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Sports-specific factors, perceived peer drinking, and alcohol-related behaviors among adolescents participating in school-based sports in Southwest Georgia

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Abstract

This study investigated the relationships among sports-specific factors, perceived peer drinking, and alcohol-related behaviors among adolescents, examining sex differences in the relationship between perceived peer drinking and alcohol-related behaviors. A questionnaire assessing demographics, sports-specific factors, perceived peer drinking, and alcohol-related behaviors was administered among 378 adolescents who were mostly male (76.3%) and non-Hispanic black (70.0%). Varsity sports participants reported higher levels of perceived peer drinking compared to those who participated in sports at other levels (B 0.64, 95% CI 0.28, 0.99, $p < 0.001$). Participants in both sports offering team- and individual-level competition reported greater perceived peer drinking (B 0.71, 95% CI 0.05, 1.38, $p = 0.04$), compared to those who only participated in individual sports. Perceived peer drinking was associated with alcohol-related behaviors (B 0.39, 95% CI 0.31, 0.47, $p < 0.001$) and there were no significant differences between males and females in this relationship. Suggestions for future research include examining factors contributing to the low prevalence of drinking behaviors, and investigating factors related to sports that impact perceived peer drinking and alcohol-related behaviors.

Keywords

Alcohol; Adolescents; Sports; Peer drinking

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Contributors

Darren Mays led the development of the study, data collection, data analysis, and preparation of the manuscript. Drs. Windle, Thompson, and Kushner contributed to the development of the study, the interpretation of the findings, and the preparation of the manuscript. Dr. David Mays and Mr. Derrick Farmer assisted with data collection and contributed to previous drafts of the manuscript. All authors have approved submission of the manuscript for publication.

Conflict of Interest

The authors have no potential conflicts of interest to disclose.

1. Introduction

The majority of adolescents drink alcohol prior to adulthood and alcohol use is associated with many of the leading causes of morbidity and mortality among this age group (Centers for Disease Control and Prevention [CDC], 2006; National Institute on Alcohol Abuse and Alcoholism, 2007; Windle & Windle, 2005). The average age of drinking onset is also occurring earlier, putting youths who begin drinking early at greater risk for experiencing alcohol-related problems later in life (Newes-Adeyi et al., 2005).

One of the most consistent predictors of adolescent alcohol use is the influence of peers (Brown et al., 2008; Windle et al., 2008). Specifically, peer drinking behaviors have been shown to be stronger predictors of alcohol use than other factors that are consistently linked with adolescent drinking, such as parental monitoring and other family-related factors (Bahr, Marcos, & Maughan, 1995; Jones, Mussong, Manning, & Sterrett, 2008; Nash, McQueen, & Bray, 2005; Wood, Read, Mitchell, & Brand, 2004). Perceived peer drinking has been found to explain up to 50% of the variability in adolescent drinking in prior research (Simmons-Morton, Haynie, Crump, Eitel, & Saylor, 2001; Windle, 2000; Windle et al., 2008) and is predictive of both the initiation of alcohol use and alcohol use over time (D'Amico & McCarthy, 2006; Simmons-Morton & Chen, 2006).

A recent review by Sussman, Pokhrel, Ashmore and Brown (2007) of research examining adolescent peer group identification concluded that one of the primary peer groups with which adolescents identify is based on sports participation. Prior research also suggests that adolescents who participate in sports identify more strongly with sports, compared to youths who take part in non-sports activities (Eccles & Barber, 1999). Sports represent an important aspect of development among many adolescents (Barber, Stone, & Eccles, 2006), as the majority of U.S. adolescents report some form of organized sports involvement (Eaton et al., 2008; National Federation of High School Athletic Associations, 2008). Many investigators have observed, however, that adolescent sports participants are more likely to drink alcohol than non-participants (Barber, Eccles, & Stone, 2001; Hoffmann, 2006; Mays & Thompson, 2009; Moore & Werch, 2005; Wetherill & Fromme, 2007).

A number of researchers have also suggested that alcohol use by adolescent sports participants may be influenced by several sports-specific factors, such as when the season of a particular sport falls, participation in different sports and team sports, and the level of participation (Bower and Martin, 1999; Leaver-Dunn, Turner, & Newman, 2007; Moore & Werch, 2005; Peretti-Watel, 2009; Shields, 1998). Furthermore, researchers have theorized that the peer environment surrounding sports participation may encourage drinking behaviors (Barber et al., 2001; Barber, Stone, Hunt, & Eccles, 2005; Dams-O'Connor, Martin, & Martens, 2007; Hoffmann, 2006; Lewis, 2008; Martens, Cox, & Beck, 2003). Finally, the relationships among peer drinking, sports-specific factors, and alcohol-related behaviors may also differ between males and females. Evidence indicates that differences exist between adolescent males and females in terms of patterns of alcohol consumption (Windle & Windle, 2005), the influence of peers on alcohol use (Dick et al., 2007; Simmons-Morton et al., 2001; Yeh, Chiang, & Huang, 2006), and the opportunities available to participate in school-based sports (Suggs, 2005; Women's Sports Foundation

[WSF], 2007). The last of these is especially true in the state of Georgia, where the current study took place, which ranks 46th among U.S. states in terms of the proportion of high school students who are female (49.8%) relative to the proportion of female high school sports participants (37.5%; WSF, 2007).

Despite this evidence, few existing studies have examined whether sports-specific factors influence alcohol-related behaviors among U.S. adolescents who take part in school-based sports (Moore & Werch, 2005; Shields, 1998). Furthermore, while some researchers have examined the influence of the peer environment on drinking behaviors among intercollegiate athletes (Dams-O'Connor et al., 2007; Lewis, 2008), none has investigated the relationship between perceived peer drinking and alcohol-related behaviors among high school sports participants. Finally, no studies have examined how the relationships among perceived peer drinking, sports-specific factors, and alcohol-related behaviors differ between male and female sports participants. In order to build on prior research, this study explored the relationships among sports-specific factors, perceived peer drinking, and alcohol-related behaviors in a sample of adolescents participating in school-based sports in the Muscogee County, Georgia area. This study also examined whether the relationship between perceived peer drinking and alcohol-related behaviors differed between males and females.

2. Methods

2.1. Procedures

All study procedures were approved by the Emory University and Hughston Foundation Institutional Review Boards. The Institute of Athletic Health Care and Research, Inc. at the Hughston Foundation provides low-cost (\$7), pre-participation screening examinations (PPSEs) for students from high schools in the surrounding community. Data for this study were collected by asking students obtaining PPSEs to volunteer to complete a brief paper-and-pencil questionnaire assessing sports-specific factors, perceived peer drinking, and alcohol-related behaviors.

2.2. Participants

Participants were 378 high school aged adolescents obtaining PPSEs in order to take part in school-based sports in the Muscogee County, Georgia area. The characteristics of the sample are displayed in Table 1.

2.3. Measures

Due to the short amount of time that students spent at each of the stations during the PPSEs (approximately 5–10min) only a limited number of items were possible. The questionnaire was comprised primarily of items from existing assessments of adolescent health behaviors.

2.3.1. Demographics—Demographic characteristics including age, sex, and race/ethnicity were assessed using items from the Youth Risk Behavior Survey (YRBS; CDC, 2004).

2.3.2. Alcohol-related behaviors—Six alcohol-related behaviors were assessed using items from the YRBS, which have demonstrated reliability compared to other brief assessments of adolescent alcohol-related behaviors (Foster, Vaughan, Foster, & Califano, 2003). The alcohol-related behaviors measured were ever drinking alcohol, early drinking onset (prior to 13 years of age), drinking in the past month, heavy episodic drinking in the past month (five or more drinks on an occasion), riding in a car with a driver who had been drinking in the past month, and driving a car after drinking in the past month. Each was treated as a dichotomous variable and a summary variable indicating the total number of alcohol-related behaviors reported was created for analyses. The items demonstrated acceptable internal consistency (6 items; Kuder–Richardson 20=0.72), and the total alcohol-related behaviors variable was not substantially skewed (1.75) or kurtotic (2.72).

2.3.3. Perceived peer drinking—Perceived peer drinking was measured using two items (Cronbach's α =0.81) from the Monitoring the Future Survey (Johnston, O'Malley, Bachman, & Schulenberg, 2007) that asked participants to indicate: (1) how many of their friends drink alcoholic beverages occasionally (e.g., a few times a month or less); and (2) how many of their friends drink alcohol regularly (e.g., more than a few times a month). Response options for these two items ranged from (0) none to (4) all. Because there may be variability in how participants interpreted these two items, a perceived peer drinking summary score was created by calculating a weighted average of the two perceived peer drinking items, with greater weight for respondents who indicated that their peers drink alcohol regularly. To calculate the summary score, the reported score for peers drinking occasionally and twice the reported score for peers drinking regularly were summed together and averaged. The summary perceived peer drinking score did not demonstrate substantial skewness (1.19) or kurtosis (0.72).

2.3.4. Sports-specific factors—An index from the National Longitudinal Study of Adolescent Health (Add Health) was used to measure the different sports that participants planned to or were currently taking part in at their school, including baseball/softball, basketball, cheerleading/dance, football, soccer, swimming, tennis, track, volleyball, wrestling, and other sports (Udry, 2001). Level of sports participation was assessed by asking: "Of the sports you take part in at school, at what level do you primarily participate?" Response options were freshman, junior varsity, varsity, or other level. For bivariate analyses, respondents who indicated participating in freshman sports or selected "other" for level of participation were collapsed into one group. For regression models, varsity sports participants were compared to all other levels of participation due to small cell sizes for the freshman or other level group of respondents.

The total number of sports was calculated by summing the sports indicated on the Add Health index. A dummy variable for participation in fall sports was created to indicate whether any of the sports were in season at the time of data collection. Dummy variables were also created to indicate participation in team only, individual only, or both team and individual sports using methods similar to prior research (Larson, Hanson, & Moneta, 2006). The following sports were classified as team sports: baseball/softball, basketball, football, soccer, and volleyball. Sports classified as individual sports included golf, tennis, wrestling,

track and field, swimming, and cross-country. A dichotomous variable was also created to indicate collision (i.e., contact) sports based on the definitions of the American Academy of Pediatrics (American Academy of Pediatrics Committee on Sports Medicine and Fitness, 2001).

2.4. Analyses

Analyses were conducted in two stages using SAS 9.2 (SAS Institute, Cary, NC). Bivariate analyses, including χ^2 tests and *t*-tests, were first used to examine the relationships between demographic characteristics, sports-specific factors, perceived peer drinking, and alcohol-related behaviors among males ($n=287$) and females ($n=89$).

A series of linear regression models was then created in order to examine the relationships among sports-specific factors, perceived peer drinking, and alcohol-related behaviors. In models one and two, alcohol-related behaviors and perceived peer drinking, respectively, were regressed onto the demographic characteristics used as control variables. In models three and four, alcohol-related behaviors and perceived peer drinking, respectively, were regressed onto sports-specific factors and demographics. In model five, the total alcohol-related behaviors was regressed onto perceived peer drinking, sports-specific factors, and demographic controls in order to examine the effect of perceived peer drinking on the relationships between sports-specific factors and alcohol-related behaviors. Finally, in model six an interaction term between perceived peer drinking and respondents' sex was added to the regression models to examine differences between males and females in the relationship between perceived peer drinking and alcohol-related behaviors.

The overall *F*-test was used to examine the statistical significance of regression models. Variance inflation factors and tolerance were also used to assess collinearity of independent variables, and all were determined to be within acceptable limits.

3. Results

3.1. Participants

The majority of participants were male (76.3%) and self-identified ethnically as non-Hispanic black (70.0%). The characteristics of the sample are displayed in Table 1. Participants were distributed relatively evenly across the age groups.

3.2. Sports-specific factors

Males and females differed significantly with respect to level of sports participation, collision sports, and participation in both team and individual sports (Table 1). The mean total number of sports reported among the sample was 2.53 (SD 1.28), and males and females did not differ significantly with respect to the number of sports reported ($t [370]=-0.32, p=0.75$).

3.3. Alcohol-related behaviors and perceived peer drinking

The mean number of alcohol-related behaviors reported was 0.83 (SD 1.25) and the mean level of perceived peer drinking was 1.31 (SD 1.46); these means did not differ significantly

between males and females (Table 1). Participants who took part in sports at the varsity level reported significantly more alcohol-related behaviors (M 0.98, SD 1.38) than participants who took part in sports at the freshman level or another level (M 0.49, SD 0.90; F [2,364]=4.67, p =0.01). Participants who took part in varsity sports also reported significantly higher levels of perceived peer drinking (M 1.59, SD 1.58), compared to those who took part in junior varsity sports (M 0.91, SD 1.14) or sports at the freshman or another level (M 0.73, SD 1.04; F [2,362]= 11.81, p <0.001). Tukey's post hoc comparison confirmed these mean differences were statistically significant at p <0.05.

Males who participated in sports at the varsity level also reported significantly more alcohol-related behaviors (M 1.03, SD 1.45) than males who took part in sports at the freshman or another level (M 0.34, SD 0.59; F [2,279]=5.49, p =0.01). Males who took part in sports at the varsity level also reported significantly higher levels of perceived peer drinking (M 1.60, SD 1.62) than males who reported taking part in junior varsity sports (M 0.82, SD 1.09) or sports at the freshman or another level (M 0.64, SD 1.04; F [2,278]=10.25, p <0.001). Tukey's post hoc comparison confirmed these mean differences were statistically significant at p <0.05. There were no significant bivariate relationships between sports-specific factors and alcohol-related behaviors or perceived peer drinking among female participants.

3.4. Regression analyses

Models one and two (Table 2) indicate that respondents who were older reported significantly more alcohol-related behaviors (B 0.12, 95% CI =0.01, 0.22, p =0.03) and higher perceived peer drinking (B 0.21, 95% CI =0.09, 0.33, p <0.001). Additionally, non-Hispanic black respondents also reported significantly lower levels of perceived peer drinking (B -0.43, 95% CI =-0.76, -0.11, p <0.001), compared to respondents of other racial groups.

The results of model three suggest that, controlling for demographics, varsity sports participation was associated with significantly more alcohol-related behaviors, compared to participation in sports at other levels. However, the regression model was not statistically significant overall (Table 2). The results of model four suggest that, controlling for demographics, participants who took part in varsity sports (B 0.64, 95% CI =0.28, 0.99, p <0.001) reported significantly higher levels of perceived peer drinking than those who took part in sports at the freshman/other levels. Furthermore, participants who took part in both sports offering team-level and sports offering individual-level competition also reported significantly higher levels of perceived peer drinking, compared to those only taking part in sports offering individual-level competition (Table 2; B 0.71, 95% CI 0.05, 1.38, p =0.03).

The results of model five indicate that, controlling for demographics and sports-specific factors, perceived peer drinking was significantly associated with the total alcohol-related behaviors (B 0.39, 95% CI 0.31, 0.47, p <0.001). The interaction term between respondents' sex and perceived peer drinking added in Model 6 (Table 2) was not statistically significant (B 0.15, 95% CI -0.06, 0.35, p =0.15), indicating that there was no statistically significant difference between males and females in the relationship between perceived peer drinking and alcohol-related behaviors.

4. Discussion

This study investigated the relationships among sports-specific factors, perceived peer drinking, and alcohol-related behaviors in a sample of adolescents who participated in school-based sports in the Muscogee County, Georgia area. Furthermore, the study specifically examined sex differences in the relationship between perceived peer drinking and alcohol-related behaviors among adolescent sports participants. Overall, the results suggest that none of the sports-specific factors examined were associated with alcohol-related behaviors; however, the findings with respect to perceived peer drinking point to potentially important areas of future investigation.

Notably, the prevalence of the alcohol-related behaviors reported among the sample was strikingly lower than among adolescents nationally (CDC, 2007) and in Georgia (CDC, 2008). For example, findings from the most recent national Youth Risk Behavior Surveillance Survey (YRBS) indicate that 75% of high school students nationwide had at least one drink of alcohol in their lifetime, and 45% had drunk alcohol at least once within the month prior to the survey (CDC, 2007). Similarly, data from the 2007 Georgia YRBS indicate that 74% of high school students had drunk alcohol at some point in their lifetime, and 38% had drunk alcohol one or more times within the month prior to the survey (CDC, 2008).

There are several potential explanations for the low prevalence of alcohol-related behaviors observed in this study. It is possible among the study sample, which was comprised primarily of non-Hispanic black males who participated in football, that sports participation may be associated with fewer alcohol-related behaviors. The characteristics of the study sample make it unique compared to prior studies which indicate that sports participation is associated with alcohol use among adolescents (Eccles, Barber, Stone, & Hunt, 2003; Fredricks & Eccles, 2005; Garry & Morrissey, 2000; Green & Burke, 1995; Hoffmann, 2006; Mays & Thompson, 2009; Miller, Melnick, Farrell, Sabo, & Barnes, 2006; Moore & Werch, 2005; Rainey, McKeown, Sargent, & Valois, 1996; Wetherill & Fromme, 2007; Winnail et al., 1997). Compared to this body of existing research, sports participation may be associated with fewer alcohol-related behaviors among the sample of youths who took part in this study, given the relatively low prevalence of all of the alcohol-related behaviors examined. While this conclusion cannot be definitively drawn because data were not collected among a comparison group of non-sports participants, it merits investigation in future research.

In addition, the low prevalence of alcohol-related behaviors observed may be a result of underreporting in the data collection setting where youths obtained physical examinations in order to take part in school-based sports. Moreover, non-Hispanic black adolescents generally report fewer alcohol-related behaviors compared to adolescents of other racial and ethnic backgrounds (Windle & Windle, 2005). As a result, the fact that the sample was primarily comprised of non-Hispanic black adolescents may have also contributed to the relatively low prevalence estimates. Finally, youths in the southern United States tend to report fewer alcohol-related behaviors than those in other regions of the country (CDC, 2008). Prior research suggests that this pattern is likely influenced by aspects of southern

culture, such as a strong tradition of religious beliefs that emphasize abstinence from alcohol use (Lindquist, Cockerham, & Hwang, 1999). These factors most likely operated in combination to influence the prevalence of alcohol-related behaviors reported. Additional research is needed to investigate the factors underlying the low prevalence of alcohol-related behaviors observed among the sample, including aspects of sports participation, and other factors that may affect alcohol-related behaviors, such as race/ethnicity and regional variability in drinking behaviors.

Consistent with prior research on the influence of peers on youth drinking behaviors (Simmons-Morton et al., 2001; Windle, 2000; Windle et al., 2008), perceived peer drinking was a strong predictor of alcohol-related behaviors. In addition, participation in varsity sports and participation in both in sports offering individual-level and sports offering team-level competition were associated with significantly higher levels perceived peer drinking, independent of age and other demographic characteristics. There are a number of possible explanations for these findings. First, prior studies suggest that the collective nature of sports teams may lead to strong norming effects regarding drinking behaviors among team sports participants (Martens, Dams-O'Connor, Duffy-Paiement, & al., 2006; Wetherill & Fromme, 2007). Within this sample, it appears that participation in a combination of team and individual sports may be associated with more cohesive peer groups that are formed around team sports participation, and as a result, these youths perceive that more of their peers engage in drinking behaviors. Second, prior research also suggests that sports participation may act to increase youths' social status among their peers at school (Eccles et al., 2003), and that during this particular developmental stage, youths are more likely to experience social situations that expose them to alcohol (Windle et al., 2008). It is possible that these social developmental processes are escalated among youths who take part in varsity sports, particularly sports that are very prominent at most schools in the area where the study took place, such as basketball and football. Consequently, youths who take part in varsity sports may be more likely to experience social contexts where peers are using alcohol (e.g., sports-related parties, older friends drinking), which may in turn affect their perceptions of their peers' drinking behaviors.

Finally, prior research also suggests that individual-level psychosocial factors may affect the relationships among sports-specific factors, perceived peer drinking, and alcohol-related behaviors. Research by Duda and Ntoumanis (2005), for example, suggests that the effects of sports participation on adolescent development depend, in part, upon individual differences in dispositional goal-orientation. According to this model, task-oriented youths believe that athletic success requires high levels of effort in collaboration with peers and achieve their full athletic potential, regardless of the peers' perceptions of their athletic ability (Duda & Ntoumanis, 2005). In contrast, ego-oriented youths' beliefs about their athletic success are strongly linked to the perceptions of their athletic skills among their peers, coaches, and other significant individuals. Ego-oriented youths judge their own athletic achievement based on their ability to impress others with their athletic talents (Duda & Ntoumanis, 2005). Ego-oriented youths' reliance on their peers' perceptions to validate their athletic accomplishments may also extend to their attitudes towards other behaviors, such as drinking alcohol. In other words, differences in dispositional goal-orientation may act to moderate the relationship between perceived peer drinking and alcohol-related

behaviors. In particular, this effect may be more pronounced among varsity sports participants, who may experience greater social pressures to succeed athletically from their peers, coaches, parents and other social influences (Larson et al., 2006; Scanlan, Babkes, & Scanlan, 2005). Further research is needed to specifically examine how both the social contexts accompanying sports participation and individual factors such as dispositional goal-orientation impact the relationships among sports participation, perceived peer drinking, and alcohol-related behaviors.

While prior research has demonstrated that the influence of peers on drinking behaviors differs between males and females (Dick et al., 2007; Simmons-Morton et al., 2001; Yeh et al., 2006), the non-significant interaction term between perceived peer drinking and respondents' sex in this study suggests that the relationship between perceived peer drinking and alcohol-related behaviors did not differ significantly between males and females in this study. However, research on the social identities of adolescent sports participants provides useful context for this finding, and points toward potentially important areas for future research. Findings from previous studies suggest, for example, that many adolescent sports participants associate themselves with an abstract "athlete identity" or a universal athlete peer group (Sussman et al., 2007). This idea is similar to conceptualizations of informal social athlete identity types, such as "jocks," which reflect how sports participants subjectively perceive themselves and how they are perceived by their peers (Miller et al., 2006).

These informal athlete identity types are based on social aspects of sports-related identity formation, which are seen as separate from the behavioral domains of sports participation such as the factors assessed in this study (Miller et al., 2006). Researchers have found that compared to females, adolescent male sports participants are more likely to associate themselves with informal social athlete identities such as "jocks" (Barber et al., 2005; Pascoe, 2003), and those who identify as "jocks" are more likely to drink alcohol (Barber et al., 2001; Miller et al., 2003). Research among intercollegiate sports participants also indicates that perceived drinking among "typical athlete" peers is a stronger predictor of alcohol use than perceived drinking among non-athlete peer reference groups (Dams-O'Connor et al., 2007).

While the findings of this study did not reveal significant differences between males and females in the relationship between perceived peer drinking and alcohol-related behaviors, this may be due to the fact that the measures of perceived peer drinking did not examine perceived drinking among athlete peers or participants' association with informal athlete identities. Both of these may affect the relationship between perceived peer drinking and alcohol-related behaviors, particularly any potential differences that may exist between males and females. Future studies should examine differences between males and females in the relationship between perceived peer drinking and alcohol-related behaviors based on more specific referent peer groups (i.e., comparing athlete and non-athlete peers) and adolescents' identification with informal athlete identity types (e.g., "jocks," "typical athletes"). Finally, given the small number of females who participated in this study, it is possible that the study was not sufficiently powered to detect differences between males and females in the relationship between perceived peer drinking and alcohol-related behaviors.

Future studies can advance the science in this area of investigation by investigating these relationships among larger, more diverse samples of adolescent female sports participants.

4.1. Limitations

The results of this study should be interpreted with a number of limitations in mind. First, all alcohol-related behaviors were based on self-report and may be subject to respondent biases. Second, this study used a convenience sample of adolescents obtaining pre-participation screening examinations in order to take part in school-based sports in the Muscogee County, Georgia area. As a result, the generalizability of the findings reported is limited and extrapolations to broader populations should be made with caution. Finally, the small, relatively homogenous sample in this study, in particular the fact that a small proportion of females reported alcohol-related behaviors, limit the findings and the conclusions that can be drawn based on the data.

4.2. Conclusions

Future studies are needed to investigate the low prevalence of alcohol-related behaviors observed among this unique sample. In particular, research is needed to examine whether this finding was due to aspects of sports participation, or whether other factors influenced the observed prevalence of alcohol-related behaviors. The results of this study also suggest that a number of sports-specific factors examined were associated with perceived peer drinking, and that perceived peer drinking was the only factor significantly associated with alcohol-related behaviors. These findings point towards a number of potentially important areas for future research. First, because this study is based on a small convenience sample, further research is needed to explore the relationships among sports-specific factors, perceived peer drinking, and alcohol-related behaviors in larger, more diverse samples of adolescents. Second, research is needed to investigate whether individual-level factors (e.g., dispositional goal-orientation) and social contexts surrounding different aspects of sports participation, such as participation in varsity sports, influence the relationship between perceived peer drinking and alcohol-related behaviors. Finally, studies are needed to more specifically examine how perceived peer drinking among athlete and non-athlete referent groups and associations with informal athlete identities may impact the relationships among sports-specific factors, perceived peer drinking and alcohol-related behaviors among adolescent sports participants.

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Table 1

Study sample characteristics by respondent sex.

	Males (<i>n</i> =287)	Females (<i>n</i> =89)	Sample (<i>n</i> =378)
Sex			
Female	–	100.0%	23.7%
Male	100.0%	–	76.3%
Age			
14 years	21.0%	25.8%	22.1%
15 years	24.1%	31.5%	25.9%
16 years	29.7%	22.5%	28.0%
17 years	25.2%	20.2%	24.0%
Race/ethnicity ^a			
Black (Non-Hispanic)	74.2%	56.2%	70.0%
White (Non-Hispanic)	16.4%	24.7%	18.4%
Other	9.4%	19.1%	11.7%
Total sports mean (SD)	2.55 (1.25)	2.50 (1.36)	2.53 (1.28)
Team vs. individual competition ^a			
Individual only	6.3%	17.7%	8.8%
Team only	43.0%	40.5%	42.5%
Both	50.7%	41.8%	48.8%
Level of participation ^a			
Freshman/other	12.4%	22.6%	14.7%
Junior varsity	19.2%	21.4%	19.7%
Varsity	68.4%	56.0%	65.6%
Collision sports ^a	88.9%	49.4%	79.5%
Total alcohol-related	0.85 (SD 1.31)	0.74 (SD 1.05)	0.83 (SD 1.25)
Behaviors mean (SD)			
Ever drinking	36.7%	37.2%	36.7%
Early drinking	9.5%	12.7%	10.2%
Past month drinking ^a	16.6%	7.0%	14.4%
Past month heavy drinking	6.8%	4.6%	6.2%
Past month ride with drunk driver	14.0%	12.8%	13.8%
Past month drink and drive	3.5%	3.4%	3.5%
Peer drinking mean (SD)	1.32 (SD 1.51)	1.29 (SD 1.30)	1.31 (SD 1.46)

^a χ^2 test comparing males and females statistically significant at $p < 0.05$.

Table 2

Unstandardized regression coefficients (95% confidence intervals) for sports-specific factors, perceived peer prinking, and alcohol-related behaviors.

	Model 1: alcohol-related behaviors	Model 2: perceived peer drinking	Model 3: alcohol-related behaviors	Model 4: perceived peer drinking	Model 5: alcohol-related behaviors	Model 6: alcohol-related behaviors
Male sex	0.09 (-0.21, 0.39)	0.03 (-0.32, 0.39)	0.09 (-0.24, 0.42)	-0.05 (-0.43, 0.32)	0.10 (-0.19, 0.40)	-0.11 (-0.51, 0.30)
Non-Hispanic black	-0.06 (-0.34, 0.22)	-0.43 (-0.76, -0.11)**	-0.05 (-0.35, 0.24)	-0.47 (-0.81, -0.14)**	0.13 (-0.14, 0.40)	0.12 (-0.15, 0.39)
Age	0.12 (0.01, 0.22)*	0.21 (0.09, 0.33)***	0.05 (-0.08, 0.17)	0.08 (-0.06, 0.22)	0.02 (-0.09, 0.13)	0.02 (-0.09, 0.13)
Level of competition						
Junior varsity or freshman	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
varsity	-	-	0.37 (0.05, 0.68)*	0.64 (0.28, 0.99)***	0.11 (-0.18, 0.40)	0.11 (-0.18, 0.40)
Fall sport	-	-	0.22 (-0.18, 0.62)	0.23 (-0.22, 0.69)	0.15 (-0.22, 0.51)	0.14 (-0.23, 0.50)
Competition type						
Individual	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Team	-	-	0.02 (-0.55, 0.59)	0.53 (-0.12, 1.17)	-0.15 (-0.66, 0.37)	-0.14 (-0.65, 0.38)
Both	-	-	0.03 (-0.55, 0.60)	0.71 (0.05, 1.38)*	-0.20 (-0.73, 0.33)	-0.19 (-0.72, 0.34)
Collision	-	-	-0.12 (-0.60, 0.35)	-0.29 (-0.84, 0.26)	-0.06 (-0.50, 0.30)	-0.03 (-0.47, 0.41)
Perceived peer drinking	-	-	-	-	0.39 (0.31, 0.47)***	0.27 (0.08, 0.46)**
Perceived peer drinking* sex	-	-	-	-	-	0.15 (-0.06, 0.35)
Model <i>F</i> -statistic	<i>F</i> [9,371]=1.79 <i>p</i> =0.15	<i>F</i> [3,368]=5.65 <i>p</i> <0.001	<i>F</i> [8,366]=1.52 <i>p</i> =0.15	<i>F</i> [8,363]=14.92 <i>p</i> <0.001	<i>F</i> [9,362]=11.48 <i>p</i> <0.001	<i>F</i> [10,361]=10.57 <i>p</i> <0.001
<i>R</i> -square	0.01	0.04	0.03	0.10	0.22	0.23

* *p*<0.05.

** *p*<0.01.

*** *p*<0.001.