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The Impact of Alcohol Consumption on Academic Success and Athletic Identity in Collegiate Student-Athletes

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THE IMPACT OF ALCOHOL CONSUMPTION ON ACADEMIC SUCCESS AND

ATHLETIC IDENTITY IN COLLEGIATE STUDENT-ATHLETES

BY

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This thesis is approved as a creditable and independent investigation by a

candidate for the Master of Science in Sport and Recreation Administration degree and is

acceptable for meeting the thesis requirements for this degree. Acceptance of this does

not imply that the conclusions reached by the candidate are necessarily the conclusions of

the major department.

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ABSTRACT

THE IMPACT OF ALCOHOL CONSUMPTION ON ACADEMIC SUCCESS AND

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Upon entering college in the United States, students are exposed to alcohol and, relatedly,

the potentially dangerous experiences and effects that come with consuming alcohol. This

is especially true for collegiate student-athletes, who have been found to have the highest

consumption rate among student groups on campus. The purpose of the study was to

understand the relationship between how student-athletes at a focus university, a Division

I member of the National Collegiate Athletic Association, experience alcohol

consumption, how their consumption affects their academic grade point average (GPA),

and how athletic identity plays a role in their experiences. While the research focuses on

this one university, the findings are congruent with similar studies which focused on

other colleges and/or the American college experience as a whole. Due to the large

number of student-athletes in collegiate athletics, understanding and examining the

correlation between alcohol consumption and the effect it has on academic success can be

beneficial for multiple entities within a college dynamic. Survey data was collected from

current student-athletes at a mid-sized Division I college in the Midwestern region of the

United States. From this data, chi-square analysis showed that female student-athletes

had statistically higher GPA than males, and a substantial sum of overall participants

binge-drank during their last drinking occasion, and on both game and non-game days. A

majority of respondents identify more with being a full-time athlete than being a full-time

student. Results provide validity to past research studies, and allow for understanding to

why student-athletes are at a higher risk of binge drinking. Practical implications and

limitations are noted. Suggestions for future research include a larger sample from a

variety of different universities, and understanding motivations between specific sports

for academic success and alcohol consumption.

Keywords: alcohol consumption, identity, gender, sport, culture, academics

Introduction

Upon entering college, students around the United States – and, tangentially, around the world – are exposed to alcohol and, relatedly, the potentially dangerous experiences and effects that come with consuming alcohol. Whether the individual is a general college student or one who is involved in both collegiate academics and athletics, the issues are prevalent. According to the National Collegiate Athletic Association (NCAA), there are 460,000 student-athletes across the United States (NCAA, 2017). When National Association of Intercollegiate Athletics (NAIA) student-athletes are included, the overall number then surpasses 500,000. The term student-athlete can be defined as individuals who are enrolled in college classes and also participating in varsity athletic teams on a collegiate level. According to the 2014 United States Census, there are approximately 23 million students attending U.S. colleges. Therefore, student-athletes comprise approximately 2 percent of the general student populace. Taking into consideration this segment of the student populace (participants in university-sanctioned athletics), the differences shown between this group and the general student community in regard to consumption of alcohol are significant. Gordner (2014) found that 90% of college students who classified as student-athletes reported drinking alcohol – a full 8 percentage points higher than the rate for the overall student population.

A plethora of research has been completed on this topic, and researchers have concluded that college student-athletes consume a disproportionate amount of alcohol in comparison with their non-athlete peers. Within schools with NCAA Division I athletic programs (defined generally as those colleges with the most expansive intercollegiate athletic structure and participation level), research shows that student-athletes consume

the most alcohol when compared to all other student groups (Ford, 2007; Martens, Dams-O'Connor & Beck, 2006). The general consensus through various studies concluded that male student-athletes consume more alcohol than female student-athletes, and that binge drinking rates were higher among student-athletes than in regular students (Ford, 2007; White & Hinson, 2013). It has also been theorized that out-of-season consumption rates are higher than in-season rates (Dams-O'Connor et al., 2007; Martens & Martin, 2010; Thombs, 2000). In addition to this, most athletes have a certain academic standard, set by the university as well as by NCAA guidelines, which they must meet or exceed in order to retain eligibility (Carodine, Almond, & Gratto, 2001). The connection between alcohol consumption and academic success for some athletes does not pose a problem. For other student-athletes, though, this connection – the student experience plus alcohol – is detrimental to their athletic and/or academic performance. One piece that plays a big role in this connection is the identity of the athlete, and whether that falls more with being a student or being an athlete. If the identity sways one way more than the other, there will be conflict, resulting in one of two variables failing (Rankin, Merson, Garvey, Sorgen, Menon, Loya, Oseguera, 2016).

Additional areas that need to be studied are connected to the identity of the student-athlete, as well as academic success of student-athletes. Academic success has been defined differently by researchers, but the main research variables that came through studies are similar. A student-athlete cannot identify with both being an athlete and a student at the same time without there being conflict (Rankin et al, 2016). A conflicting finding between studies is the idea that the more an athlete internally identifies with being an athlete, the less prone they are to experience academic success

(Anasari et al., 2013; Rankin et al, 2016), whereas Bailey and Bhattacharyya (2017) found that teams that perform better athletically are more likely to have participants who perform better academically.

The purpose of the study was to understand the relationship between how student-athletes at a Division I university experience alcohol consumption, how their consumption affects their academic grade point average (GPA), and how athletic identity plays a role in their experiences. Vast amounts of information are available about college students and alcohol consumption, but there is a dearth of information and research about student-athletes' alcohol consumption and how it affects their academic work. Due to the significant and visible number of students involved in collegiate athletics, understanding and examining the correlation between alcohol consumption and the effect it has on academic success can be beneficial for multiple entities within the college dynamic. Colleges across the country could better suit programs and resources to assist student-athletes who, as a result, may fall into trouble academically or athletically.

Literature Review

Student-Athletes and Alcohol Consumption

Researchers have found that student-athletes are more susceptible to high levels of alcohol consumption when compared to all other student groups on campus (Ford, 2007; Martens, Dams-O'Connor et al., 2006; Yusko, Buckman, White, Pandina, 2008). Martens and Martin (2010) stated the fact that "the unique aspects of college athletes' lives … would result in college athletes endorsing a unique set of drinking motives that is distinct from those endorsed by non-athletes" (p. 2). These aspects can span areas such as

stress and anxiety (from class, practice, and competition), and time management skills (factoring in the variety of commitments, as well as travel, associated with athletic participation).

For athletes who have a high frequency of drinks consumed, the issue can be exacerbated in the form and rate of binge drinking and heavy episodic drinking. Binge drinking is defined as consuming five or more drinks in a sitting for men, and four or more drinks in a sitting for women (Martens, Dams-O'Connor et al., 2006; Porter & Pryor, 2007; Yusko et al., 2008). Frequent heavy episodic drinking is defined as three or more binge drinking episodes in a two-week time span (Martens, Dams-O'Connor et al., 2006; Porter & Pryor, 2007; Yusko et al., 2008). Examining these definitions along with the information that established that athletes consume more than non-athletes, it can be confirmed that athletes have a higher frequency of binge drinking and heavy episodic drinking (Lewis et al., 2017; Yusko et al., 2008). For male student-athletes, 61% reported binge drinking, as compared to 43% of non-athletes. The results are similar for female athletes, with that classification reporting a 14-percentage-point higher prevalence (50% vs. 36%) than non-athletes in the binge drinking category (Martens, Dams-O'Connor et al., 2006). This preponderance carries over to heavy episodic drinking incidents – for males (29% for athletes vs. 18% for non-athletes) and for females (24% vs. 15%) (Martens, Dams-O'Connor et al., 2006). Finding the similarities in consumption habits between student-athletes is a simple concept to understand. Providing researchers with additional materials to comprehend the outstanding frequency and difference between student groups is necessary for the future of alcohol consumption behavior studies.

There are various measures to understand alcohol consumption, the most common being the Alcohol Use Disorders Identification Test (AUDIT), which was developed by the World Health Organization (WHO). This 10-item tool is a resource that looks deeper at behaviors of alcohol-related problems in a variety of different studies. This tool has been validated by numerous studies in alcohol-related fields, which include studies ranging from understanding binge drinking differences between genders in college students (Olthius et al., 2011), showing the risk status in college students for alcohol consumption habits (DeMartini & Carey, 2009), workplace alcohol screening in police forces (Davey, Obst, & Sheehan, 2000), identifying alcohol use and depression disorders in primary care patients (Chishinga et al., 2011), and enhancing nursing practices (Leung & Arthur, 2000). For any score over 8 out of a total score of 40, behaviors indicate hazardous or harmful alcohol use.

Student-Athletes and Academic Success

While a college student has many duties, one of his or her top priorities is academic success. The term "student-athlete" provides a philosophical breakdown of what is expected of that individual over the course of his or her career in college. Many of these young men and women do choose and do attend an American college with athletics playing a leading – or the leading – factor; some may see intercollegiate athletics as a springboard to particular gains (status, monetary, career, etc.). However, university-defined – as well as NCAA-defined – levels of academic success are what allow such students to participate in the sport (or sports) they love. Therefore, the order to these terms, leading to the moniker "student-athlete," is appropriate. Academic factors that may push student-athletes toward alcohol consumption include not being motivated to find a

future career path (be it athletic or non-athletic), transitioning out of collegiate or elite sports (Cosh & Tully, 2014), time management between class and practice, and maintaining a high level of performance academically and athletically (Lewis et al., 2017). However, student-athletes who are more involved with their academic career and work with professors on a personal level throughout college are more likely to succeed academically and be more motivated to complete assigned academic work (Ting, 2009).

Some research has been done to understand how academic performance might be hindered by excessive alcohol consumption. Consequences that all students face academically when consuming copious amount of alcohol can include not attending class or falling behind in class, doing poorly on exams, or overall having poor grades (Porter & Pryor, 2007; Pritchard & Wilson, 2003; White & Hingson, 2013). In fact, 25% of college students in a particular study reported these consequences due to the frequency of their drinking (White & Hingson, 2013). The same study also indicated that students who binge and fall into the "heavy episodic" drinking categories were "5.9 times more likely to perform poorly on exams and papers, 5.4 times more likely to have missed a class, and 4.2 times more likely to have memory loss" (White & Hingson, 2013, p. 209). Those are attention-getting statistics. When students' academic success is diminished by alcohol consumption, and that classroom performance falls under that defined success level, the end result for those involved in intercollegiate athletics is ineligibility.

Privacy could restrict researchers in regard to which academic measure they can apply to their studies. While most academic studies are based off of grade point average (GPA), some academic institutions do not allow the release of such data as the result of privacy policies. A valid option is to utilize a metric known as Academic Progress Rate

(APR) (Bailey & Bhattacharyya, 2017). APR looks at academic-focused achievements throughout academic terms for each athletic team in question (Bailey & Bhattacharyya, 2017). For this tool, a perfect score of 1,000 points would constitute that a given student-athlete remains academically eligible as well as returning to school the following academic term (Bailey & Bhattacharyya, 2017). Utilizing APR is a great option for researchers who have been restricted by accessibility to student files for their studies.

In this study, GPA is incorporated since it is the most utilized (Zimmerman, Caldwell & Bernat, 2002; Bailey, Rosenthal, & Yoon, 2016) and most recognizable academic grading instrument. This metric was also available for this study since it was an approved component of the survey questionnaire and student-athletes had the ability to self-report their individual GPA status. The metric represents the average accumulated final grades earned in courses over a specific amount of time. The traditional scale for GPA is on a 4.0 scale, where an academic 'A' is issued a 4.0 and decreases to an academic 'F' issued a 0.0. A perfect GPA is a 4.0 on this scale, meaning the student has received an 'A' in all academic classes. The minimum qualification for eligibility varies between universities; however, the figure normally falls somewhere between a 2.0 and a 3.0.

Student-Athletes and Athletic Identity

Through the term student-athlete, knowing whether being a student or an athlete takes precedence in that individual's mind can preemptively show a researcher where their priorities land. It is stated that "athletic and academic identities cannot be perceived as one identity without athletes experiencing conflict" (Rankin et al., 2016, p. 704). A narrative from one interviewed student-athlete stated, "Regardless of what other people

say, all of what you do is telling you that you are there for sports, and academics come second" (Jayakumar & Comeaux, 2016, p. 289). In addition, Jayakumar and Comeaux (2016) indicated that while most athletes enter college feeling optimistic, their academic role on campus is personally devalued as early as the second semester, simply due to the demand athletic programming expects out of their athletes. The results showed that there is an internal conflict for student-athletes at the collegiate level, paired with pressure from various university representatives (including deans and professors and coaches and athletic directors) determining where to prioritize.

Social norms are likely to determine the identity of the student-athlete. Depending on what a student-athlete's friend group identified more with, the identity of that individual can shift greatly, even if that isn't what they personally believe. For example, Dams-O'Connor et al. (2007) revealed that peer expectations predicted student-athletes' personal alcohol consumption, both during the athletic competition season and outside of that season. Massengale, Ma, Rulison, Milroy, and Wyrick (2017) found that a friend group that consisted of similar individuals (other student-athletes, potentially same team, etc.) may direct the course of alcohol consumption each individual experiences, and that the perceived approval of consumption would lead to a higher rate of binge drinking in student-athletes.

Campus climate is another portion of this equation that can make or break the student-athlete experience. It can be defined as "current attitudes, behaviors, and standards of employees and students that concern the access for, inclusion of, and level of respect for individual and group needs, abilities, and potential" (Rankin et al., 2016, p. 702). Rankin et al. (2016) defined three influential factors of campus climate constitutes

for college students, which include: (1) students' experiences with the campus environment, (2) their perceptions about the environment, and (3) their perceptions of institutional actions. This article also discusses the biases that campus administration may place on athletic departments, which could hinder the growth of an all-inclusive campus climate. These biases included the questioning of student-athlete intellectual abilities and qualifications, academic motivation, and treatment by the university (Parsons, 2013; Rankin et al., 2016). In another study, it was stated that one-half of the student-athletes surveyed felt their professors were discriminating against them, and refuse to assist with rescheduling exams due to athletic performances (Jolly, 2008). If student-athletes were placed in a detrimental campus climate that focused on the biased differences between athletes and non-athletes, the students may have a harder time adjusting to being an athlete. If the campus climate appreciates academics first and foremost, the student-athlete may place focus and precedence on their academic work. Climate drives the feel of campuses nationwide, and it is up to administration and the student body to determine what they aspire to.

The existing literature showed connections between alcohol consumption, academic success, and athletic identity. The present study could be used to further understand how these three concepts interact with one another. For the heavily consuming student-athlete, their behavior is influenced by their friend group (athletes or non-athletes) and others within the campus community, all of which can work to diminish the student's academic identity, and lead to a drop in academic success level.

Methods

Research Procedure and Data Collection

Data was collected from current student-athletes at a mid-sized Division I college (15,000 enrolled students, slightly under 600 intercollegiate student athletes) in the Midwestern region of the United States. Before the survey was distributed, 12 coaches, one from each varsity sports program at this university, were contacted to discuss the study and its implications for the university, as well as to seek access to their athletes in order to distribute the survey materials. The goal of these conversations was to increase the awareness and importance of the study, and to ensure that the survey received a plentiful and representative number of responses. Six out of the 12 coaches responded and agreed to allow their athletes to take the survey. The other six coaches either did not respond to the initial communication or did not allow access to their athletes. The six who agreed to participate represent both men's and women's programs and represent a mix of both revenue-generating sports (Football, Women's Basketball, and Wrestling) and non-revenue-generating sports (Swimming & Diving, Softball, and two coeducational programs, Track & Field and Cross Country).

While non-personally-identifiable factors – including gender, age, year in college, and sport participated in – will be utilized and incorporated in the results and discussion sections of this study, personally identifiable factors, such as the names of participants, were kept anonymous during the entirety of the collection process. Participants were informed of potential risks while moving forward through this study in the introduction of their survey.

For sports programs whose coach provided approval to have his or her athletes participate in the study and provided the access to accomplish that, one of two situations occurred. The primary researcher went to a team meeting and distributed paper copies of

the survey for athletes to directly fill out, or the coach provided the primary researcher

with an updated team roster along with email addresses. A total of 95 student-athletes

filled out a paper copy of this survey, and 144 student-athletes obtained access to

complete an online survey form, and received a reminder if they did not respond to the

initial request for participation. Therefore, a total of 239 student-athletes participated in

this survey. Statistical information quantifying overall distribution and response rate is

found in the Results section later in this paper.

Institutional Review Board (IRB) approval was obtained prior to any information

being distributed to coaches or participants of this study (see Appendix A). Respondents

of this survey were given the option to put their name into a raffle for gift cards as an

incentive to take part in this survey. The incentive was supported by funding from the

college fund for student research. The identifier information was placed separate from the

survey response information, and the names were subsequently destroyed in keeping with

the anonymous nature and practices affiliated with this study.

Instruments

A survey instrument was utilized to understand the relationship between athletic

identity, academic success, and alcohol consumption (see Appendix B). This instrument

was developed from reviewing literature and published research, and from questions

designed by the researcher.

Athletic identity. This topic was measured by questions created by the study's

principal researcher. Questions in this group include overall themes such as influence

from peers and social environment on oneself, and where personal identity falls on an

average day and on competition day, which is based on a scale of 1 (full-time student) to 10 (full-time athlete).

   Academic success. Academic success was measured by survey questions provided in the research study written by Anasari, Stock, and Mills (2012) and by Park and Grant (2005). Example questions from Anasari, Stock, and Mills (2012) include rating the level of importance of academics and rating academic performance in comparison to peers. Both questions are rated on a five-point Likert scale (1 = not at all important/much worse; 5 = extremely important/much better) related to the question matter. Example questions from Park and Grant (2005) include lists of action items driving academic success, including "trouble paying attention in class" and "missing class," with which participants must identify how often they have experienced the action item in both a positive and negative perspective.

   Alcohol consumption. Alcohol consumption was measured by survey questions from a variety of research studies which incorporated topics such as age of first alcoholic drink (Dams-O'Connor et al., 2007), comparison of consumption habits on game days vs. non-game days for student-athletes (Pederson & LaBrie, 2006), total number of drinks consumed during last occasion drinking, and total number of times the participant had more than five alcoholic drinks in one sitting in the last month (Balsa, Giuliano, & French, 2011). Rationing behind the answer options for "age of first alcoholic drink" is to accommodate for the traditional age children are in each level of school (9 years of age and younger, elementary school; 10 to 13 years of age, middle school; etc.). Positive and negative alcohol consumption behaviors were measured, as well (Park & Grant, 2005). For both behaviors, responding with 1 would indicate never, 2 indicates sometimes, 3

indicates often, and 4 is always. In addition to these questions, the AUDIT survey was utilized to provide a full perspective of alcohol consumption behaviors for the respondents. For any score greater than 8 out of a total possible score of 40, behaviors indicate hazardous or harmful alcohol use.

Table 1.
Academic Success, Alcohol Consumption, and Athletic Identity Survey Questions

Author (Year)	Theme of Questions	Number of Questions
Anasari et al. (2012)	Academic Success	2
Park & Grant (2005)	Academic Success & Alcohol Consumption	2
Dams-O'Connor et al. (2007)	Alcohol Consumption	1
Pederson & La Brie (2006)	Alcohol Consumption	2
Balsa et al. (2011)	Alcohol Consumption	3
Principal Researcher	Athletic Identity	6

Analysis

Descriptive analysis was applied to comprehensively understand the connections between influences that friend groups and social environment have on alcohol consumption, and the comparison of average positive and negative alcohol consumption experiences. In order to understand if student-athletes' identity varies between game days and non-game days, paired t-tests were utilized to test individual respondents' identity and consumption on competition and non-competition days. Spearman's correlation coefficient, rank-order correlation, was used to examine the relationship between the identity the athlete has on game days and non-game days, and the level of alcohol consumption athletes participate in on game days and non-game days.

To further understand if student-athletes' alcohol behavior differs with their gender and sport, individual t-tests were utilized to test AUDIT scores, and positive and negative alcohol behaviors with both genders, while analysis of variance (ANOVA) was

utilized to test if the AUDIT score varied with the sport in which a given athlete participates. Post Hoc tests were used to determine which pair(s) contribute the differences under the overall significance. Finally, chi-square was utilized to test for the associations between GPA and genders. The assumption of normality and homogeneity of variance was tested prior to these analyses. All of the variables were approximately normally distributed. The statistical significance level was at the 0.05 level (*p*-value).

Results

There were 239 student-athletes who participated in this study. Seven responses were marked as incomplete (unanswered questions, stopped responses before survey finished), and therefore were not counted in the total number of valid responses. Therefore, the total number of completed and valid responses was 232. Seventy percent of the research participants who completed this survey were male, and the other 30% were female. Thirty-one percent of participants were college freshmen, 24.6% were sophomores, 22% juniors, 21.1% seniors, and 1.3% graduate students. The ages of the participants were 18 years old (21.6%), 19 years old (26%), 20 years old (17.3%), and age 21 or older (35.1%).

Table 2. Demographic Data Presented by Category

	Frequency	Percent
Gender		
Male	161	69.4%
Female	69	29.7%
Year in School		
Freshman	72	31.0%
Sophomore	57	24.6%
Junior	51	22.0%
Senior	49	21.1%
Graduate	3	1.3%
Age		

18	50	21.6%
19	60	26.0%
20	40	17.3%
21	57	24.7%
22	18	7.3%
23	6	2.6%
Sport Played		
Cross Country	22	9.5%
Football	98	42.2%
Softball	15	6.5%
Swimming & Diving	40	17.2%
Track and Field	39	16.8%
Women's Basketball	14	6.0%
Wrestling	26	11.2%

The mean score of AUDIT responses was 5.38, with the standard deviation

equaling 5.04. With the range for the AUDIT responses being 0 to 24 (out of the total

range of 0 to 40 for the tool), 28% of participants had an AUDIT score higher than 8,

which indicates a risky alcohol usage pattern or an experience with hazardous alcohol

use. As shown through the AUDIT portion of this survey, 89.6% of participants drink

alcohol four times or less per month. Note that this category includes the option of zero

drinks per month; even with that subset removed, the number of student-athletes who

report drinking on a monthly basis is significant. A large number of participants (40.1%)

drink five or more beverages on a typical day consuming alcohol. A total of 30.2% of

participants consume six or more drinks on a day consuming alcohol at least once per

month. Consuming five or more drinks at a given sitting is considered to be binge

drinking (Martens et al., 2006; Porter & Pryor, 2007; Yusko et al., 2008). A majority of

research participants stated that they do not have trouble stopping consumption of alcohol

once they've started (86.2%), are stated that they: are able to do what is expected when

paired with their drinking habits (87.9%), do not need an alcoholic beverage in the

morning to start their day (94.8%), do not feel remorse or guilt after drinking (70.7%),

can always remember what had occurred after a night of drinking (70.7%), have never

been injured while drinking (88.8%), and have never had an individual show concern of

their drinking habits (96.6%). Such responses may generally reflect a tendency toward

little issue related to alcohol consumption.

Table 2. Student-Athletes' AUDIT Frequency by Questions

	Frequency	Percent
How often do you drink?		
Never	53	22.8%
Monthly or less	59	25.4%
2-4 times per month	96	41.4%
2-3 times per week	21	9.1%
4 or more times per week	3	1.3%
Number of drinks of typical day drinking?		
1-2	89	38.4%
3-4	50	21.6%
5-6	59	25.4%
7-9	15	6.5%
10 or more	19	8.2%
How often do you have 6+ drinks?		
Never	88	37.9%
Less than monthly	74	31.9%
Monthly	44	19.0%
Weekly	25	10.8%
Daily or almost daily	1	0.4%
How often not able to stop drinking?		
Never	200	86.2%
Less than monthly	21	9.1%
Monthly	5	2.2%
Weekly	2	0.9%
Daily or almost daily	4	1.7%
How often able to not do what's expected?		
Never	204	87.9%
Less than monthly	26	11.2%
Monthly	2	0.9%
How often need a drink in the AM?		
Never	220	94.8%
Less than monthly	8	3.4%
Monthly	3	1.3%
Daily or almost daily	1	0.4%
Feelings of guilt/remorse after drinking?		
Never	164	70.7%
Less than monthly	53	22.8%

Monthly	11	4.7%
Weekly	3	1.3%
Daily or almost daily	1	0.4%
Often can't remember what occurred?		
Never	159	68.5%
Less than monthly	57	24.6%
Monthly	9	3.9%
Weekly	3	1.3%
Daily or almost daily	4	1.7%
Injured during drinking		
No	206	88.8%
Yes, but not during the last year	14	6.0%
Yes, during the last year	12	5.2%
Shown concern about consumption habits		
No	224	96.6%
Yes, but not during the last year	2	0.9%
Yes, during the last year	6	2.6%

*Rounding through SPSS led to a total percentage that equaled slightly above or below 100% for items.

Aside from the AUDIT responses, additional questions in regards to alcohol consumption were asked. A substantial sum of student-athletes (33.2%) binge-drank during their last drinking occasion, and 86.3% reported that they had their first alcoholic drink when they were younger than the legal United States drinking age of 21. A majority of respondents (86.4%) consumed five or more drinks two times or less in the last month, 86.7% drink four or fewer beverages on competition day, and 80% do not drink on non-competition days.

The mean score of negative alcohol behaviors was 1.12 on a four-point Likert scale (1= never, 4= always), which includes items such as having a hangover, missing class, and arguing with friends. These items were reported to occur almost never with the participants ($SD = .23$). The mean score of positive alcohol behaviors was 1.52 on the same four-point Likert scale as negative alcohol behaviors, which includes items such as feeling relaxed, increased creativity, and forgetting school problems. These items were

reported to occur between never and sometimes for responders (SD = .69). It was found

that females had lower mean scores for both positive (M = 1.14) and negative (M = 1.06)

alcohol behaviors as compared to males (M = 1.30, M = 1.59). The Cronbach's α of

negative and positive alcohol behaviors items of the study was .85 and .95, which showed

a great internal reliability of the instrument. A majority of participants stated academics

to be important (94.4%), stated their academic success is the same or better than their

peers (93.9%), and have a grade point average higher than 3.01 (65.9%).

Table 3. Student-Athlete Academic Success Frequency by Question

	Frequency	Percentage
Importance of Academics		
Not at all important	1	0.4%
Not important	1	0.4%
Somewhat important	11	4.7%
Important	99	42.7%
Extremely important	120	51.7%
Academic Standing Compared to Peers		
Much Worse	1	0.4%
Worse	13	5.7%
Same	76	33.2%
Better	102	44.5%
Much Better	37	16.2%
Grade Point Average		
No GPA listed – first year	35	15.1%
Under 2.5	7	3.0%
2.51-2.75	16	6.9%
2.76-3.0	21	9.1%
3.01-3.25	24	10.3%
3.26-3.5	39	16.8%
3.51-3.75	38	16.4%
3.76-4.0	52	22.4%

*Rounding through SPSS led to a total percentage that equaled slightly above or below 100% for items.

A majority of respondents (64%) have a friend group that consists mostly of

student-athletes. Student-athlete identities are influenced in some way by their social

environment (62.5%), but generally not influenced by their friend group to consume

alcohol (63.2%), and are not influenced by their social environment to consume alcohol (61%). For student-athletes who responded to this survey, athletic identity on a non-competition day had a mean score of 5.97 ($SD = 1.72$) on a scale of 1 (full-time student) to 10 (full-time athlete), while athletic identity on a competition day had a mean score of 9.06 ($SD = 1.34$) on the same scale.

The results of the paired t-tests indicated that there was a significant difference in the respondents' identity during a competition day and on a non-competition day [$t(230) = -25.36$, $p < .001$], and the alcohol consumption habits of respondents during a competition day and on a non-competition day [$t(231) = 4.15$, $p < .001$]. In addition, the result of independent t-tests indicated there was a significant difference in the respondent's gender as compared to his or her AUDIT score [$t(194) = 4.56$, $p < .001$], negative alcohol behaviors [$t(226) = 3.33$, $p = .001$], and positive alcohol behaviors [$t(180) = 3.39$, $p = .001$].

Due to the variables being ranked, Spearman's correlation was utilized to examine the relationship between GPA and AUDIT scores. A negative correlation was found between the GPA of respondents with their AUDIT scores [$r(232) = -.242$, $p = .001$]. Positive correlations were found between GPA and importance of academics [$r(197) = .267$, $p < .001$], as well as between identity on non-competition day and alcohol consumption [$r(231) = .237$, $p < .001$], and between identity on competition day and alcohol consumption [$r(232) = .282$, $p < .001$].

Due to the uneven group size and variance of sport participation, Kruskal-Wallis, non-parametric one-way analysis of variance (ANOVA) was applied to examine if the

athlete's AUDIT score varied with the sport in which he or she participates. The results showed that an overall statistical difference among different sport categories, $\chi2$ (6) = 46.78, $p < .001$. The further pairwise comparisons showed a statistical difference between Cross Country and four other sports groups – Football ($p < .001$), Swimming & Diving ($p < .001$), Women's Basketball ($p = .004$), and Wrestling ($p < .001$); and between Track & Field and two other sports groups – Football ($p = .048$) and Wrestling ($p = .001$). The AUDIT mean scores of Cross Country and Track & Field were 1.05 and 2.41, respectively, while the AUDIT mean score was higher for athletes in Football ($M = 5.79$), Swimming ($M = 6.73$), Women's Basketball ($M = 6.18$), and Wrestling ($M = 5.52$). Softball was not included, as it was not statistically different from Cross Country and Track and Field; however, the mean score was 3.27.

Pearson Chi-squared tests were run to see a breakdown in GPA for each gender. The grade point average of participants did differ by gender, which resulted in significant findings [$\chi2$ (6) = 37.94, $p < .001$]. It was found that females ($M = 7.04$) had generally higher GPAs than males ($M = 5.59$) in this study.

Discussion

The three purposes of this study were to understand: (1) the relationship between how student-athletes experience alcohol consumption, (2) how their academic grade point average is effected, and (3) if athletic identity sways their motivation to perform academically and athletically better. Consistent with prior research, results from this study indicated that student-athletes do experience alcohol consumption in large quantities that can be defined as binge drinking (Martens, Dams-O'Connor et al., 2006;

Porter & Pryor, 2007; Yusko et al., 2008), are more likely to struggle academically if alcohol consumption rates are high (Porter & Pryor, 2007; Pritchard & Wilson, 2003; White & Hingson, 2013). While the overall findings were generally consistent with past research in regards to differences between genders and motivation, sport sub-culture presented itself as being a potential response to why student-athlete consumption habits are higher than non-athletes.

Alcohol Consumption and Sport Sub-Culture

As shown through results from the AUDIT portion of the survey, it was uncovered that a significant percentage of student-athletes (30.2%) binge-drink on a regular basis (once per monthly or more frequently). In addition, it was found that just over one-quarter of respondents fall into the category of hazardous drinking. While, individually, certain student-athletes had scores that surpassed this suggestive intervention scale, collectively, no sport had a mean score higher than 8, which the World Health Organization (the creator of this screening tool) deems to be worthy of a brief intervention with a licensed professional. For both positive and negative alcohol behaviors, student-athletes' average scores ranged between never and sometimes. Similar to mean AUDIT scores, individual student-athletes had scores that leaned more toward often to always; collectively, the student-athletes fell more toward the "never" end of this spectrum. Although it might seem that only a small portion of student-athletes' reported alcohol behaviors were more frequent than the majority, there still is a concern for the individuals who do experience both positive and negative alcohol behaviors on a more regular basis than their fellow student-athletes. Consistent with results from Martens, Watson, and Beck (2006), swimming and diving athletes engaged in higher levels of

drinking than the athletes from the other sports surveyed. Sport sub-culture could provide reasoning to the divergent AUDIT scores between sports, which can be defined as the rules, values, and morals that define a certain group. For example, certain sports may have a more tolerant culture in regard to accepting heavy alcohol consumption by student-athletes, which could in turn enhance the athletes' use of alcohol (Martens, Watson et al., 2006). Martens, Watson et al. (2006) also explains that this idea of sport sub-cultures could promote different motivations for the student-athlete to consume. Further research in regard to motivation of alcohol consumption for specific sports, like swimming and diving, in order to find a deeper connection between sport sub-culture and the sport could provide additional pertinent information as to why certain sports have a higher alcohol consumption rate than others.

Alcohol Consumption, Academic Success, and Athletic Identity

In the United States, the average age of first alcoholic drink for men is 11 years old, and for women, it is 13 years old (Teenage Drinking, 2019), which is much younger than the legal drinking age of 21 years old. This current study provides validity to this trend of consuming alcohol prior to reaching the legal drinking age in the U.S., due to the majority of student-athletes reporting they had their first drinking experience before they turned 21. Campus life in college can expose pathways for some students to seek and obtain accessibility to alcohol, including a lack of alcohol-alternative events on-campus, ease of purchasing or obtaining alcohol from older students, and homecoming events that promote drinking cultures on campuses (Cremeens, Usdan, Talbott-Forbes & Martin, 2013). Understanding on-campus alcohol policies, and the disciplinary actions (loss of scholarship, taken off roster for game, etc.) that will occur if they are caught consuming

alcohol may provide additional structure to student-athletes and their experiences with alcohol.

On both game and non-game days, a majority of respondents identify more with being a full-time athlete than being a full-time student. This poses a potential concern when dealing with academic distress in student-athletes. The less that student-athletes identify with academics, the less likely they are to devote a generally expected amount of time to their studies. The same theme was found in terms of game and non-game days and consumption habits. The more the student-athlete identities with being an athlete, the more likely they are to consume more on both game and non-game days. This is consistent with the findings from Rankin et al. (2016) when they stated that if the identity sways one way more than another, there will be conflict, resulting in one of two variables failing. In this case, the more likely student-athletes identify with being an athlete, the more likely their academic life will be negatively impacted. This was verified through this study due to the negative correlation between academic success and AUDIT scores, and the positive correlation between identity and alcohol consumption. However, through these correlations found, the r value was considered to be significant, but it is a weak correlation, so it is necessary to proceed with caution when analyzing further.

Differences between Genders

Looking further at gender differences, mirroring the findings of Beron and Piquero (2017), it was found that females generally have a higher grade point average than males. Inversely, males have been found to not only have higher AUDIT scores, but also experience more positive and negative alcohol behaviors as compared to females,

which remains consistent with the findings from studies by Ford (2007), and White and Hingson (2013). A negative correlation was found between students' GPAs and their AUDIT scores. This signifies that as GPA increases, the respondent's AUDIT score decreases, and vice versa. These results are comparable to those found by Porter & Pryor (2007), Pritchard and Wilson (2003), and White and Hingson (2013).

A positive correlation was found between GPA and the importance of academics to the respondents. The more the individual values their academics, the higher their GPA will be. This also links back to the gender difference for academic importance. Females were found to value academics more than males, which correlated in females having a higher GPA than males, which is consistent with Beron & Piquero (2017). Positive correlations were also found between athletic identity and their consumption on game days and non-game days.

All of these data points combined measure out to providing a potential reason why we see major gender differences when it comes to academic success and consumption habits. For females who have been found to have higher a GPA than their male counterparts, their AUDIT score has been shown to decrease, which would lead to not experiencing positive or negative alcohol behaviors as frequently as males. In addition, the more the individual identifies with being an athlete, the more likely they will consume more on game days and non-game days, which is consistent with the male student-athlete responses.

Conclusion

Practical Implications

To benefit student-athletes, athletic departments, and academic programs, the development of effective prevention and early intervention programs for student-athletes who may display a decline in academic performance or show signs of alcohol dependency is crucial to starting conversations and addressing possible issues. Student-athletes, given the unique nature of their dual roles (student AND athlete), are under a tremendous amount of pressure and stress, and need an outlet to speak about their issues outside of practice or class. Like Ranking et al. (2016) stated, an individual cannot identify as both parts without their being conflict, which results in one of two variables failing. For an athletic department, making resources known to all athletes and coaches about counseling may make a positive difference in the development of these individuals. In addition, providing workshops for coaches, athletic trainers, and professors to discuss how to identify issues and disseminate information could benefit the department holistically. Also, universities need to impress upon coaches and students that the primary role of the student-athlete is student and not athlete. Putting policies and structure in place to support this would impact how student-athletes view their primary identity. Such a change has been shown in research to generate positive impact on academic performance and, relatedly, alcohol deterrence.

Limitations and Future Research Suggestions

Due to this study being a self-reported questionnaire, responses have a degree of uncertainty. Self-reporting GPA also posed an issue, as there is a wide range of variables

that fall under one survey answer option. Accessing accurate GPA information from academic offices on campus could allow for further understanding of where academic success standards truly fall for student-athletes at one university. There were respondents who failed to respond to all questions, as well, which caused for the total valid responses to be lower. Due to the fact that this survey is based on individual alcohol consumption, and that this was potentially introduced to them by their coach (if the principal researcher provided paper copies of the survey to the team), there may be underreporting of issues for fear that a coach, a counselor, etc., may be contacting the participant, even though this survey was explained as being confidential and anonymous. In addition, there was a significant percentage of the study respondents that reported they don't consume alcohol at all (22.8%). If the accuracy of this subset can be verified, future study could investigate what factors play a role in this group's decision-making process of whether to consume or not when they are a collegiate student-athlete.

This study was completed at one NCAA Division I institution in the Midwestern United States. The university that was utilized in this research study may not be as diverse when compared to the mean or average of all U.S. colleges. The overall student population at the university is 87% White, with 63.4% of undergraduates residing from the state in which the school resides. Asking other demographic information, such as race/ethnicity and other social demographics, would be beneficial for a future study to understand the population surveyed additionally. Such information was not derived from the students taking this survey. Sampling a larger variety of student-athletes from different universities may provide a different breakdown of responses. This would prove

beneficial in furthering the topic of alcohol consumption and academic success in

student-athletes.

APPENDIX

Appendix A. IRB Approval Letter

SOUTH DAKOTA STATE UNIVERSITY
Institutional Review Board

Investigator: Zoe Arnold

Project Title: The impact of alcohol consumption on academic success in collegiate student athletes

Determination: Expedited, Category 7

Approval #:   IRB-1809003-EXP

Duration: September 5, 2018 - September 4, 2019

The project referenced above has been approved by the Institutional Review Board (IRB) for the protection of human subjects through exedited review. The proposed activity was deemed to be no greater than minimal risk and congruent with expedited category number (7) outlined in 45 CFR 46, section 110.

Note: Any changes to the protocol or related documents must be approved by the IRB before implementation. Unanticipated problems or adverse events must be promptly reported to the IRB. This approval is valid for one year. If you require additional time to complete your study, please submit an extension request. SDBOR regulations require that research data be retained for seven years following completion of a study, and research materials for three years. Please notify the IRB when your study concludes.

Dianne Nagy
Research Integrity and Compliance Officer
September 5, 2018

Appendix B. Survey Instrument

Student Athlete Alcohol Consumption and Academic Success

Thank you for participating in this thesis research survey. All responses are greatly appreciated and will be kept anonymous. This survey aims at recognizing the connection between academic success and alcohol consumption in Division 1 collegiate student athletes. This survey will take roughly 15-20 minutes to complete fully. You must be 18 years of age or older to participate the survey. Please answer each question truthfully and completely.

There will be no risk anticipated from participating in the survey. Your response will remain anonymous and your participation in this study is strictly voluntary. We value your privacy. The information you provide will be used strictly for understanding the public perspectives and not for any other purpose. By November 1, 2018, after responses have been collected, all data will be downloaded into a separate, password protected document only the principle researcher will have access to. At that point, no IP addresses will be able to be linked back to individual responses. Your confidentiality is only as secure as your equipment; no guarantees can be made regarding the interception of data sent via the Internet.

At the end of the survey, if the respondent chooses, a raffle for 15 $10.00 Q'doba gift cards will be drawn from the respondent pool if an email address is provided. At any point, if you no longer wish to continue this survey, please feel free to stop your responses immediately.

If you have any questions, please feel free to reach out to either Zoe Arnold at zoe.arnold@sdstate.edu, who is the principle researcher, or Hung Ling (Stella) Liu at stella.liu@sdstate.edu, who is the advisor for this research study. If you have any concerns, please contact the South Dakota State University IRB Office at 605-688-6975 or at SDSU.IRB@sdstate.edu. Thank you again.

Section 1: This portion of the survey asks questions in regards to the athletic identity of the respondent. Both number scaled and personal related questions will be asked. Please circle each of your responses.

1. What do you consider to be the break-down of your friend group?

Majority student-athletes Mix of student-athletes and non-athletes Majority non-athletes

2. On a scale of 1 to 10, 1 being a full-time student, and 10 being a full-time athlete, where do you believe your identity falls on an average day?

1   2   3   4   5   6   7   8   9   10

3. On a scale of 1 to 10, 1 being a full-time student, and 10 being a full-time athlete, where do you believe your identity falls on a competition day for your sport?

1   2   3   4   5   6   7   8   9   10

4. How much of an influence does the social environment of this university have on your identity of being an athlete?

I am not influenced at all.   I am influenced frequently.   I am always influenced.

5. Which one of these statements do you identify with most in regards to the influence your friend group has on your alcohol consumption?

I am not influenced by my friend group to consume alcohol at all.

I am influenced by my friend group to consume alcohol frequently.

My friends influence me to consume alcohol always.

6. How much of an influence does the social environment of this university have on your alcohol consumption?

I am not influenced at all.   I am influenced frequently.   I am always influenced.

Section 2: This portion of the survey asks questions in regards to the respondent's personal alcohol habits. As stated previously, all responses will be kept anonymous, and will only be looked at to derive conclusions for this study. No responses will be sent back to the SDSU Athletic Department or athletic coaches. Please answer each question truthfully and completely. If you feel uncomfortable answering any portion of this survey, please feel free to conclude your responses, and stop your survey. Please circle each of your responses.

1. How often do you have a drink containing alcohol?
    0   **1**   **2**   **3**   **4**
    Never Monthly or less 2-4 times a month   2-3 times a week 4 or more times a week

2. **How many drinks containing alcohol do you have on a typical day when you are drinking?**

0	**1**	**2**	**3**	**4**
1 or 2	3 or 4	5 or 6	7 to 9	10 or more

3. **How often do you have six or more drinks on one occasion?**

0	**1**	**2**	**3**	**4**
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

4. **How often during the last year have you found that you were not able to stop drinking once you started?**

0	**1**	**2**	**3**	**4**
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

5. **How often during the last year have you failed to do what was normally expected of you because of drinking?**

0	**1**	**2**	**3**	**4**
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

6. **How often during the last year have you needed a drink first thing in the morning to get yourself going after a heavy drinking episode?**

0	**1**	**2**	**3**	**4**
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

7. **How often during the last year have you had a feeling of guilt or remorse after drinking?**

0	**1**	**2**	**3**	**4**
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

8. **How often during the last year have you been unable to remember what happened the night before because of your drinking?**

0	**1**	**2**	**3**	**4**
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

9. **Have you or someone else been injured because of your drinking?**

0	**2**	**4**
No	Yes, but not in the last year	Yes, during the last year

10. **Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?**

0	**2**	**4**
No	Yes, but not in the last year	Yes, during the last year

11. What was the number of alcoholic drinks you consumed during your last drinking occasion?

| 0 | 1-2 | 3-4 | 5-6 | 7-8 | 9+ |

12. During the last month, how many times have you had more than five (5) alcoholic drinks in one sitting?

| 0 | 1-2 | 3-4 | 5-6 | 7-8 | 9+ |

13. At what age did you have your first alcoholic drink?

Under 9 years old   10-13 years old   14-17 years old
18-21 years old   Older than 21 years old
Have never had an alcoholic drink

14. After a competition day for your sport, how many alcoholic drinks on average will you consume?

| 0 | 1-2 | 3-4 | 5-6 | 7-8 | 9+ |

15. During a non-competition day for your sport, how many alcoholic drinks on average will you consume?

| 0 | 1-2 | 3-4 | 5-6 | 7-8 | 9+ |

16. Due to your alcohol consumption, in the last month have you ever experienced any of the following:

	Never	1-3 occurrences Sometimes	4-6 occurrences Often	Always
Have a hangover				
Miss class				
Trouble paying attention in class				
Trouble doing homework				
Behind in school				
Regret something				
Forget where you were				
Argue with friends				
Unplanned sex				
Not using protection				
Damaged property				
Trouble with police				
Got hurt or injured				
Overdose				

17. Due to your alcohol consumption, in the last month have you ever experienced any of the following:

		1-3 occurrences	4-6 occurrences	
	Never	Sometimes	Often	Always
Felt relaxed				
Felt better about self				
Better expression				
More romantic				
Forgot school problems				
More creativity				
Performed tasks better				
Felt "cool"				
Fit in with people				
More relaxed about sex				
Added enjoyment to meal				

Section 3: This portion of the survey will ask rating questions in regards to the academic success of the respondent. Please answer each question truthfully and completely.

1. What level of importance do you put on your academic responsibilities in college?

Not at all important   Not important   Somewhat Important

Important   Extremely Important

2. Please rate your academic performance in comparison with your fellow student-athletes in your specific sport.

Much Worse   Worse   The same   Better   Much Better

3. What is your cumulative GPA thus far in your college career?

No GPA listed – first year   Under 2.5   2.51-2.75   2.76-3.0

3.01-3.25   3.26-3.50   3.51-3.75   3.76-4.0

Section 4: This section includes demographic questions to understand the breakdown of population taking this survey. Please circle each of your answers.

What year are you in college?

Freshman   Sophomore   Junior   Senior   Graduate

What is your gender?

Male   Female   Non-Binary   Prefer not to disclose

What is your age?

18   19   20   21   22   23   24   25+

What sport(s) do you play currently at this university? Please check all that apply.

Basketball   Cross Country   Football   Swimming & Diving

Track & Field   Wrestling   Softball

Thank you for participating in this research study. If you would like to be put in the drawing to receive one of 15 $10.00 Q'doba gift cards, please provide your email address. Winners will be drawn 4 weeks after the survey is initially sent out, or by November 1, 2018. Email addresses will only be utilized for the drawing purpose, and will be looked at separate from your responses.

Email address:

_____

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