

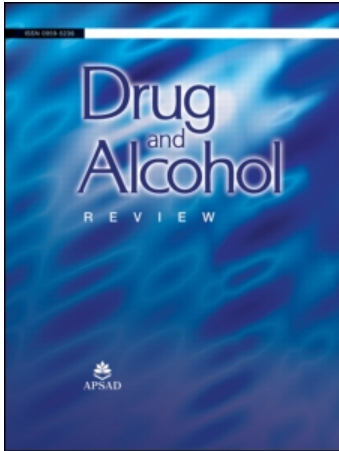
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Kerry S. O'Brien ^a; Jackie Hunter ^b; Kypros Kypri ^c; Ajmol Ali ^d

^a School of Health Sciences, University of Wollongong, New South Wales, Australia ^b Psychology Department, University of Otago, New Zealand ^c University of Newcastle, NSW, Australia ^d Department of Sport Sciences, Massey University, Auckland, New Zealand

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Gender equality in university sportspeople's drinking

KERRY S. O'BRIEN¹, JACKIE HUNTER², KYPROS KYPRI³, & AJMOL ALI⁴

¹School of Health Sciences, University of Wollongong, New South Wales, Australia, ²Psychology Department, University of Otago, New Zealand, ³University of Newcastle, NSW, Australia, and ⁴Department of Sport Sciences, Massey University, Auckland, New Zealand

Abstract

Introduction and Aims. In large population-based alcohol studies males are shown consistently to drink more, and more hazardedly, than females. However, research from some countries suggests that gender differences in drinking are converging, with females drinking more than in the past. Large population-based research may miss gender-based changes in drinking behaviours that occur in sub-populations most at risk of hazardous drinking. We examine gender differences in a sub-population where hazardous drinking is common and endorsed, namely university sportspeople. **Design and Methods.** The Alcohol Use Disorders Identification Test (AUDIT) and a drinking motives measure were used to assess hazardous drinking behaviours and drinking motives in 631 university sportspeople (females = 331, 52%). **Results.** There were no gender differences in AUDIT scores. However, drinking motives differed between genders, with coping motives being a significant predictor of hazardous drinking in females but not males. Hazardous drinking, including binge drinking (46.3%) and frequent binge drinking (35%), in New Zealand university sportspeople is high for both males and females. **Discussion and Conclusions.** New Zealand university sportspeople are one population where gender differences in drinking are not apparent and run counter to European population based research and research in US sporting populations. Gender role equality in the university systems, and endorsement of drinking in sporting culture, may account for the lack of gender differences in this New Zealand sporting population. Future research on gender differences in drinking should examine sub-populations where gender role differentiation is low, and socio-cultural/structural factors supporting gender equality are high. [O'Brien KS, Hunter J, Kypri K, Ali A. Gender equality in university sportspeople's drinking. *Drug Alcohol Rev* 2008;27:659–665]

Key words: drinking motives, gender, hazardous drinking, sport.

Introduction

Research has consistently shown gender differences in alcohol consumption and associated health consequences. Typically, research shows that women drink less alcohol than men both in terms of average daily consumption and consumption per discrete session [1] but suffer more physical, mental and social harms, even at lower levels of consumption [2–4]. Worryingly, recent research suggests that in some western nations (e.g. Australia, New Zealand, the Netherlands and Finland) the gender gap in alcohol consumption is converging [5–8], with females in some age groups (typically 18–24 years) drinking more than in the past, while males' drinking remains static. However, other cross-cultural studies have reported no gender convergence, but considerable variability across cultures in the

levels of drinking in males and females [9]. The variation in findings for gender differences suggest that social and contextual, rather than biological, factors may play a more important role.

Socio-cultural/structural factors with accompanying changes in gender roles are posited frequently as a cause for the changes in females drinking [3,10]. Gender differences in drinking are said to be greatest where gender roles are most divergent and delineated, and converges where non-traditional gender roles are supported [11]. However, there is a paucity of research examining gender differences within differing socio-cultural contexts where changes in female roles, status and expectations may be occurring rapidly.

Universities are one social milieu where rates of drinking, and particularly heavy episodic drinking (binge drinking), are high compared to their

Kerry S. O'Brien PhD, School of Health Sciences, University of Wollongong, NSW, Australia, Jackie Hunter PhD, Psychology Department, University of Otago, New Zealand, Kypros Kypri PhD, University of Newcastle, NSW, Australia, Ajmol Ali PhD, Department of Sport Sciences, Massey University, Auckland, New Zealand. Correspondence to Kerry S. O'Brien PhD, School of Health Sciences, University of Wollongong, NSW 2522, Australia. Tel: +61 2 4221 5098. Fax: +61 2 4221 3486. E-mail: kobrien@uow.edu.au

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non-university contemporaries [12,13]. In some university populations such as sportspeople (athletes), hazardous drinking behaviours are greater still, and associated with a host of negative consequences [14–17]. Research examining gender differences in hazardous drinking among university sportspeople and the underlying gender specific motives or reasons for drinking is rare, but much needed for two reasons. First, in terms of gender roles, status and expectations, university provides a social and structural context where gender parity may be reached. Secondly, sport is, on the whole, a masculine endeavour where drinking is endorsed both explicitly and implicitly and indeed considered part of the sporting culture [18,19]. In combination, female university sportspeople are provided with a social context where hazardous drinking may be sanctioned and indeed endorsed, and thus we might expect to see males and females drinking behaviours converging.

Research conducted a decade ago in US college athletes found that although female athletes had identical and higher levels of drinking than male and female non-athletes, male athletes still reported drinking and bingeing more than female athletes [15,16]. These US findings differ from recent work in New Zealand university student sportspeople, where no differences were found between females and males on the Alcohol Use Disorder Identification Test (AUDIT) [20] with rates of hazardous drinking high for both male and female sportspeople. However, the New Zealand results were an ancillary analysis in a sample from only one university and more importantly, from a public health perspective, the study did not assess underlying motives and reasons for drinking that might explain the lack of gender differences.

The study of drinking motives centres on the idea that individuals consume alcohol to achieve personally valued outcomes [21]. 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. 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 [22], and none to our knowledge examining gender differences in sportspeople's reasons for drinking. However, in general university samples males are more likely to drink for social and enhancement purposes, with little difference between genders on coping motives [23].

The assessment of drinking motives is important as they are considered to be one of the best predictors of alcohol (mis)use, even after accounting for various situational and social contexts (see reviews [23,24]).

However, because drinking motives have been shown to vary considerably across different cultures, age groups and genders [24], alcohol education programmes that focus on reducing drinking must first identify the drinking motives specific to the population they are targeting. Given the focus of team/club unity in sport, the motives for drinking in sportspeople probably differ considerably from non-sporting populations.

The present study examines gender differences in hazardous drinking and drinking motives in New Zealand university sportspeople. Hazardous drinking in sport has been identified as a target area of concern for New Zealand and Australia governmental health agencies and policy makers. Similarly, intervention programmes aimed at reducing hazardous drinking in university sportspeople would probably benefit from research that identifies drinking motives, and particularly if the motives differ between genders.

Subjects, materials and methods

A convenience sample of 631 university sportspeople (females, $n=331$, 52.4%) over the age of 18 years [20.9 ± 3.9 ; mean \pm standard deviation (SD); range 18–39 years] were approached (response rate 94%) to participate in the study. Participants were from four of the eight universities in New Zealand (University of Auckland, Auckland University of Technology, Massey University and University of Otago). The universities serve three of the largest population bases in New Zealand. All participants were senior-level club sportspeople or above (i.e. senior club level, 67.7%; elite-provincial/state, 19.7%; elite-international/Olympic level, 12.7%).

Although research has consistently shown university sportspeople to drink more than their non-sporting counterparts, it was thought important to also make this distinction clear here. A separate sample of non-sporting (neither organised nor socially/non-organised) university students ($n=578$; mean age = 20.7 ± 2.5 years) was collected by the third author (KK) for comparison with the present sporting sample. A thorough description of this sample has been given elsewhere [25].

A paper-based questionnaire was used to collect demographic details (age, gender, type of sport, level of sporting participation) and assess hazardous drinking behaviours and drinking reasons/motives. The AUDIT (World Health Organisation: WHO) [24] was used to assess hazardous drinking behaviours. Reasons for drinking were assessed using the Drinking Motives Measure (DMM) [21].

The AUDIT is a 10-item questionnaire that was developed in association with the WHO [26] to identify people whose alcohol consumption is hazardous or harmful to their health. The AUDIT has three

subscales that assess: hazardous alcohol use (three items that assess the occurrence of behavioural and cognitive symptoms indicative of alcohol dependence); dependence symptoms (three items); and harmful alcohol use (four items that assess the frequency of negative events directly resulting from alcohol consumption).

Although validity and reliability have been established thoroughly for the AUDIT, specific cut-off scores for defining hazardous drinking are contentious. Here, we use Conigrave *et al.*'s [27] cut-off score of 8 or higher as an indicator of hazardous drinking, but acknowledge that more research is required in university populations to establish a suitable criterion score. It should be noted that the AUDIT is a screening tool for identifying alcohol misuse and potential consequences, and not a diagnostic for identification of clinically relevant alcohol disorders.

The DMM [21] consists of four psychometrically distinct motive/reason categories for drinking: (1) social motives (e.g. 'Because it improves parties and celebrations'); (2) enhancement motives (e.g. 'To get that high feeling'); (3) coping motives (e.g. 'To forget about your problems'); and (4) conformity motives (e.g. 'Because your friends pressure you to drink'). Participants indicate agreement with the statements using a five-point scale (1 = almost never/never to 5 = almost always/always).

Data were collected between June 2004 and August 2005 as part of an ongoing international programme of research (i.e. New Zealand, Australia and the United Kingdom) on hazardous drinking in sportspeople. Data collection encompassed both winter and summer sporting seasons and codes. Participants were told that their participation would remain anonymous, and no names were required on questionnaires. Questionnaires were administered and collected at, and prior to, sport practices and games/events. A small gift (fruit juice or sweets) was offered to participants while completing questionnaires. To facilitate a feeling of anonymity, participants placed their questionnaires in a large (mass) collection box, while placing ethical consent forms in a separate collection box. The questionnaire took approximately 15 minutes to complete. The University of Otago human ethics committee reviewed and approved the study.

Data were double-entered, verified and screened prior to analysis; SPSS version 13 was used for all analyses. Because previous research has consistently found differences in hazardous drinking for age (younger greater than older), team vs. individual sports (team greater than individual) and level of participation (elite-athletes = greater drinking than non-elite [20,28]) we controlled these variables when analysing AUDIT scores. Thus analyses of covariance (ANCOVAs) were used to assess differences between gender in AUDIT

scores while adjusting for age, type of sport and level of participation; ANCOVAs were used to assess gender differences in DMM scale scores.

Hierarchical regression analyses were used to examine the relationship of DMM subscales to AUDIT scores. Age, team vs. individual sports and level of participation were entered in the first step and DMM subscales were entered in the second step. Differences in the *n* for some measures are due either to some participants failing to complete all facets of the questionnaire (e.g. being abstainers, and thus not completing the DMM). We constructed a crude guide to alcohol bingeing and binge frequency by examining AUDIT question (2): 'How many drinks containing alcohol do you drink on a typical day when you are drinking?' and question (3): 'How often do you have six or more units of alcohol on one occasion?' individually. Question (2) of the AUDIT has five possible responses: 1–2, 3–4, 5–6, 7–9 and 10 or more. Because there is little clear agreement as to what constitutes binge drinking, and because question (3) of the AUDIT does not have an equivalent response option within question (2) (i.e. six or more units of alcohol on one occasion), we err on the generous side by using seven or more standard drinks within one session as a crude indicator of binge drinking. The percentage of males and females meeting these criteria was calculated. Additionally, we calculated the percentage of males and females that had six or more drinks on a weekly, or more frequent, basis. Cross-tabulations were used to assess gender differences in proportions on variables of interest.

Results

Four participants did not complete the DMM fully, and an additional 31 participants were abstainers (19 males vs. 12 females). Abstainers were not included in DMM analyses, but are included in all AUDIT analyses. There were no differences across universities for AUDIT and DMM scores. Age was correlated negatively with AUDIT total score ($r = -0.21$, $p < 0.001$), and team sport players (mean = 12.03 ± 6.86) had significantly higher AUDIT scores than individual sport players (mean = 8.80 ± 6.29 ; $F_{(1,628)} = 8.10$, $p < 0.001$). Elite-international sportspeople had lower AUDIT scores than non-elite and elite-provincial sportspeople (mean = 8.11 ± 5.36 vs. mean = 11.33 ± 6.85 vs. mean = 11.94 ± 7.31 ; $F_{(2,628)} = 8.94$, $p < 0.001$).

Means and SDs on AUDIT subscale and total scores were calculated for males and females (see Table 1). Mean AUDIT scores were high overall, with no significant differences between male and female sportspeople on AUDIT subscale or total scores. In the supplementary analysis comparing a matched non-sporting university student sample with the present

sporting sample we found significantly lower AUDIT scores for non-sportspeople vs. the present sample of sportspeople (8.65 ± 6.84 vs. 11.04 ± 6.86 ; $F_{(1,1207)} = 36.85$, $p < 0.0001$). Within this non-sporting sample, males reported significantly higher AUDIT scores (9.30 ± 6.89) than did females (8.30 ± 6.80 ; $F_{(2,575)} = 3.87$, $p < 0.05$), confirming both the drinking differences between sport and non-sportspeople and the oft-reported gender differences in population-based studies [1].

A high rate of hazardous drinking (AUDIT total score of ≥ 8 ; [26]) was reported among this sample (66.7%). Again, there was no significant difference in the proportion of males (69%) and females (64.7%) classified as hazardous drinkers ($\chi^2 = 1.34$, $p = 0.25$). More males (56.6%) reported binge drinking (seven or more standard drinks in one occasion) than did females (40.5%; $\chi^2 = 9.39$, $p = 0.002$). Similarly, rates of frequent binge drinking were higher for males (40%) than females (30.5%; $\chi^2 = 6.22$, $p = 0.013$).

Gender differences emerged in drinking motives (see Table 2). Male sportspeople placed a greater emphasis on drinking for social and enhancement reasons than did female sportspeople. Additionally, males tended to cite wanting to conform as a more important

motive to drink than did females. We conducted separate regression analyses for prediction of hazardous drinking by DMM scales (see Table 3). Variables known as correlates of hazardous drinking (i.e. age, team vs. individual sport and level of participation) were entered in the first step in regression models and DMM subscales entered in the second step as predictors of AUDIT total score (see Table 3). Demographic details accounted for 7.9% of the variance in AUDIT scores for females ($F_{(3,314)} = 9.04$, $p < 0.001$), with the DMM accounting for an additional 41.1% of the variance in AUDIT scores ($F_{(4,310)} = 62.39$, $p < 0.0001$).

For males, demographic variables accounted for 11.3% of the variance in AUDIT scores ($F_{(3,274)} = 11.60$, $p < 0.001$), with DMM scales accounting for an additional 32% of variance in AUDIT scores ($F_{(4,270)} = 38.11$, $p < 0.0001$). As can be seen in Table 3, social and enhancement motives were significant predictors of male AUDIT scores, with enhancement motives associated with higher AUDIT scores. For females, social enhancement and coping motives were significant predictors of AUDIT scores. Again, enhancement motives were related positively to AUDIT scores. Conformity motives were not predictive of AUDIT scores in either males or females.

Table 1. Means and standard deviations for each of the Alcohol Use Disorders Identification Test (AUDIT) subscale and AUDIT total score for males and females

| AUDIT | Males (<i>n</i> = 300) | | Females (<i>n</i> = 331) | | Total (<i>n</i> = 631) | | <i>F</i> -value [†] | <i>p</i> -value |
|------------------------|----------------------------|--------|------------------------------|--------|----------------------------|--------|------------------------------|-----------------|
| | M | SD | M | SD | M | SD | | |
| Hazardous alcohol use | 6.24 | (3.23) | 5.86 | (2.85) | 6.04 | (3.04) | 2.48 | 0.11 |
| Dependence symptoms | 1.49 | (1.80) | 1.61 | (1.74) | 1.55 | (1.77) | 0.72 | 0.39 |
| Hazardous consequences | 3.67 | (3.32) | 3.27 | (3.07) | 3.46 | (3.20) | 2.35 | 0.12 |
| AUDIT total | 11.41 | (7.21) | 10.74 | (6.51) | 11.06 | (6.85) | 1.45 | 0.23 |

[†]Controlling for age, current level of sporting participation (elite-state/province vs. elite-international/olympic vs. non-elite), and type of sport (team vs. individual).

Table 2. Means, standard deviations and gender differences for each of the Drinking Motives Measure (DMM) subscales

| DMM | Males (<i>n</i> = 278) | | Females (<i>n</i> = 318) | | Total (<i>n</i> = 596) | | <i>F</i> -value [†] | <i>p</i> -value |
|---------------------|----------------------------|--------|------------------------------|--------|----------------------------|--------|------------------------------|-----------------|
| | M | SD | M | SD | M | SD | | |
| Social motives | 3.39 | (0.95) | 3.22 | (0.93) | 3.30 | (0.94) | 4.97 | 0.02 |
| Enhancement motives | 2.85 | (1.07) | 2.68 | (1.05) | 2.76 | (1.07) | 4.02 | 0.04 |
| Coping motives | 1.71 | (0.68) | 1.70 | (0.65) | 1.71 | (0.66) | 0.12 | 0.73 |
| Conformity motives | 1.58 | (0.63) | 1.49 | (0.57) | 1.53 | (0.60) | 3.45 | 0.06 |

[†]Controlling for age, current level of sporting participation (elite-state/province vs. elite-international/olympic vs. non-elite), and type of sport (team or individual).

Table 3. Hierarchical linear multiple regression analyses for prediction of Alcohol Use Disorders Identification Test (AUDIT) hazardous drinking scores by Drinking Motives Measure (DMM) subscales and demographic factors for males and females

| Predictor | Male (n = 278) | | | Female (n = 318) | | | Total (n = 596) | | |
|---------------------------------|-------------------|------|----------|---------------------|------|----------|--------------------|------|---------|
| | B | SE B | β | B | SE B | β | B | SE B | β |
| Step 1 | | | | | | | | | |
| Age | -0.37 | 0.10 | -0.22*** | -0.33 | 0.09 | -0.20*** | -0.18 | 0.04 | -0.28** |
| Level of sporting participation | -0.47 | 0.58 | -0.05 | -1.40 | 0.48 | -0.16** | -0.72 | 0.90 | -0.08 |
| Team vs. individual sport | 3.19 | 0.93 | 0.20* | 1.25 | 0.74 | 0.09 | 3.45 | 0.89 | 0.36*** |
| Step 2 | | | | | | | | | |
| Social motives | 2.19 | 0.49 | 0.31*** | 1.71 | 0.43 | 0.25*** | 2.22 | 0.49 | 0.46*** |
| Enhancement motives | 1.64 | 0.42 | 0.26*** | 1.68 | 0.34 | 0.28*** | 0.07 | 0.57 | 0.12 |
| Coping motives | 0.65 | 0.55 | 0.06 | 2.18 | 0.47 | 0.23*** | 0.95 | 0.50 | 0.18 |
| Conformity motives | 0.79 | 0.58 | 0.07 | 0.34 | 0.47 | 0.03 | 0.95 | 0.50 | 0.18 |

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.

Discussion

In some western nations males' and females' drinking rates and consumption are converging, with women drinking more than in the past and males' drinking remaining static [7,8]. Some suggest that the gender gap closure may be due to socio-cultural/structural factors (e.g. changes in gender roles, sanctioning of females involvement in traditionally male domains). In perhaps no other domain, at least in western societies, is gender equality more endorsed and supported by social structures and policy than in universities. Accordingly, if socio-cultural/structural factors are contributing to the convergence of drinking in males and females, then we are likely to see convergence in university students, and particularly in those sub-groups where drinking is already endorsed (e.g. sportspeople).

The present study examined gender differences in hazardous drinking behaviours and underlying drinking motives in sportspeople from three New Zealand universities. We found that there were no significant differences between male and female university sportspeople's levels of drinking, dependence symptoms or negative consequences, or total scores as measured by the WHO's AUDIT. Although males were more likely to be binge drinkers, and frequent binge drinkers, the rates were worryingly high for both genders.

The gender differences observed for binge and frequent binge drinking must be interpreted with caution. For example, from the perspective of health consequences, harm occurs to females at lower consumption levels to males [3]. Therefore, if we were to take the more conservative criteria of five to six drinks, which is closer to criteria (four drinks for

females and five for males) used elsewhere [29], then there were no differences in binge drinking (males 66.7% vs. females 65.3%; $\chi^2 = 139$, *p* = 0.74). Similarly, if we extrapolate this argument to the measure of frequent binge drinking, AUDIT question (3), and reframed the question to ask: 'How often do you have five to six or more units of alcohol on one occasion?', gender difference here may also diminish considerably.

The present findings run counter to some cross-cultural population-based studies which show gender differences in drinking behaviours and consequences [1]. However, the results complement the findings of McPherson *et al.* [8], who showed that in New Zealand men's and women's drinking is converging, and particularly in the age group that is likely to have a high proportion of university students. Future studies exploring gender differences in drinking may do well to conduct analyses of sub-populations where gender roles and status are equal, and in drinking contexts where binge drinking is endorsed (sport).

Contrary to previous research in university athletes [22], motives for drinking differed significantly between males and females in this sample. It is also worth noting that the mean scores for drinking motives in this sample are also considerably higher than those reported in a comparable study in US college athletes [22]. The present results may have implications for drinking interventions in student sportspeople/athletes. Interventions attempting to reduce drinking in university sportspeople have generally been ineffective [17,29], and this may be due partially to a poor understanding of underlying drinking motives.

There are limitations to the study. Logistical constraints involved in surveying sportspeople mean that we were unable to collect other demographic and

theoretical variables of interest that may explain the lack of gender differences in this sample. Pilot work with a more comprehensive questionnaire (25–30 minutes to complete) was met with resistance from sportspeople, who said they did not have the time to complete the longer questionnaire (response rate < 50%). The results also need to be viewed with the understanding that sport is central to life in New Zealand, with some suggesting that sport is the New Zealand identity [29], and there is a high sport participation rate by New Zealand females. Indeed, a recent national survey found that 36% of New Zealand adults were formal members of a sports club/team or gymnasium [31].

The present study found that female university sportspeople drink in a similar manner and suffered similar consequences to their male counterparts. However, the motives for drinking differ somewhat between genders. Both males' and females' rates of hazardous drinking in this study were extraordinarily high. Interventions to reduce drinking in university sportspeople may benefit from a better understanding of the reasons for drinking in males and females. We look forward to seeing results in university sportspeople from cultures/countries similar to New Zealand's in terms of student drinking behaviours, and with a similar cultural investment in sports and associated endorsement of drinking (e.g. Australia).

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