

Trinity College

Trinity College Digital Repository

Senior Theses and Projects

Student Scholarship

Spring 2018

Alcohol Use in Student Athletes: The Influence of Injunctive Norms, Trait Urgency and Competitiveness

Annabel Stanley

Trinity College, Hartford Connecticut, annabel.stanley@trincoll.edu

Follow this and additional works at: <https://digitalrepository.trincoll.edu/theses>



Part of the [Psychology Commons](#)

Recommended Citation

Stanley, Annabel, "Alcohol Use in Student Athletes: The Influence of Injunctive Norms, Trait Urgency and Competitiveness". Senior Theses, Trinity College, Hartford, CT 2018.

Trinity College Digital Repository, <https://digitalrepository.trincoll.edu/theses/699>

Alcohol Use in Student Athletes: The Influence of Injunctive Norms, Trait Urgency and
Competitiveness

A thesis submitted in partial fulfillment for the Bachelor's Degree in Psychology

Annabel Stanley

Trinity College

Fall 2017-Spring 2018

Acknowledgements

Executing this body of work could not have been done without the contributions of Trinity College faculty, family and friends. I would like to take the time to thank these individuals.

First, I would like to thank Professor Holt, my thesis and major advisor. Her guidance and support was paramount through each stage of my thesis. She helped plan each step of the research and writing process in a time effective manner that would get me to the finish line with time at the end to spare. Her feedback was constructive and succinct. After each meeting with Professor Holt, I left feeling confident and capable to complete the next step of research.

Secondly, I would like to thank the psychology department for their time and effort in helping all psychology students with their theses. Through the thesis colloquium classes, each student writing a thesis was given broken down insight on formatting, gathering research for an introduction, and using the most efficient tables and figures to illustrate data. The psychology department's faculty helped each student stay on top of their work.

I would also like to thank the Trinity athletic community, especially Kristen Noone. Kristen Noone played a pivotal role in reaching out to all athletes on Trinity's campus. With her help and the help of coaches, my study yielded over 100 participants.

Lastly, I would like to thank the support of my housemates and family for their support through this long research process. Their encouragement was greatly appreciated and helped keep me going!

Table of Contents

Abstract.....	4
Introduction.....	5
Student Athlete Drinking.....	5
Seniority on Team.....	7
Seasonal Effects.....	8
Divisional Differences.....	8
Sport Affiliation.....	8
Motives for Drinking.....	9
Competitiveness.....	10
Social Ecology Model.....	11
Interpersonal Influences.....	13
Injunctive Norms.....	14
Intrapersonal Influences.....	15
Trait Urgency and Drinking Motives.....	15
Hypotheses	18
Method.....	19
Participants.....	19
Procedure.....	20
Measures.....	21
Plan of Analysis.....	22
Results.....	23
Discussion.....	26
References	32
Figures and Tables.....	36

Abstract

Previous research has shown student-athletes are at greater risk for heavy alcohol use and that trait urgency (i.e., acting impulsively in response to negative or positive affect), injunctive norms (i.e., perceived approval from teammates and coaches about alcohol consumption), and drinking motives are associated with substance use. In my study, I aimed to not only replicate these associations with athletes from a small, private Division III institution, but also examined several new questions, including whether captains' approval of drinking predicted athlete drinking and whether the association between drinking motives and actual drinking (and drinking-related problems) depended on a team's level of competitiveness (i.e., overall winning percentage of the past five seasons). 124 Trinity student athletes were recruited to complete an online questionnaire. I hypothesized that (a) athletes who score higher in trait urgency would endorse stronger motives to drink and more alcohol use, (b) athletes would perceive greater approval for drinking from teammates and captains compared to coaches, and (c) athletes' sport-related positive reinforcement and sport-related coping motives would be positively related to substance use and higher competitiveness would moderate this effect. The results showed that trait urgency had a direct effect on drinking frequency and an indirect effect on drinking frequency via team cohesion and positive reinforcement. Injunctive norms were highest for teammates, lowest for coaches and captain fell in between. Finally, results showed the interaction between coping motives and winning percentage predicted in season drinking; the interaction between positive reinforcement and winning percentage predicted in season drinking; and the interaction between coping motives and winning percentage predicted alcohol consequences.

Alcohol Use in Athletes: The Influence of Injunctive Norms, Trait Urgency and Competitiveness

College students' drinking habits are a great concern to society. The news is filled with stories of alcohol-related deaths on college campuses. For example, over the past several years Penn State, Lehigh, Florida State, and University of Pittsburg have been in the news due to excessive student drinking leading to alcohol related deaths and rash decision making. These news reports that suggest high levels of binge drinking on college campuses have been corroborated by research, and in one particular survey conducted by the Core Institute (2002), over two fifths of the college student population had engaged in heavy episodic drinking within the past two weeks; this behavior puts college students at higher risk for alcohol-related problems and negative consequences.

Research has consistently identified student-athletes as an at-risk population for above average alcohol consumption. At first glance, the association between collegiate athletes and higher than average alcohol consumption may seem counterintuitive; one would think that athletes would be more careful and strict in regards to the substances they put in their bodies, given the demands of competition. However, a study assessing six hundred thirty-one schools across National Collegiate Athletic Association (NCAA) divisions one, two, and three, male and female athletes, and thirty different sports, found that the majority of student athletes engaged in alcohol use. Similarly, Lisha and Sussman (2010) evaluated empirical articles focused on substance use in athletics and found that in 22 of the 34 studies, there was a positive association between participation in sports and alcohol use.

College athletes drink more than non-athletes, and tend to consume alcohol in a

more extreme fashion (Green, Uryasz, Petr, & Bray, 2001). Athletes consume larger amounts of alcohol at a time and are more likely to engage in risky behaviors after consuming alcohol. To gauge the drinking habits of student-athletes, Brenner and Swanik (2001) found that 60% of male student athletes and 50% of female student athletes reported participating in heavy episodic drinking in a two week period. Although prevalence rates have been well documented, less research has examined factors that motivate athlete alcohol use, heavy drinking, and factors that increase the risk of athletes experiencing alcohol-related problems.

Student Athlete Drinking: An Overview

College athletes work hard on and off the field. Many are in tune with their bodies, ensuring that their intake (food, nutrients, fluids etc.) will result in optimal performance. Martens, Dams-O'Connor, and Beck (2006) conducted a meta-analysis of the prevalence of student athlete drinking. When comparing athletes and non-athletes in 1993, 87% of athletes reported alcohol use within the past year versus 84% of non athletes. This 3% difference was significant. Although both student populations had high rates of alcohol use, given that athletes presumably must be more aware of how they treat their bodies and ensure their intake (food nutrients, fluids, etc) will result in optimal performance, it was surprising that athletes reported significantly more alcohol use. Martens et al. (2006) examined athlete drinking in more detail by examining frequency and quantity of alcohol consumption. With respect to heavy episodic drinking (i.e., more than four drinks in one sitting for males, more than three drinks in one sitting for females), a higher percentage of collegiate athletes reported partaking in heavy episodic drinking compared to non-athletes. More specifically, 61% male athletes reported heavy episodic drinking compared to 43%

percent of non-athletes. For females, fifty percent of collegiate athletes reported heavy episodic drinking, compared to only 36% of non-student athletes. Martens et al. (2006), found these results consistently across multiple studies (Leichliter, 1998; Weshcler & Nelson, 2001). In Leichliter's (1998) study specifically, which surveyed 51,483 college students across one hundred twenty-five universities, collegiate athletes reported higher alcohol consumption rates (around seven drinks per week) compared to non-athletes (around four drinks per week). Taken together, these findings suggest, collegiate athletes are a more at-risk sub population of college students for large amounts of alcohol consumption.

Factors Influencing Student Athlete Drinking

Seniority on team. In order to understand potential factors motivating athlete drinking, it is helpful to examine the social structure of athletic teams and the status one holds on a team. Sports teams are structured to have distinct leaders and followers. Leaders set the intensity, lead by example, and advocate for team's best interest. The team follows the leader's direction on and sometimes off the field. Martens and colleagues' (2006) review pointed to an interesting distinction within team alcohol rates reported in Hildebrand's (2001) study. Hildebrand divided teams into involvement levels (i.e. captains and teammates) and found that people in higher levels of leadership (involvement) reported more drinks per week and more heavy episodic drinking. Further, this finding was consistent across males and female athletes. Thus, it may be that captains set the norm for a team's behavior; in fact, underclassman may change their habits based on the captains' actions. However, there is a lack of data examining why captains drink more and how (if at all) this behavior influences underclassmen.

Seasonal effects. Another difference to take into account when analyzing alcohol use in college athletes is the prevalence of in season versus out of season drinking. Martens et al. (2006) found five studies that examined in season versus out of season drinking habits and all studies found more consumption out of season. One reason for this may be that in season, there are more strict rules and regulations regarding drinking habits.

Divisional differences. Yet another difference within the collegiate athlete population is the athletic division to which their college/university belongs. NCAA institutions are split into three divisions: Division One schools are mostly larger universities and can offer athletic scholarships. They also provide the highest level of competition and have more demanding game/practice schedules. Division Three schools are not allowed to provide financial aid to athletes, have limitations on recruitment and is comprised of smaller universities and colleges. Division Two is a middle ground between Division One and Three. More Division Three athletes reported using alcohol in the past year in comparison to Division Two and Division One. Green et al., (2001) also found that Division Three athletes reported higher alcohol use in comparison to the two other divisions. Researchers have attributed these findings to Division Three athletes having the most flexibility in their schedules to engage in these habits. The above findings stress the importance of looking further into the drinking related problems and consequences that Division Three athletes face, as they may be the highest risk subgroup of drinkers among all athletes.

Sport affiliation. In addition to divisional differences, the Martens et al (2006) review reported on sport type differences and their association with alcohol consumption.

Based on NCAA data, women's swimming/diving, women's soccer, and women's softball had a higher percentage of athletes report alcohol use within the last twelve months, Women's track and field and basketball were among the lowest. In men's sports, swimming and diving, soccer, and baseball reported the highest rates of use; conversely, as was the case with women's sports, track and field and basketball were the lowest. In their systematic review Lisha and Stussman (2010) revealed somewhat different trends by sport. They found that male hockey and women's soccer as having a higher reported percentage of alcohol consumption; cross country/track reported the lowest percentage. Lisha and Stussman suggested that the competitive nature of athletics may carry over to drinking behavior, in that athletes compete with non-athletes or each other to consume more alcohol. Lisha and Stussman also suggested drinking was a coping mechanism for the stress of participating in athletics. Accordingly, the current study looks to better understand factors such as individual differences and pressures from competition that underlie the differences in drinking observed among the different types of teams.

Motives for drinking. Milroy, Orsini, Wyrick, Fearnow-Keeney, Kelly and Burley (2014), looked into divisional differences and reasons for alcohol use among the athlete population. Based on self-reported surveys, both males and females listed the top reason for drinking was "to celebrate". This finding suggests that teams with more successful seasons would drink more than those with less successful seasons; although, this question has not been examined empirically. There also was a difference in alcohol use between divisions. Division three athletes in comparison to division two and one, rated reasons for alcohol use higher. This could be due to more free time in Division three athletes' schedule to cope with the stress of being a student-athlete in comparison to the strict schedule to

which Division one athletes adhere.

Taylor, Ward and Hardin (2017) added to the literature on the drinking habits of collegiate student athletes and the differences in alcohol consumption among subdivisions of student-athletes. Using an online questionnaire, they were able to reach two hundred eighty-three collegiate athletes from five Midwestern universities. The online survey included demographic measures, self-reported alcohol consumption (e.g., highest number of alcoholic drinks consumed in the last month), drinking motives questionnaire, athlete drinking scale, and daily drinking questionnaire. Taylor et al., (2017) found significant differences between subgroup athlete populations. Specifically, male students consumed more alcohol at a given time, at a more frequent rate and with more negative consequences compared to female student athletes. One surprising finding, in contrast to previous literature, was there was not a difference in alcohol consumption across divisions one, two and three. This incongruent result with previous literature may be due to this study only assessing five Midwestern universities, which may not generalize across states and may be hindered due to small sample size. Taken together, these findings suggest that male athletes drink more than female athletes and leadership level and sports type is also associated with different drinking habits. Although these differences have been identified, their causes are not entirely clear. The social ecology model described below may provide additional insight into why drinking among athletes is more prevalent and why some athletes consume more than others.

Competitiveness. Division One is considered the most competitive division in the NCAA. Since some literature has found differences in alcohol use among divisions, one could suggest that levels of competitiveness plays a role in drinking habits among athletes. Due

to conflicting results in regards to differences or lack thereof in alcohol use among divisions, this study looks to address if competitiveness interacts with motives for alcohol use to predict drinking behavior. Green et al., (2001) found that division three athletes drank more than division one and two athletes. This invites more research on a potentially more at risk population among the already identified at risk collegiate student athlete population. This study only looks at division three athletes; therefore, competitiveness must be operationalized in a different manner than sports team division. In the current study, competitiveness was operationalized as a team's win-loss percentage.

Social Ecology Model of Athlete Drinking

One model researchers use to explain the motives of the athlete drinking behavior is the social ecology model. This model posits five factors that influence athlete drinking. Intrapersonal factors (perceptions of alcohol influences on personal health), interpersonal factors (perceptions of teammates/athletes alcohol patterns and beliefs), organizational factors (perceptions of coach's attitudes toward alcohol use), community factors (perceptions of alcohol use on college campus) and policy factors (perceptions of institutions rules regarding alcohol use). Based on this model, Williams (2006) created the Social Ecology Model for College Athlete's Alcohol Use to illustrate the factors that impact athletes' alcohol use (as seen in Figure 1).

Williams, Perk, Usdan, Leeper, Belcher and Leaver-Dunn (2006) were the first researchers to use this model to explore athlete drinking. Two hundred and thirty student-athletes from a division one institution answered questions pertaining to alcohol use and were grouped into three categories: heavy drinker (male: fourteen or more drinks per week, female: seven or more drinks per week), moderate drinker (male: fewer than

fourteen drinks per week, female: fewer than seven drinks per week), or abstainer (no alcohol consumption). Williams et al. (2006) used the social ecology model to guide their analysis using twelve one-way analyses of variance. At the intrapersonal level of influence 85% of athletes who fell into the heavy drinking category felt that getting drunk was acceptable. Conversely, only 66% of moderate drinkers endorsed this statement and 26% of non drinkers. In regards to concern about alcohol-related problems, only 13% of heavy drinkers were concerned, in comparison to the 40% of abstainers and 39% of moderate drinkers. Alcohol-related problems include driving under the influence, unsafe sexual behaviors, or breaking institutional rules. The problems can affect personal safety, well being and academic standing. These findings suggest that the most pertinent factors on athletes' alcohol use are intrapersonal and interpersonal perceptions.

At the interpersonal level of influence, Williams and colleagues (2006) found a significant difference between the three groups and their perceptions of their teammates' attitudes about alcohol consumption. Among abstainers, 64% felt that their teammates found it acceptable to get drunk. This result is significantly different from heavy drinkers, in which 83% felt that their teammates found it acceptable to get drunk. Moderate drinkers were in the middle at 76%. When questioned about other athletes and about non teammates' attitudes, the findings were similar. Only 12% of heavy drinkers felt that other teammates were concerned about alcohol-related problems compared to over 20% of abstainers and over 20% moderate drinkers. The most interesting result was that 70% of heavy drinkers felt that their teammates would not care if they binge drank, while less than 50% of abstainers and moderate drinkers reported having this attitude about binge drinking among teammates. Together findings from analyses of the interpersonal influence in the

social ecological model suggest that heavy drinkers perceive their teammates as more accepting of alcohol use and further, that heavy drinking is an accepted norm in the college athletic experience.

In contrast to findings in the interpersonal domain, influences at the organizational level (i.e. levels of leadership, coach) did not differentiate between drinker groups. That is, the head coach's view on alcohol had little to no effect on athletes' drinking behavior. However, it would be interesting to probe this finding as teams are comprised of a leadership hierarchy with the head coach at the top, followed by an assistant coach, captain, upperclassman, and the remainder of the team. Perhaps different levels of leadership have different effects on athletes drinking behavior. In terms of community influence in the social ecology model, 54% of abstainers believed drinking was a large problem on campus (athletes and non athletes) while only 17% of heavy drinkers endorsed this attitude. Similar to interpersonal influences, perceived community acceptance of alcohol is associated with an athletes' drinking behavior. In the final domain of the Social Ecology Model for College Athlete's Alcohol Use, policies such as rules and regulations established by the school and athletic department were found to have little to no effect on athletes' drinking behavior. In summary, according to the Social Ecology Model for College Athlete's Alcohol Use, the most influential factors for an athlete's alcohol use are intrapersonal and interpersonal factors. Accordingly, when trying to curtail heavy drinking among athletes strategies should target the misperceptions of 'normal' drinking behaviors.

Interpersonal Influences

Injunctive norms. Williams et al.'s (2006) model of athlete drinking showed that athletes' drinking is influenced by how they view other athletes' perceptions of alcohol use.

Zhou and Heim (2014) provided further support for Williams et al.'s (2006) social ecology model by suggesting that athletes (in comparison to non athletes) reported higher levels of peer approval of drinking and perceptions of the amount that peers drink. Zhou and Heim (2014) suggested that the increased peer approval among athletes is due to the peer-intensive and insular dynamics of a team developed during training. One implications of this phenomenon is that team sports (i.e. soccer, baseball, football) may report different levels of alcohol use and interpersonal factors may be more influential in comparison to individual sports (i.e. tennis, track, swimming).

Examples of interpersonal factors influencing alcohol use among athletes are normative beliefs and injunctive norms. Normative beliefs, based on the Social Norms Theory suggested by Berkowitz (2005) suggests that individuals have exaggerated perceptions of others' approval of problem behaviors. For example, as stated previously, athletes that are heavy drinkers perceive that their teammates are more approving of binge drinking than moderate drinkers and abstainers (Williams et al., 2006). This phenomenon is known as injunctive norms (i.e. perceptions of other's approval of problem behaviors). Based on the social norms theory, Seitz, Wyrick, Rulison, Strack and Fearnow-Kenney (2014) suggested that misperceptions of injunctive norms may motivate an individual's problem behavior in that they are attempting to conform to their perceptions of "normal" behavior.

Seitz et al. (2014) focused on the role of injunctive norms in predicting alcohol use in the student-athlete population. Student athletes from 48 NCAA colleges and universities across Divisions One, Two and Three were recruited for their study ($N=3,155$). Injunctive norms were measured by one item: "How would the following groups of people

(teammates/coaches) feel about you... getting drunk frequently". Seitz and colleagues (2014) found that student-athletes perceived teammates as more approving of getting drunk and alcohol use in comparison to coaches. Furthermore, perceptions of others' approval of alcohol use was associated with personal alcohol use. Interestingly, the researchers only examined injunctive norms with respect to teammates and coaches and not other levels of leadership such as captains.

Lewis, Milroy, Wyrick, Hebard, and Lamberson (2017) looked further into injunctive norms as a predictor of athlete drinking habits. They assessed over two thousand athletes across the three NCAA divisions. In their logistic regression model, perceptions of teammates' and closest friends' binge drinking and negative alcohol outcome expectancies were the most significant predictors of binge drinking. For male athletes, if one intended to drink within the next month, was in season, and perceived teammates and close friends as frequently engaging in binge drinking, this increased the likelihood of binge drinking (Lewis et al., 2017). Interestingly, for female athletes, season status (i.e., in season versus out of season) was not associated with drinking behavior. This finding contradicted previous literature, where there was an increase in drinking when athletes were out of season.

Surprisingly, research has not addressed the different influences of injunctive norms from head coaches, assistant coaches, captains, and other teammates. The different levels of closeness between players and people occupying these tiers of leadership may yield different powers of influence over athletes' drinking behavior.

Intrapersonal Influences

Trait urgency and drinking motives. According to the social ecology model, intrapersonal factors such as trait urgency and drinking motives are a strong influence on

athletes drinking habits. Martens, Pederson, Smith, Stewart and O'Brien (2011) looked into these specific intrapersonal factors as predictors of alcohol-related outcomes. Impulsivity has been shown to be associated with alcohol related outcomes (i.e. getting hurt/injured, driving under the influence, doing something later regretted, getting in trouble with authorities), especially in athletes (Martens et al., 2011). Martens and colleagues (2011) defined impulsivity as “the tendency to engage in behaviors that are poorly conceived, have not been planned out, are rash or regrettable, and/or are inappropriate to the situation”(p.457). Trait urgency which is a specific form of impulsivity, is defined as “the tendency to commit rash or regrettable actions as a result of intense negative affect” (Martens et al., 2011, p. 457). Previous research has shown that trait urgency is linked with addictive behaviors including alcohol use in college students (Martens et al., 2011). In relation to student athletes, Gundersheim (1987) and Schroth (1995) found that college student athletes had higher levels of impulsivity in comparison to non athletes, suggesting that they might be at higher risk for alcohol-related problems. Martens and colleagues' study was the first to look at trait urgency specifically as a predictor of alcohol outcomes in athletes. Their study consisted of 198 college athletes from a small Western college, a large Midwestern university and a small Northeastern college. Martens et al.'s (2011) findings suggested that athlete drinking interventions should focus on variables such as trait urgency, coping motives, team cohesion and positive reinforcement, that mediate desired outcomes.

Another potent influence on athlete drinking is drinking motives. There are two operant components of drinking motives: one can be motivated to drink to enhance positive affect (i.e., positive reinforcement), or one can be motivated to drink to reduce

negative affect (i.e., negative reinforcement). Drinking motives have been associated with alcohol-related outcomes (Martens et al., 2011). For example, enhancement motives were positively associated with alcohol use and coping motives were positively related to alcohol related problems. More recently, researchers have been interested in seeing how drinking motives extend to athletes and possible sport-related motives. For example, drinking to celebrate victories or performing well may serve as specific positive reinforcement motives for athletes, while drinking to cope with losses may serve as a manifestation of negative reinforcement motives.

Martens and colleagues (2011) aimed to fill a gap in the literature by examining relations among trait urgency, athletes' drinking motives, athletes' alcohol use and alcohol related problems. In the model used in Martens et al., (2011) study, motives mediate the effect of personality features (impulsivity) on alcohol use. They found that positive reinforcement motives and sport coping motives had a direct relation with alcohol use. Sport-related positive reinforcement also had a positive relationship with alcohol related problems. Surprisingly, Martens et al. (2011) found that only sport-related positive reinforcement motives were directly related to alcohol related problems; sport-related coping motives were not associated with alcohol problems (once alcohol use was controlled for). The findings regarding coping motives contradicted previous literature; however, the authors suggested that this was because sport-related coping is a more specific domain than general coping motives. Regardless, some athlete-specific motives did emerge as predictors of alcohol use and problems. Furthermore, trait urgency was positively associated with positive and negative motives to drink. There also was a direct relation between trait urgency and alcohol related problems. Based on Martens et al.'s

(2011) findings, there is evidence that trait urgency and drinking motives predict athlete drinking habits and alcohol related problems. In spite of this study, there is a dearth in literature on trait urgency and its association with sports-related drinking motives, alcohol use and alcohol-related problems, so future research should look into this relationship.

Wahesh, Milroy, Lewish, Orsini & Wyrick, (2013) also analyzed the roles of drinking motives among college athletes and broke down athlete drinking motives into three categories: positive reinforcement, sport-related stress and coping, and team/group motives. They recruited 74 first-year student athletes and found that sport-related coping was associated with alcohol-related problems but team/group motives (i.e., drinking to fit in with the team), were not related to alcohol consumption. Wahesh et al., (2013) also found that athletes' problematic drinking did not differ based on season status. When athletes are in season, they compete at a competitive level that is hard to reproduce in an out of season setting. Accordingly, it would be fruitful to look into an influence of competitiveness in relation to alcohol use and alcohol-related problems to understand the extent to which it might be affecting drinking behavior.

The Current Study

The current study addressed the effects of injunctive norms, trait urgency, and competitiveness on athlete alcohol use. I had three hypotheses:

H1: Athletes who score highly in trait urgency will endorse stronger coping motives to drink and more alcohol use.

H2: With respect to injunctive norms, athletes will report greater perceived approval for binge drinking from teammates and captains than coaches.

H3: Sport-related positive reinforcement and sport related coping motives will be positively

related to alcohol use and alcohol related problems and higher competitiveness will moderate this effect.

The first hypothesis is based on Martens et al. (2011), where trait urgency was positively correlated with positive and negative reinforcement drinking motives. The second hypothesis is based on Seitz et al. (2014), who showed that athletes perceived teammates as more approving of drinking behavior than coaches. I think that captains, although having a leadership role on the team, are not the main authoritative figure; thus, they will still be perceived as more approving of drinking in comparison to coaches. The third hypothesis is based on Martens et al. (2011) who found that sport related coping motives and sport related positive reinforcement had a direct relation with alcohol use.

This study adds to the existing body of literature on collegiate student athletes. It will provide more information regarding to how injunctive norms and trait urgency affect alcohol use. This study also provides innovation to the literature as previous literature addressing injunctive norms did not include athletes' perceptions of their captains beliefs towards alcohol use. Additionally, previous literature has not looked into the role of competitiveness as a potential effect on alcohol use. Hopefully the results of this study will also aid in the development of prevention programs and ways to curtail the increase in the college drinking culture.

Method

Participants

Participants included 128 Trinity College student athletes (64% females). Participants were either first years ($n=44$), sophomores ($n=28$), juniors ($n=18$), or seniors ($n=38$). The mean age was 19.0 years old ($SD=1.35$). Participants identified as white

($n=118$), as African American/Black ($n=7$) as Asian/Pacific Islander ($n=3$), or as Hispanic/Latino ($n=1$). Trinity College is part of the NCAA Division III. Sports represented in this study included: men's baseball ($n=5$), men's cross country ($n=3$), men's football ($n=5$), men's hockey ($n=2$), men's lacrosse ($n=7$), men's rowing ($n=10$), men's soccer ($n=5$), men's squash ($n=1$), men's diving ($n=7$), men's track and field ($n=5$), men's wrestling ($n=1$), women's basketball ($n=5$), women's cross country ($n=1$), women's ice hockey ($n=14$), women's lacrosse ($n=8$), women's rowing ($n=10$), women's soccer ($n=11$), women's field hockey ($n=5$), women's diving ($n=7$), women's tennis ($n=3$), women's track and field ($n=7$), women's softball (9) and women's volleyball ($n=7$).

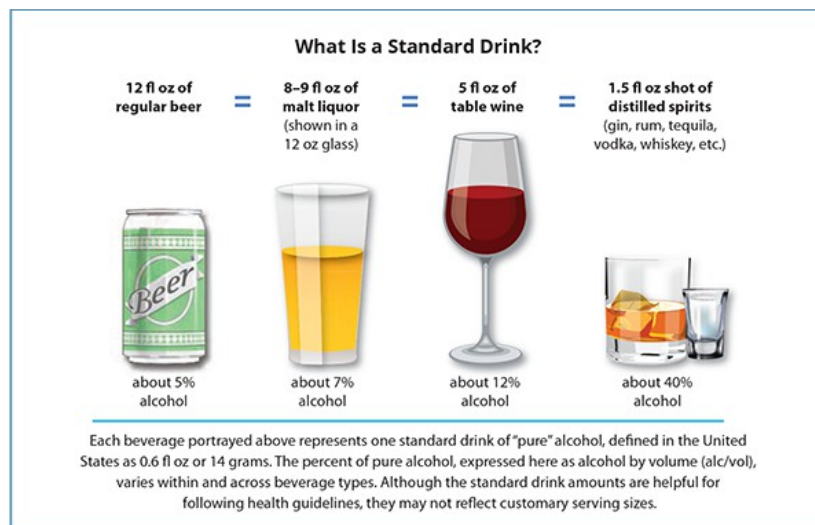
Procedure

IRB approval of this study was granted November 1, 2017. With the help of Trinity College's Athletic Director we were able to reach all Trinity student athletes via email explaining the purpose of our study and the link to complete voluntary survey. Trinity's Athletic Director sent two emails to all Trinity athletes: the first was sent in November 2017, the second email was sent in January 2018 (one in the fall semester and one on in the spring semester). We also recruited student athletes by meeting with teams during captains practices to give business cards which had information about our study and the link to complete the survey. Finally, we asked coaches to forward the survey link to their athletes while reiterating that completing this study was completely voluntary and that the coach nor others would see any responses recorded in the questionnaires. At the end of the survey, participants had the option of entering their email in a separate survey from the initial survey. The emails were entered into a raffle four twenty dollar gift cards to local eateries.

Measures

Demographics. Participants were asked their gender, class year, age, race/ethnicity, and what sports team they were currently on.

In- and out-of-season drinking. Athletes were shown the Drinking Norms Rating Form (Baer, 1991) which quantifies the amount of alcohol in a standard drink. Based on this depiction of a standard drink, athletes reported how many drinks out of season he/she has in a given week and how many drinks in season he/she has in a given week. Responses were summed to produce an average weekly consumption score for both in-season and out-of-season.



Drinking motives. The Athlete Drinking Scale (Martens 2005) is a 19-item scale to assess sport related reasons for alcohol use. The Athlete Drinking Scale has 3 subscales and had fair to good reliabilities in our study: positive reinforcement motives ($\alpha=.89$), coping motives ($\alpha=.74$), and team cohesion ($\alpha=.83$). Items include: team cohesion "I drink to have a good time with my teammates" positive reinforcement "Alcohol use is an important part of the athletic culture at this institution" and coping "I drink to help me deal with poor

performances”.

Injunctive norms. One item question from Seitz, Wyrnick, Rulison, Strack, and Fearnow-Keeney (2014) was used to assess injunctive norms: “How would the following groups of people [teammates/coaches/captains] feel about you...getting drunk frequently”. Three separate questions were included to reference the three groups above.

Trait urgency. Twelve Items from the UPPS Impulsive Behavior Scale (Whiteside & Lynman, 2001) were used to measure trait urgency ($\alpha=.91$). An example item includes “when I am upset I often act without thinking”. Participants responded based on a 1-4 Likert scale (1=*strongly disagree*, 4=*strongly agree*).

Competitiveness. In order to quantify competitiveness, I used the NESAC regulated website that records all seasons, teams, and individual data. I recorded the past five seasons records (wins/losses) for every Trinity sports team. I divided the total number of wins over the past five years by the total games played the past five years to create a winning percentage for each team. Teams that did not conform to the win/loss percentage were cross country, track, swimming and crew. Therefore, participants from those sports teams were not able to be included in analyses that involved the variable of competitiveness.

Plan of Analysis

For the first hypothesis, I undertook a mediation analysis. Trait urgency is a more stable personality characteristic and therefore could be examined as a distal variable through which drinking motives (the mediator variable) exerted an effect. The first hypothesis was split into two parts: first, the mediator variables (coping motives, positive reinforcement and team cohesion) were regressed onto the independent variable (trait

urgency). In the second step, drinking frequency was regressed onto the independent variables and mediator variables. Bootstrap resampling procedures were used to confirm mediation. Bootstrapping procedures are used to test mediation because this test maximizes statistical power. Mediation was confirmed if the 95% confidence interval for the indirect effect tested did not include zero (Field, 2017).

I tested the second hypothesis with a repeated measures analysis of variance (ANOVA) to compare the injunctive norms of coach acceptance, captain acceptance and teammate acceptance, respectively, of getting drunk.

I tested the third hypothesis with moderation analyses. A moderation analysis examines where there is an interaction effect of two continuous variables (Fields, 2017). The moderation analysis assessed coping motives (dependent variable) interaction with competitiveness (moderator) on drinking in season (independent variable). The second moderation analysis assessed positive reinforcement (dependent variable) interaction with competitiveness (moderator) on drinking in season (independent variable). The third moderation analysis assessed coping motives (dependent variable) interaction with competitiveness (moderator) on alcohol consequences (independent variable). The fourth moderation analysis assessed positive reinforcement (dependent variable) interaction with competitiveness (moderator) on alcohol consequences (independent variable).

Results

Effects of trait urgency and drinking motives on in-season drinking . A

mediational analysis was conducted to test the direct effect of trait urgency on drinking frequency and the indirect effects of trait urgency on drinking frequency through positive reinforcement, team cohesion and coping motives. An examination of the first step of the

mediation analysis showed that there were significant associations between trait urgency and positive reinforcement, a significant association between trait urgency and team cohesion, and a significant association between trait urgency and coping motives. Coping motives accounted for the most variance in trait urgency ($R^2=.12$, $p=.0001$), followed by team motives ($R^2=.10$, $p=.0003$), then lastly positive reinforcement ($R^2=.07$, $p=.0022$). Hypothesis one followed a partial mediation model, since negative urgency remained a significant predictor of in season drinking frequency even when drinking motives were included in the model. Contrary to hypothesis one, using a bootstrap confidence interval, coping motives did not have an indirect effect on in-season drinking through trait urgency; indirect effect= $-.1838$, $SE (.54)$, 95% CIs $[-1.4004, .8109]$. Instead, trait urgency had an indirect effect on in -season drinking through positive reinforcement motives; indirect effect= 1.70 , $SE (.68)$, 95% CIs $[.612, 3.3827]$. Similarly, trait urgency had an indirect effect on in season drinking through team cohesion motives; indirect effect= $-.76$, $SE (.49)$, 95% CIs $[-.2869, -.0142]$. Figure 2 depicts the mediation model, with solid lines indicating significant paths.

Effects of three types of injunctive norms. I conducted a repeated measures ANOVA to examine whether there were significant differences in means for the injunctive norms of (1) captains and coaches, (2) captains and teammates, and (3) teammates and coaches. In support of hypothesis two, injunctive norms were highest for teammates approval ($M=3.38$, $SD=1.24$), followed by perceived captains approval ($M=2.96$, $SD=1.270$), and lowest for coaches approval ($M=1.60$, $SD=.854$). The model and all of the post-hoc comparisons, which controlled for Type I error, were significant $F(2, 254)=214.74$, indicating that there were significant mean differences between team injunctive norms

versus coach injunctive norms, team versus captain injunctive norms, and coach versus captains injunctive norms. Figure 3 depicts the mean injunctive norms of teammates, coaches, and captains.

Interaction between drinking motives and competitiveness. I tested four moderation models ($N=76$). In the first two, in-season drinking was examined as the dependent variable. The average for coping motives for drinking (1= *strongly disagree*, 6=*strongly agree*) was 2.169, the average for positive reinforcement was 4.5101 and average winning percentage was .5279. In model one, I examined whether the association between positive reinforcement motives and drinking in season was moderated by winning percentage. I hypothesized that the association between positive reinforcement motives and drinking would be stronger for players on teams with a higher winning percentage (i.e., higher competitiveness). This hypothesis was supported. Specifically, positive reinforcement had a direct effect on drinking in season $t = 3.1592, p < .01$ (coeff=2.0499, se=.6489), and although winning percentage did not have a direct effect on drinking in season $t=.6358, p=.527$ (coeff=2.0599, se=3.2402), there was an interaction between positive reinforcement motives and winning percentage to predict in season drinking $t=1.96, p=.05$ (coeff=4.9468, se=2.5265) $F(3,72) = 8.00, R^2 = .2499, p < .001$. The increase in R^2 value was significant when the interaction between positive reinforcement and winning percentage was included $F(1,72) = 3.8337, \Delta R^2 = .04, p = .05$. In other words, the association between positive reinforcement motives and in-season drinking was stronger for those on teams with a higher winning percentage. These findings are shown in Figure 4.

In model two, I examined coping motives instead of positive reinforcement motives.

My hypothesis that athletes on more competitive teams would show a stronger link between coping motives and in-season drinking also was supported. Although coping motives did not predict drinking in season and winning percentage did not predict drinking in season, the interaction of coping mechanisms and winning percentage did predict drinking frequency $t = 2.56$ $p = .0125$ (coeff 8.5674, se=3.433), $F(3,72) = 4.23$, $R^2 = .15$, $p = .0082$ (Figure 5). The increase in the R^2 value was significant when the interaction between positive reinforcement and winning percentage was included $F(1,72) = 6.5668$, $\Delta R^2 = .08$, $p = .0125$.

In models three and four, I examined alcohol consequences as a dependent variable in the models above instead of in-season drinking. There was no interaction between positive reinforcement and winning percentage on alcohol consequences. Conversely, the interaction between coping mechanisms and winning percentage predicted alcohol consequences: $t=2.881$, $p=.0053$ (coeff=5.7706, se=2.0036) $F(3,68)=10.5319$, $R^2=.3172$, $p<.001$. The increase in the R^2 value was significant when the interaction between positive reinforcement and winning percentage was included $F(1,68) = 8.295$, $\Delta R^2 = .08$, $p = .005$. That is, as hypothesized, athletes on teams with higher levels of competitiveness showed a stronger link between coping motives and alcohol consequences.

Discussion

This study was conducted to provide more information regarding how trait urgency, injunctive norms, and drinking motives affect alcohol use and to look into the effect of competitiveness as a potential moderating effect on alcohol-related outcomes. Several key

findings emerged. Similar to Martens et al. (2011), trait urgency was positively correlated with positive reinforcement and coping motives. Contrary to my hypothesis, however, trait urgency did not indirectly affect alcohol use in season through coping motives.

Nonetheless, trait urgency did have an indirect effect on alcohol use in season through the other motives: positive reinforcement and team cohesion. Similar to Seitz et al. (2014) athletes in our study perceived teammates as more approving of drinking behavior than coaches, with perceived approval from captains falling in the middle. Finally, the association between positive reinforcement motives and drinking in season was stronger for those with higher winning percentages. A similar pattern emerged for coping motives and the interaction also was significant when alcohol consequences were examined as the outcome.

With respect to my findings on trait urgency and drinking motives, coping motives accounted for the most variability in trait urgency in comparison to the other two drinking motives (team cohesion and positive reinforcement). However, the lack of interaction between coping and trait urgency contrasts with Martens et al.'s (2011) study, where coping motives evidenced a mediating effect. I replicated the finding that negative urgency was associated with higher positive reinforcement motives (i.e. enjoying the feeling of getting drunk, because I work so hard in my sport I should be able to drink and have a good time, and drinking to celebrate athletic victories), which, in turn, were associated with more drinking in season. Also, drinking for team cohesion (i.e. drinking to 'fit in', pressure from teammates to drink, alcohol use being an important part of the athletic culture at the institution) mediated the effect of trait urgency on drinking in season. Athletes who were higher in trait urgency were more likely to drink in season in part due to their propensity to

enjoy the feeling associated with alcohol consumption and their desire to drink to fit in with the team. But, coping motives (i.e. drinking to deal with poor athletic performances, and to deal with sport related stress) did not have a mediating effect on an athlete's drinking frequency in season. One reason for this discrepancy could be due to the difference in participant composition. Martens et al. (2011) included varsity athletes and club/intramural sports. The intensity of club/intramural is vastly different from a varsity sport; club and intramural are more focused on enjoyment and bonding with other people with the same interest. While varsity sports, carry a higher level of intensity. My study only looked at varsity athletes; potentially explaining the different results. Despite the fact that coping motives did not mediate the trait urgency in season drinking association, there was still a significant association between trait urgency and coping motives. Thus athletes who were higher in trait urgency were more prone to endorsing drinking for negative reinforcement reasons.

When looking at injunctive norms, there were clear distinctions between how athletes viewed coaches', captains', and teammates' approval of drinking. The average approval rating on a scale of one (not approving) to 5 (very approving) was highest for teammates and lowest for coaches. As predicted, captains fell in the middle of perceived approval. This suggests that when implementing drinking rules and standards, it would be beneficial for the captains to enforce these standards rather than the coach as captains seem to be more approving of the norms of drinking on a team; therefore, teammates could be more receptive to the standards. Lewis et al. (2017) found that injunctive norms, specifically perceived approval of binge drinking from teammates', was associated with binge drinking frequency. When looking at the correlations of this study, injunctive norms

for teammates, captains, and coaches were not significantly correlated with binge frequency, drinking in season or drinking out of season. This was surprising as one would have expected that a team whose captains and coaches approved of binge drinking would lead teammates to feel that they have more freedom to engage in this behavior.

When analyzing hypothesis three, it was interesting that competitiveness and coping mechanisms did not predict drinking frequency independently. One would think that if an individual was on a low level competitive team (less than 50% winning percentage) and scored high levels of coping motives (drinking due to poor performance) that this would lead to higher frequency of binge-drinking in-season because if a team loses a lot, the players are probably not performing well; therefore, opening many opportunities to drink due to poor performance. My finding that coping motives did not predict in-season drinking frequency is consistent with Wahesh et al.'s (2013) findings. In support of hypothesis three, results showed that if an athlete competed on a team that has a winning percentage above 50%, and the athlete reported drinking to cope (i.e., drinking to deal with poor athletic performance), then the athlete would have higher drinking frequency. This suggests that winning percentage is a liability and drinking to cope exacerbates this proclivity.

The interaction of competitiveness and positive reinforcement predicted drinking in season so that positive reinforcement (i.e I drink to have a good time with teammates) was stronger for athletes that competed on teams with higher winning percentages. The findings that positive reinforcement predicted alcohol use is consistent with Martens et al. (2011) who concluded that enhancement motives were positively associated with alcohol use.

In the third moderation model, coping motives predicted alcohol consequences, which was not consistent with Martens et al. (2011), who found that only sport-related positive reinforcement was related to alcohol related problems and sport-related coping motives was not. One potential reason for this inconsistency is that only sport-related motives for drinking were recorded rather than comparing sport-related and non-sport related motives. However, a further examination of the interaction between coping motives and competitiveness showed that if an athlete was high in coping motives and competed on a team with a winning percentage above 50%, the athlete would have more alcohol-related consequences. Thus, being on a highly competitive team could pose as a risk factor for alcohol consequences, especially if an athlete drinks to cope with a poor performance.

When assessing correlations among the studies variables, interesting relations emerged. Competitiveness was inversely correlated with trait urgency. This suggests that an athlete with high negative urgency is more likely to compete on less competitive team. Another interesting finding was that as an athlete gets older, the more s/he is likely to report motives to drink across coping, team cohesion and positive reinforcement. Additionally, gender was negatively correlated with injunctive norms for teammates and captains suggesting that females are more likely to report teammate and captain approval of getting drunk. This could be because females tend to look for approval from others; therefore, a leader on the team (i.e. captain) would want to seem laid-back with binge-drinking if that was a behavior her teammates frequently engaged in or seemed interested in.

Binge frequency was associated with several variables. Binge frequency was

positively correlated with positive reinforcement motives. Although directionality cannot be assumed, one could suggest that as an athlete drinks more for positive reinforcement the more binge drinking he/she will engage in. This variable was also positively correlated with coping mechanisms; if an athlete drinks to cope with athletic performance than he/she will engage in more binge drinking. Binge frequency was also positively correlated with trait urgency, the higher an athlete reports having negative urgency, it is likely that he/she engages in more frequently in this behavior. Lastly, binge drinking was inversely correlated with gender; therefore, men report higher levels of binge drinking frequency than females.

Limitations.

Although the current study extends the literature, there are several limitations to note. Not all sports that participated could be used when assessing competitiveness. Competitiveness was assessed by dividing all wins over the past five season by total games played in the past five seasons. However, individual sports such as tennis, squash, track, swimming and wrestling did not yield the data needed to compute a competitiveness score; therefore, any analysis of competitiveness only yielded 76 of the 124 participant responses. Another limitation is that not all teams were represented equally. For example, 14 participants were from women's ice hockey while there was only 1 participant from men's squash. However, despite this limitation, when computing competitiveness, 11 teams classified as highly competitiveness and 12 classified as low competitiveness which was a near even split. Additionally, these findings may not be generalizable to Division I and Division II athletes as Trinity is a Division III school and only Division III athletes participated in the study.

Future Directions.

Future literature should further examine other potential mediational factors between trait urgency and drinking frequency in season seeing that sport-related motives only partially mediated this effect. Other mediational factors could include: team size, active playing time of each player, coach or team chosen captains, mixed gender or single gendered teams, or season of sport. Another area of research in sports psychology that could be further researched is the effects of competing on a division I versus division III team. In the current study I used winning percentage to quantify competitiveness but another way to look at competitiveness could be through division of competition.

Implications

The significance of these findings extend to Division III athletic coordinators and coaches and how they assess risk factors of binge drinking in the athletic community as well as modes of action to prevent dangerous drinking habits and consequences. For example if a coach has a team with low competitiveness (less than 50% wins), there is a greater likelihood that athletes on that team are high in negative urgency, which would also suggest that the team is a high risk population for binge drinking. Therefore the coach and athletic directors should monitor this team and help team members to learn protective behavioral strategies (e.g. leaving a party at a predetermined time, avoid combining alcohol and other substances, and drinking slowly) to counteract the likelihood of the team engaging in heavy drinking. In terms of coaches enforcing drinking standards for their team, this study suggests that the most effective way to implement these rules is for the captains to convey the standards to the team as they serve as the liaison between coaches and teammates.

Additionally, positive reinforcement motives (drinking to have a good time with

teammates) was higher for athletes on high competitive teams. Therefore, if a team is having a good season, the coach should try to find ways for the team to celebrate together in a way that does not include alcohol. Maybe a team party, or a team celebratory meal to support team celebration but also impede drinking. Also, highly competitive teams are at risk for drinking to cope with poor performances. Therefore, education programs against binge drinking should focus on other coping strategies that help athletes deal with poor performances in other ways than binge drinking. The overall findings can help Division III athletic programs in identifying more at risk teams for binge drinking and ways to implement educational programs that promote positive and healthy coping mechanisms.

References

- Baer, J.S., Stacy, A., & Larimer, M. (1991). Biases in the perception of drinking norms among college students. *Journal of Studies on Alcohol*, 52(6), 580-586.
- Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment*, 6(2), 117.
- Donohue, B., Miller, A., Crammer, L., Cross, C., & Covassin, T. (2007). A standardized method of assessing sport specific problems in the relationships of athletes with their coaches, teammates, family, and peers. *Journal of Sport Behavior*, 30(4), 375.
- Field, A. (2017). *Discovering Statistics Using IBM SPSS Statistics: North American Edition, Edition 5* (5th ed.). Thousand Oaks, CA: Sage.
- Ford, J. A. (2007). Substance Use Among College Athletes: A Comparison Based on Sport/Team Affiliation. *Journal of American College Health*, 55(6), 367– 373.
- Green, G. A., Uryasz, F. D., Petr, T. A., & Bray, C. D. (2001). NCAA study of substance use and abuse habits of college student-athletes. *Clinical Journal of Sport Medicine*, 11(1), 51–56.
- Green, K., Nelson, T. F., & Hartmann, D. (2014). Binge drinking and sports participation in college: Patterns among athletes and former athletes. *International Review for the Sociology of Sport*, 49(3–4), 417–434.
- Ham, L. S., Stewart, S. H., Norton, P. J., & Hope, D. A. (2005). Psychometric Assessment of the Comprehensive Effects of Alcohol Questionnaire: Comparing a Brief Version to the Original Full Scale. *Journal of Psychopathology and Behavioral Assessment*,

27(3), 141–158.

Jowett, S. (2017). *Modified Quality of Relationship Inventory* [Data set]. American Psychological Association

Lewis, T. F., Milroy, J., Wyrick, D., Hebard, S. P., & Lamberson, K. A. (2017). Binge-Drinking and Non-Binge-Drinking Student-Athletes: The Role of Proximal Norms, Negative Expectancies, and Selected Sociodemographic Variables. *Journal of Child & Adolescent Substance Abuse, 26*(2), 141– 151.

Lisha, N. E., & Sussman, S. (2010). Relationship of high school and college sports participation with alcohol, tobacco, and illicit drug use: A review. *Addictive Behaviors, 35*(5), 399–407.

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.

Martens, M. P., Labrie, J. W., Hummer, J. F., & Pedersen, E. R. (2008). Understanding sport-related drinking motives in college athletes: Psychometric analyses of the Athlete Drinking Scale. *Addictive Behaviors, 33*(7), 974–977.

Martens, M. P., Pedersen, E. R., Smith, A. E., Stewart, S. H., & O'Brien, K. (2011). Predictors of alcohol-related outcomes in college athletes: The roles of trait urgency and drinking motives. *Addictive Behaviors, 36*(5), 456–464.

Martens, M. P., Watson, J. C., Royland, E. M., & Beck, N. C. (2005). Development of the Athlete Drinking Scale. *Psychology of Addictive Behaviors, 19*(2), 158–164.

Milroy, J. J., Orsini, M. M., Wyrick, D. L., Fearnow-Kenney, M., Kelly, S. E., & Burley, J.

(2014). A National Study of the Reasons for Use and Non-Use of Alcohol Among College Student-Athletes by Sex, Race, and NCAA Division. *Journal of Alcohol & Drug Education*, 58(3), 67–87.

Peretti-Watel, P., Guagliardo, V., Verger, P., Pruvost, J., Mignon, P., & Obadia, Y. (2003).

Sporting activity and drug use: Alcohol, cigarette and cannabis use among elite student athletes. *Addiction*, 98(9), 1249–1256.

Read, J. P., Beattie, M., Chamberlain, R., & Merrill, J. E. (2008). Beyond the “Binge” threshold: Heavy drinking patterns and their association with alcohol involvement indices in college students. *Addictive Behaviors*, 33(2), 225–234.

Schroth, L. Marvin. (1995). A comparison of sensation seeking among different groups of athletes and nonathletes. *Personality and Individual Differences*. 18(2), 219-222.

Seitz, C. M., Wyrick, D. L., Rulison, K. L., Strack, R. W., & Fearnow-Kenney, M. (2014). The Association between Coach and Teammate Injunctive Norm Reference Groups and College Student-Athlete Substance Use. *Journal of Alcohol & Drug Education*, 58(2), 7–26.

Taylor, E. A., Ward, R. M., & Hardin, R. (2017). Examination of Drinking Habits and Motives of Collegiate Student-Athletes. *Journal of Applied Sport Management*, 9(1).

Treloar, H., Martens, M. P., & McCarthy, D. M. (2015). The Protective Behavioral Strategies Scale-20: Improved content validity of the Serious Harm Reduction subscale. *Psychological Assessment*, 27(1), 340–346.

Williams Jr, R. D., Perko, M. A., Usdan, S. L., Leeper, J. D., Belcher, D., & Leaver-Dunn, D.

D. (2008). Influences on alcohol use among NCAA athletes: application of the social ecology model. *American Journal of Health Studies*, 23(3).

Zhou, J., & Heim, D. (2014). Sports and Spirits: A Systematic Qualitative Review of Emergent Theories for Student-Athlete Drinking. *Alcohol and Alcoholism*, 49(6), 604–617.

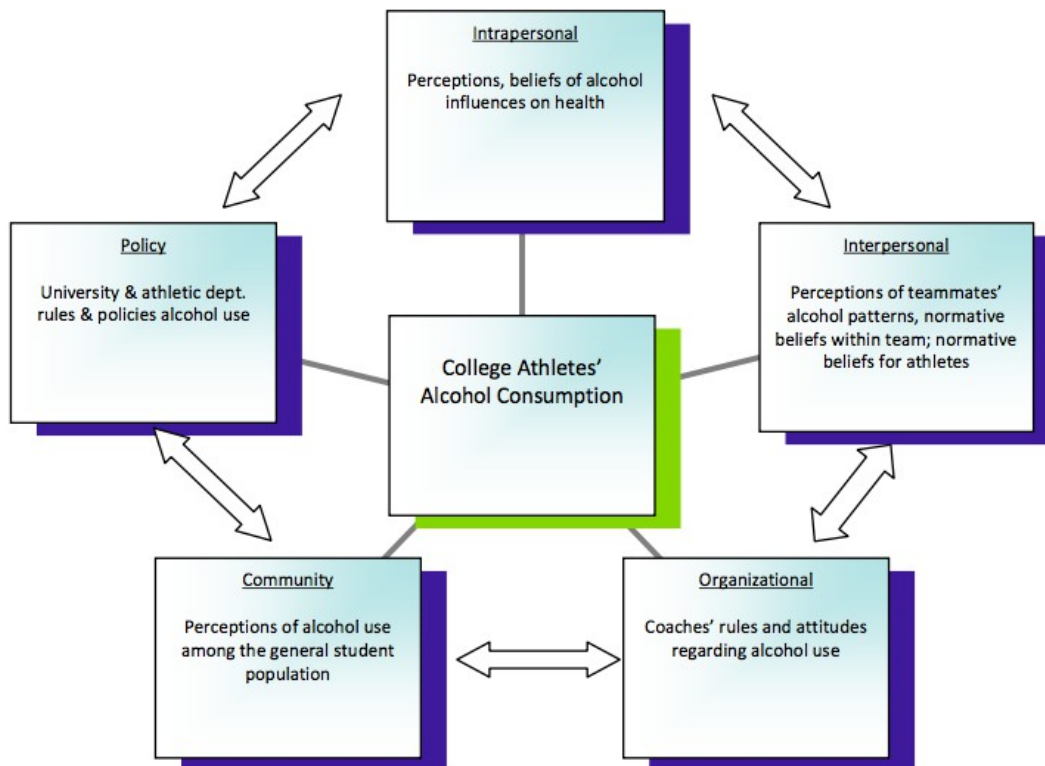


Figure 1. The Social Ecology Model for College Athletes' Alcohol Use (Williams et al., 2006).

Table 1
Correlations among the Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1 positive reinforcement	-												
2 team cohesion	.53**	-											
3 coping mechanisms	.50**	.42**	-										
4 trait urgency	.31**	.34*	.37**	-									
5 alcohol consequences	.48**	.22*	.35**	.48**	-								
6 binge frequency	.58**	.17	.24**	.31**	.48**	-							
7 drinking in season	.45**	.12	.20*	.28**	.47**	.58**	-						
8 drinking out of season	.50**	.17	.31**	.31**	.58**	.64**	.82**	-					
9 teammate approval	.35**	.40**	.22*	.08	.09	.08	.05	.09	-				
10 coaches approval	.15	.18*	.15	.05	.06	.16	.17	.16	.45**	-			
11 captains approval	.42**	.40**	.26**	.06	.09	.09	.04	.09	.84**	.50**	-		
12 gender	.07	.16	.12	.06	-.02	-.19*	-.31**	-.30*	.21*	.02	.25**	-	
13 class year	.36**	.33**	.32**	.05	.26**	.12	.21*	-.21*	.15	.13	.17	-.02	-
14 competitiveness	.07	-.03	-.12	-.30**	0.12	.04	.14	.04	-.08	-.13	-.24	-0.06	0.16

Note. * $p < .05$, ** $p < .01$

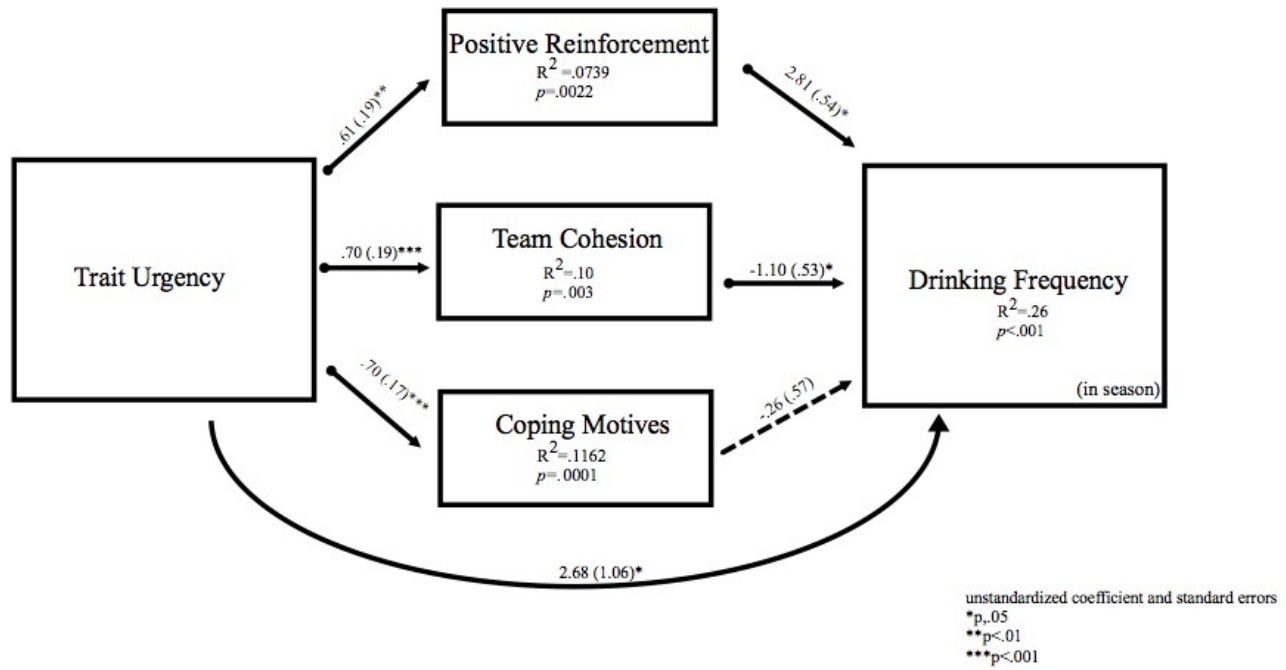


Figure 2. Partial mediation model of trait urgency's indirect effect on in-season drinking frequency through drinking motives. $N=125$.

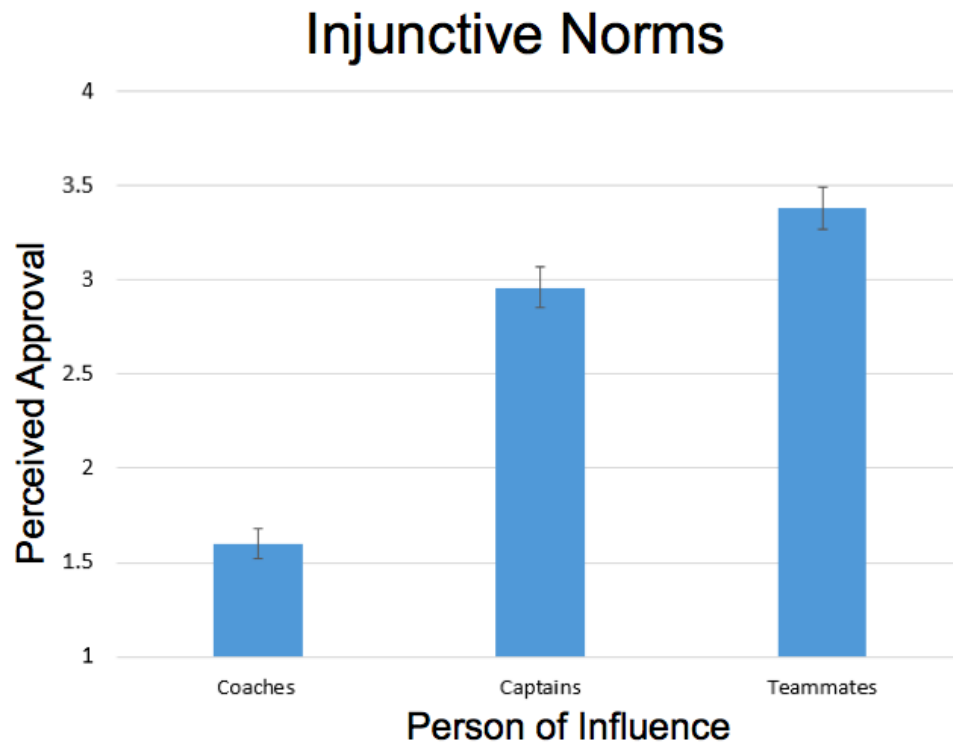


Figure 3. Mean injunctive norms of coaches, captains, and teammates. $N=128$. A repeated measures ANOVA and post-hoc tests indicated that athletes perceived coaches to be least approving and teammates to be most approving, with captains in the middle.

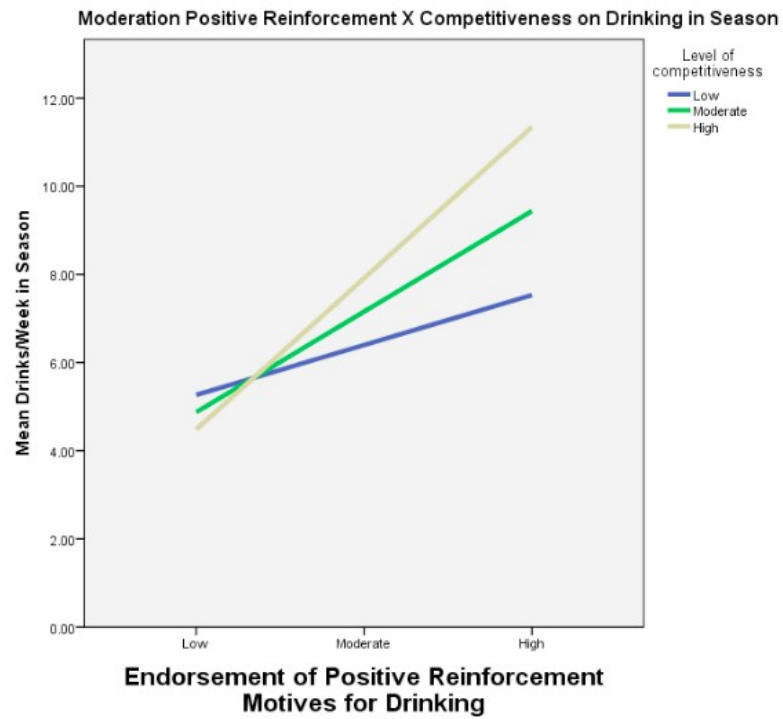


Figure 4. Interaction of positive reinforcement and competitiveness on drinking frequency in season. $N=76$.

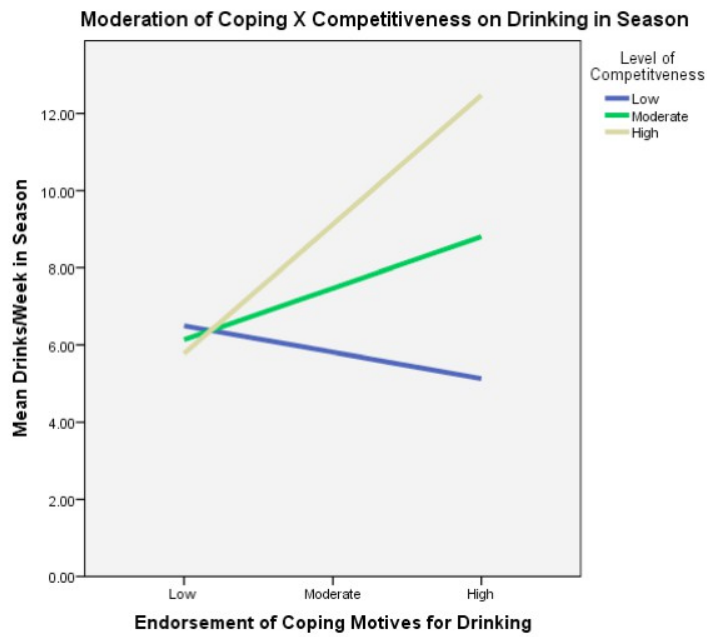


Figure 5. Interaction of coping mechanisms and competitiveness on drinking frequency in season. $N=76$