The Effect of Competitiveness on Student-Athletes' and Non-Athletes' Drinking Behaviors



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Abstract

This study assesses competitiveness and its relationship to drinking behaviors among college varsity athletes and non-athletes. Personality differences among groups contribute to rates of three measures of competitiveness were used, the Sport Orientation Questionnaire (SOQ), the revised Competitiveness Index (CI – R), and the competitiveness subscale of the Work and Family Orientation Questionnaire (WOFO). These were combined into one composite competitiveness score and analyzed in relation to four alcohol consumption variables: total drinks per week, total hours spent drinking per week, maximum number of drinks consumed on one occasion over the past 30 days, and the number of binge drinking episodes in the past 2 weeks. The anticipated results were that varsity athlete status and competitiveness would be predictors of higher alcohol consumption behavior. The competitiveness composite was significantly correlated with all of the other variables. Multiple regression analysis produced significant models for 'total drinks consumed per week' and 'total hours spent drinking per week'. Limitations and future research directives are discussed.

The Effect of Competitiveness on Student-Athletes' and Non-Athletes' Drinking Behaviors

The present study focuses on competitiveness as a personality trait and how it may influence college athletes and their drinking behavior. College athletes, as distinct group on college campuses across the United States, are a readily accessible pool of qualified research subjects. College students, as a whole, are shown consistently to have a relatively higher level of alcohol consumption than their same-age peers who are not enrolled in college. About 80% of college students drink alcohol, and approximately 50% of those college students that drink are considered to be 'binge drinkers' (NIH, 2014). "Binge drinking" is defined by the National Institutes of Health (2014) as 4 drinks for women and 5 drinks for men in a two-hour period. This limited group of binge drinkers, however, consumes 91% of the alcohol on college campuses (Ham & Hope, 2003). As a result, college binge drinkers are at elevated risk of experiencing a multitude of negative consequences due to their appreciable level of alcohol use and abuse, ranging from poor academic performance, to personal injuries, to death (NIH, 2014). Those students who binge drink multiple times each week are about three times more likely to suffer these negative consequences than those who do not (White & Hingson, 2014). These consequences affect hundreds of thousands of college students each year, as undergraduates endure unique stressors and circumstances that facilitate alcohol use among the group members

Athlete Status

As a distinct group on most undergraduate campuses, student-athletes frequently have been studied in regard to their alcohol consumption behaviors (see Serrao et al., 2008; Grossbard et al., 2007). Significant differences have been revealed through studies of the drinking behaviors of college athletes and their non-athlete peers (e.g. Grossbard et al., 2007; Brenner & Swanik, 2007, Green, Nelson & Hartmann, 2014). Green et al. (2014) found that college students (regardless of athlete status) were much more likely to binge drink than same age

individuals not enrolled in college, although the rates were much higher among former and current student-athletes. Additionally, Grossbard et al. (2007) concluded that both intramural and varsity athletes drank significantly more than the non-athlete participants as well as participated more frequently in drinking games.

Likewise, athletes tend to engage in risky drinking behaviors at significantly higher rates than their non-athlete peers (e.g. Doumas, Turrisi, Coll, & Haralson, 2007; Martens, Pedersen, Smith, Stewart, & O'Brien, 2011; Serrao, Martens, Martin, & Rocha, 2008). In fact, the binge-drinking rate among student-athletes is about 12 percentage points higher than that of the general college population (Weaver, Martens, Cadigan, Takamatsu, Trelor, & Pederson, 2013). The National Collegiate Athletic Association (NCAA) collects statistics on drug and alcohol use by student-athletes at member institutions. The data collected by the NCAA (2012) reveal that there is an increased frequency of alcohol consumption among athletes in relation to the general undergraduate population. This increased frequency of alcohol consumption appears to correlate positively with student-athletes' increased report of negative consequences (Doumas, 2013; Martens, Pedersen, Smith, Stewart, & O'Brien, 2011). The positive association between athletic participation and binge drinking remains for both males and females even after controlling for demographic variables, such as race (Green, Nelson, & Hartman. 2014). Some literature examines the relationship between personality traits and the drinking behavior of athletes and non-athletes (see Hosier & Cox, 2011; Mastroleo, Scaglione, Mallett, & Turrisi, 2013; Leisure & Neighbors, 2014).

One potential reason for the college athletes' increased drinking is the unique set of circumstances surrounding the routines of student-athletes, namely the extra time and stress experienced outside of academic commitments and regular practice time placed on student-

athletes often lead to risky behaviors in college, most notably binge drinking (Martens, Dams-O'Connor, & Beck, 2006). Often, the time that athletes have to spend drinking is limited due to competition and athletic schedules, making it more likely for their drinking to be less frequent, but excessive (Martens et al., 2006). Additional studies have revealed that participants in organized sports at any level are at an increased risk for binge drinking (Green, et al., 2014). The pressure and stress experienced by student-athletes differs from that of the general student population, and because of this, athletes are at a much higher risk for alcohol-related issues than the rest of the student population (Doumas et al., 2007).

Personality and Competitive Drinking

There is some literature examining the effect of personality on the drinking differences between athletes and non-athletes (Hosier & Cox, 2011; Mastroleo, Mallett, & Turrisi, 2013). The personality traits sensation seeking, risk taking and impulsivity are often associated with higher rates of drinking behaviors among both young adults and athletes (Brenner & Swanik, 2007; Yusko, Buckman, White, & Pandina, 2008; Mastroleo et al., 2013; Shin, Hong, & Jeon, 2012). Shin et al. (2012) provided evidence of a positive relationship between frequency of alcohol use, alcohol-related problems, binge drinking, and alcohol use disorders and impulsivity related traits (urgency and sensation seeking) during “emerging adulthood”. Mastroleo et al. (2013) found that the traits sensation seeking and risk taking mediate the relationship between alcohol consumption and alcohol related consequences that college athletes report. Yusko et al. (2008) determined that, in relation to non-athletes, sensation seeking among athletes was strongly associated with drinking behavior. Similarly, Johnson and Cropsey (2000) found that students high in sensation seeking are more likely to play drinking games that result in negative consequences. These articles present the possibility that college athletes are more competitive

than a general population of students and therefore, they may seek out risky situations because of their competitive nature and participate in behaviors (like drinking games) that others would not (Mastroleo et al., 2013, Yusko et al., 2008; Shin et al., 2012).

The present study focuses on this relationship between competitiveness as a personality trait and how it may influence athletes and their behavior, in particular, their drinking behavior. Although there are varying definitions, competitiveness is best defined as "the desire to increase or maintain one's level of capability in all activities" (Hackhausen, 1967). Other definitions are more generic, calling competitiveness a desire to win in interpersonal situations (Hackhausen, 1967; Smither & Houston, 1992). These definitions of competitiveness reveal that although there can be a strong connection to sports, this trait also can extend to those who do not participate in sporting activities. Competitiveness is not a trait reserved solely for athletes; it also is a characteristic that carries over into other areas, including academics and careers. When this trait is exhibited outside of athletics, it may lead to some of these same alcohol-related problem behaviors and consequences (Serrao et al., 2008). An increased level of competitiveness in both student-athletes and non-athletes has been shown to correlate positively with a higher level of alcohol consumption (Serrao et al., 2008).

The relationship between alcohol consumption and competitive behavior has been the subject of research into the participation of college students through drinking games (Grossbard et al., 2007; Serrao, Martens, Martin, & Rocha, 2008; Zamboanga et al., 2014). Participants often cite competition as a motivation for playing these games, and those who indicated these as reasons consumed more alcohol (Grossbard et al., 2007). Often, these games consist of a physical or mental task, where the loser has to drink a pre-determined amount of alcohol (Johnson & Sheets, 2004; Zamboanga et al., 2014). The nature of drinking games (i.e., that there

are both winners and losers), especially those requiring a physical task, stimulates competitiveness among participants (Grossbard et al., 2007; Zamboanga et al., 2014). This leads to a higher level of alcohol consumption and likely more negative consequences for those who participate in these types of games (Grossbard et al., 2007; Zamboanga et al., 2014). Student-athletes in these studies frequently cite competition as a reason they play drinking games (Grossbard et al., 2007; Zamboanga et al., 2014). Serrao et al. (2008) reported that drinking is more strongly associated with competitiveness in athletes than non-athletes. Research has also noted that competitiveness among athletes might be transferred to behaviors in non-sport areas, accounting for the differences in drinking behaviors among this group (Martens et al., 2006 & Mastroleo et al., 2013). Although some research has explored the effects of drinking games, limited attention has been paid to the effect the competitiveness trait has on problem drinking, independent of these games. Athletic competitions provide an outlet for these personality traits, possibly mitigating the effect of the traits on other areas of athletes' lives. Although these traits are all present in the majority of athletes, competitiveness is something that is fundamental to the nature of sports in general.

Social Theories of Drinking

The social nature of athletics has often been cited as a contributing factor to alcohol consumption by student athletes, as belonging to a team provides a context for drinking. (e.g. Martens et al., 2006; Grossbard et al., 2006a). Athletes commonly use alcohol as a means to celebrate or to create a cohesive team atmosphere (e.g. Milroy, Orsini, Wyrick, Fearnow-Kenney, Kelly, & Burley, 2014). This may facilitate a higher rate of consumption due to both the accessibility and opportunities to drink afforded to the athletes (Doumas et al., 2007). Athletes may be able to access alcohol more readily through these social groups than would

other college students. Currently, research on student-athlete drinking behavior focuses on the various factors that differentiate student-athletes and non-athletes. Student-athletes have to budget their time between academics and athletics, along with other sport-related activities (meetings, workouts, injury rehabilitation, etc.) that the general student population does not have to consider (Doumas et al, 2007). These social determinants of drinking behavior are another unique aspect of a student-athlete's experience.

Present Study

To expand what is known about the relationship of the competitiveness trait to alcohol consumption, the present study was conducted as an extension of research conducted by Serrao, Martens, Martin, & Rocha (2008). These researchers examined the relationship between competitiveness and alcohol consumption in a sample of college students involved with athletics at varying levels. Participants in this study indicated if they were elite (varsity) athletes, recreational (intramural or club) athletes, regular exercisers, or non-exercisers (Serrao et al., 2008). The results of this study indicated that competitiveness is correlated positively with average alcohol consumption, peak drinking and heavy episodic drinking among both athletes and non-athletes (Serrao et al., 2008). However, when the athlete group alone was analyzed, competitiveness was positively correlated with just peak and heavy episodic drinking and not total alcohol consumption. Serrao et al. (2008) discussed the tendency for athletes to have a "competitive drive" on the playing field that might extend outside of athletics and into other aspects of their daily lives, including alcohol consumption. In this study, the singular measure of competitiveness used was the Sports Orientation Questionnaire (SOQ) (Gill & Deeter, 1987). Although this questionnaire has been able to distinguish between athletes and non-athletes, it may be limited in its assessment of the trait in a different context. Gill & Deeter (1987) defined

competitiveness in the SOQ as “the desire to enter and strive for success in sport competitions”. This definition limits the generalizability that the survey would have on those participants who are not competitive athletes. As the SOQ’s language is heavily reliant on the participants’ attitudes toward sport participation, the present study aims to determine if broader measures of competitiveness would provide a better assessment for non-athletes and add to the growing literature on the differences between athletes and their non-athlete peers. Using two broader measures of competitiveness ensures that the trait is accurately measured for those that are not active participants in athletics. Given the need for a greater range for measuring competitiveness, the present study includes two additional measures, each found to be correlated with results from the SOQ, but geared toward a population other than sport participants. Gaining insight into the trait as it relates to general life situations allows for more generalizable education and prevention efforts.

The present study administered three different competitiveness measures in conjunction with alcohol consumption measures. From the multiple competitiveness measures, a composite competiveness score was calculated. Multiple regression models were created to determine the effect of three predictor variables (varsity status, competitiveness composite, and the varsity by competitiveness composite interaction) on each of four alcohol consumption variables. The hypothesis was that athletes would score higher on each measure of competitiveness, as well as consume larger amounts of alcohol and spend more time drinking, as well as consume more drinks on one occasion and participate more frequently in binge drinking episodes. Additionally, it was predicted that the interaction between varsity athlete status and competitiveness score would be a significant predictor of alcohol consumption.

Method

Participants

Participants (*N*=65) were all undergraduate students recruited from a small liberal arts college in northwestern Pennsylvania (Table 1). This institution's varsity teams compete at the NCAA Division III level. The sample included 73.8% female students (*n*=48), and the mean age of the sample was 19.94 years (*SD*=1.16) and 64.6% (*n*=42) of the participants were under 21 years of age. Of the total sample, 52.3% of participants indicated that they were neither a varsity nor club athlete (*n*=34), and 13.8% of participants indicated participation in club athletics (*n*=9), while 33.8% individuals were current members of a varsity team (*n*=22). The sample's ethnicity was 69.2% white (*n*=45). Participants were 18.5% first-year students (*n*=12), 29.2% sophomores (*n*=19), 35.3% juniors (*n*=23), and 16.9% seniors (*n*=11).

Measures

Demographics. Participants were given a brief demographic survey and were asked to indicate responses to their gender, age, class year and ethnic identities.

Athlete Status. Athletic involvement was assessed with two yes/no questions: "Are you currently a member of a varsity athletic team?" and "Are you currently a member of a club athletic team?" Participants indicating yes to the 'varsity athlete' question were deemed athletes (coded "1"), and club athletes were included in the non-athlete group for data analysis due to the nature of club athletics at this particular institution. Participants indicating no to both questions were deemed non-athletes (coded "0")

Alcohol Consumption Measures. To determine the average number of drinks consumed per week, participants completed the Daily Drinking Questionnaire (DDQ; Collins, Parks & Marlatt, 1985). The DDQ is a measure frequently used to measure the alcohol consumption of college students. On this instrument, participants are asked to estimate the

typical number of drinks consumed as well as the number of hours spent drinking on each day of the week for the 30 days prior to the survey. Participants are then asked to estimate the highest number of drinks consumed in one sitting over the past 30 days and the number of times that they had consumed more than 4 (women) or 5 (men) drinks on one occasion over the previous two weeks (Serrao et al., 2008). For each of these measures, participants were provided a reference guide defining what a 'standard drink' (defined as 14 grams of pure alcohol) entailed (NIH, 2015). The following statements were provided as examples of one 'standard drink' for all alcohol consumption measures: 4 ounces of wine, 1 wine cooler, 12 ounces of 3.2 % beer, 8-10 ounces of "6-point" beer, malt liquor, ice beers, or "microbrew" beers, a mixed drink with 1 ounce of liquor, and a single shot of liquor.

Sport Orientation Questionnaire (SOQ). To assess sport-specific levels of competitiveness, participants completed the competitiveness subscale of the SOQ (Gill & Deeter, 1987). The SOQ consists of 25 items in three subscales, each rated on a 5-point Likert scale (1: strongly agree to 5: strongly disagree). This study included only the 12-question competitiveness subscale, which has been shown to accurately distinguish between members in competitive or noncompetitive physical education classes (Gill & Deeter, 1987). The SOQ includes items such as "I am a competitive person" and "I want to be successful in sports". This subscale has shown both strong internal consistency (α = .94-.95) and test-retest reliability (r = .89) (Gill & Deeter, 1987). For the current sample, the internal consistency was very high (α= .94).

Competitiveness Index – Revised. The original Competitiveness Index (CI) was developed to assess general competitiveness by Smither & Houston (1992). Previous research has primarily focused on sport-specific competitiveness, but this survey aimed to be a more

generalized measure of competitiveness (Smither & Houston, 1992). The original CI consists of 20 true-false items, with three factors: emotion, argument, and games.

For the present study, the revised Competitive Index (CI – R) was used (Houston, Harris, McIntire & Francis, 2002). Analysis of the original CI revealed a four-factor model accounting for the variance in scores. The revision process removed a total of 6 items from the original CI after a rotated factor analysis (Houston et al., 2002). Three items were dropped as a result of poor reliability ($\alpha = .39$), one was dropped as it represented the only item in that factor, and two were eliminated to increase the internal consistency of the factor they belong to, leaving the CI – R with 14 items in two subscales ($\alpha = .87$) (Houston et al., 2002). Items on this survey were rated on a 5-point Likert scale, where lower scores were indicative of greater competitiveness. After revision, the CI – R remained correlated with the original CI ($r = .82$), the SOQ ($r = .62$), and the WOFO ($r = .55$) (Houston et al., 2002).

Analysis of responses in the present study determined that the internal reliability of the subscales was acceptable for each: 'enjoyment of competition ($\alpha = .923$) and 'contentiousness' ($\alpha = .855$). The 'enjoyment of competition' subscale included 9 items regarding the degree to which an individual enjoyed or sought out competitive interpersonal situations (ex. "I find competitive situations unpleasant"). The contentiousness subscale (5 items) asked the participant to assess the degree to which they enjoyed engaging in arguments with others (ex. "I will do almost anything to avoid an argument").

Work and Family Orientation Questionnaire (WOFO). Developed by Helmreich and Spence (1978), the WOFO is intended to determine achievement motivations and attitudes toward family and career. The five-item competitiveness subscale of the WOFO was used in the present study as an assessment of competitiveness in participants, unrelated to sport-specific

situations. The competitiveness scale of this survey does not fully explore the competitiveness trait as a sport psychologist would and is limited to interpersonal rivalry (Gill & Deeter, 1989). The questionnaire is, instead, intended to measure motivation toward success in family and career situations (Helmreich and Spence, 1978). Competitiveness in both men and women was shown to have an acceptable inter-correlation in the original study (α=.76 and .72 respectively). For the present sample as well, there was an acceptable level of reliability for this measure (α=.75).

Composite Competitiveness Score. The intercorrelations between each of these three measures was significant, $p < .001$ between each measure (Table 2). As a result, the measures were able to be combined into one composite score that would confidently measure the appropriate trait. The composite competitiveness score was calculated using the average item score from each of the 3 competitiveness surveys (SOQ, CI – R, WOFO). Each of the survey item averages (between 1 and 5) were summed, with the resulting values ranging between 3 and 15. Higher composite scores were indicative of greater competitiveness.

Procedure

Participants were asked to choose from available times to enroll in the study through the online SONA Experiment Management System. Each participant was asked to come into the lab to complete the surveys. Written informed consent was obtained from each participant before beginning the study. First, a demographic survey was completed by the participant and handed back to the researcher, and the appropriate survey (based on indicated gender) was given to the participant, including the DDQ, SOQ, CI – R and the WOFO. Men and women had a different question regarding binge-drinking instances, based on the definition from the NIH (2014), and were given surveys including the appropriate question. There was no identifying information on

any of the surveys, and all responses were kept confidential. The Institutional Review Board reviewed and approved all materials and procedures. The only potential compensation resulting from participation in this study was class credit. After the completion of the surveys, participants were debriefed and thanked for their participation.

Results

Exploratory data analysis was conducted using the responses from the entire sample (N=65) to determine each of the groups' reported demographic characteristics and alcohol behaviors (Table 1). The correlations between athlete status, competitiveness and the alcohol consumption variables are presented in Table 2. Each of the drinking variables, was significantly correlated with the composite competitiveness score ($p < .05$), indicating a strong positive relationship between competitiveness and drinking behaviors. Varsity athlete status was significantly correlated with composite competitiveness (r=.455, $p < .01$), but each of the alcohol consumption variables were uncorrelated with athlete status.

Multiple Regression Analysis

Regression analyses were conducted using each of four alcohol consumption measures as criterion variables: total drinks per week, total hours spent drinking per week, maximum number of drinks consumed on one occasion over the past 30 days, and the number of binge drinking episodes in the past 2 weeks. For these analyses, the predictor variables were: varsity athlete status, the composite competitiveness score, and the interaction between athlete status and the composite score (see Tables 4 through 7). Club athletes (n=9), for the purposes of these analyses, were deemed "non-athletes".

Total number of drinks per week. The regression model for participants' total number of drinks per week produced an R^2 value of .368, p = .030. This model was significant in

predicting the total consumption of alcohol among participants, $F(3,61)=3.181$. The only significant predictor in this model was the competitiveness composite score ($\beta=.393$, $p=.009$). Varsity athlete status ($\beta= .176$, $p = .859$) and the varsity status by competitiveness composite interaction ($\beta= -.216$, $p =.883$) were non-significant in this regression.

Total number of hours drinking per week. The second alcohol consumption variable model included the total number of hours spent drinking as the predictor variable (Table 5). This model produced a significant R^2 value of .346 ($p =.049$), $F(3,61)=2.769$, $p= .049$. For this regression as well, the only significant predictor variable was the composite competitiveness score ($\beta= .408$, $p = .008$), with both varsity status and the interaction remaining non-significant.

Maximum drinks consumed on one occasion, past 30 days. The model predicting the third dependent variable, maximum number of drinks consumed on one occasion, was non-significant, $F(3, 61)=2.042$, $p = .117$ (Table 6). The R^2 value produced was non-significant, 0.302 ($p>.05$). However, in this model, the competitiveness composite score was a significant predictor of the number of hours spent drinking ($\beta= .291$, $p < .05$).

Binge drinking frequency, past 2 weeks. The final regression model determined the relationships between athlete status, competitiveness and the number of binge drinking occasions over the past two weeks as the predictor variable ($R^2=.320$) (Table 7). This model was not significant in predicting the relationship between the variables, $F(3, 61)=3.326$, $p = .084$. Additionally, none of the predictor variables were significant as predictors of this behavior.

Discussion

The results of the present study are consistent with some of the results of Serrao et al.'s (2008) study of competitiveness and alcohol use among athletes and non-athletes. Serrao et al. (2008) concluded from their previous research that the level of competitiveness in athletes and

non-athletes alike does influence an individual's drinking behavior, and this was supported by the data in the present study as well. For athletes alone, however, the data revealed that competitiveness was correlated with only peak and heavy episodic drinking (Serrao et al., 2008). The present study provided evidence to support the hypothesis that competitiveness is significantly correlated with drinking, including binge drinking frequency and maximum number of drinks on one occasion for the entire sample. In the present study, the competitiveness composite score incorporated more general constructs of the trait, possibly contributing to the similar results for both athletes and non-athletes.

The composite competitiveness variable was the only significant predictor in two of the four regression models (total drinks and total hours spent drinking). The hypothesis that varsity athlete status has a significant effect on drinking behaviors was not supported by these data. In each regression model, varsity athlete status was not a significant predictor. But, three of four models were significantly influenced by the competitiveness composite score, indicating that this personality trait does influence individuals' behaviors outside of an athletic setting. The models predicting total drinks per week, total hours drinking per week, and maximum drinks consumed on one occasion all were significantly influenced by the composite competitiveness score.

Limitations

One set of limitations to the present study exists in the self-report nature of alcohol consumption surveys. Assessing the precise number of drinks consumed on any given occasion is difficult in a collegiate setting, also contributing to the limits of this study. Lack of knowledge or awareness from students about the definition of a "standard drink" leads to inaccurate reporting of consumption totals, making it possible that the reported levels in the present study contributed to the observed differences between the groups (White & Hingson, 2014).

Secondly, the present study included club athletes in the non-athlete group for data analysis. This may have affected the conclusions that could be drawn from the data, due to differences between club participants and non-athletes. Club athletics, although traditionally not as structured as varsity teams, might facilitate the same social atmosphere as varsity teams in some instances. Club/intramural athletes have shown differences in alcohol behaviors, and have even experienced more negative outcomes than intercollegiate athletes in some reports (Barry & Howell, 2014). Also, this study did not explore individuals who were competitive athletes at a different level prior to or during their time in college; instead they would have been included in the non-athlete group. This may have lessened the differences between the two groups affecting the results. Former athletes are a group that would likely have similar personality traits to that of a college athlete and could exhibit the same risky behaviors (Green et al., 2014).

Additional limitations of this study exist in the restricted diversity of the sample. This sample was predominantly female and white, and a larger sample representing a more complete cross-section of the population of students at a given institution would help increase the generalizability of the results. Furthermore, examining athletes at different stages of development would provide a valuable insight into the personality trait and its influence before, during, and after an individual's time in college. Examining different cohorts of people would increase the generalizability of the results to include more populations than college students alone.

Implications and Future Research

Future research may continue to examine the distinction between in-season and out of season athletes. There is evidence that athletes participate in different ways during each of these time periods (Martens, Dams-O'Connor & Duffy-Paiement, 2006). Additionally, there is

literature that men and women respond differently to in-season versus out of season status, with men drinking more, and women drinking less while in the midst of a competitive season (Weaver et al., 2013). The present study did not distinguish between in and out-of-season athletes, which may account for some of the differences both among the athlete group and between the non-athlete group. Examining the reasons why competitive athletes choose to participate in these activities, as well as why they choose not to, can be valuable information for undergraduate administrators to create programming for students.

Another potential group for further examination would be the "ex-athlete", meaning those who ended athletic participation after high school or in college. This subgroup has shown to be just as likely to binge drink in college as current student-athletes (Green, Nelson, & Hartmann, 2014). In the light of the present study's results, it may be possible that because former athletes no longer have a competitive outlet, the potential for increased drinking exists. Providing programming to this group of students is important to lessening the risks associated with binge drinking behaviors.

The results of this research add to the growing literature on this topic, and offer a potential explanatory variable for the differences among groups' and individuals' drinking behaviors. Personality differences in drinking, as well as motivations for engaging in such behaviors are valuable to alcohol education and prevention efforts for administrators and students alike. Ensuring that students are aware of the risk factors that they are susceptible to as individuals could help to eliminate the consequences that they face. Instead of a focus on larger groups, the present study shows that individual personality characteristics are just as significant as any outside influences in predicting problem drinking behaviors. The prevalence of binge drinking is not slowing down among student-athletes despite prevention efforts, making

collegiate drinking an important health initiative (Jones, 2014). Identifying the factors contribute to the negative health effects that students face due to excessive alcohol consumption is important to combat these issues on college campuses.

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Table 1
Descriptive Statistics

Demographics *M*(SD) or %	Athletes (*n*=22)	Non-Athletes[a] (*n*=43)	Total *(N*=65)
Age	20.09 (1.15)	19.86 (1.17)	19.94 (1.16)
Under 21 (%)	68.2	62.8	64.6
Gender (%)			
Male	31.8	23.3	26.2
Female	68.2	76.7	73.8
Class year (%)			
First year	9.1	23.3	18.5
Sophomore	27.3	30.2	29.2
Junior	40.9	32.6	35.4
Senior	22.7	14.0	16.9
Race/Ethnicity (%)			
White	81.8	62.8	71.4
Black	9.1	9.3	9.5
Hispanic	-	14.0	9.5
Asian	4.5	9.3	1.6
Other	-	2.3	1.6
No response	4.5	2.3	3.1
Alcohol Variables			
Total drinks per week	12.14 (8.97)	9.66 (8.02)	10.5 (8.37)
Total hours drinking per week	7.10 (5.88)	6.35 (5.86)	6.60 (5.83)
Maximum drinks, past 30 days	8.41 (4.63)	7.38 (5.26)	7.73 (5.04)
Binge drinking frequency, past 2 weeks	2.45 (2.18)	1.78 (1.77)	2.01 (1.93)

Note. [a] Club athletes (*n*=9) are included in the non-athlete group
Totals may not equal 100% due to rounding

Table 2
Competitiveness Scales Intercorrelations

	Total SOQ Score	Total CI – R Score	Total WOFO Score
Total SOQ Score		-0.699**	.541**
Total CI – R Score	-0.699**		-.535**
Total WOFO Score	.541**	-.535**	

Note. **: $p < .01$
CI – R scores were reverse coded where lower scores were indicative of higher competitiveness

Table 3

Correlations Between Predictor Variables and Alcohol Consumption Variables

	1	2	3	4	5	6
1. Varsity athlete status						
2. Composite competitiveness	.455**					
3. Total drinks per week	.141	.366**				
4. Total hours drinking	.062	.326**	.801**			
5. Maximum drinks consumed on one occasion, past 30 days	.097	.245*	.820**	.654**		
6. Binge drinking frequency, past 2 weeks	.167	.318**	.644**	.615**	.519**	

Note. **p<.01; *p<.05

Table 4
Summary of Regression Analysis for Total Drinks per Week

Predictor Variables	B	SE B	β	*t*	*p*
Varsity status	3.094	6.268	.176	.178	.859
Competitiveness composite	1.595	17.395	.393	2.679	.009
Varsity status x Competitiveness composite	-0.306	1.441	-0.216	-.212	.833

Note. R^2 =.368, p=.030.
Variables were centered to a mean of 0

Table 5
Summary of Regression Analysis for Total Hours Drinking Per Week

Variables	B	SE B	β	*t*	*p*
Varsity Status	4.962	12.225	.406	.406	.686
Competitiveness composite	1.595	.418	.408	2.754	.008
Varsity status x Competitiveness composite	-0.527	1.013	-0.534	-.520	.605

Note. R^2 =.346, p=.049
Variables were centered to a mean of 0

Table 6
Summary of Regression Analysis for Maximum Drinks Consumed on One Occasion, Past 30 Days

Variables	B	SE B	β	*t*	*p*
Varsity Status	15.108	10.748	1.428	1.406	.165
Competitiveness composite	.271	.140	.291	2.281	.026
Varsity Status x Competitiveness composite	-1.28	.890	-1.5	-1.437	.156

Note. R^2= .302, p=.117
Variables were centered to a mean of 0

Table 7
Summary of Regression Analysis for Binge Drinking Frequency, Past Two Weeks

Variables	B	SE B	β	*t*	*p*
Varsity Status	-.833	4.077	-.206	-.204	.839
Competitiveness composite	.271	.140	.291	1.1943	.057
Varsity Status x Competitiveness composite	.079	.338	.244	.235	.815

Note. R^2=.320, p=.084
Variables were centered to a mean of 0

Appendix A

For the following questions, one drink equals:
• 4 ounces of wine
• 1 wine cooler
• 12 ounces of 3.2 % beer
• 8-10 ounces of "6-point" beer, malt liquor, ice beers, or "microbrew" beers
• A mixed drink with 1 ounce of liquor
• A single shot of liquor

For the past month, please enter a number for each day of the week indicating the typical number of drinks you usually consume on that day, and the typical number of hours you usually drink on that day.

Day of Week	**Sunday**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
Number of Drinks							
Number of Hours Drinking							

Please estimate the maximum number of drinks you have consumed on one occasion in the past 30 days.	
Please estimate the number of times in the past two weeks you have consumed **five** or more drinks on one occasion.	

When you go to parties or social gatherings, how often are drinking games played?

Never Sometimes Often Always or almost always

1. When you see drinking games being played, or play yourself, which of the following types of groups are playing?
    a. Groups of men
    b. Groups of women
    c. Mixed groups with more men
    d. Mixed groups with more women
    e. Mixed groups with about the same number of sexes
2. How often do you play drinking games?
    a. No use in the past year
    b. Less than once a month
    c. Once a month
    d. Daily or nearly daily
3. When you are playing drinking games, how much would you say you usually drink?
    a. 1 drink
    b. 2 drinks
    c. 3-4 drinks
    d. 5-6 drinks
    e. 7 or more drinks

How important are each of these factors as reasons to play drinking games?

	Not at all		Moderately		A great deal
As a way of getting to know people	1	2	3	4	5
To get drunk	1	2	3	4	5
As a way of expressing interest in the opposite sex	1	2	3	4	5
Because they are fun	1	2	3	4	5
To prove how much one can drink	1	2	3	4	5
To get other people drunk	1	2	3	4	5

The following statements describe reactions to sport situations. We want to know how you *usually* feel about sports and competition. Read each statement and choose the response that indicates how much you agree or disagree with the statement. There are no right or wrong answers; simply answer as you honestly feel. Do not spend too much time on any one statement. Remember to choose the response that describes how you *usually* feel about sports and competition.

	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
I am a determined competitor	1	2	3	4	5
I am a competitive person	1	2	3	4	5
I try my hardest to win	1	2	3	4	5
I look forward to competing	1	2	3	4	5
I enjoy competing against others	1	2	3	4	5
I thrive on competition	1	2	3	4	5
My goal is to be the best athlete possible	1	2	3	4	5
I want to be successful in sports	1	2	3	4	5
I work hard to be successful in sports	1	2	3	4	5
The best test of my ability is competing against others	1	2	3	4	5
I perform my best when I am competing against an opponent	1	2	3	4	5
I want to be the best every time I compete	1	2	3	4	5

For the following statements, please choose the response that most accurately describes the way you usually feel.

	Strongly Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree
I like competition	1	2	3	4	5
I find competitive situations unpleasant	1	2	3	4	5
I don't like competing against other people	1	2	3	4	5
I enjoy competing against an opponent	1	2	3	4	5
I try to avoid competing with others	1	2	3	4	5
I get satisfaction from competing against others	1	2	3	4	5
I dread competing against others	1	2	3	4	5
I am a competitive individual	1	2	3	4	5
I will do almost anything to avoid an argument	1	2	3	4	5
I try to avoid arguments	1	2	3	4	5
I often remain quiet rather than risk hurting another person's feelings	1	2	3	4	5
In general, I will go along with the group rather than create conflict	1	2	3	4	5
I don't enjoy challenging others even when I think they are wrong	1	2	3	4	5
I often try to outperform others	1	2	3	4	5

For the following statements, please choose the response that most accurately describes the way you usually feel.

	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
I enjoy working in situations involving competition with others	1	2	3	4	5
It is important to me to perform better than others on a task	1	2	3	4	5
I feel that winning is important in both work and games	1	2	3	4	5
It annoys me when others perform better than I do	1	2	3	4	5
I try harder when I am in competition with other people	1	2	3	4	5

Appendix B

Research Participant Consent Form

Personality Traits and Drinking

McKenzie Bell
Allegheny College
Department of Psychology

Purpose of Research: The purpose of this research is to examine personality characteristics in college students as they relate to alcohol consumption.

Specific Procedure: I understand that I will be asked to complete a set of surveys on the computer to assess personality traits and behaviors. I understand that this study will take about 30 minutes to complete.

Risks to the Individual: I understand that the risks of participating in this study are no more than I would experience in everyday life.

Benefits to the Individual or Others: I understand that the primary potential benefit of this research will be obtained by other college students and that the benefit to me is minimal.

Compensation: I understand that to compensate me for my participation in this study, I can receive two (2) credits through the SONA Experiment Management System.

Confidentiality: I understand that the data I provide today are completely confidential and that my name will not ever be associated with the data I provide. I understand that the researcher is not interested in one person's responses and that, therefore, the researcher will combine the data I provide with that of all other participants and will then look for general patterns in the combined data and me information will remain anonymous. Any reports make based on the data in this study will focus solely on these general patters. Furthermore, I understand that all data will be maintained under lock and key in the Department of Psychology. I understand that this consent form will also be stored under lock and key, but separately from my data. In addition, I understand that when the data I provide today are no longer needed, they will be destroyed.

Voluntary Nature of Participation: I understand that I do NOT have to participate in this study. Furthermore, I understand that if I agree to participate, I can withdraw my participation at any time without penalty. In addition, I understand that I may skip any individual questions that I do not wish to answer and any procedures I do not wish to complete.

Contact Information: If I have any questions or concerns about this research project, I can contact McKenzie Bell at bellm@allegheny.edu or Dr. Patricia Rutledge at prutledg@allegheny.edu. If I have any questions or concerns about the treatment of participants (including myself), I can contact Jialu Streeter, Chair of the Allegheny College Institutional Review Board, at jstreeter@allegheny.edu.

I understand that my signature below indicates that I am at least 18 years of age at the time of my participation in this study and that I have received a copy of this informed consent form. My questions have been answered and I agree to participate in this study.

Research Participant Debriefing

Competitiveness, Athlete Status and Drinking

McKenzie Bell
Allegheny College
Department of Psychology

Thank you very much for your participation in today's study! Your assistance is greatly appreciated.

Purpose of Research: The purpose of this research study is to determine the relationship between college students' competitiveness and their drinking behavior. You were given three measures of competitiveness to assess levels of this trait as it related to alcohol consumption (quantity and frequency). These variables will be analyzed in relation to your athlete status, determined by your answers to two questions. The hypothesis is that athlete will have both a higher level of competitiveness and higher levels of alcohol consumption.

Compensation: To compensate you for your participation, you will be credited with two (2) credits through the SONA system and may receive class credit for participating. Your name and credits will not be associated with the data you provide.

Confidentiality: The data provided by all participants are completely anonymous and participants' names will never be associated with the data they provide. Also, all data will be stored under lock and key in the Department of Psychology at Allegheny College. The consent form you signed will also be stored under lock and key, but separately from the data. When the data are no longer needed they will be destroyed.

Additional Sources of Information:

Martens, M. P., Dams-O'Connor, K., & Beck, N. C. (2006). A systematic review of college student-athlete drinking: Prevalence rates, sport-related factors, and interventions. *Journal of Substance Abuse Treatment, 31*(3), 305-316. doi:10.1016/j.jsat.2006.05.004

Serrao, H. F., Martens, M. P., Martin, J. L., & Rocha, T. L. (2008). Competitiveness and alcohol use among recreational and elite collegiate athletes. *Journal of Clinical Sport Psychology, 2*(3), 205-215.

Contact Information: Please feel free to contact any of the following people.

- If you have any questions or concerns about this research project, you may contact Patricia Rutledge at prutledg@allegheny.edu Also, you may contact the researcher, McKenzie Bell, at bellm@allegheny.edu
- If you have questions or concerns about the treatment of research participants, including yourself, you may contact Jialu Streeter, Chair of the Allegheny College Institutional Review Board (IRB) at jstreeter@allegheny.edu.
- If you have any concerns of psychological nature, you may contact the Allegheny College Counseling Center at 814-332-4368.
- If you have any health-related concerns, please contact the Allegheny College Health Center (Winslow Health Center) at 814-332-4355 or your personal physician.

THANK YOU AGAIN FOR YOUR PARTICIPATION