

## The Association between Coach and Teammate Injunctive Norm Reference Groups and College Student-Athlete Substance Use

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### **Abstract:**

This study assessed perceptions about teammate and coach approval of alcohol and other drug use (i.e., injunctive norms) among a sample of 3,155 college student-athletes in their first year of athletic eligibility. Student-athletes perceived that their teammates were more approving of alcohol and other drug use as compared to coaches. A multi-level model analysis indicated that perceived approval from both teammates and coaches were independently associated with student-athletes' alcohol and other drug use behaviors. Future research should explore whether substance use prevention programs that target normative beliefs specific to teammates and coaches may reduce alcohol and other drug use among college student-athletes.

**Keywords:** alcohol | athlete | coach | college | injunctive | marijuana | social norms | tobacco

### **Article:**

**\*\*\*Note: Full text of article below**

# **The Association between Coach and Teammate Injunctive Norm Reference Groups and College Student-Athlete Substance Use**

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## **ABSTRACT**

*This study assessed perceptions about teammate and coach approval of alcohol and other drug use (i.e., injunctive norms) among a sample of 3,155 college student-athletes in their first year of athletic eligibility. Student-athletes perceived that their teammates were more approving of alcohol and other drug use as compared to coaches. A multi-level model analysis indicated that perceived approval from both teammates and coaches were independently associated with student-athletes' alcohol and other drug use behaviors. Future research should explore whether substance use prevention programs that target normative beliefs specific to teammates and coaches may reduce alcohol and other drug use among college student-athletes.*

**Keywords:** *social norms, injunctive, athlete, coach, college, alcohol, tobacco, marijuana*

Normative beliefs are one of the strongest predictors of college student substance use (Buckner, 2013; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007). According to Social Norms Theory (Berkowitz, 2005; Perkins, 2002, 2003), individuals often have exaggerated perceptions of others approval of problem behaviors. These perceptions about other's approval of problem behaviors (e.g., a perception that other college students think it is acceptable to use marijuana) are known as injunctive norms (Borsari & Carey, 2003; Cialdini, Kallgren, & Reno, 1990; Perkins, 2002; Rinker & Neighbors, 2013). Social Norms Theory suggests that inaccurate injunctive norms may motivate individuals to increase their own problem behaviors to fit their view of normal behavior. Research findings among college students reflect Social Norms Theory, showing that students tend to overestimate others' acceptability of substance use (Alva, 1998; Baer, 1994; Barnett, Far, Mauss, & Miller, 1996; Carey, Borsari, Carey, & Maisto, 2006; Prentice & Miller, 1993; Schroeder & Prentice, 1998) and that those perceptions are related to one's personal use of substances (Borsari & Carey, 2001, 2003; Larimer, Turner, Mallett, & Geisner, 2004; Perkins & Wechsler, 1996). Research on Social Norms Theory also indicates that injunctive norms fluctuate when considering various groups of others, known as reference groups (Neighbors, O'Connor, Lewis, Chawla, Lee, & Fossos, 2008; Patrick, Neighbors, & Lee, 2012). For instance, Neighbors and colleagues found that college students perceived that their friends had a lower approval rating of alcohol use as compared to a typical college student. The authors also found that the perception of friends' approval of drinking was positively associated with drinking behavior, while a negative association to drinking was found with the perception of the typical student's approval of drinking (Neighbors et al., 2008).

In the literature, a plethora of studies on injunctive norms have been conducted on the college student population, but only a few studies on this topic have focused specifically on college student-athletes. One study found that the injunctive norms held towards a "typical athlete" reference group were a strong predictor for personal attitudes towards drinking (Hummer, LaBrie, & Lac, 2009). The other studies tested several variables' ability to classify student-athletes as heavy drinkers, with perceptions of their coaches' attitudes towards alcohol use being one of only a few variables associated with heavy drinking (Lewis, 2008; Thombs, 2000). Although these studies were the first to exam-

ine injunctive norms held by student-athletes, they were limited by researching injunctive norms held towards a single reference group, not allowing researchers to determine fluctuation between multiple reference groups to identify which are more strongly related to student-athlete substance use behaviors.

It may seem irrelevant to study injunctive norms of student-athletes, since they fall under the “college student” umbrella; however, the distinction between the two groups is very important. Compared to non-athletes, student-athletes are at a much higher risk of using certain substances, particularly alcohol, tobacco, and marijuana (Doumas, Turrisi, Coll, & Haralson, 2007; Ford, 2007; Mastroleo, Scaglione, Mallett, & Turrisi, 2013; Nelson & Wechsler, 2001; Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997), and experiencing negative effects from these substances (Campos, Yonamine, & de Moraes Moreau, 2003; Doumas et al., 2007; Grossbard, Hendershot, Larimer, Lee, & Neighbors, 2007; Hildebrand, Johnson, & Bogle, 2001; Leichter, Meilman, Presley, & Cashin, 1998; Nelson & Wechsler, 2001). Since normative beliefs are a strong predictor of substance use, conducting injunctive norm research on an at-risk population is vital for discovering information that could be useful in developing prevention programming targeted specifically towards that group. Another key distinction is that student-athletes have unique relationships with others (e.g., coaches, teammates, team captains, athletic trainers) that are not shared by the general college student population. Exploring student-athlete perceptions regarding these reference groups could help researchers discover perceptions that best predict personal substance use behaviors among this population.

This study extends research on injunctive norms held by student-athletes. Specifically, we compared student-athlete perceptions of teammates’ and coaches’ approval of (1) alcohol use and (2) other drug use (i.e., tobacco and marijuana). We hypothesized that student-athletes would perceive their teammates to be more approving than coaches in terms of alcohol and other drug use. We also hypothesized that student-athlete injunctive norms held towards teammates would be a stronger predictor of alcohol and other drug use when compared to student-athlete injunctive norms held towards coaches. Although no previous studies have compared injunctive norms held towards teammates and coaches, our hypotheses were drawn from previous studies that examined

college student injunctive norms held towards peers and parents. These studies suggested that injunctive norms held towards peers are more strongly linked to drinking than those held towards parents (Neighbors et al., 2007; Neighbors et al., 2008; Cail & LaBrie, 2010). Because coaches often play a mentor or “surrogate parent” role in the lives of student-athletes (Mastroleo, Marzell, Turrisi, & Borsari, 2012; Short & Short, 2005), we hypothesized that injunctive norms held towards coaches would be similar in regard to norms held about parents.

## METHODS

### *Participants and Procedures*

Following IRB approval, college student-athletes were recruited during the Spring semester of 2012 from 48 NCAA colleges and universities. Schools were equally divided across level of competitive play (Divisions I, II, and III) and from each region of the United States. Each school was invited to participate in the study with an incentive of receiving a free year’s subscription to a web-based alcohol and other drug prevention program (*myPlaybook*). Although participating schools required their freshman and transfer student-athletes to complete *myPlaybook*, they did not require the student-athletes to complete the survey (i.e., there was an option for them to not consent to the survey and still access the *myPlaybook* lessons). Student-athletes who consented to participate in the study completed the survey immediately prior to participating in the *myPlaybook* curriculum. We did not offer student-athletes an incentive to participate in the study. We excluded student-athletes from the current analysis if they were younger than 18 or older than 21 years of age or if they were not in their first year of athletic eligibility.

### *Measures*

**Injunctive Norms.** Student-athlete *injunctive norms held towards teammates and coaches about drunkenness* were each measured with a single item: “How would the following groups of people (Teammates/Coaches) feel about you...Getting drunk frequently?” Student-athletes rated their perceived approval from 1 = Strongly Disapprove to 5 = Strongly Approve. Student-athlete *injunctive norms held towards teammates and coaches about other drug use*, were each measured as the average of two

items: perceived approval of tobacco use and marijuana use ( $r_{\text{teammates}} = 0.50$ ;  $r_{\text{coach}} = 0.34$ ).

**Substance Use.** *Drunkness* was measured through the open-ended survey item, “During the past 30-days, on how many days did you get drunk?” *Other drug use* was the average of three items that asked student-athletes “During the past 30-days, on how many days have you used the following...cigarettes, smokeless tobacco (e.g., chewing tobacco, snuff, dip, or snus), marijuana?” These items were measured on a 6-point scale (none, once, twice, 3-5 days, 6-9 days, 10 or more days).

**Plan of Analysis.** We used a paired samples t-test to assess any difference in student-athlete perceptions of coach and teammate approval of substance use. To test whether injunctive norms predicted personal substance use, we used multi-level modeling to control for the nesting of student-athletes (level 1) in different schools (level 2). We tested three models: Model 1 only included injunctive norms held towards teammates, Model 2 only included injunctive norms held towards coaches, and Model 3 included injunctive norms held towards both teammates and coaches. The three models were conducted to assess each group’s association to substance use behaviors and determine the unique effect of each group after controlling for the other group within the same model. Each model controlled for variables that have been shown to be associated with student-athlete substance use, including sex (reference group = female), race/ethnicity (reference group = White), age, seasonal status (reference group = out-of-season), and level of competitive play (reference group = Division I) (Cadigan, Littlefield, Martens, & Sher, 2013; Martens, Dams-O’Connor, & Beck, 2006; National Collegiate Athletic Association, 2012; Thombs, 2000; Wechsler et al., 1997; Weaver, Martens, Cadigan, Takamatsu, Treloar, & Pedersen, 2013; Yusko, Buckman, White, & Pandina, 2008).

## RESULTS

### *Demographics*

A total of 3,932 student-athletes completed the baseline survey, which was a return rate of 66.3% of those invited to participate. We excluded student-athletes who were not between the ages of 18 and 21, those who were not in their first year of eligibility, and

those who had missing data for any of our measures, yielding a final analytic sample of 3,155 student-athletes. The demographics of the sample reflect that of first-year NCAA student-athletes across the country (NCAA 2012). The majority of student-athletes identified themselves as White (75%) or Black (11%) and 18 (52%) or 19 (45%) years old. Half of the student-athletes were male (50%) and just over half (56%) were in-season when they completed the pre-test survey (Table 1).

### *Difference in Norms*

There was a significant difference of student-athlete injunctive norms held towards teammates and coaches in terms of getting drunk frequently,  $t(3154) = 35.55, p < .05$ , with student-athletes perceiving greater approval from teammates ( $M = 1.72, SD = 0.98$ ) as compared to coaches ( $M = 1.14, SD = 0.49$ ). There was a similar difference in student-athlete injunctive norms regarding other drug use,  $t(3154) = 33.33, p < .05$ , with participants perceiving greater approval from teammates ( $M = 1.58, SD = 0.78$ ) as compared to coaches ( $M = 1.21, SD = 0.46$ ).

### *Injunctive Norms as Predictors of Substance Use*

**Drunkness.** The intraclass correlation (ICC) indicated that 7.4% of the variance of student-athlete drunkness was due to variance across schools. In Model 1 (Table 2), student-athlete injunctive norms held towards teammates were positively associated with past 30-day drunkness ( $\beta = .58, p < .05$ ). Likewise, student-athlete injunctive norms held towards coaches were positively associated with past 30-day drunkness in Model 2 ( $\beta = .62, p < .05$ ). Contrary to our hypothesis, in Model 3 the student-athlete injunctive norms held towards teammates ( $\beta = .53, p < .05$ ) and student-athlete injunctive norms held towards coaches ( $\beta = .23, p < .05$ ) were both independently associated with past 30-day drunkness.

**Other drug use.** The ICC indicated that 1.7% of the variance of student-athlete other drug use was due to variance across schools. In Model 1 (Table 3), student-athlete injunctive norms held towards teammates were positively associated with past 30-day other drug use ( $\beta = .21, p < .05$ ). Likewise, student-athlete injunctive norms held towards coaches were positively associated with other drug use in Model 2 ( $\beta = .30, p < .05$ ). Contrary to our

hypothesis, when student-athlete injunctive norms held towards teammates and coaches were included in Model 3, both teammate ( $\beta = .16, p < .05$ ) and coach reference groups ( $\beta = .16, p < .05$ ) independently predicted past 30-day other drug use.

## DISCUSSION

Previous research has not compared whether student-athlete injunctive norms held towards either teammates or coaches had a stronger association with substance use. To address this gap in the literature, we compared student-athlete injunctive norms held towards teammates and coaches using multi-level models that controlled for factors known to contribute to student-athletes substance use (e.g., sex, race/ethnicity, seasonal status, division).

The findings from this study supported past research regarding how perceptions of others' approval of substance use varies across reference groups (Agostinelli, Grube, & Morgan, 2003; Neighbors et al., 2008; Patrick et al., 2012). Our findings indicated that student-athletes perceived that their teammates were more approving of drunkenness and other drug use when compared to their coaches. This greater approval may suggest that student-athletes are more likely to socialize and use substances with teammates than with their coaches (and therefore might perceive greater approval from these peers). In addition, adults are more likely to disapprove of substance use. However, it is important to note that on average, student-athletes perceived that both teammates and coaches disapproved of alcohol and other drug use (i.e., the mean approval for all measures was less than 2, which corresponded to a response of "disapprove").

Consistent with the Social Norms Theory, we found that the perception of others' approval of substance use is associated with personal behavior (Berkowitz, 2005). Based on past research comparing peer and parent norms, we hypothesized that participant perception of coach approval would be less strongly associated with substance use than the perception of teammate approval (Cail & LaBrie, 2010; Neighbors et al., 2007, Neighbors et al., 2008). However, after controlling for several key factors related to substance use among student-athletes (sex, race/ethnicity, age, seasonal status, level of competitive play), injunctive norms held towards teammates and coaches were both independently associated with self-reported drunkenness and other drug use. During



college, perceived coach approval of substance use may be more closely linked to substance use than perceived parent approval, because coaches are generally in a better position than parents to observe the effects of substance use (e.g., acting sluggish during practice) and to enforce consequences for this use (e.g., suspended game play for getting caught using substances). It is also possible that coaches' behaviors can implicitly discourage or encourage substance use. For example, by setting formal team policies about substance use and outlining the consequences for breaking those policies (e.g., not participating in practice or competition), coaches may convey that substance use is a serious issue and that this use is a real threat to interfering with participation in college sports. Conversely, when coaches do not set up formal policies or somehow convey that they do not strongly disapprove of substance use, student-athletes may be more likely to get drunk and use other drugs.

### *Limitations and Future Directions*

The study's findings and limitations suggest several directions for future research. One notable limitation of the current study was that we used an observational design. Therefore, even though injunctive norms were associated with substance use, we cannot conclude that these norms caused substance use. We attempted to rule out possible third variable explanations for the association between norms and substance use by controlling for factors such as the student athlete's gender, race, age, and whether or not the student was in season, along with the school's competitive division. Future studies should also control for other factors, such as substance use during high school, which has been shown to be a risk factor for substance use during college (Yu & Shacket, 2001). Our cross-sectional design also did not allow us to rule out the possibility of reverse causation. For example, student-athletes who use alcohol or other drugs may in turn perceive greater approval from their teammates and coaches, perhaps as a way to justify their own substance use. It is important to note, however, that results from social norms interventions have indicated that changing norms can lead to changes in behaviors (Berkowitz, 2005; Lewis & Neighbors, 2006; Moreira, Smith, & Foxcroft, 2009; Neighbors, Larimer, & Lewis, 2004). The findings from these studies, combined with the findings from the current study, suggest that targeting norms held toward teammates and coaches

may be an effective strategy to reduce substance use among college student-athletes.

A second limitation is that we only included injunctive norms held towards teammates/coaches in our models. Although teammates and coaches are relevant reference groups to student-athletes, there are other groups whose approval may be important to student-athletes, such as athletic trainers (Burns, Schiller, Merrick, & Wolf, 2004) and team captains (Thombs & Hamilton, 2002). Still other reference groups may be important for college students more generally, such as parents (Turrisi, Mastroleo, Mallett, Larimer, & Kilmer, 2007), close friends (Lee, Geisner, Lewis, Neighbors, & Larimer, 2007), and resident advisers (Thombs & Osborn, 2013). Future studies should compare these reference groups to determine the relative contribution of each group to student-athlete substance use. By doing so, researchers and health professionals can determine which norms to target as part of their intervention.

A third limitation was that our measures of injunctive norms were comprised of either a single item (for drunkenness) or two items for other drug (i.e., tobacco, marijuana) use, so we could not evaluate the reliability of our measures of injunctive norms. Typically, these items are combined into a single scale assessing perceived approval for substance use more generally. Because we were interested in the independent contributions of injunctive norms toward coaches and teammates and in the independent effects on drunkenness and other drug use, we decided to disaggregate the scale and use the items, rather than the scale, as predictors of substance use. Furthermore, the fact that these items were significantly associated with substance use and in the expected direction suggests that they are still appropriate measures of injunctive norms. However, future studies could add other items to more completely assess the constructs of injunctive norms towards coaches and teammates.

A fourth limitation was that we focused exclusively on student-athletes who were 18-20 years old. It is possible that teammate and coach approval of substance use may be different among older student-athletes. For instance, student-athletes may perceive greater approval of drinking alcohol from teammates and coaches once they turn 21 years old and can consume alcohol legally. We still expect, however, that this approval would be

associated with substance use. By contrast, we do not expect that approval of other drug use (e.g., marijuana, tobacco use) would change for older students. Future research should investigate how perceptions of teammate and coach approval change over time and whether those perceptions are related to personal substance use.

Despite these limitations, the findings from this study are consistent with the possibility that the perception of approval from one's coach influences substance use behaviors. Future studies should investigate what aspects of coach behavior affect student-athlete perceptions of their coaches' approval for substance use. Past research indicates that a coach's substance use policies may impact student-athlete perceptions (Williams, 2012); however, other factors may also affect perceptions about substance use, such as how often coaches talk about substances or coaches' own use of substances. Determining which aspects of coach behavior impact perceptions held by student-athletes would inform interventions that train coaches how to decrease student-athlete substance use.

Our findings also highlight the importance of expanding studies on student-athlete injunctive norms beyond alcohol use. Previous studies on student-athlete injunctive norms have only examined perceptions of drinking (Hummer et al., 2009; Lewis, 2008; Thombs, 2000), but our work shows that there is a similar association between injunctive norms and other drug use. Identifying how student-athletes perceive others' approval of a wide variety of substances is important for creating effective, targeted prevention programming towards this population.

## CONCLUSION

Despite its methodological limitations, this study contributed to the literature by comparing the extent to which student-athlete injunctive norms held towards two reference groups unique to college student-athletes were associated with their own substance use. Although student-athletes perceived that their teammates were more approving of getting drunk and other drug use compared to coaches, both injunctive norms independently were associated with these behaviors. A possible explanation of the coach reference group being associated with use may be a coach's role in forming team dynamics through recruitment, relationship, and

policy formation. These findings have important implications for future research, such as considering additional reference groups important to the lives of student-athletes (e.g., team captains, athletic trainers) that remain unstudied within injunctive norm research and considering substances other than alcohol for norms research, as tobacco and marijuana are also substances of concern among the student-athlete population.

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**TABLE 1***Demographic information of participants*

<b>Demographics</b>	<b>n</b>	<b>%</b>
Sex		
Male	1577	50.0
Female	1578	50.0
Age		
18	1628	51.6
19	1416	44.9
20	111	3.5
Race/Ethnicity		
White or Caucasian	2350	74.5
Black or African American	355	11.3
Hispanic or Latino	109	3.5
Other	341	10.8
Seasonal Status		
In-season	1767	56.0
Off-season	1388	44.0
Division		
I	1167	37.0
II	1025	32.5
III	963	30.5

**TABLE 2**

*Multilevel model regression results for past 30-day drunkenness as a function of demographics and injunctive norms towards teammates and coaches*

<b>Predictor</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Intercept	0.15 (0.22)	0.52* (0.23)	-0.04 (0.23)
Level 1			
Teammate Norms	0.58* (0.04)		0.53* (0.04)
Coach Norms		0.62* (0.07)	0.23* (0.08)
Male	0.32* (0.07)	0.40* (0.07)	0.31* (0.07)
Age	-0.03 (0.06)	-0.05 (0.06)	-0.03 (0.06)
Black	-0.42* (0.12)	-0.60* (0.12)	-0.42* (0.12)
Hispanic	-0.45* (0.19)	-0.48* (0.19)	-0.43* (0.19)
Other	-0.37* (0.11)	-0.42* (0.19)	-0.37* (0.11)
In-Season	-0.35* (0.07)	-0.47* (0.07)	-0.36* (0.07)
Level 2			
Division II	-0.21 (0.18)	-0.22 (0.19)	-0.21 (0.18)
Division III	0.13 (0.19)	0.22 (0.20)	0.13 (0.19)

*Note. Standard errors are in parenthesis. \* $p < .05$ . Reference groups for sex = female, race/ethnicity = White, season = out-of-season, Division = Division I.*

**TABLE 3**

*Multilevel model regression results for past 30-day other drug use as a function of demographics and injunctive norms towards teammates and coaches*

<b>Predictor</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Intercept	-0.33* (0.06)	-0.38* (0.06)	-0.44* (0.06)
Level 1			
Teammate Norms	0.21* (0.01)		0.16* (0.02)
Coach Norms		0.30* (0.03)	0.16* (0.03)
Male	0.11* (0.02)	0.13* (0.02)	0.09* (0.02)
Age	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)
Black	-0.10* (0.04)	-0.12* (0.04)	-0.09* (0.04)
Hispanic	-0.12* (0.06)	-0.12 (0.06)	-0.11 (0.06)
Other	-0.09* (0.04)	-0.09* (0.04)	-0.09* (0.04)
In-Season	-0.03 (0.02)	-0.04 (0.02)	-0.03 (0.02)
Level 2			
Division II	-0.01 (0.03)	-0.02 (0.03)	-0.01 (0.03)
Division III	0.01 (0.04)	0.04 (0.04)	0.02 (0.03)

*Note. Standard errors are in parenthesis. \* $p < .05$ . Reference groups for sex = female, race/ethnicity = White, season = out-of-season, Division = Division I.*

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