



Utility of the Athlete Drinking Scale for assessing drinking motives among high school athletes



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HIGHLIGHTS

- We examined the psychometric properties of the Athlete Drinking Scale (ADS).
- Results indicated that a revised three-factor solution best represented the data.
- Positive Reinforcement subscale was significantly associated with use and problems.
- The ADS may be a helpful clinical tool for high school athletes who use alcohol.

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ABSTRACT

Research suggests that high school athletes are at greater risk for heavy alcohol use and alcohol-related problems than their non-athlete peers. Drinking motives unique to the athletic experience may contribute to elevated use. The Athlete Drinking Scale (ADS) was designed to assess sport-related motives for alcohol use, but has not yet been validated among high school athletes. The purpose of this study was to examine the psychometric properties of the ADS among a sample of high school athletes. Participants were 216 high school student-athlete drinkers who completed anonymous self-report surveys. A confirmatory factor analysis resulted in a revised three-factor solution with a satisfactory overall model fit. Path analyses indicated that the Positive Reinforcement motives subscale was the only ADS subscale that was significantly associated with alcohol use and alcohol-related problems when controlling for the effects of the other factors (i.e., age and gender) in this population. The ADS may be a valuable assessment tool for researchers and clinicians involved in alcohol prevention efforts for high school athletes.

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1. Introduction

Alcohol use among high school students is an important public health concern. The 2012 National Youth Risk Behavior Survey reported that 71% of high school students had already consumed at least one drink of alcohol in their lifetime, and 22% of students reported having five or more drinks on at least one occasion (i.e., binge drinking episode) in the prior 30 days (Centers for Disease Control and Prevention, [CDC], 2012). This is troubling, as research shows that alcohol use among high school students can lead to a range of negative social and health consequences including memory loss, getting into fights, engaging in unplanned sexual

behavior, and missing school or work (Arata, Stafford, & Tims, 2003; Lavikainen & Lintonen, 2009;) as well as alcohol abuse and dependence later in life (DeWit, Adlaf, Offord, & Ogborne, 2000; Grant & Dawson, 1997; Grant, Stinson, & Harford, 2001).

Research indicates that high school student athletes, in particular, are a unique group at elevated risk for heavy alcohol use and alcohol-related problems (Hoffmann, 2006; Lisha & Sussman, 2010; Mays, DePadilla, Thompson, Kushner, & Windle, 2010; Mays & Thompson, 2009; Terry-McElrath, O'Malley, & Johnston, 2011; Wetherill & Fromme, 2007). For instance, among a national sample of recent high school graduates, athletes reported more drinking episodes and greater alcohol consumption than non-athletes (Wetherill & Fromme, 2007). Similarly, Hildebrand, Johnson, and Bogle (2001) found that college students who reported engagement in high school athletics started drinking at an earlier age and were at greater risk for alcohol-related problems, including

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drinking and driving and sexual intercourse while intoxicated, regardless of their current athletic status (i.e., college athlete or not). Other work has shown that high school athletes experience similar negative alcohol-related consequences as non-athletes (Moulton, Moulton, Whittington, & Cosio, 2000). A recent systematic review of longitudinal studies investigating the relation between sport participation and alcohol use among adolescents found that 82% of included studies revealed a positive association between sport participation and alcohol use (Kwan, Bobko, Faulkner, Donnelly, & Cairney, 2014). Considering that over 7.5 million adolescents in the U.S. participate in school-based sports each year (National Federation of High School Athletic Associations, 2011), it is important that researchers understand potential risk factors that contribute to alcohol use among this group.

Drinking motives are an important risk factor associated with adolescent drinking behaviors. Based on Cox and Klinger's (1988) theoretical model, Cooper (1994) conceptualized four basic motives for alcohol use: social (e.g., to obtain social rewards), enhancement (e.g., to enjoy the feeling), conformity (e.g., to fit in or avoid social rejection), and coping (e.g., to avoid or reduce negative emotions). Cooper's conceptualization of drinking motives has been validated among large cross-national samples of adolescents (Kuntsche, Stewart, & Cooper, 2008). However, the lives and experiences of athletes are often different than those of non-athletes. For example, athletes' social and academic groups usually consist primarily of peers associated with athletics, athletes must balance the demands of academics and athletics, and athletes face many more physical demands during a typical week than non-athletes (Ferrante, Etzel, & Lantz, 1996; Parham, 1993; Tricker, Cook, & McGuire, 1989). Given these differences and the high rates of drinking among intercollegiate athletes (Leichliter, Meilman, Presley, & Cashin, 1998; Nelson & Wechsler, 2001; Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997; for a recent review, see Zhou & Heim, 2014), Martens, Watson, Royland, and Beck (2005) theorized that a measure of sport-specific drinking motives would better capture the unique lifestyle, and consequently drinking motives, of college student-athletes and help us better understand who among this group is at risk. Thus, the Athlete Drinking Scale (ADS; Martens et al., 2005) was developed to assess sport-related motives for alcohol use among college athletes.

The initial validation of the ADS among college student-athletes resulted in a three-factor solution delineating three distinct motive subscales: Positive Reinforcement (e.g., consuming alcohol to celebrate an athletic victory), Team/Group (e.g., consuming alcohol to fit in with teammates or with athlete/sport culture), and Sport-Related Coping (e.g., consuming alcohol to manage sport-related problems) (Martens et al., 2005). Subsequent psychometric analyses of the ADS have further supported this three-factor solution (Martens, Labrie, Hummer, & Pedersen, 2008). Moreover, research has shown a positive correlation between each of the three ADS subscales and measures of alcohol use and alcohol-related problems in college athletes' in- and off-seasons (Martens & Martin, 2010).

Although research on the validity and reliability of the ADS among intercollegiate athletes has yielded promising results, the psychometric properties of the ADS have yet to be examined among high school athletes. There are a number of unique characteristics associated with the 14–18 year-old developmental period (e.g., puberty, heightened risk-taking and experimentation behavior, increased desire for autonomy and decrease in parental/adult monitoring, changes in identity exploration) and with high school culture (e.g., peer pressure/peer influence, social status hierarchies) that differentiate it from the college student athlete developmental stage and experience (U.S. Surgeon General, 2007). As such, it is important to validate the ADS among high school student-athletes before assuming its applicability to this population.

Thus, the purpose of this study was to examine the psychometric properties of the ADS among a sample of high school athletes who reported using alcohol. Specifically, the aims of the present study were to: (a) examine the factor structure of the ADS among high school

athletes using confirmatory factor analysis and, (b) assess associations between the ADS and alcohol consumption and alcohol-related problems among a sample of high school athletes. We hypothesized that the factor structure of the ADS for high school athletes would be consistent with that previously identified among college athletes. Consistent with a majority of the college student-athlete literature, we also hypothesized that the ADS subscales would be positively associated with alcohol consumption and alcohol-related problems.

2. Method

2.1. Participants

Participants were part of a larger investigation of alcohol use attitudes and behaviors among high school students at a public secondary school in the northeastern U.S. (approximately 70% of the 594 students at this school participated in the study). 42.6% of the students (female, 46.6%; male, 39.1%) in this particular school-based sample reported consuming at least one drink of alcohol in the past 30 days. CDC (2012) data revealed similar percentages: 38.7% (female, 37.9%; male 39.5%) of high school students reported consuming at least one drink of alcohol in the 30 days prior to the survey. For the purposes of the present study, we included participants who reported (a) in-season membership on an athletic team at the high school (which included but were not limited to crew, cross country, football, field hockey, golf, soccer, and cheerleading) and (b) alcohol consumption at least once in the past year on the Alcohol Use Disorders Identification Test (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). Thus the sample for the present study included 216 high school student-athletes who consumed alcohol (M age = 16.0 years, SD = 1.1; 55.1% male). Participants were predominately White (76.9%, 8.3% mixed, 4.2% Latino, 3.7% "other," 3.2% Asian, 2.8% Black, and 0.9% Native American) upperclassmen (15.3% freshmen, 24.1% sophomores, 36.1% juniors, 24.5% seniors).

2.2. Procedure

Information about the study and informed consent forms were mailed to each student's home; students were asked to return the forms signed by their parents either permitting or refusing participation. Students who returned consent forms, regardless of whether their parents consented to their participation, were entered into a raffle to win one of several prizes. Similarly, teachers with high rates of returned consent forms in their class (regardless of whether or not students received permission to participate) received compensation (e.g., money for classroom supplies). In addition, investigators made a monetary donation to the school as compensation for participating.

Students whose parents provided consent for study participation completed an anonymous self-report questionnaire on their alcohol use behaviors and attitudes during a single class period. In the interest of protecting student anonymity and facilitating students' honest report of their drinking attitudes and behaviors, students provided verbal assent to participate and placed their anonymous questionnaires in a "ballot box" upon completion.

2.3. Measures

2.3.1. Athlete Drinking Scale (ADS; Martens et al., 2005)

The 19-item ADS was used to measure participants' sport-related motives for alcohol use. The ADS is a self-report scale that asks participants to indicate how much they agree with each item on a scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The ADS assesses sport-related motives for drinking along three subscales: Positive Reinforcement (e.g., "I drink to celebrate athletic victories"), Team/Group (e.g., "I feel pressure from my teammates to drink alcohol"), and Sport-Related Coping (e.g., "I tend to drink more when I'm not performing well athletically"). Previous work has shown the ADS to have adequate internal

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