HAZARDOUS DRINKING IN ELITE NEW ZEALAND SPORTSPEOPLE

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Abstract — Aims: To examine the link between hazardous drinking and level of sport participation in New Zealand. Methods: Sports science and general university students (n = 427) completed a sporting profile questionnaire that included the Alcohol Use Disorders Identification Test (AUDIT). Results: Elite sportspeople (both provincial and international/country level) reported higher rates of hazardous drinking than non-sportspeople and non-elite sportspeople. Similar differences were observed in AUDIT subscale scores, with international/country level sportspersons reporting greater symptoms of dependence than other groups.

INTRODUCTION

Excessive alcohol consumption is associated with a variety of harmful consequences (Rehm et al., 2000). Although overall rates of alcohol consumption have been falling in several countries (World Health Organisation, 2000), levels of heavy episodic drinking have increased among young people (Naimi et al., 2003). Research over the last two decades indicates that hazardous drinking is common among university students, particularly in the UK and the USA (Gill, 2002; Kuo et al., 2002).

Some groups of university students have a particularly high prevalence of hazardous drinking. These include individuals belonging to sororities or fraternities, and athletes (Wechsler et al., 1995). Furthermore, there is some evidence which suggests that hazardous drinking behaviour may be related to the level of involvement, participation or investment in sports (Wechsler et al., 1997). For example, Leichliter et al. (1998) reported higher rates of binge drinking among the leaders of sports teams than in the members of the sports team themselves. Sports team members, in turn, were more likely to report binge drinking than non-athletes. Similarly, in a national study of 17,251 college students, Wechsler et al. (1997) found that more students involved in athletics engaged in binge drinking (61%) than students only ‘partly’ involved in athletics (55%), and students with no involvement in athletics (43%). Results from French studies suggest that the relationship between sport participation and drinking is complex (Lorente et al., 2004) with type of sport, time invested in sport practice, level of sport practice, and cross cultural differences potentially playing a mediating role in this relationship. In a sample of 816 French adolescents, Lorente et al. (2004) found that involvement in sports was associated with an elevated use of alcohol. However, participants at the elite levels of sport—participants who were involved in >6 days of sport training—were found to have lower levels of daily alcohol consumption. Additionally, in a sample of 677 French sports science students, Lorente et al. (2003) found no difference among departmental, regional, or national/ international level competitive sportspeople in the frequency of alcohol intoxication.

Research within a New Zealand sporting context found hazardous drinking behaviours among participants in one of the dominant ‘national’ sporting codes, namely rugby union (Quarrie et al., 1996); however, this sample was not compared with non-sportspeople, nor did it compare elite sportspeople with non-elite.

There is a paucity of research examining the link between the level of sporting participation and hazardous drinking behaviours, particularly at the elite levels of sport, and specifically within New Zealand. Aside from the harmful consequences of excessive alcohol consumption on the individual, elite sportspeople potentially act as role models to both younger sportspeople and fans (Bandura, 1977). It is therefore important to characterize their drinking behaviours. The aim of the present study is to examine the link between hazardous drinking and level of participation in sport within a New Zealand sample of elite sportspeople.

SUBJECTS AND METHODS

Four hundred and thirty students from the University of Otago, Dunedin, New Zealand, participated in the study as part of a course requirement. There were 283 (66%) females and 147 (34%) males in the sample. The mean age of participants was 19.6 ± 2.7 (mean ± SD) years with ages ranging from 17–48 years. Two hundred and forty-three (57%) of the participants were enrolled in the Bachelor of Physical Education (sports science) degree, with the remaining 187 (43%) students enrolled in either an arts (n = 98; 23%), science (n = 54; 13%) or commerce degree (n = 35; 8%). Although entry into the Bachelor of Physical Education program is restricted and largely determined by academic performance, the majority (~65%) of students admitted into the program are elite level sportspeople.

Participants answered a pencil and paper questionnaire that gathered demographic data (age, gender, height, weight and academic major), and asked participants to state the current sport in which they primarily participated (if any) along with their representative sporting history. Specifically, participants were asked to indicate whether they had represented their province or country in the sport indicated from the age of 17 years or older. This resulted in four possible levels of sporting participation, which were: non-sportspeople (n = 69; 16%), non-elite sportspeople (n = 91; 21%), elite sportspeople...
at provincial level \((n = 193; \, 45\%)\), and elite sportspeople at international/country level \((n = 77; \, 18\%)\).

The questionnaire also contained the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT is a 10-item questionnaire with three subscales. It was developed in association with the World Health Organisation (see WHO; Saunders et al., 1993, for the full questionnaire) to identify persons whose alcohol consumption has become hazardous or harmful to their health. The AUDIT subscales assess: (i) drinking behaviour per se (three items on frequency and quantity of alcohol consumption); (ii) symptoms of alcohol dependence (three items that assess the occurrence of behavioural and cognitive symptoms indicative of alcohol dependence); and (iii) hazardous consequences of drinking (four items that assess the frequency of negative events directly resulting from alcohol consumption). The validity and reliability of the AUDIT has been thoroughly established with a score of 8 or higher considered indicative of hazardous drinking (Conigrave et al., 1995).

The study was run from mid-March to mid-May 2004. This period coincides with the transition from summer to winter sports in the southern hemisphere. Participants were blind as to the nature of the study before their arrival at the venue for testing. The study was run in participant groups ranging in size from 5 to 100. Participants were informed that their participation would remain anonymous and that no names or identifying information were required on the questionnaire. Before completing an ethical consent form, participants were also told they were free to refuse to participate in the study or leave at any point during the study (no participants refused to complete the study). Participants were seated ~1.5 m apart in all directions to allow for privacy in responding. The questionnaire took ~20 min to complete, during which time no talking was permitted. As participants left the study venue they placed their individual questionnaires in one of the two large collection boxes placed near the exits.

Data were entered by hand into SPSS (Statistical Package for Social Sciences) and checked for entry errors before analysis. Analyses of covariance (ANCOVAs) and associated contrasts were used to assess mean differences between groups whilst adjusting for age. As a crude guide to alcohol binging frequency within each level of sport participation, AUDIT questions 2 (‘How many drinks containing alcohol do you drink on a typical day when you are drinking?’) and 3 (‘How often do you have 6 or more units of alcohol on one occasion?’) were examined individually. Question 2 of the AUDIT has five possible responses: 1–2, 3–4, 5–6, 7–9, and 10 or more. There is little clear agreement as to what constitutes binge drinking. Since question 3 of the AUDIT does not have an equivalent response option within question 2 (i.e. \(\geq 6\) U of alcohol on one occasion), we err on the conservative side by using \(\geq 7\) standard drinks within one session as a crude indicator of binge drinking. The percentage of participants meeting this criterion within each level of sports participation was calculated. Similarly, we calculated the percentage of individuals within each level of sport participation that had \(\geq 6\) drinks on a weekly, or more frequent, basis.

**RESULTS**

Three of the 430 participants in the study failed to complete the questionnaire and were removed from the analyses. Mean AUDIT total and subscale scores were calculated for the 427 participants. There were no gender differences in mean AUDIT scores (male = 12.8 ± 7.6 and female = 12.3 ± 6.6), nor was there an interaction between gender and the level of sport participation. Similarly, there were no significant differences between physical education students (sports science; mean = 12.7 ± 6.6) and other university academic majors in mean AUDIT scores (12.1 ± 7.2), or between team (13.4 ± 6.7) and individual sports (12.6 ± 7.0).

An ANCOVA was conducted to assess differences between the level of sport participation in AUDIT total and subscale scores. While adjusting for age, a significant difference between the levels of sporting participation was found for total AUDIT scores \([F(3,422) = 8.5, \, P < 0.0005]\). Both non-sportspeople (mean = 9.1 ± 6.6) and non-elite sportspeople (mean = 11.1 ± 7.0) had significantly lower levels of hazardous drinking than the elite sportspeople at provincial level (mean = 13.5 ± 6.5; \(P < 0.001\) and \(P < 0.05\), respectively) or elite sportspeople at international/country level (mean = 14.6 ± 6.8; \(P < 0.0005\) and \(P < 0.005\), respectively). There was no significant difference between the non-sportspeople and the non-elite sportspeople, or between elite sportspeople at provincial and international/country level.

Three ANCOVAs were also conducted to examine differences in the level of sport participation on AUDIT subscale scores. Significant differences were found between the level of sport participation and all three AUDIT subscale scores: drinking behaviours per se \([F(3,422) = 8.1, \, P < 0.0005]\), symptoms of alcohol dependence \([F(3,422) = 7.6, \, P < 0.0005]\) and harmful consequences of drinking \([F(3,422) = 4.4, \, P < 0.005]\). Non-sportspeople had significantly lower drinking behaviour scores (mean = 5.4 ± 3.4) than non-elite sportspeople (mean = 6.7 ± 2.9; \(P < 0.05\), elite sportspeople at provincial (mean = 7.5 ± 2.6) and elite sportspeople at international/country level (mean = 7.8 ± 2.5; \(P < 0.0005\)). There was no significant difference between the non-elite sportspeople, elite sportspeople at provincial and elite sportspeople at international/country level. Significantly higher scores on the symptoms of dependence subscale were observed for elite sportspeople at international/country level (mean = 3.4 ± 2.7) compared with both non-sportspeople (mean = 1.7 ± 1.9) and non-elite sportspeople (mean = 1.8 ± 2.3; \(P < 0.001\)), and for the elite sportspeople at provincial level (mean = 2.6 ± 2.0) compared with non-sportspeople and non-elite sportspeople (\(P < 0.05\) and \(P < 0.05\), respectively). The difference between elite sportspeople at provincial and elite sportspeople at international/country level was also significant (\(P < 0.01\)). Elite sportspeople at provincial (mean = 3.4 ± 3.1) and country (mean = 3.4 ± 3.0) level had significantly higher scores than non-sportspeople (mean = 1.9 ± 2.3; \(P < 0.05\) and 0.05, respectively) on the harmful consequences of drinking subscale scores. There was no significant difference between non-elite sportspeople, elite sportspeople at provincial, or elite sportspeople at international/country level, nor between non-elite and non-sportspeople.

Rates of abstinence were 14.7, 1.1, 3.6 and 2.6%, respectively for the four levels of sport participation (Overall = 4.7%). Greater rates of binge drinking were reported by elite international/country sportspeople (59%), than elite provincial sportspeople (56%), non-elite (51%) or non-sportspeople (31%).
The highest rate of frequent binge drinking was reported by elite provincial level sportspersons (58%), closely followed by elite international/country level sportspersons (54%), non-elite (44%) and non-sportspersons (35%).

**DISCUSSION**

Results from the present study found significantly higher levels of hazardous drinking, as assessed by the AUDIT (WHO; Saunders et al., 1993), in both elite provincial and international/country level sportspersons compared with non-elite sportspersons and non-sportspersons. Analysis of the three AUDIT subscale scores showed a similar level of sport participation differences. Of particular concern is the finding that both elite international/country and provincial level sportspersons had higher scores on the harmful consequences subscale than non-sportspersons. This suggests that not only do elite sportspersons exceed recommended levels of alcohol consumption, but that this level of drinking results in greater rates of harmful consequences in these groups. The present results are consistent with US research examining level of involvement in sport and alcohol consumption (Wechsler et al., 1997).

The crude calculation of binge and frequent binge drinking showed higher rates of binge drinking in elite international/country level sportspersons than other groups. Similarly, rates of frequent binge drinking were high among international/country level sportspersons, though not as high as provincial level sportspersons.

Previous work examining patterns of alcohol consumption in university populations, using both formal and informal measures of alcohol consumption, have reported gender differences (O’Malley and Johnston, 2002; Lorente et al., 2003). The present study found no gender differences in AUDIT scores at any of the levels of sporting participation; however, this may be owing to the nature of the measures used. For example, Lorente et al. (2003) used an informal measure of alcohol consumption that primarily assessed the frequency and setting of alcohol intoxication in French students and not the actual amount consumed, nor the harmful consequences resulting from alcohol consumption. Additionally, differences between the present study and previous work may reflect cross cultural/national differences. Recent work within New Zealand indicates that there is a convergence in drinking behaviours of males and females in New Zealand (McPherson et al., 2004); the authors are unaware of similar observations within French populations.

The authors fully acknowledge that the sample used in the present study was one of convenience and may not be representative of all sportspersons within New Zealand. Similarly, the authors acknowledge the limitations of the sample size used in the present study; however, this is to some degree dictated by limits in the overall elite sporting population of New Zealand. Aside from the collection of a more comprehensive elite sporting sample, future research needs to explore the underlying reasons for the more hazardous drinking behaviours of elite sportspersons in New Zealand. The dependence of New Zealand sports and sportspersons on alcohol sponsorship may play an important role in this respect and will be the focus of future research.

**REFERENCES**


Gill, J. S. (2002) Reported levels of alcohol consumption and binge drinking within the UK undergraduate student population over the last 25 years. *Alcohol and Alcoholism* 37, 109–120.


