman 15" is more than just a myth. With alcohol

consumption variables, there were no overall class differences for average standard drinks consumed in the past 30 days and binge drinking in the past month. There were also no class differences for the scores on the College Life Alcohol Salience Scale (CLASS).

Our exploratory question examined the relationship between athletes and drunkorexia behaviors. Prior to the present study, little research has explicitly explored athletic affiliation and drunkorexia and there is reason to speculate that the dual demands of academics and athletic performance might pressure athletes to engage in this particular behavior. The current study found an association between athletic participation and drunkorexia. Specifically, there was significance between drunkorexia behaviors (DMBS Scale #1), which consisted of statements such as "by eating less all day" or "so that I wouldn't gain weight," when compared between athletes and non-athletes. Likewise, there was also significance between post-drinking compensation behaviors (DMBS Scale #4), which consisted of statements such as "will compensate by eating less" or "work out longer than normal," when compared between athletes and non-athletes. Previous literature found that student athletes with higher levels of stress are more likely to engage in bad health habits and student athletes consume more alcohol as well as engage in more binge drinking when compared to their counterparts (Hudd et al., 2000; Pritchard et al., 2007). Another study suggested that a rise in harmful drinking behaviors among college athletes may be due to the attitude of "work hard, play hard" that is well-known in the athletic culture (Leichliter, et al. 1998). Indeed, it could be likely that the demands of both athletic performance and academics can account for the differences in drunkorexia behaviors that emerged in the current study.

Limitations

Even though partial support was found for all three hypotheses and the exploratory question, the current study has a number of limitations. The sample consisted of predominantly white, female college students from a middle-sized, public university in the Southeastern United States, which restricts the generalizability of the findings to other groups of college students. While the current study examined various potential at-risk groups that presented new findings to fill gaps in the literature, other variables such as on- versus off-campus housing have been linked to drinking behavior and could be associated with drunkorexia (Baer, 2002). Moreover, a college sample is fitting since disordered eating and alcohol behaviors are typical on college campuses but future studies should aim to explore drunkorexia among a more diverse sample.

Furthermore, the measures employed in the present study were self-report. The measures of alcohol consumption, eating behaviors, and drunkorexia relied on participant recall. Despite the fact that participants were allowed to take this study at their convenience, online, in the privacy of their homes, and reminded half-way through the survey that the study is confidential, meaning their names would not be connected to their responses, it is possible that participants altered their responses in order to give more socially desirable responses. Additional studies should make an effort to improve the validity of measures of alcohol consumption, eating behaviors, and drunkorexia.

Conclusions

The present study represents one of the few to explore the potential relationships between Greek affiliation, sex, class rank, athletic participation, alcohol consumption, eating patterns, and drunkorexia behaviors. Results of the study shed light on group differences in alcohol consumption and drunkorexia and reiterated the prevalence of this issue on college campuses.

Overall, this study has various implications for college intervention and prevention efforts in regards to eating and drinking behaviors. Specifically, the results suggest that those who are members of a Greek organization or are a student athlete are at risk for engaging in drunkorexia. Health professionals and college counselors should advocate for tailored educational awareness programs for groups, such as the ones mentioned above, to highlight the dangerous effects of these behaviors.

References

Baer, J. S. (2002). Student factors: Understanding individual variation in college drinking. *Journal of Studies on Alcohol, Supplement 14*, 40–53. doi:10.15288/jsas.2002.s14.40

Baer, J. S. (1994). Effects of college residence on perceived norms for alcohol consumption: An examination of the first year in college. *Psychology of Addictive Behaviors, 8*(1), 43–50. doi:10.1037/0893-164X.8.1.43

Barry, A. E., & Piazza-Gardner, A. K. (2012). Drunkorexia: Understanding the co-occurrence of alcohol consumption and eating/exercise weight management behaviors. *Journal of American College Health, 60*(3), 236–243. doi:10.1080/07448481.2011.587487

Barry, A. E., Whiteman, S., Piazza-Gardner, A. K., & Jensen, A. C. (2013). Gender differences in the associations among body mass index, weight loss, exercise, and drinking among college students. *Journal of American College Health, 61*(7), 407–413. doi:10.1080/07448481.2013.823973

Bryant, J. B., Darkes, J., & Rahal, C. (2012). College students' compensatory eating and behaviors in response to alcohol consumption. *Journal of American College Health, 60*(5), 350–356. doi:10.1080/07448481.2011.630702

Bulik, C. M., Klump, K. L., Thornton, L., Kaplan, A. S., Devlin, B., Fichter, M. M., … Kaye, W. H. (2004). Alcohol use disorder comorbidity in eating disorders: A multicenter study. *The Journal of Clinical Psychiatry, 65*(7), 1000–1006. doi:10.4088/JCP.v65n0718

Burke, S. C., Cremeens, J., Vail-Smith, K., & Woolsey, C. (2010). Drunkorexia: Calorie restriction prior to alcohol consumption among college freshman. *Journal of Alcohol and Drug Education, 54*(2), 17–34.

Chambers, R. A. (2008). Drunkorexia. *Journal of Dual Diagnosis, 4*(4), 414-416.

Crawford, L. A., & Novak, K. B. (2006). Alcohol abuse as a rite of passage: The effect of beliefs about alcohol and the college experience on undergraduates' drinking behaviors. *Journal of Drug Education, 36*(3), 193–212. doi:10.2190/F0X7-H765-6221-G742

Eisenberg, D., Nicklett, E. J., Roeder, K., & Kirz, N. E. (2011). Eating disorder symptoms among college students: Prevalence, persistence, correlates, and treatment-seeking. *Journal of American College Health, 59*(8), 700–707. doi:10.1080/07448481.2010.546461

Frezza, M., Padova, C.D., Pozzato, G., Terpin, M., Baraona, E., & Lieber, C.S. (1990). High blood alcohol levels in women. The role of decreased gastric alcohol dehydrogenase activity and first-pass metabolism. *The New England Journal of Medicine*, 322 2, 95-9.

Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine, 12*(4), 871–878. doi:10.1017/S0033291700049163

Giles, S. M., Champion, H., Sutfin, E. L., McCoy, T. P., & Wagoner, K. (2009). Calorie restriction on drinking days: An examination of drinking consequences among college students. *Journal of American College Health, 57*(6), 603–609. doi:10.3200/JACH.57.6.603-610

Grossbard, J. R., Lee, C. M., Neighbors, C., & Larimer, M. E. (2009). Body image concerns and contingent self-esteem in male and female college students. *Sex Roles: A Journal of Research, 60*(3–4), 198–207. doi: 10.1007/s11199-008-9535-y

Ham, L. S., & Hope, D. A. (2003). College students and problematic drinking: A review of the literature. *Clinical Psychology Review, 23*(5), 719–759. doi:10.1016/S0272-7358(03)00071-0

Harford, T. C., Wechsler, H., & Seibring, M. (2002). Attendance and alcohol use at parties and bars in college: A national survey of current drinkers. *Journal of Studies on Alcohol, 63*(6), 726–733. doi:10.15288/jsa.2002.63.726

Hingson, R., Heeren, T., Winter, M., & Wechsler, H. (2005). Magnitude of alcohol-related mortality and morbidity among US college students ages 18-24: Changes from 1998 to 2001. *Annual Review of Public Health*, 26, 259–279. doi:10.1146/annurev.publhealth.26.021304.144652

Hudd, S., Dumlao, J., Erdmann-Sager, D., Murray, D., Phan, E., Soukas, N., & Yokozuka, N. (2000). Stress at college: Effects on health habits, health status and self-esteem. *College Student Journal*, *34*(2), 217–227.

Jennings, A. *Drunkorexia: Alcohol mixes with eating disorders*. ABC News. October 21, 2010. https://abcnews.go.com/Health/drunkorexia-alcohol-mixes-eating-disorders/story?id=11936398.

Kimball, A., & Freysinger, V. J. (2003). Leisure, stress, and coping: The sport participation of collegiate student-athletes. *Leisure Sciences, 25,* 115-141. doi:10.1080/01490400306569

Larimer, M. E., & Cronce, J. M. (2002). Identification, prevention, and treatment: A review of individual-focused strategies to reduce problematic alcohol consumption by college students. *Journal of Studies on Alcohol, Supplement 14*, 148–163. doi:10.15288/jsas.2002.s14.148

Leichliter, J. S., Meilman, P. W., Presley, C. A., & Cashin, J. R. (1998). Alcohol use and related consequences among students with varying levels of involvement in college athletics. *Journal of American College Health*, *46*(6), 257–262. doi:10.1080/07448489809596001

O'Malley, P. M., & Johnston, L. D. (2002). Epidemiology of alcohol and other drug use among American college students. *Journal of Studies on Alcohol, Supplement 14*, 23–39. doi:10.15288/jsas.2002.s14.23

Osberg, T. M., Atkins, L., Buchholz, L., Shirshova, V., Swiantek, A., Whitley, J., Oquendo, N. (2010). Development and validation of the College Life Alcohol Salience Scale: A measure of beliefs about the role of alcohol in college life. *Psychology of Addictive Behaviors, 24*(1), 1–12. doi:10.1037/a0018197

Osberg, T. M., Insana, M., Eggert, M., & Billingsley, K. (2011). Incremental validity of college alcohol beliefs in the prediction of freshman drinking and its consequences: A prospective study. *Addictive Behaviors, 36*(4), 333–340. doi:10.1016/j.addbeh.2010.12.004

Park, C. L., & Grant, C. (2005). Determinants of positive and negative consequences of alcohol consumption in college students: Alcohol use, gender, and psychological characteristics. *Addictive Behaviors, 30*(4), 755–765. doi:10.1016/j.addbeh.2004.08.021

Pritchard, M. E., Milligan, B., Elgin, J., Rush, P., & Shea, M. (2007). Comparisons of risky health behaviors between male and female college athletes and non-athletes. *Athletic Insight: The Online Journal of Sport Psychology*, *9*(1), 1–11.

Ragsdale, K., Porter, J. R., Mathews, R., White, A., Gore-Felton, C., & McGarvey, E. L. (2012). "Liquor before beer, you're in the clear": Binge drinking and other risk behaviours among fraternity/sorority members and their non-Greek peers. *Journal of Substance Use, 17*(4), 323–339. doi:10.3109/14659891.2011.583312

Roosen, K. M., & Mills, J. S. (2015). Exploring the motives and mental health correlates of intentional food restriction prior to alcohol use in university students. *Journal of Health Psychology, 20*(6), 875–886. doi:10.1177/1359105315573436

Routon, P. W., & Walker, J. K. (2014). The impact of Greek organization membership on collegiate outcomes: Evidence from a national survey. *Journal of Behavioral and Experimental Economics*, 49, 63–70. doi:10.1016/j.socec.2014.02.003

Substance Abuse and Mental Health Services Administration, Results from the 2013 National Survey on Drug Use and Health: Summary of national findings, NSDUH Series H-48, HHS Publication No. (SMA) 14-4863. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014.

Tylka, T. L., & Subich, L. M. (2002). Exploring young women's perceptions of the effectiveness and safety of maladaptive weight control techniques. *Journal of Counseling & Development, 80*(1), 101–110. doi:10.1002/j.1556-6678.2002.tb00172.x

Ward, R. M., & Galante, M. (2015). Development and initial validation of the Drunkorexia Motives and Behaviors scales. *Eating Behaviors*, *18*, 66–70. doi:10.1016/j.eatbeh.2015.04.003

Ward, R. M., Galante, M., Trivedi, R., & Kahrs, J. (2015). An examination of drunkorexia, Greek affiliation, and alcohol consumption. *Journal of Alcohol and Drug Education, 59*(3), 48–66.

Weitzman, E. R., Nelson, T. F., & Wechsler, H. (2003). Taking up binge drinking in college: The influences of person, social group, and environment. *Journal of Adolescent Health, 32*(1), 26–35. doi: 10.1016/S1054-139X(02)00457-3

White, A., & Hingson, R. (2013). The burden of alcohol use: Excessive alcohol consumption and related consequences among college students. *Alcohol Research: Current Reviews*, 35(2), 201–218.

Table 1.

Demographic and Personal Characteristics

Demographics	*n*	Percentage (%)
Age		
18	57	25.4
19	76	33.9
20	41	18.3
21	31	13.8
22	9	4
23	2	0.9
24	1	0.4
25	1	0.4
26	1	0.4
No Response	5	2.2
Gender		
Male	34	15.2
Female	189	84.4
Non-binary	1	0.4
Class		
Freshman	90	40.2
Sophomore	69	30.8
Junior	43	19.2
Senior	22	9.8
Status		
Full-Time	222	99.1
Part-Time	2	0.9
Race/Ethnicity		
Asian or Pacific Islander	7	3.1
Black/African American	6	2.7
Hispanic Latino	14	6.3
White/Caucasian	195	87.1
Other	2	0.9
Housing		
Dorm/Residence Hall	132	58.9
Off-Campus Housing/Apartment	92	41.1

Table 1.

Demographics and Personal Characteristics (Continued)

Demographics	*n*	Percentage (%)
Member of a Greek Life		
Yes	37	16.5
No	287	83.5
Athlete		
Yes	25	11.2
No	199	88.8
Drink Alcohol		
Yes	172	76.8
No	52	23.2
Alcohol Use in Past 30 Days		
Yes	161	93.6
No	11	6.4
# of Standard Drink in Past 30 Days		
0 days	11	6.4
1-2 days	46	26.7
3-5 days	63	36.6
6-9 days	37	21.5
10-19 days	12	7.1
20+ days	3	1.7
# of Binge Drinking Occurrences in Past Month		
0 days	55	32
1-2 days	61	35.5
3-5 days	34	20
6-9 days	19	11
10-19 days	2	1.2
20+ days	1	0.6

Table 2.

Gender Differences and Differences across Greek Affiliation with Alcohol Consumption.

	Male	Female	*t-test*
# of Standard Drinks in Past 30 days	3.37 (1.21)	2.94 (1.06)	$t(169) = 1.88$, $p = .06$
# of Binge Drinking Occurrences in Past Month	2.48 (1.22)	2.10 (1.03)	$t(169) = 1.70$, $p = .09$
CLASS	56.32 (10.25)	49.17 (13.04)	$t(221) = 3.03$, $p = .003$*
	Greek	Not Greek	*t-test*
# of Standard Drinks in Past 30 days	3.38 (0.98)	2.93 (1.10)	$t(222) = 2.12$, $p = .04$*
# of Binge Drinking Occurrences in Past Month	2.64 (0.87)	2.05 (1.08)	$t(224) = 2.80$, $p = .006$**
CLASS	52.92 (13.79)	49.86 (12.78)	$t(222) = 1.31$. $p = .34$

Note: CLASS = College Life Alcohol Salience Scale

Table 3.

Independent Samples T-Tests for Drunkorexia Motives and Behaviors Scale.

	Motives			Behaviors		
	Mean (*SD*)	*t*	Sig	Mean (*SD)*	*t*	Sig
Gender						
Male	1.96 (.71)	-0.37	.71	2.25 (0.74)	-0.34	.73
Female	2.07 (.68)			2.40 (0.94)		
Member of Greek Life						
Yes	2.59 (0.90)	2.90	.005**	2.65 (1.04)	1.02	.31
No	1.95 (0.57)			2.33 (0.88)		
Athlete						
Yes	1.90 (0.67)	-0.57	.57	3.48 (0.92)	2.97	.004**
No	2.08 (0.68)			2.26 (0.85)		
Class						
Freshmen	2.10 (0.64)	0.28	.78	2.41 (0.83)	0.14	.89
Upperclassmen	2.05 (0.71)			2.37 (0.97)		

Table 4.

Independent Samples T-Tests for Drunkorexia Fails Scale.

	Avoidance			Approach		
	Mean (*SD*)	*t*	Sig	Mean (*SD)*	*t*	Sig
Gender						
Male	1.57 (0.61)	-2.05	.04*	1.81 (0.65)	0.42	.97
Female	1.88 (0.76)			1.80 (0.75)		
Member of Greek Life						
Yes	2.02 (0.73)	1.66	.10	2.03 (0.63)	2.07	.65
No	1.79 (0.71)			1.76 (0.74)		
Athlete						
Yes	2.11 (0.86)	1.87	.06	1.97 (0.59)	1.04	.30
No	1.79 (0.69)			1.79 (0.74)		
Class						
Freshmen	1.78 (0.69)	-0.72	.47	2.05 (0.81)	3.06	.001**
Upperclassmen	1.86 (0.73)			1.68 (0.64)		

Table 5.

Independent Samples T-Tests for Drunkorexia During an Alcohol Consumption Event Scale.

	Drinking Behaviors			Calories		
	Mean (*SD*)	*t*	Sig	Mean (*SD)*	*t*	Sig
Gender						
Male	2.68 (0.65)	1.39	.17	1.26 (0.44)	-0.60	.55
Female	2.47 (0.75)			1.33 (0.60)		
Member of Greek Life						
Yes	2.82 (0.62)	2.77	.006**	1.39 (0.55)	0.79	.43
No	2.43 (0.75)			1.30 (0.58)		
Athlete						
Yes	2.75 (0.66)	1.62	.11	1.44 (0.91)	0.99	.32
No	2.47 (0.75)			1.30 (0.52)		
Class						
Freshmen	2.61 (0.67)	1.46	.15	1.34 (0.62)	0.42	.66
Upperclassmen	2.44 (0.77)			1.30 (0.54)		

Table 6.

Independent Samples T-Tests for Post-Drinking Consumption Scale.

	Post-Drinking		
	Mean (*SD*)	*t*	Sig
Gender			
Male	1.90 (0.64)	0.29	.77
Female	1.85 (0.79)		
Member of Greek Life			
Yes	2.04 (0.83)	1.51	.13
No	1.81 (0.75)		
Athlete			
Yes	2.18 (0.96)	2.03	.04*
No	1.81 (0.73)		
Class			
Freshmen	1.88 (0.79)	0.26	.79
Upperclassmen	1.85 (0.76)		

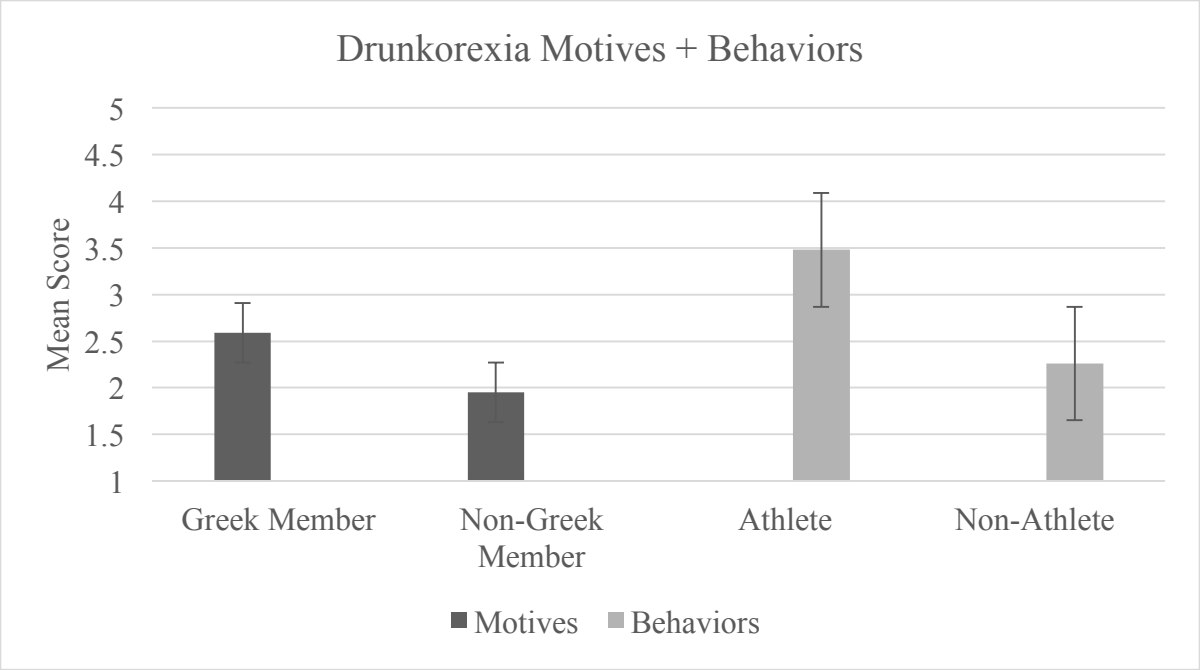

Figure 1. Mean Score of Drunkorexia Motives in Greek Members versus Non-Greek Members and Mean Score of Drunkorexia Behaviors in Athletes versus Non-Athletes.

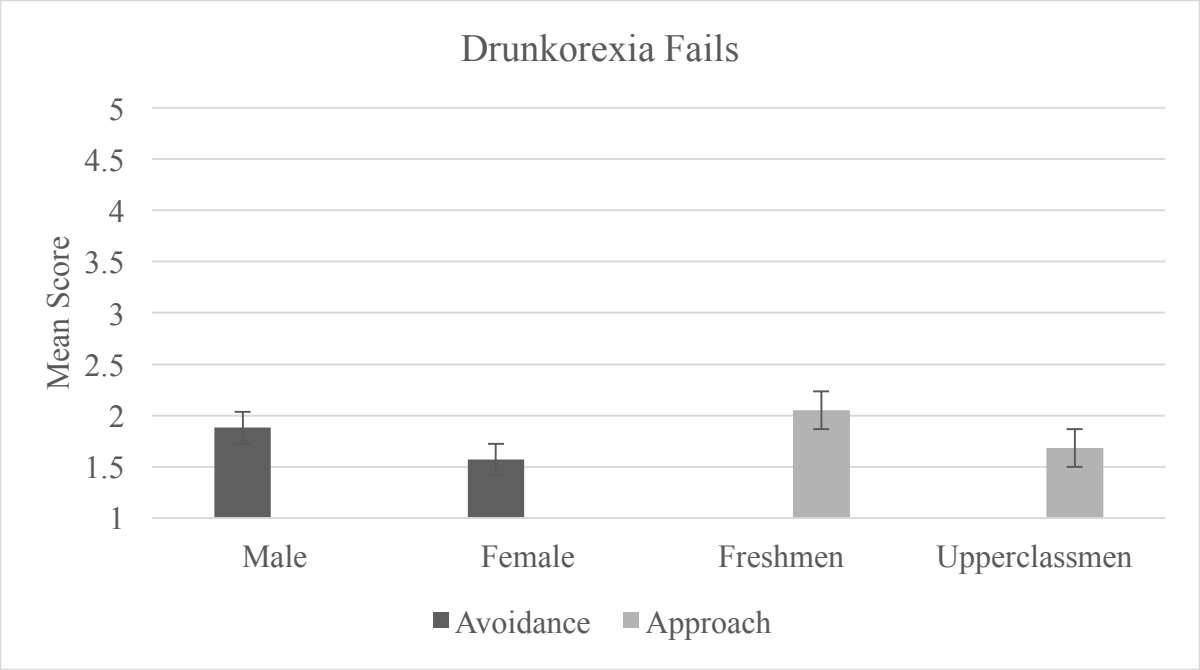

Figure 2. Mean Score of Drunkorexia Fails (Avoidance) in Females versus Males and Mean Score of Drunkorexia Fails (Approach) in Freshmen versus Upperclassmen.

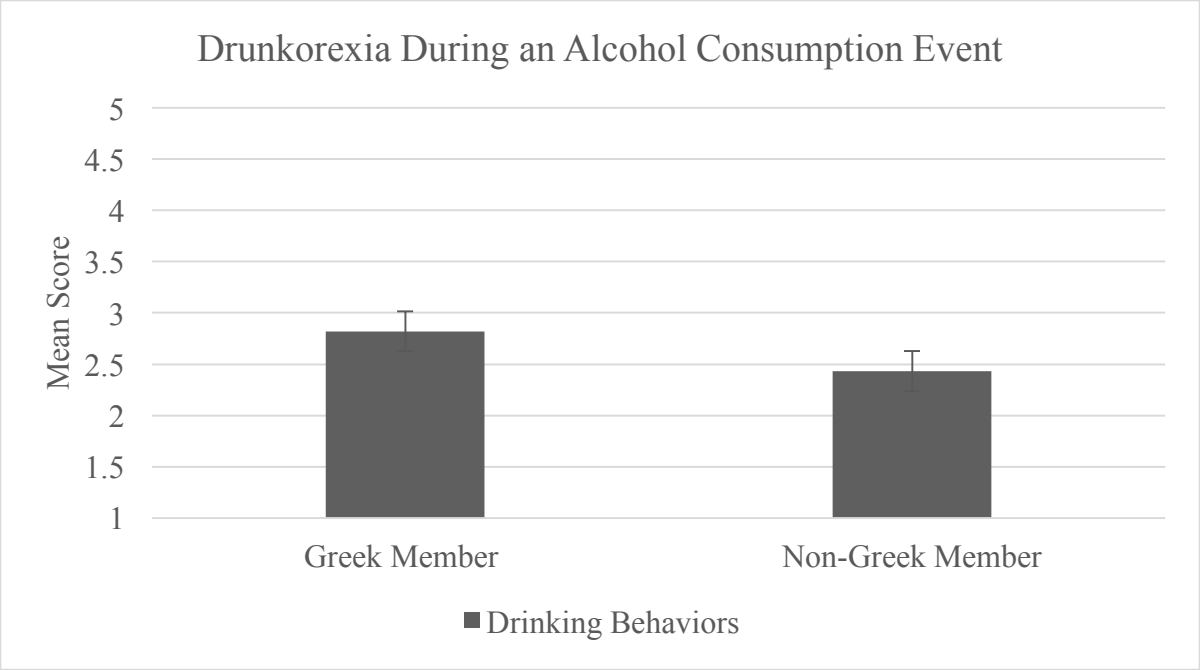

Figure 3. Mean Score of Drunkorexia During an Alcohol Consumption Event (Drinking Behaviors) in Greek Members versus Non-Greek Members.

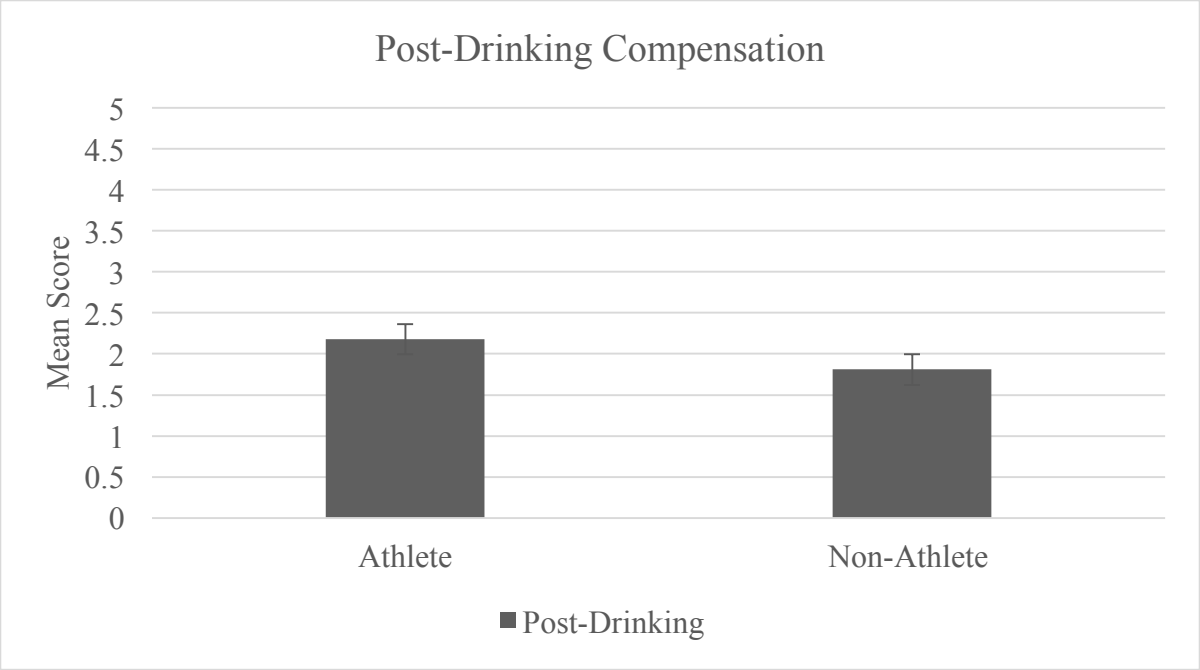

Figure 4. Mean Score of Post-Drinking Compensation for Athletes versus Non-Athletes.

Appendix A

IRB Approval

To: Caroline Shriver
Psychology
CAMPUS EMAIL

From: Dr. Andrew Shanely, IRB Chairperson
Date: 12/13/2018
RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)

STUDY #: 19-0081
STUDY TITLE: Eating and Drinking Behaviors on College Campuses
Submission Type: Initial
Expedited Category: (7) Research on Group Characteristics or Behavior, or Surveys, Interviews, etc.
Approval Date: 12/13/2018
Expiration Date of Approval: 12/12/2019

The Institutional Review Board (IRB) approved this study for the period indicated above. The IRB found that the research procedures meet the expedited category cited above. IRB approval is limited to the activities described in the IRB approved materials, and extends to the performance of the described activities in the sites identified in the IRB application. In accordance with this approval, IRB findings and approval conditions for the conduct of this research are listed below.

All approved documents for this study, including consent forms, can be accessed by logging into IRBIS. Use the following directions to access approved study documents.

1. Log into IRBIS
2. Click "Home" on the top toolbar
3. Click "My Studies" under the heading "All My Studies"
4. Click on the IRB number for the study you wish to access
5. Click on the reference ID for your submission
6. Click "Attachments" on the left-hand side toolbar
7. Click on the appropriate documents you wish to download

Approval Conditions:

Appalachian State University Policies: All individuals engaged in research with human participants are responsible for compliance with the University policies and procedures, and IRB determinations.

Principal Investigator Responsibilities: The PI should review the IRB's list of PI responsibilities. The Principal Investigator (PI), or Faculty Advisor if the PI is a student, is ultimately responsible for ensuring the protection of research participants; conducting sound ethical research that complies with federal regulations, University policy and procedures; and maintaining study records.

Modifications and Addendums: IRB approval must be sought and obtained for any proposed modification or addendum (e.g., a change in procedure, personnel, study location, study instruments) to the IRB approved protocol, and informed consent form before changes may be implemented, unless changes are necessary to eliminate apparent immediate hazards to participants. Changes to eliminate apparent immediate hazards must be reported promptly to the IRB.

Approval Expiration and Continuing Review: The PI is responsible for requesting continuing review in a timely manner and receiving continuing approval for the duration of the research with human participants. Lapses in approval should be avoided to protect the welfare of enrolled participants. If approval expires, all research activities with human participants must cease.

Prompt Reporting of Events: Unanticipated Problems involving risks to participants or others; serious or continuing noncompliance with IRB requirements and determinations; and suspension or termination of IRB approval by an external entity, must be promptly reported to the IRB.

Closing a study: When research procedures with human subjects are completed, please log into our system at https://appstate.myresearchonline.org/irb/index_auth.cfm and complete the Request for Closure of IRB review form.

Websites:

1. PI responsibilities: http://researchprotections.appstate.edu/sites/researchprotections.appstate.edu/files/PI%20Responsibilities.pdf

2. IRB forms: http://researchprotections.appstate.edu/human-subjects/irb-forms

Appendix B

Consent to Participate in Research
Information to Consider About this Research

Eating and Drinking Behaviors on College Campuses

Principal Investigator: Caroline Shriver
Department: Psychology
Faculty Advisor: Twila Wingrove
Contact Information: (828) 262 -8965

You are being invited to take part in a research study examining alcohol consumption and eating behaviors on college campuses. If you take part in this study, you will be one of about 150 people to do so. The research procedures will be conducted through this online study. You will be asked to answer questions about your eating and drinking behaviors, along with a few demographic questions. The study should take around 10 minutes to complete.

To the best of our knowledge, the risk of harm for participating in this research study is no more than you would experience in everyday life. There may be no personal benefit from your participation but the information gained by doing this research may help others in the future by finding correlations between alcohol consumption and eating behaviors.

You will not be paid for your participation in this study. However, you can earn 1 ELC credit for your participation. There are other research options and non-research options for obtaining extra credit or ELC's. One non-research option to receive 1 ELC is to read an article and write a 1-2 page paper summarizing the article and your reaction to the article. More information about this option can be found at: psych.appstate.edu/research. You may also wish to consult your professor to see if other non-research options are available.

Your participation in this research is completely voluntary. If you choose not to volunteer, there will be no penalty and you will not lose any benefits or rights you would normally have. If you decide to take part in the study you will have the right to decide at any time that you no longer want to continue. There will be no penalty and no loss of benefits or rights if you decide at any time to stop participating in the study. This study is confidential.

If you have questions about this research study, you may contact Caroline Shriver at shrivercg@appstate.edu and Dr. Twila Wingrove at wingroveta@appstate.edu. If you have any questions about your rights as someone taking part in research, contact the Appalachian Institutional Review Board Administrator at 828-262-2692, through email at irb@appstate.edu or at Appalachian State University, Office of Research and Sponsored Programs, IRB Administrator, Boone, NC 28608.

This research project has been approved by the Institutional Review Board (IRB) at Appalachian State University.

By continuing to the research procedures and checking the following boxes, I acknowledge that I am at least 18 years old, have read the above information, and agree to participate.

▢ I am at least 18 years old. ▢ I agree to participate.

This study was approved on: December 13, 2018
This approval will expire on December 12, 2019 unless the IRB renews the approval of this research.

Appendix C

Survey

1. What is your age?

   _____

2. What is your gender
   - Male
   - Female
   - Non-binary
   - Prefer not to answer

3. What year are you in school?
   - Freshman
   - Sophomore
   - Junior
   - Senior

4. What is your status in school?
   - Part-time student (less than 12 hours)
   - Full-time student (less than 12 hours)

5. What is your race/ethnicity?
   - Asian or Pacific Islander
   - American Indian/Native American
   - Black/African American
   - Hispanic Latino
   - White/Caucasian
   - Other
   - Prefer Not to Answer

6. Where do you live at school?
   - Dorm/Residence Hall
   - Off-Campus Housing/Apartment
   - Other

7. Are you a member of a Greek Organization?
   - Yes
   - No

8. Are you a school athlete? (member of club sports or varsity)
   - Yes
   - No

The following questions will ask about your eating and drinking behaviors. We would appreciate sincerity and honesty in these responses. As a reminder, this study is confidential. Your name is not attached to your answers, so there is no way to know that you responded a certain way.

9. Do you drink alcohol?
    - Yes
    - No

Condition: No is Selected Skip to: Question 19

10. Have you consumed alcohol in the past 30 days?
    - Yes
    - No

Condition: No is Selected Skip to: Question 19

11. A standard drink is considered to be either 12 ounces of regular beer, 5 ounces of wine, or 1.5 ounces of liquor. During the past 30 days, how many days have occurred where you had at least one drink?
    - 0 days
    - 1-2 days
    - 3-5 days
    - 6-9 days
    - 10-19 days
    - 20+ days

12. Binge drinking is defined as 4 drinks for females and 5 for males in one sitting. On average, how many days do you binge drink in a month?
    - 0 days
    - 1-2 days
    - 3-5 days
    - 6-9 days
    - 10-19 days
    - 20+ days

13. Caloric intake is how many calories one consumes in a day. An average woman needs to eat around 2,000 calories and an average man needs to eat around 2,500 calories to maintain their current weight. Do you restrict caloric intake on days when you know you will consume alcohol?
    - Sometimes
    - Yes
    - No

Condition: No is Selected Skip to: Question 16

14. Rate the frequency of each statement for WHY you restrict your eating on days when you know you will consume alcohol.

	Never	Seldom	Sometimes	Often	Very Often
Because my friends pressure me to restrict my eating	○	○	○	○	○
Because my friends encourage me to restrict my calories	○	○	○	○	○
Because it helps me enjoy a party	○	○	○	○	○
Because it makes a social gathering more fun	○	○	○	○	○
So that I can drink without feeling left out	○	○	○	○	○
To fit in with a group I like	○	○	○	○	○
So that I would get drunk faster when I drank	○	○	○	○	○
Because my friends restrict their calories	○	○	○	○	○
To be liked	○	○	○	○	○
Because it's fun	○	○	○	○	○
So that I won't feel guilty about the calorie content of my drinks	○	○	○	○	○
To save calories for alcohol	○	○	○	○	○
To deal with my anxiety about the calories in alcohol	○	○	○	○	○
So that I wouldn't gain weight	○	○	○	○	○

15. Rate the frequency of each statement for HOW you restrict your eating on days when you know you will consume alcohol.

	Never	Seldom	Sometimes	Often	Very Often
I eat less all day	○	○	○	○	○
I keep my caloric level under a certain level	○	○	○	○	○
I eat less fat	○	○	○	○	○
I exercise more than normal	○	○	○	○	○
I avoid fatty foods	○	○	○	○	○
I make sure that I exercise/burn calories	○	○	○	○	○
I eat less at each meal	○	○	○	○	○
I exercise before I drink	○	○	○	○	○

16. Rate the frequency of each statement. If you eat a normal amount on a day that you will drink, you will….

	Never	Seldom	Sometimes	Often	Very Often
Not drink as much because you don't want the extra calories	○	○	○	○	○
Not drink because you have already taken in your caloric level for the day	○	○	○	○	○
Pretend that you are drinking alcohol throughout the night	○	○	○	○	○
Avoid drinking beer	○	○	○	○	○
Not go out	○	○	○	○	○
Drink more so you don't think about the calories	○	○	○	○	○
Drink more to cope with the anxiety of exceeding your caloric level for the day	○	○	○	○	○
Drink more because you want to get as drunk as possible	○	○	○	○	○
Drink to fit in	○	○	○	○	○
Drink hard liquor because it has fewer calories	○	○	○	○	○

17. Rate the frequency for each statement. When you are out drinking, you…

	Never	Seldom	Sometimes	Often	Very Often
Drink until you feel really good	○	○	○	○	○
Drink as much as your friends drink	○	○	○	○	○
Only drink hard liquor	○	○	○	○	○
Only drink alcohol that has the fewest calories and will get you drunk the fastest	○	○	○	○	○
Only drink light beer	○	○	○	○	○
Will stop drinking once you hit a caloric level	○	○	○	○	○
Will make yourself throw up so that you can continue drinking	○	○	○	○	○
Will throw up so that you can continue drinking	○	○	○	○	○
Will throw up so that you don't have as many calories in your system	○	○	○	○	○
Count your calories	○	○	○	○	○

18. Rate the frequency for each statement. The day after you drink, you…

	Never	Seldom	Sometimes	Often	Very Often
Will work out for an extended period of time to work off the extra calories	○	○	○	○	○
Will compensate by eating less	○	○	○	○	○
Work out longer than normal	○	○	○	○	○
Set extra time aside for working out	○	○	○	○	○
Think about how many calories you consumed while drinking	○	○	○	○	○
Feel guilty for taking in unnecessary calories	○	○	○	○	○
Make sure to exercise	○	○	○	○	○
Can't concentrate because you are so hungry	○	○	○	○	○
Purge or vomit to get rid of the extra calories	○	○	○	○	○
Make yourself throw up to get rid of the alcohol	○	○	○	○	○

19. To what extent do you agree with the following statements based on alcohol use during college?

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Parties with alcohol are an integral part of college life	○	○	○	○	○	○	○
To become drunk is a college rite of passage	○	○	○	○	○	○	○
I would prefer it if my college was not considered a party school	○	○	○	○	○	○	○
The reward at the end of a hard week of studying should be a weekend of heavy drinking	○	○	○	○	○	○	○
I think that the students who do not go out to parties or bars are not enjoying their college experience	○	○	○	○	○	○	○

Missing class due to a hangover is part of being a true college student	○	○	○	○	○	○	○
A college party is not a true college party without alcohol	○	○	○	○	○	○	○
Alcohol is not an important aspect of college life	○	○	○	○	○	○	○
Attending parties with alcohol is the easiest way to make friends	○	○	○	○	○	○	○
Drinking alcohol is a social event in which every college student partakes	○	○	○	○	○	○	○
College is a time for experimentation with alcohol	○	○	○	○	○	○	○
A good college party should include drinking games such as beer pong, flip cup, power hour, etc.	○	○	○	○	○	○	○
Blacking out or forgetting part of the previous night's event is to be expected in college	○	○	○	○	○	○	○
It is okay to drink in college, even if you are under age	○	○	○	○	○	○	○
The chance to drink in college is just as important as the academic experience	○	○	○	○	○	○	○

20. Please check a response for each of the following statements as it applies to your feelings about eating behavior.

	Never	Rarely	Sometimes	Often	Very Often	Always
I engage in dieting behavior	○	○	○	○	○	○
I eat diet foods	○	○	○	○	○	○
I am preoccupied with a desire to be thinner	○	○	○	○	○	○
I like my stomach to be empty	○	○	○	○	○	○
I think about burning up calories when I exercise	○	○	○	○	○	○
I feel extremely guilty after eating	○	○	○	○	○	○
I am terrified about being overweight	○	○	○	○	○	○
I am preoccupied with the thought of having fat on my body	○	○	○	○	○	○
I am aware of the calorie content of foods that I eat	○	○	○	○	○	○
I have the impulse to vomit after meals	○	○	○	○	○	○
I have vomited after I have eaten and not from food poisoning	○	○	○	○	○	○

I have gone on eating binges where I feel that I may not be able to stop	○	○	○	○	○	○
I give too much time and thought to food	○	○	○	○	○	○
I find myself preoccupied with food	○	○	○	○	○	○
I feel that food controls my life	○	○	○	○	○	○
I enjoy trying new rich foods	○	○	○	○	○	○
I avoid foods with sugar in them	○	○	○	○	○	○
I particularly avoid foods with a high carbohydrate content	○	○	○	○	○	○
I cut my food into small pieces	○	○	○	○	○	○
I take longer than others to eat meals	○	○	○	○	○	○
Other people think that I am too thin	○	○	○	○	○	○
I feel that others would prefer if I ate more	○	○	○	○	○	○
I feel that others pressure me to eat	○	○	○	○	○	○
I avoid eating when I am hungry	○	○	○	○	○	○
I display self-control around food	○	○	○	○	○	○

I feel uncomfortable after eating sweets	○	○	○	○	○	○

Thank you for completing this survey! Your data will be kept confidential and seen only by the researchers. If you have any questions, please feel free to contact us at (828) 262 -8965. If you experienced any distress from participating in this survey you can seek guidance from Appalachian's Counseling Center at (828) 262-3180.