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Athletic identity, descriptive norms, and drinking among athletes transitioning to college

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Abstract

College student–athletes are at risk for heavy alcohol consumption and related consequences. The present study evaluated the influence of college student and college athlete descriptive norms and levels of athletic identity on drinking and related consequences among incoming college students attending two universities (N = 1119). Prior to the beginning of their first year of college, students indicating high school athletic participation completed assessments of athletic identity, alcohol consumption, drinking-related consequences, and normative perceptions of alcohol use. Estimations of drinking by college students and student–athletes were significantly greater than self-reported drinking. Athletic identity moderated associations among gender, perceived norms, drinking, and related consequences. Athlete-specific norms had a stronger effect on drinking among those reporting higher levels of athletic identity, and higher levels of athletic identity exclusively protected males from experiencing drinking-related consequences. Implications of the role of athletic identity in the development of social norms interventions targeted at high school athletes transitioning to college are discussed.

Keywords

Athletes; Alcohol use; Athlete identity; College students; Drinking-related consequences; Perceived norms

Matriculation into college may be associated with escalations in alcohol use and drinking-related negative consequences, and college student drinking patterns are often predicted by prior use in high school (O'Malley & Johnston, 2002; Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997). High school and college student–athletes have been identified as being at risk for engaging in problematic drinking patterns, as studies indicate greater weekly alcohol consumption, more frequent heavy episodic drinking, and higher rates of negative alcohol-related consequences among athletes compared to non-athletes (Hildebrand, Johnson, & Bogle, 2001; Leichliter, Meilman, Presley, & Cashin, 1998; Nelson & Wechsler, 2001; Wechsler et al., 1997). Moreover, Wechsler et al. (1997) found greater rates of heavy episodic

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drinking among college athletes who also reported similar drinking patterns in high school. Research also indicates greater problematic drinking among team leaders and captains relative to other college athletes and non-athletes (Leichliter et al., 1998). Thus, a greater understanding of social, motivational, and cognitive factors associated with alcohol use among student–athletes informs the development of interventions targeted at athletes transitioning to college.

An etiological factor consistently shown to be associated with alcohol use among college students in general is the influence of perceived social norms (see Berkowitz, 2004; Perkins, 2003). Perceived descriptive social norms refer to the beliefs one has regarding the prevalence of a specific behavior in a particular population, usually one's peers. Social norms perspectives assert that indirect peer influence, in the form of perceptions, acts on an individual's own behavior regardless of the accuracy of the perceived norm. Social norms approaches for explaining heavy drinking among college student populations indicate the influence of perceptions about the acceptability of excessive drinking, prevalence of peer drinking, and quantity of drinking by peers on a student's own individual drinking patterns (e.g., Borsari & Carey, 2001; Perkins, 2002; Prentice & Miller, 1993). Overestimation of peer drinking descriptive norms (i.e., norms detailing the prevalence and amount consumed by ones peers) is associated with problematic drinking among college students and can contribute to the maintenance of a heavy drinking pattern (e.g., Borsari & Carey, 2003). Interventions designed to correct such misperceptions and provide feedback regarding accurate drinking norms have been associated with reductions in subsequent individual consumption (e.g., Neighbors, Larimer, & Lewis, 2004), in addition to subsequent drinking-related consequences (Neighbors, Lewis, Bergstrom, & Larimer, 2006). Recent research has incorporated social norms into theoretical models of heavy alcohol use specifically among college athletes (Dams-O'Connor, Martin, & Martens, 2007; Martens, Dams-O'Connor, Duffy-Paiement, & Gibson, 2006; Perkins & Craig, 2006; Thombs & Hamilton, 2002; Turrisi, Mastroleo, Mallett, Larimer, & Kilmer, 2007).

Research has also examined differences in the referent group utilized in the provision of normative feedback (e.g., the typical student, the typical fraternity male, etc.), and results of studies suggest closer or more proximal reference groups (such as close friends or gender-specific norms) are more powerful predictors of individual alcohol consumption than more distal referents, such as the “typical college student” (Baer, Stacy, & Larimer, 1991; Borsari & Carey, 2003; Lewis & Neighbors, 2004). Thus, individuals who more strongly identify with certain social networks are more likely to demonstrate drinking patterns similar to those groups. In light of research suggesting greater isolation on college campuses among student–athletes compared to their non-athlete peers (Damm & Murray, 1996; Harvey, 1999), it is possible the social drinking milieu of athletes may primarily include their team members or other athletes at their college or university.

Perceptions of athlete-specific drinking norms may be more salient (i.e., relevant) for athletes, and subsequently, athlete norms may have a more powerful effect on athletes’ alcohol consumption and related consequences than normative perceptions of drinking by college non-athletes. In support of this hypothesis, Martens, Dams-O'Connor, and Duffy-Paiement (2006), Martens, Dams-O'Connor, Duffy-Paiement et al. (2006), Martens, Watson, and Beck (2006) found that college athlete-specific norms predicted individual weekly alcohol consumption and consequences among male and female college athletes. Additionally, gender moderated the relationship between athlete norms and individual consumption such that the significant association between athlete norms and drinking was stronger for males than females, and perceptions of non-athlete drinking significantly predicted weekly drinking exclusively among female athletes. Athlete drinking norms may be more relevant for male athletes than their female counterparts due to greater pressure for males to conform to perceived drinking norms among their athlete peers. Further examination of the degree to which one

identifies as an athlete (i.e. athletic identity) and perceived drinking among athletes may enhance the specificity of social norms interventions targeted at student–athletes.

Research involving both high school and college student–athletes has primarily relied on a dichotomous classification of athletic participation for assessing whether or not one participates in athletics. However, this form of assessment does not consider how student–athletes perceive themselves in terms of their social roles as an athlete. Alternatively, athletic identity has been defined as the degree to which an individual identifies with the athlete role, and athletic identity can be thought of as a cognitive structure that guides and organizes how an individual processes self-related information from the environment (Brewer, Van Raalte, & Linder, 1993). Among college student–athletes, although athletic identity is positively associated with levels of self-concept and commitment within the context of athletics, strong athletic identity may preclude the development of other social roles that may be adaptive across different contexts (Wiechman & Williams, 1997). Among high school athletes transitioning to college, strong identification as an athlete may lead students to compare their behavior with other college athletes and subsequently engage in social comparisons related to behaviors perceived as normative on college campuses, namely alcohol use. It is plausible that the degree to which one identifies as an athlete, relative to athletic participation, may be significantly associated with individual alcohol consumption and drinking-related consequences due to normative misperceptions of athlete-specific alcohol use.

The goal of the present investigation is to evaluate the role of athletic identity in the association between descriptive drinking norms for athletes and non-athletes and individual alcohol consumption and drinking-related consequences among males and females reporting alcohol consumption. To our knowledge, this investigation is the first study to examine the role of athletic identity in the association between athlete drinking norms and alcohol consumption and related consequences among male and female high school athletes transitioning to college. Based on previous research indicating relationships between normative perceptions of drinking, individual alcohol use, and alcohol-related consequences among athletes (e.g., Martens, Dams-O'Connor, and Duffy-Paiement, 2006; Martens, Dams-O'Connor, Duffy-Paiement et al., 2006; Martens, Watson et al., 2006) we developed the following hypotheses for examining weekly drinking and alcohol-related consequences as dependent variables:

1. Perceived norms for weekly drinking by the typical college student and typical college athlete will each be positively associated with individual weekly alcohol consumption. Athletic identity will moderate associations between athlete-specific descriptive norms and weekly drinking such that perceptions of athlete norms will have a stronger effect on drinking and consequences for both males and females reporting higher levels of athletic identity.
2. Based on previous research (Benton et al., 2006), after controlling for weekly alcohol consumption, we do not expect perceived drinking norms for the typical college athlete and college student to be significantly related to alcohol-related consequences. However, we do expect interactions between weekly drinking, gender, and athletic identity in the model predicting drinking-related consequences. Specifically, we hypothesize that for males and females reporting greater levels of weekly drinking, higher levels of athletic identity will be associated with greater alcohol-related consequences.

1. Method

1.1. Sample

Participants were 1119 freshmen (56.6% female) from two large, National Collegiate Athletic Association (NCAA) Division I-A campuses (one northwest urban, one northeast rural), each

of which has enrollment of over 40,000 students. Participants were included if they reported alcohol use in their lifetime. Athlete classification was determined by assessing participation in varsity or elite club sports at the high school level. Within the sample, 15.8% (13% of females, 19% of males) indicated they would be participating in intercollegiate athletics during their upcoming first-year of college. Participants were primarily Caucasian (81%), with 9% Asian, 4% Hispanic, 2% African American, and 4% reporting other or multiple ethnicities. The mean age of the sample was 17.97 (SD = 1.66) years.

1.2. Procedures

Participants were randomly selected from the incoming freshmen population and invited to participate in an online survey. In total, 3860 randomly selected individuals were contacted via email to participate in a brief online screening survey. Screening was conducted to identify individuals with high school athletic involvement, the criterion for inclusion in a larger study. The response rate for screening was 47%, and screening respondents were demographically similar to the invited samples (e.g., age, gender, ethnicity). Of individuals eligible for the larger study (N = 1481 HS athletes), 89.67% completed the survey resulting in a sample of 1328 high school athlete participants. Two hundred nine (209) individuals reported no lifetime history of alcohol use and were subsequently excluded from the current analyses, resulting in our current sample of 1119 participants. Response rates are consistent with past studies in which similar recruitment and survey administration was used (Kilmer et al., 2006; Neighbors, Larimer, & Lewis, 2004). All assessments were completed during the summer following high school graduation but prior to college matriculation. The majority of participants completed measures within one month (June–July), with all participants completing within two months. Participants were paid $10 for screening and $30 for the larger survey. This study was approved by both university Institutional Review Boards and treatment of participants was in compliance with the American Psychological Association ethical guidelines.

1.3. Measures

Athlete identity measurement scale (AIMS; Brewer, Van Raalte, & Linder, 1993). The AIMS was used to assess athletic identity among participants. The 10-item scale is designed to measure the degree to which an individual identifies as an athlete. A seven-point Likert scale examines social, cognitive, and affective components of athletic identity. Responses range from 1 = Strongly disagree to 7 = Strongly agree. Higher scores correlate with a stronger identification with an athletic role. Item examples include, “I have many goals related to sport” and “Sport is the most important part of my life.” The AIMS has been found to have high internal consistency (α = .81) and was similarly high for this study (α = .90). AIMS test–retest reliability and predictive and construct validity have been documented as adequate (Brewer et al., 2003).

Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985). The DDQ assesses participants’ average number of drinks consumed on each day of the week in the previous month. Students were asked to: “Consider a typical week during the last month. How much alcohol, on average (measured in number of drinks), do you drink on each day of a typical week?” with a response scale provided for each day of the week (e.g., Monday_____, Tuesday_____). Responses were summed to create an index of total weekly drinking. All questions were operationalized using the definition of a standard drink (i.e., 12 oz. beer, 4 oz. wine, 1 oz. distilled liquor). Recent research identified internal reliability for the seven drinking quantity questions was .79 (Corbin, Morean, & Benedict, 2008).

Drinking Norms Rating Form (DNRF; Baer et al., 1991). The DNRF is a measure evaluating individual perceived norms (descriptive norms) of alcohol use, parallel in format to the DDQ. Participants estimate the typical drinking patterns of important reference groups, including the

typical college student and typical college athlete. An item example includes 'how much alcohol on average, measured in number of drinks, does the typical college student drink on each day of the week? Respondents were asked to fill in the number of drinks for each day of the week (Reifman, Barnes, Dintcheff, Farrell, & Uhteg, 1998). Instrument development correlations between perceived norms of important reference groups and participant drinking behaviors ranged from r = .36 to r =.91 (Baer et al., 1991).

Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989). The RAPI was used to assess alcohol-related consequences. The RAPI consists of 23-items with an internal reliability of .92 (current study α = .89). The RAPI assesses the role alcohol plays in social, academic, and personal functioning over the past year. Examples of items include, 'How many times, while you were drinking, were you unable to do your homework or study for a test' and 'went to work drunk or high?' The RAPI has been used extensively in past research evaluating college student drinking consequences (e.g., Marlatt et al., 1998; Larimer et al., 2001) and has been confirmed as reliable and valid in identifying alcohol related problems among college students (Martens, Neighbors, Dams-O'Connor, Lee, & Larimer, 2007). RAPI items were summed to create a single index of alcohol related consequences.

Demographic information. Standard demographics were obtained for student participants, including age, gender, ethnicity, and athlete status.

2. Results

2.1. Data analytic plan and preliminary analyses

SPSS 14.0 was used in all analyses. Preliminary analyses were conducted to evaluate missing data and potential outliers. Given the small proportion of participants (1.7%) that were missing values on one or more items, we used complete case analyses. Minor discrepancies in degrees of freedom are due to missing values. Students who had never tried alcohol (n = 209) were not included in these analyses based on one of the key outcome variables (i.e. alcohol-related problems) being dependent on alcohol consumption. The outliers for total drinks per week (1.8% of all participants), descriptive norm for the typical student (1.7% of participants), and the descriptive norm for the typical college athlete (.8% of participants) were recoded down to 28, 60, and 40 drinks per week to reduce non-normality (approximately 3.29 standard deviations above the mean; Tabachnick & Fidell, 2001). Effect sizes (d) for all analyses were calculated as $d = 2t/\sqrt{df}$ (Rosenthal & Rosnow, 1991). Effects in the .2 range are considered small, .5 are considered medium, and .8 are considered large (Cohen, 1992).

A series of t-tests were conducted based on gender, ethnicity, and campus (rural and urban) to examine group differences for athletic identity, weekly drinking, drinking-related consequences, descriptive norms for the typical college student (student norm), and descriptive norms for the typical college athlete (athlete norm). Ethnicity was coded as Caucasian and non-Caucasian, which included Asian, African American, Hispanic, Bi-racial, and other. Results of the t-tests are presented in Table 1, indicating males, Caucasians, and students at the rural campus generally scored higher on all variables than did women, non-Caucasians, and urban students. Correlations among athletic identity, weekly drinking, drinking-related consequences, the student norm, and the athlete norm for males and females are presented in Table 2.

In order to examine the influence of demographic factors, athletic identity, and descriptive norms on drinking and related consequences, two hierarchical multiple regression analyses (Cohen et al., 2003) were conducted with weekly alcohol consumption and drinking-related consequences as dependent variables. Based on preliminary analyses indicating group differences among demographic variables, gender, ethnicity, and campus were entered on step

1 in both models. Gender, campus, and ethnicity were dummy coded (men = 1; Caucasian = 1; urban campus = 1), and all other predictors were mean centered to facilitate interpretation of parameter estimates (Jaccard & Turrisi, 2003). For both regression models, athletic identity was entered into the model at step 2. Student descriptive norms and athlete descriptive norms were added as predictors at step 3.

The models differed in steps four and five. In the regression predicting variance in weekly drinking, the two-way product terms for ethnicity and campus were not entered into the two multiple regression analyses. Because our emphasis was on evaluating gender and athletic identity as potential moderators, two-way product terms between gender and athletic identity, gender and both sets of norms, and athletic identity and both sets of norms were added at step 4. The three way interactions between gender, both sets of norms, and athletic identity were entered in step 5. For the model predicting alcohol-related consequences, two and three-way product terms for gender, athletic identity, and weekly drinking were entered at steps 4 and 5 respectively.

2.2. Perceived norms and self-reported weekly drinking

We first compared students' weekly alcohol consumption to the perceived weekly drinking student norm. The average number of drinks per week reported by students in our sample was 4.75 (SD = 7.26), while they perceived the typical college student as drinking an average of 20.66 drinks per week (SD = 11.62). Paired sample *t*-test revealed perceptions of the student norm were significantly greater than students' own drinking (t = 47.90, df=1102, p<.001, d=2.89). We next compared students' perceived weekly drinking athlete norm to their self-reported drinking. Students estimated that athletes consumed 9.42 drinks per week (SD = 8.37), and consistent with their perceptions of the student norm, the athlete norm was significantly greater than students' self-reported weekly consumption (t=19.41, df=1111, p<.001, d=1.16). Thus, normative perceptions of weekly drinking by both the typical college student and the typical college athlete were significantly greater than students' own self-reported drinking, and the discrepancies between self and others' weekly drinking were greater for estimations of the student norm compared to the athlete norm.

2.3. Multiple regression predicting weekly alcohol consumption

Regression results examining predictors of weekly drinking are presented in Table 3. Results at step 1 revealed main effects for gender and campus. At step 2, results indicated athletic identity as not having a significant effect on weekly alcohol use beyond the effects of demographic variables. Both the student and athlete descriptive norms were uniquely associated with consuming more drinks per week at step 3. Results at step 4 indicated one significant two-way interaction between the athlete norm and athletic identity, and this interaction and tests of simple slopes were graphed and interpreted using procedures described by Aiken and West (1991). Fig. 1 presents the interaction between the athlete norm and athletic identity where high and low values of each were specified as one standard deviation above and below the mean respectively. Athletic identity moderated the relationship between the athlete norm and weekly drinking, such that among those with higher levels of athletic identity, the athlete norm was positively associated with weekly drinking. Among students reporting low levels of athletic identity, the athlete norm was negatively associated with weekly drinking. Tests of simple slopes indicated a significant positive association between the athlete norm and weekly drinking (β=.21, p<.001) for students reporting high levels of athletic identity, and for those with low levels of athletic identity, the negative relationship between the athlete norm and weekly drinking was not significant (β=−.02, p=*ns*).

2.4. Multiple regression predicting drinking-related consequences

The second model examined drinking-related consequences as the dependent variable, controlling for weekly drinking along with the demographic variables described above (Table 4). Results at step 1 revealed main effects for gender and weekly drinking. At steps 2 and 3, athletic identity and both sets of norms (student and athlete) respectively did not significantly predict drinking-related consequences. At step 4, results indicated two significant interactions. First, gender moderated the relationship between weekly drinking and alcohol-related consequences. Tests of simple slopes indicated significant positively associations between weekly drinking and consequences for both men and women (men: β=.57, p<.001; women: β=.71, p<.001), but the positive relationship was stronger for women. Second, athletic identity moderated the relationship between weekly drinking and alcohol related problems. Tests of simple slopes indicated significant positive associations between weekly drinking and consequences for both those with lower athletic identity (β=.83, p<.001) and for those with higher athletic identity (β=.59, p<.001), but the positive relationship was stronger for those with lower athletic identity.

We examined the three-way interaction between gender, athletic identity and weekly drinking to determine whether the influence of athletic identity and drinking on consequences was different for men and women (Fig. 2). Results indicated the positive association between weekly drinking and consequences was stronger for those with lower athletic identity, but only for men. For women, the relationship between weekly drinking and consequences was not moderated by athletic identity (t=.34, p=ns), and the positive relationship between weekly drinking and consequences was similar at lower (β=.73, p<.001) and higher (β=.76, p<.001) levels of athletic identity. In contrast, for men, the positive relationship between weekly drinking and consequences was stronger for those with lower athletic identity compared to those with higher athletic identity (t=−6.62, p<.001, d=−.40). Tests of simple slopes indicated the positive association between weekly drinking and consequences was stronger for students with lower athletic identity (β=.77, p<.001) than those with higher athletic identity (β=.39, p<.001).

3. Discussion

High school and college student–athletes are groups at risk for excessive alcohol consumption and related negative consequences (e.g., Leichliter et al., 1998; Nelson & Wechsler, 2001; Turrisi et al., 2007), and consistent with social norms theory, perceptions of college athlete and non-athlete drinking are associated with individual drinking patterns among college student–athletes (Dams-O'Connor et al., 2007; Martens, Dams-O'Connor, & Duffy-Paiement, 2006; Martens, Dams-O'Connor, Duffy-Paiement et al., 2006; Martens, research by examining athletic identity as a moderator of associations between weekly drinking descriptive norms and alcohol consumption and drinking-related consequences among male and female high school athletes transitioning to college.

Results support our initial hypothesis indicating significant main effects of both college student and college athlete descriptive drinking norms on individual alcohol consumption. Perceptions of weekly drinking for the typical college student (20.66 drinks) and typical college athlete (9.42 drinks) were significantly greater than self-reported weekly drinking (4.75 drinks), and both sets of descriptive norms were positively associated with weekly alcohol consumption among males and females. It is noteworthy that students' estimates of weekly drinking by college athletes were considerably lower than their estimates for college students in general (9.42 vs. 20.66), and this finding is consistent with previous research documenting college athletes' perceptions of drinking among athletes and non-athletes (Dams-O'Connor et al., 2007; Martens, Dams-O'Connor, & Duffy-Paiement, 2006; Martens, Dams-O'Connor, Duffy-Paiement et al., 2006; Martens, Watson et al., 2006). One explanation for the discrepancy

evident in the current study is that high school athletes transitioning to college may view college athletic participation as a protective factor for weekly alcohol consumption. Interestingly, although both sets of norms were significantly related to individual alcohol use, results indicated a stronger positive association between weekly drinking and college student norms compared to athlete norms. It is possible that college athlete norms exert a stronger influence than college student norms on personal alcohol use among intercollegiate athletes compared to those not participating in college athletics only after their matriculation to college. Nonetheless, results suggest both college student and college athlete descriptive norms influence alcohol use among male and females high school athletes transitioning to college. In light of research indicating a positive relationship between alcohol-related self-other discrepancies and changes in personal consumption (e.g., Carey, Borsari, Carey, & Maisto, 2006), further examination of drinking trajectories among high school athletes transitioning to college as a function of misperceptions of alcohol use among college athletes and non-athletes is necessary.

The second key finding supports our hypothesis suggesting identification with the athlete role moderates the association between descriptive norms and drinking among high school athletes matriculating to college. Perceptions of college athlete weekly drinking had a stronger positive association with individual weekly consumption for those reporting greater levels of athletic identity. College student–athletes may represent a more proximal reference group for incoming college students with strong athletic identities such that they perceive themselves as more similar to the *typical college athlete* compared to the *typical college student*. High school athletic participation may facilitate exposure to a social milieu characterized by a large peer network, greater access to alcohol, and more frequent heavy episodic drinking (e.g., Nelson & Wechsler, 2001). For high school athletes transitioning to college, stronger identification as an athlete may be a risk factor for problematic drinking in college due to normative misperceptions of college athlete and non-athlete drinking, in association with a social network consisting of groups more likely to engage in heavy alcohol use (e.g., Greek members, intercollegiate athletes; Meilman, Leichliter, & Presley, 1999).

Finally, as expected, descriptive norms for alcohol use did not significantly predict drinking-related consequences beyond the effects of personal weekly alcohol consumption, and these findings are consistent with previous research (Benton et al., 2006). Results indicated gender and athletic identity moderated the association between weekly drinking and alcohol-related consequences such that the positive relationship between weekly drinking and consequences was stronger for females compared to males, and among those with lower levels of athletic identity compared to students with higher levels of athletic identity. Surprisingly, the three-way interaction between gender, athletic identity, and weekly drinking indicated stronger athletic identity was a protective factor for negative consequences among males reporting greater weekly drinking, although levels of athletic identity did not significantly affect the relationship between weekly drinking and consequences among women. These findings are noteworthy in light of previous research indicating greater drinking-related consequences among males compared to females, and athletes compared to non-athletes (e.g., Leichliter et al., 1998).

Given this surprising finding, it is possible that drinking rates and related consequences were impacted for intercollegiate athletes by seasonal factors. It has been suggested that athletes do not drink as much during the season in which they are competing as during the off season (Martens, Dams-O'Connor, & Kilmer, 2007). With rates during the competitive season typically being quite low, future research would need to carefully consider in- or off-season status. Additionally, higher rates of other drug use (which can differ by sport) could also be associated with lower rates of alcohol use, and the context of alcohol consumption could be further examined in future studies. Males with greater levels of athletic identity may be more

likely to avoid high-risk drinking contexts due to concerns about the effects of drinking-related consequences on their athletic performance as well as athletic eligibility. Athletic identity may also play a more prominent role for males compared to females within their social network, such that males with high levels of athletic identity may be more likely to drink with other athletes in an environment that may protect them from subsequently experiencing negative consequences. It is also possible that although male athletes with greater athletic identity may drink more than their female counterparts, physiological factors (e.g., body weight) may contribute to lower blood alcohol contents (BACs) for male athletes, thus protecting them from experiencing drinking-related consequences.

3.1. Limitations

Although this investigation adds significantly to research on the impact of descriptive norms on high school and college athlete drinking, there are several limitations to consider. The use of self-report measures is a limitation of this research, as students may not accurately report alcohol-related information. Confidentiality of participants' responses was assured, and previous research suggests that self-report of drinking behavior is generally accurate under these conditions (Babor, Steinberg, Anton, & Del Boca, 2000; Chermack et al., 1998). We did not counterbalance questions assessing self-reported drinking and students' perceptions of others' alcohol consumption, and it is possible an order effect may have impacted students' responses. However, previous work has indicated no order effects when researchers counterbalanced items measuring norm perceptions (Baer, Stacy, & Larimer, 1991). Additionally, the cross-sectional data reported here prevent making causal statements about relationships between athletic identity, descriptive norms, and alcohol use and related consequences. Further, compared to prevalence rates reported in national studies of weekly drinking among high school and college student samples, students in our sample reported lower rates of weekly drinking which may affect interpretation of our results. Also, information regarding the type of sport athletes played was not collected, so it is unclear how findings might have differed based on sport. For example, it is possible that participation in team sports, such as football or swimming, may strengthen the influence of perceived alcohol use by other athletes (e.g., teammates) on personal consumption and consequences.

3.2. Future directions and clinical implications

Although results revealed significant relationships between typical college student and typical college athlete descriptive norms and drinking, research has demonstrated stronger associations between normative perceptions of more proximal reference groups (e.g., closest friends) and alcohol consumption (Lewis & Neighbors, 2004; Martens, Dams-O'Connor, & Duffy-Paiement, 2006; Martens, Dams-O'Connor, Duffy-Paiement et al., 2006; Martens, Watson et al., 2006). Closer inspection of the impact of descriptive norms for different reference groups (e.g., athlete friends, non-athlete friends, teammates) on drinking among high school athletes transitioning to college is warranted. Moreover, research should evaluate descriptive norms in conjunction with injunctive norms (perceived approval/acceptability of drinking) among athletes transitioning to college. Previous research indicates the importance of perceived acceptability of alcohol use on individual consumption, particularly among social networks with high group identity (e.g., Greeks, athletes) (Larimer, Turner, Mallett, & Geisner, 2004; Turrisi, Mallett, Mastroleo, & Larimer, 2006).

In the current study, athletic identity was examined along with its relationship to norm perception, drinking, and related consequences. Future research could further explore the concept of identity as an athlete, including assessing the characteristics of athlete identity associated with participants involved in intercollegiate athletics, intramural sports, club sports, or personal pursuits (e.g., running). This would allow for an understanding of the impact of

this identity outside of the “athlete” or “student athlete” label associated almost exclusively with intercollegiate athletes.

Additionally, previous research has demonstrated the long-itudinal influence of descriptive norms on drinking over a two month period, after controlling for baseline levels of alcohol use (Neighbors et al., 2006). Research should evaluate the long-term influence of perceptions of college athlete and non-athlete alcohol use on drinking patterns among high school athletes before and after their transition to college. Future studies should also examine the role of continued intercollegiate athletic participation in conjunction with athletic identity when evaluating the influence of perceived norms and drinking among athletes. College athlete norms may be more strongly associated with alcohol use among high school athletes who are continuing their athletic participation in college, particularly among those with higher levels of athletic identity.

Greater understanding of relations among environmental and individual factors informs the development of interventions focused on parental, school, and peer influences on alcohol use among high school athletes transitioning to college. Results of the current study demonstrate the importance of considering athletic identity when developing social norms interventions targeted at male and female athletes transitioning to college. Future research should evaluate the influence of other variables (e.g., drinking motives, expectancies) associated with alcohol consumption and related consequences when examining drinking patterns among male and female athletes (e.g., Martens, Cox, Beck, & Heppner, 2003; Zamboanga, Bean, Pietras, & Pabon, 2005). Ultimately, a better understanding of the key social, cognitive, and motivational factors contributing to the influence of normative perceptions of alcohol use on high school and college athlete drinking patterns enhances the specificity of interventions targeted at groups engaging in heavy drinking. Interventions tailored to the specific needs and influences of high school and college athletes may be required, as universal campus wide norm and environmental interventions successful with college students in general may need to be modified for students high in athletic identity.

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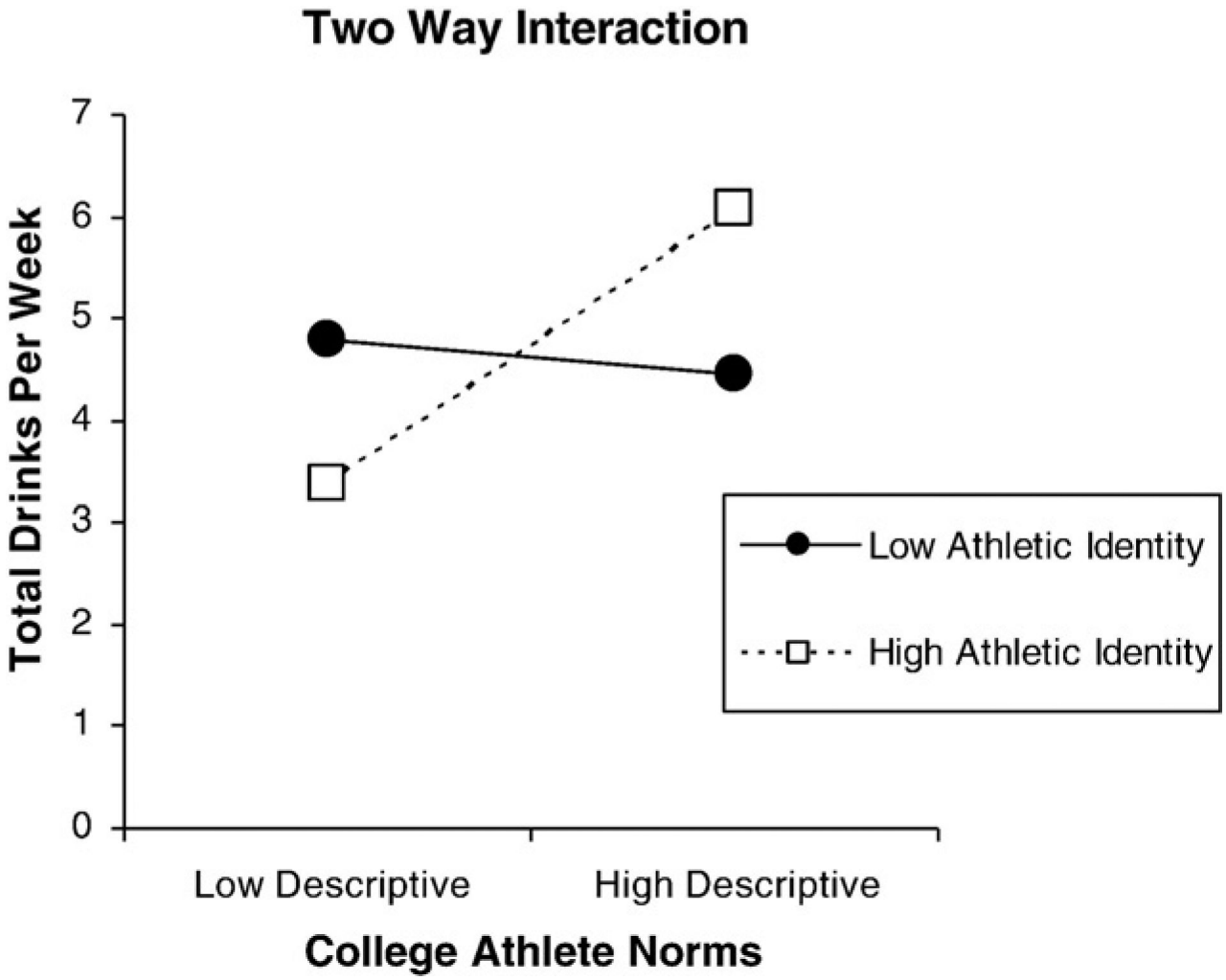

Fig. 1.
Two-way interaction among descriptive norms for college athletes and athletic identity for weekly alcohol consumption.

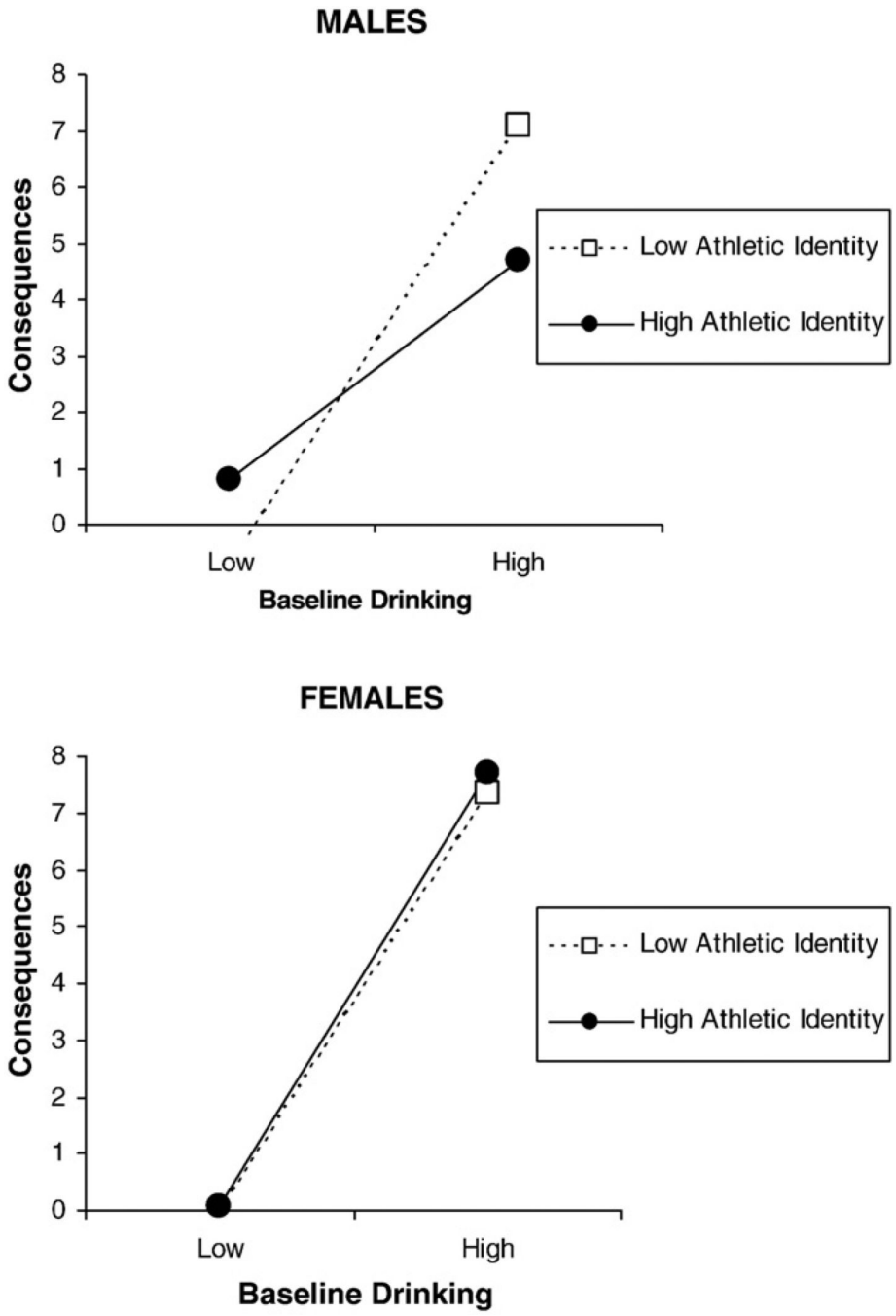

Fig. 2.
Three-way interaction among gender, athletic identity and weekly drinking for alcohol-related consequences.

Table 1

Differences between demographic groups on key variables

	Gender		*t*
	Male	**Female**	
N's range	481–486	623–633	
Athletic identity	2.86	2.50	–7.73***
Drinks per week	7.20	5.71	–3.12**
Consequences	3.19	3.41	.72
College student norm	22.83	18.99	–5.40***
College athlete norm	11.16	8.09	–5.91***

	Ethnicity		*t*
	Caucasian	**Non-Caucasian**	
N's range	894–907	208–210	
Athletic identity	2.68	2.55	–2.17*
Drinks per week	4.82	2.91	–3.35**
Consequences	3.41	2.91	–1.29
College student norm	21.26	18.21	–3.43**
College athlete norm	9.50	9.17	–.50

	Campus		*t*
	Urban	**Rural**	
N's range	357–365	747–754	
Athletic identity	2.60	2.68	1.63
Drinks per week	3.33	5.11	4.65***
Consequences	3.04	3.45	1.29
College student norm	17.50	22.18	6.37***
College athlete norm	8.63	9.80	2.19*

Note.

Based on Bonferroni correction, only values at $p < .01$ should be considered statistically significant.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

Table 2

Zero-order correlations between athletic identity, drinking, drinking related consequences, typical student norm, and college athlete norm for full sample, males and females

Full sample[a]	**1**	**2**	**3**	**4**	**5**
1. Athletic identity	–				
2. Total drinks per week	.07*	–			
3. Consequences	.01	.62**	–		
4. College student norm	.11**	.40**	.24**	–	
5. College athlete norm	.00	.25**	.16**	.45**	–

Males[b]	**1**	**2**	**3**	**4**	**5**
1. Athletic identity	–				
2. Total drinks per week	.05	–			
3. Consequences	–.06	.62**	–		
4. College student norm	.06	.34**	.18**	–	
5. College athlete norm	–.11*	.22**	.11**	.42**	–

Females[c]	**1**	**2**	**3**	**4**	**5**
1. Athletic identity	–				
2. Total drinks per week	.04	–			
3. Consequences	.04	.64**	–		
4. College student norm	.10**	.45**	.32**	–	
5. College athlete norm	.01	.27**	.23**	.44**	–

Note.

** $p<.001$

* $p<.05$.

[a] $n=1104–1121$.

[b] $n=480–486$.

[c] $n=623–633$.

Table 3

Regression results for alcohol use as a function of demographics, athletic identity, and descriptive norms for typical students and athletes

Predictor	*B*	Std. error	β	*t*	*d*
Step 1: R^2=.029***					
Gender[a]	1.302	0.397	0.098	3.282**	0.198
Campus[b]	–1.547	0.442	–0.109	–3.503***	–0.212
Ethnicity[c]	0.960	0.527	0.057	1.820†	0.110
Step 2: R^2=.030, R^2 Δ=.001					
Athletic identity	0.245	0.248	0.030	0.987	0.060
Step 3: R^2=.173***, R^2 Δ=.143					
Norm: college student	0.194	0.018	0.342	10.829***	0.655
Norm: college athlete	0.073	0.024	0.093	2.992**	0.181
Step 4: R^2=.186*, R^2 Δ=.013					
Gender×athletic identity	–0.043	0.036	–0.055	–1.216	–0.074
Gender×norm: college student	–0.012	0.050	–0.011	–0.234	–0.014
Gender×norm: college athlete	0.131	0.483	0.010	0.271	0.016
Athletic identity×norm college student	–0.035	0.022	–0.050	–1.599	–0.097
Athletic identity×norm college athlete	0.111	0.030	0.117	3.737***	0.227
Step 5: R^2=.190†, R^2 Δ=.004					
Gender×norm: college student×ID	0.032	0.044	0.034	0.744	0.045
Gender×norm: college athlete×ID	0.105	0.062	0.088	1.702†	0.103

Note. *B*=Unstandardized coefficient.

β=Standardized coefficient (beta). *d*=effect size estimate.

*** p<.001.

** p<.01.

* p<.05.

† p<.1.

[a] Gender was coded Female=0, Male=1.

[b] Campus was coded Rural=0, Urban=1.

[c] Ethnicity was coded Non-Caucasian=0, Caucasian=1.

Table 4

Regression results for alcohol related consequences as a function of demographics, athletic identity, and descriptive norms for typical students and athletes

Predictor	*B*	Std. error	β	*t*	*d*
Step 1: R^2=.398***					
Gender[a]	–0.853	0.240	–0.084	–3.549***	0.215
Campus[b]	0.405	0.268	0.037	1.512	0.091
Ethnicity[c]	–0.109	0.319	–0.008	–0.343	0.021
Weekly drinking	0.489	0.018	0.638	26.820***	1.621
Step 2: R^2=.399, R^2 Δ=.001					
Athletic identity	–0.154	0.150	–0.025	–1.030	0.062
Step 3: R^2= .399, R^2 Δ=.000					
Norm: college student	0.002	0.012	0.005	0.173	0.010
Norm: college athlete	0.011	0.016	0.018	0.669	0.040
Step 4: R^2=.425***, R^2 Δ=.030					
Gender×athletic identity	–0.394	0.305	–0.040	–1.293	0.078
Weekly drinking×gender	–0.108	0.037	–0.119	–2.943**	0.178
Weekly drinking×athletic identity	–0.110	0.022	–0.146	–5.021***	0.304
Step 5: R^2=.434***, R^2 Δ=.010					
Gender×weekly drinking×athletic ID	–0.193	0.045	–0.204	–4.282***	0.260

Note. *B*=Unstandardized coefficient. *β*=Standardized coefficient (beta). *d*=effect size estimate.

* $p<.05$.

*** $p<.001$.

** $p<.01$.

[a] Gender was coded Female=0, Male=1.

[b] Campus was coded Rural=0, Urban=1.

[c] Ethnicity was coded Non-Caucasian=0, Caucasian=1.