HAZARDOUS DRINKING IN NEW ZEALAND SPORTSPEOPLE: LEVEL OF SPORTING PARTICIPATION AND DRINKING MOTIVES

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Abstract — Aims: To examine the relationship between athlete drinking motives and hazardous drinking across differing levels of sporting participation among New Zealand sportspeople. Methods: Data from 1214 New Zealand sportspeople was collected. We assessed hazardous drinking with the WHO’s AUDIT questionnaire and sportspeople’s psychosocial reasons for drinking with the ADS. Level of sporting participation (club/social, provincial/state, or international/olympic level) was assessed. Results: Hazardous drinking behaviours differed across levels of sporting participation, with club/social showing the highest level of hazardous drinking, club/social sportspeople the next highest and elite-international sportspeople the lowest. Sportspeople who placed a greater emphasis on drinking as a reward for participating in their sports tended to display more hazardous drinking behaviours, but other ADS motives differed over level of sporting participation. Elite-provincial sportspeople and elite-international sportspeople placed more emphasis on drinking as a way to cope with the stresses of participating in their sports. A relationship between team/group motives and AUDIT scores was fully mediated by positive reinforcement motives, and partially mediated by stress-related coping motives. Conclusions: These findings have implications for alcohol education programs targeted at sportspeople and sport administration, and may help improve the efficacy and focus of intervention programs.

INTRODUCTION

Excessive alcohol consumption and particularly heavy episodic drinking (binge drinking) is associated with various harmful consequences for the individual and increased social and financial burdens for society (Rehm, 2000; Rehm et al., 2003). Heavy episodic drinking is increasing among young people (Habgood et al., 2001; Naimi et al., 2003) and especially in populations such as university students and sportspeople (Gill, 2002; Kuo et al., 2002; Kypri et al., 2002; Leichliter et al., 1998; Wechsler et al., 1997). Given that alcohol is a leading cause of mortality and morbidity, and ranked above tobacco in terms of Disability Adjusted Life Years (DALYs; World Health Organization, 2002), research in this area is of some importance.

Research on drinking in sportspeople (athletes), which has predominantly been in university student populations, suggests that sportspeople and indeed sports fans drink more hazardous than non-sportspeople (Leichliter et al., 1998; Lorente et al., 2003; Lorente et al., 2004; Nelson and Wechsler, 2001; Nelson and Wechsler, 2003; O’Brien et al., 2005; Wechsler et al., 1997). Additionally, hazardous drinking by sportspeople appears to go hand in hand with other risky behaviours such as driving while intoxicated, having unprotected and unplanned sex, and antisocial behaviour (Nativ and Puffer, 1991; Nelson and Wechsler, 2001; Leichliter et al., 1998). Greater rates of injury and other negative health and performance outcomes are also found in athletes who drink compared to those who don’t (O’Brien and Lyons, 2000; El-Sayed et al., 2005).

Despite a growing body of research detailing problematic drinking behaviours among adult sportspeople, there is a noted paucity of research examining the reasons for hazardous drinking behaviours in this population (Martens et al., 2005). It is therefore important to examine the basis for hazardous drinking behaviour in sportspeople. Aside from the harmful health consequences of excessive alcohol consumption for the drinker, elite sportspeople are potential role models to younger sportspeople and fans (Bandura, 1977), and thus their actions may impact on wider society.

Some evidence suggests that hazardous drinking behaviour may be related to the level of involvement or investment in sports. 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%). Similarly, Leichliter et al. (1998) reported higher rates of binge drinking among the leaders of sports teams than in sports team members themselves. Sports team members, in turn, were more likely to report binge drinking than non-athletes.

Psychosocial reasons/motives for drinking have proven to be strong and reliable predictors of drinking behaviours in the general, but particularly younger population (Kuntsche et al., 2005). The study of drinking motives is based on the assumption that people drink to obtain personally valued outcomes (Cooper, 1994). Typically, research exploring drinking motives has found that people are motivated to drink in order to cope with stress or mood related issues, to facilitate social interactions and conform socially, and for simple enhancement motives (e.g. to get high, and for excitement). Of course what is valued by one person or group may not be by another, and motives for drinking can vary greatly between contexts, and populations.

There is little empirical research on the psychosocial reasons for drinking in sportspeople. This has been due in part to the absence of valid and reliable sport-specific measures for exploring this issue. The recently developed Athlete Drinking...
Sportspeople (Leichliter et al., 2005) addresses this issue as it assesses the sport-related (psychosocial) motives that sportspeople cite for drinking. Comprising three motive/reason subscales for drinking (positive reinforcement, team/group, sport-related coping) the ADS displayed good internal consistency, validity, and accounted for a significant amount of variance in sportspeople's reported drinking behaviours (Martens et al., 2005).

Sport psychology theorists have hypothesised that the pressures of sport competition, along with time, mental, and physical demands in terms of intense training, may lead athletes to use alcohol as a stress coping tool (Damm and Murray, 1996; Stainback, 1997; Tricker et al., 1989). Others have suggested that sportspeople experience significant pressure from team mates and coaches to drink together in order to increase team cohesion and bonding (Leichliter et al., 1998). Both hypotheses are likely more applicable at elite-levels of sporting competition, where competition and training pressures are at their highest, and team cohesion is important to team success. Indeed, this may explain, to some extent, why previous work has found relationships between level of involvement and hazardous drinking in sportspeople (Leichliter et al., 1998; O’Brien et al., 2005; Wechsler et al., 1997). Conversely, as sportspeople attain higher levels of sporting performance we expect them to place less emphasis on the purely hedonistic (positive enhancement) reasons surrounding drinking as it should be seen as less acceptable (by both themselves and their peers/coaches).

In the present study we examine the relationship between athlete drinking motives and hazardous drinking across differing levels of sporting participation (club vs elite-provincial vs elite-international), in a large sample of New Zealand sportspeople. We expect that the higher the level of sporting participation, the greater the level of team/group motive and sport stress-coping motive for drinking, and that these motives will predict hazardous drinking. We also expect the ADS to predict hazardous drinking behaviours as measured by the AUDIT.

SUBJECTS AND METHODS

Participants

One thousand two hundred and fourteen sportspeople (female N = 584, 48.2%; no gender listed for N = 4) over the age of 18 years (Mean = 29.9, SD = 12.3 years; range 18–69 years) were approached from five of the major population bases in New Zealand (i.e. Auckland, Manawatu, Wellington, Canterbury, and Otago; responses rate ≈ 84%, participation range across localities was 82–90%). The major reason given by those declining to participate was time constraint. The sample contained both student and non-student populations, with 548 (53.4%) of the participants currently studying in tertiary institutions (i.e. universities or polytechnics) the remaining (46.5%) from the general population.

Measures

Along with various demographic details (e.g. age, gender, educational status) a paper and pencil questionnaire asked participants to state the sport they are primarily involved in throughout the year, and their current level of sporting participation (non-elite club/social, elite-provincial, elite-international). The questionnaire also comprised the World Health Organisation’s Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993), and Martens et al. (2005) sport specific ADS.

The AUDIT is a ten item questionnaire that was developed in association with the World Health Organisation (WHO; Saunders et al., 1993) to identify persons whose alcohol consumption is hazardous or harmful to their health. The AUDIT has 3 subscales that assess: hazardous alcohol use (3 items assessing amount and frequency of alcohol consumption), dependence symptoms (3 items that assess the occurrence of behavioural and cognitive symptoms indicative of alcohol dependence), and harmful alcohol use (4 items that assess the frequency of negative events directly resulting from alcohol consumption). The validity and reliability of the AUDIT at specific cut-off scores has been thoroughly established and a score of eight or higher is considered indicative of hazardous drinking (Conigrave et al., 1995).

The ADS is included to assess motives/reasons for drinking that are specific to sportspeople. The ADS consists of three psychometrically distinct reason/motive categories for drinking: (i) Positive reinforcement (e.g. ‘I enjoy the feeling of getting drunk’); (ii) Team/group (e.g. ‘I feel pressure from my team mates or club-mates to drink alcohol’); (3) Sport-related coping (e.g. ‘I tend to drink more when I’m not performing well athletically’). Participants indicate agreement with the statements using a 6-point scale (1 = strongly disagree, 6 = strongly agree). One item from the team/group subscale was reworded with the name New Zealand substituted for ‘Australia’ to make it more appropriate for the current study context. The final item reading ‘Alcohol use is an important part of the athletic culture in New Zealand’. The ADS has been shown to have good internal consistency and construct validity (Martens et al., 2005).

Procedure

Data for the present study were collected from March 2005–July 2006. This period encompasses a time frame in which data could be collected from both winter and summer sporting codes. Questionnaires were administered and collected prior to sport practice sessions and games/events. Participants were informed that their participation would remain anonymous and that no names or identifying information were required on the questionnaire. Prior to providing informed consent, participants were verbally reminded that they were free to refuse to participate or leave at any point during the study. To facilitate a feeling of anonymity, participants placed their questionnaires in a large closed lid collection box, while placing ethical consent forms in a separate collection box. The questionnaire took approximately 12 min to complete. Human Ethics Committee approval for the study was sought and given by the University of Otago human ethics committee.

1 The equivalent of provincial level in the US would be state level, and county level for the UK. Elite international would be the equivalent of Olympic or world championship level athletes.
Analytical data were double entered, verified, and screened for errors and outliers prior to analyses. The Statistical Package for Social Sciences version 13 for Windows (SPSS v.13) was used for all analyses. Because previous research has consistently found differences in hazardous drinking behaviours between genders (male greater than female), age (younger than older) and team vs individual sports (group greater than individual) we controlled these variables when analysing AUDIT scores. That is, we used ANCOVAs and associated post-hoc tests to assess mean differences between groups in AUDIT scores whilst adjusting for age, gender, and type of sport. We also used ANOVAs to assess differences in level of sporting participation for ADS scale scores. Hierarchical regression analyses were used to examine whether the three facets of the questionnaire (e.g. not listing gender, not completing the ADS) or to some participants’ being non-drinkers (excluded from ADS analysis).

RESULTS

Preliminary analyses

Confirming the need to control for gender and team versus individual sports participation in our primary analyses, significant gender differences were found for the AUDIT total score (males $M = 10.18$, females $M = 8.70$, $SD = 6.44$; $F(1, 1209) = 16.26$, $P < 0.0001$). Significant differences between team and individual sports were found for AUDIT total (team $M = 10.59$, $SD = 6.36$, individual $M = 8.06$, $SD = 4.47$; $F(1, 1209) = 39.98$, $P < 0.0001$). Additionally, age was negatively correlated with AUDIT total score ($r = -0.35$, $P < 0.0005$), that is the older the participant the lower the levels of hazardous drinking as measured by the AUDIT. Research on hazardous drinking in sportspeople has seldom been conducted with non-student samples. We therefore thought it important to identify whether differences in hazardous drinking exist between the student and non-student participants in the sample. Despite clear mean differences in AUDIT scores between student versus non-student sportspeople ($M = 10.9$, $SD = 6.84$ versus $M = 7.9$, $SD = 5.44$), after controlling for age, gender, and team versus individual sport participation the difference in AUDIT scores were not significant ($F(4, 1207) = 0.029$, $P = 0.865$). Similarly, we found no statistically significant differences between the student and non-student populations in ADS scores, thus all analyses contain both student and non-student participants, and all analyses control for age, gender, and team versus individual sport.

Level of sporting participation and hazardous drinking

Means and standard deviations for AUDIT total and subscale scores were calculated for each of the levels of sporting participation and are displayed in Table 1. Table 1 also displays the results of each of the ANCOVAs assessing mean group differences for AUDIT subscale and total scores. Although only approaching significance, elite-provincial level sportspeople had higher mean scores for hazardous alcohol use than either elite-international or club/social sportspeople. Elite-provincial sportspeople also had significantly higher scores on dependence symptoms than elite-international sportspeople, and higher scores on both harmful alcohol use and AUDIT total scores than either club/social or elite-international sportspeople. Using a threshold for hazardous drinking of a score of 8+ on the AUDIT (Conigrave et al., 1995), 53% of club/social, 68% of elite-provincial, and 50% of international level sportspeople, can be classified as hazardous drinkers. Elite-provincial had a significantly higher proportion of hazardous drinkers than the other sporting levels ($\chi^2 = 16.12$, $P < 0.001$). Overall only 4% of the sample were abstainers.

Drinking motives

As can be seen in Table 2, elite-provincial level sportspeople placed more importance for drinking on positive reinforcement motives than club/social level sportspeople. Similarly, sport-related coping was less of a drinking motive for club/social level sportspeople than it was for elite-provincial and international level sportspeople. When we controlled for team or individual sports participation, drinking for team/group reasons was rated more of a motive for elite-provincial level sportspeople than for elite-international level sportspeople. Because of the significant differences in drinking motives between the respective levels of sporting participation, we

Table 1. Means and standard deviations for each of the AUDIT subscale and AUDIT total score, across each of the levels of sporting participation

<table>
<thead>
<tr>
<th>Level of sporting participation</th>
<th>AUDIT</th>
<th></th>
<th>AUDIT</th>
<th></th>
<th>AUDIT</th>
<th></th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Club/social ($N = 912$)</td>
<td>Elite-provincial ($N = 185$)</td>
<td>Elite-international ($N = 117$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDIT M SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous alcohol use</td>
<td>5.72 (2.87)</td>
<td>6.22 (2.97)</td>
<td>5.14 (2.82)</td>
<td>2.552</td>
<td>0.078</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependence symptoms</td>
<td>1.14 (1.64)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.43 (1.78)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.91 (1.22)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3.178</td>
<td>0.041</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harmful alcohol use</td>
<td>2.45 (2.95)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.50 (3.44)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.00 (2.34)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>8.410</td>
<td>0.0005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDIT total SD</td>
<td>9.32 (6.36)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11.15 (7.00)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>8.05 (5.16)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>6.479</td>
<td>0.002</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. <sup>a</sup> = Controlling for age, gender, team or individual sport. Within rows, mean scores with different superscript letters are significantly different (post-hoc tests).
SPORT AND HAZARDOUS DRINKING

Table 2. Means and standard deviations for each of the ADS subscales across each of the levels of sporting participation

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Club/social (N = 833)</th>
<th>Elite-provincial (N = 171)</th>
<th>Elite-international (N = 104)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive reinforcement</td>
<td>2.90 (1.06)</td>
<td>3.20 (1.01)</td>
<td>3.12 (1.01)</td>
</tr>
<tr>
<td>Team/group</td>
<td>2.19 (0.85)</td>
<td>2.37 (0.94)</td>
<td>2.09 (0.84)</td>
</tr>
<tr>
<td>Sport-related coping</td>
<td>1.54 (0.67)</td>
<td>1.79 (0.86)</td>
<td>1.74 (0.92)</td>
</tr>
</tbody>
</table>

Note: * = controlling for type of sport (team or individual).

Within rows, mean scores with different superscript letters are significantly different (post-hoc tests).

Table 3. Hierarchical multiple regression analyses for prediction of AUDIT hazardous drinking scores by ADS subscales and demographic factors for each of the levels of sporting participation

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Club/social (N = 833)</th>
<th>Elite-provincial (N = 171)</th>
<th>Elite-international (N = 104)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 Age</td>
<td>−0.22 0.02</td>
<td>−0.42***</td>
<td>−0.16 0.04</td>
</tr>
<tr>
<td>Gender</td>
<td>−1.95 0.38</td>
<td>−0.07***</td>
<td>−2.19 0.98</td>
</tr>
<tr>
<td>Team vs individual sport</td>
<td>1.02 0.44</td>
<td>0.07</td>
<td>3.17 1.15</td>
</tr>
<tr>
<td>Step 2 Positive reinforcement</td>
<td>2.93 0.23</td>
<td>0.50***</td>
<td>2.58 0.55</td>
</tr>
<tr>
<td>Team/group</td>
<td>−0.51 0.28</td>
<td>−0.07</td>
<td>−0.11 0.56</td>
</tr>
<tr>
<td>(When entered alone in model)</td>
<td>(2.31 0.22</td>
<td>0.32***</td>
<td>(1.87 0.52</td>
</tr>
<tr>
<td>Sport-related coping</td>
<td>1.73 0.29</td>
<td>0.19**</td>
<td>1.66 0.57</td>
</tr>
</tbody>
</table>

B, unstandardised coefficients; SE B, unstandardised coefficients standard error; β, Standardised coefficient.

P-value for significant t-values
* P < 0.05
** P < 0.01
*** P < 0.001.

decided to conduct individual hierarchical multiple regression analyses for each of the levels of sporting participation. Demographic variables known as correlates of hazardous drinking (i.e., age, gender, and team vs individual sport) were entered in the first step in all regression models, and ADS subscales entered in the second step as predictors of AUDIT total score, (see Table 3). The demographic details accounted for 21.3, 14.7, and 22.6% of the variance in AUDIT scores for club/social, provincial, and international level sportspeople respectively. The ADS accounted for an additional 23.5% of the variance in AUDIT total scores (ΔF(3,821) = 116.79, P < 0.0005) for club/social level sportspeople. Similarly, ADS scores accounted for an additional 22.2% of the variance in AUDIT total scores (ΔF(3,164) = 19.26, P < 0.0005) for elite-provincial level sportspeople. And although the three scale ADS accounted for an additional 24.1% of the variance in AUDIT scores for elite-international sportspeople (ΔF(3,97) = 14.16, P < 0.0005), only the positive reinforcement motive was a significant predictor in the model (see Table 3). For the whole sample, the ADS accounted for an additional 22.5% of the variance in AUDIT total scores (ΔF(3,1096) = 142.57, P < 0.0001), with the team/group subscale failing to contribute significantly to the regression model (B = −0.18, SE B = 0.23, β = −0.02, t = −0.77, P = 0.44). The model containing both demographic variables (age, gender, team vs individual sport) and the ADS accounted for 42% of the variance in AUDIT scores.

The team/group motive of the ADS was not a significant predictor in any of the analyses conducted here. Indeed, in club/social level sportspeople team/group motives were negatively related to AUDIT scores (P = 0.06).

The negative relationship (non-significant) of the team/group ADS subscale to AUDIT total scores at all levels of sporting participation, was somewhat counter intuitive, and inconsistent with previous research. We therefore examined Pearson’s correlation coefficients post-hoc for each of the ADS subscales and AUDIT total scores. Moderate to large positive associations were found between all variables (r = 0.431 to r = 0.653) with the pattern of correlations similar across the respective levels of sporting participation.

This suggested that the absence of a significant positive relationship between team/group motives and AUDIT scores in the hierarchical regression analyses, may be due to mediation by one of the other drinking motives. Indeed, when entered in the regression analysis without the other ADS scales, the team/group subscale contributed significantly (and positively) to the regression model (B = 2.48, SE B = 0.195, β = 0.343, t = 12.77, P < 0.0001). We therefore conducted tests for mediation on team/group motives. To test for mediation we used Baron and Kenny’s (1986) multiple regression technique. In this procedure mediation is said to be present when; (i) the independent variable is significantly correlated with the potential mediator and dependent variable; (ii) the
There is an emerging body of research detailing high rates of hazardous drinking behaviours and associated harm among sportspeople, however, the underlying motives for excessive and hazardous drinking by sportspeople has been unclear. We examined the relationship between level of sporting participation and drinking behaviour is interesting. It is worth suggesting that those at lower levels of sporting participation are not exposed to the drinking culture of sport to the same extent as those more involved in sport, and thus have less opportunity, and experience less pressure to drink. While those at the highest levels of sporting participation may reduce their consumption of alcohol in order to avoid the performance decrements and/or sanctions from their coach-manager and/or team mates. Consistent with other sport and alcohol research (O’Malley and Johnston, 2002; Peretti-Watel et al., 2003), males and team sport players drank in a more hazardous manner than females and individual sport players. Similarly, and despite the lack of a significant difference between student and non-student drinking scores after accounting for age, gender, and sport type (team vs individual), the mean differences between these populations were substantial and consistent with international research.

We used the recently developed ADS; Martens et al., 2005 to examine sport-specific psychosocial reasons and motives for drinking in this New Zealand sample. The ADS predicted a fair proportion (22.5%) of the unique variance in AUDIT scores. Taken together the present results suggest that the ADS may be suitable for use in non-student/collegiate samples and in populations outside of the US.

Differences in ADS scale scores were found across the differing levels of sporting participation. Elite-provincial level sportspeople placed a greater emphasis on drinking for positive reinforcement and sport-related coping motives than club/social level sportspeople. Similarly, elite-international level sportspeople cited coping reasons as a stronger motive for drinking than did club/social level sportspeople. The finding that elite-level sportspeople place a greater emphasis on drinking for coping purposes is consistent with reports from sport psychologists (Stainback, 1997). Elite sportspeople often have to juggle full time studies or jobs, along with intensive sport practices and games/events, and thus likely suffer greater pressures and stress than those sportspeople at lower levels. Thus the desire to use alcohol to cope with stress, in the absence of time to pursue other leisure pursuits that may reduce stress, is logical. Although elite-sportspeople reported a stronger affinity with all of the ADS motives for drinking than did club/social level sportspeople, the ADS scales were better predictors of hazardous drinking behaviours in club/social level sportspeople than in elite-sportspeople.

All three ADS subscales were significant predictors of hazardous drinking in club/social and elite-provincial level sportspeople (at least after examining mediational influences), however, only positive reinforcement and team/group motives were predictors for elite-international sportspeople’s drinking.
The mediation of team/group motives by positive enhancement motives, is a novel and interesting finding. One interpretation for this result is that sportspersons are only motivated to drink for team/group-based reasons when they perceive that positively reinforcing consequences will result from this situation. It might therefore be interesting in future studies to examine the relationship between actual level of perceived team/group cohesion and mateship, enhancement motives, and drinking behaviours. Being required, or implicitly forced, to go and drink with team mates you dislike (which, anecdota- tally, does occur), may not be a wholly rewarding outcome for many.

The present findings have potential ramifications for alcohol education programs targeted at sportspersons, and may help improve the efficacy of intervention programs. It is worth suggesting that interventions could be better tailored to the individual by taking into account their underlying motives for drinking alcohol. For example, elite/pro-drink-level sportspersons, the most hazardous drinking group, may benefit from programs that provide strategies for managing sport-related stress, and which offer alternative team/group based behaviours to drinking as rewards or reinforcement following sports performances. These programs would likely need close involvement from coaches, team/club captains, and clubs for effective implementation.

Of more general concern is the proportion of sportspersons reaching, and passing, the threshold for categorisation as hazardous drinkers (a score of 8+ on the AUDIT; Conigrave et al., 1995). In this sample 53% of club/social, 68% of elite/pro-drink-level sportspersons, the most hazardous drinking group, may be classified as hazardous drinkers with only 4% of the total sample abstaining from alcohol. These rates of hazardous drinking are considerably higher than those of general New Zealand population (17%), and indeed those in the most problematic age group (15–24 year olds, 33%; Ministry of Health, 2004). Given that alcohol is a leading cause of mortality and morbidity, and ranked above tobacco in terms of DALYS (World Health Organization, 2002), the issue is clearly of some importance. Furthermore, the consequences of hazardous alcohol use (death and disability) are most prominent in those of a relatively young, which coincides with the age of those typically involved in elite sport. It is therefore crucially important that effective intervention programs and potentially sport policy, be developed to address the hazardous drinking behaviours of sportspersons.

The authors would like to acknowledge that the sample was one of convenience, and although reasonably comprehensive in terms of gender, age, sport type, and locality representation, it may not be completely representative of the New Zealand sporting population. Future research needs to explore additional reasons for the high rates of hazardous drinking in sportspersons, and particularly those at elite levels. Other potential risk factors not comprehensively assessed by the present study, namely positive drinking expectancies such as sexual enhancement and increased confidence (see Morawska and Oei, 2005) may also play an important role in the hazardous drinking of sportspersons and account for additional variance in the AUDIT scores.

Future research is required to comprehensively investigate the reasons for the observed high rates of hazardous drinking in sportspersons, particularly those at elite levels. This should include the dependence of sporting organisations in New Zealand, and indeed other countries, on sponsorship from alcohol related industries, and its link with hazardous drinking behaviours.

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