ALCOHOL USE AND INTOXICATION IN SPORT UNIVERSITY STUDENTS

FABRICE O. LORENTE*, PATRICK PERETTI-WATEL2, JEAN GRIFFET1 and LAURENT GRÉLOT

Departments of Physiology and 1Psycho-sociology and IFR Marey 107, Faculty of Sport Sciences Marseilles, University of the Mediterranean, Marseilles and 2Regional Centre for Disease Control of South-Eastern France, Inserm U379, Marseilles, France

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Abstract — Aims: To investigate patterns of alcohol consumption and intoxication in French sport science students. Methods: Second- and third-year sport university students (n = 677) completed an anonymous self-report questionnaire. Results and Conclusions: 20.4% reported more than six episodes of intoxication during the previous year. Male students drank more frequently and were more frequently intoxicated than were female students. Compared to their peers in the general population, sport students drank less frequently, but reported more episodes of intoxication. There were no differences in frequency of intoxication according to competitive level.

INTRODUCTION

In developed countries, alcohol is generally considered a major cause of injuries and mortality in adolescents and young adults. Alcohol use and intoxication are related not just to interpersonal violence and road accidents but also to unprotected sexual intercourse (Leigh, 1999). Some studies carried out on alcohol and illicit drug use in adolescents have been based on surveys conducted in secondary school (Bruner and Fishman, 1998; Miller and Plant, 1999; Hellandso Bu et al., 2002; Peretti-Watel et al., 2002). Alcohol use and abuse among young adults has also been studied among college and university students. A US study (Wechsler et al., 1994) examined drinking among 17 592 college students. Almost half of these subjects were 'binge drinkers', almost one-fifth being frequent binge drinkers. Gill (2002) recently reviewed 18 studies investigating the drinking behaviour of undergraduate students in UK universities over a 25-year period. She indicated that significant numbers of male and female students (with a male: female ratio of 52:43%) exceeded sensible weekly consumption guidelines (i.e. 14 units per week for women and 21 units per week for men) and that there is extreme variation between the 18 studies in the recorded levels of binge drinking among students (27–64%, and 14–63%, for male and female students, respectively). Gill concluded that the binge drinking levels among UK undergraduate students may exceed those of their peers in the general population and those of their US counterparts.

Some studies found that male students drank more alcohol more often, and became intoxicated more frequently, than female students (Nyström et al., 1993; Roncone et al., 1996; O’Malley and Johnston, 2002). On the other hand, in a UK survey of 244 medical students (Granville-Chapman et al., 2001), in the second year female students drank as much as male students. Based on these contradictory results, which may reflect different cultural contexts and discrepancies in the terms employed to describe drinking behaviour, we wanted to test for the presence of a gender effect on alcohol consumption and intoxication among French sport university students. We focused on this population due to the controversial relation between participation in sports and alcohol use. Some studies indicate less alcohol consumption among subjects involved in sports (Thorlindsson, 1989; Donato et al., 1994) whereas others indicate the opposite (Faulkner and Slattery, 1990), especially among male students (Aaron et al., 1995). It is important to evaluate the pattern of alcohol use among young adults studying sports sciences, as most of them will become teachers, managers or coaches, and perhaps role models for future generations of young people.

SUBJECTS AND METHODS

The present study is based on a self-report questionnaire that included a total of 87 items in which the population was characterized in terms of demographics (three items), sports participation (five items), alcohol consumption and intoxication (13 items), and use and abuse of other substances (66 items). This questionnaire was administered between November and December 2002, unannounced, to a sample of 915 university students from three sport sciences departments in southern France: Marseilles (n = 310), Montpellier (n = 420) and Perpignan (n = 185). Only second- and third-year students were included in our study. First-year students were excluded because about 65% of them do not pass the end-of-year exams; thus, they may not be representative of students in sports science. Fourth-year students were excluded either because some may be influenced by courses on addiction, doping and drug abuse (in Marseilles and Montpellier). Because students were questioned on behaviours that are subject to societal disapproval (or are even illegal), it was made clear to them that the survey was anonymous and strictly confidential, with no 'right or wrong' answers. Students were also free to refuse to participate in the survey. Approximately 25–30 subjects participated in each session, which lasted about 20 min. Subjects sat one per table, each table separated from the others by at least 2 m in all directions. An investigator was always present to ensure absence of communication between subjects. At the end of the session, the individual questionnaires were placed in a common ballot box.

*Author to whom correspondence should be addressed at: Department of Physiology, (UPRES ES 3285), IFR Marey 107 163 avenue de Luminy, Faculty of Sport Sciences, University of the Mediterranean, Marseilles, France. E-mail: lorente@staps.univ-mrs.fr
The relations between categorical variables were examined using Pearson’s \( \chi^2 \), which tested the independence hypothesis between either sex or level of competitive sport and alcohol use. Data analysis was carried out with SPSS software, version 10.1 (SPSS Inc., Chicago, IL, USA).

RESULTS

One hundred and fifty students (Marseilles, 49; Montpellier, 56; Perpignan, 45) of 915 (16%) were absent on the day of the survey. As regular attendance at lectures is not compulsory in French universities, this level of absence is typical; students may have been absent because of illness, participation in sports or employment (Grignon et al., 2000). All students who were present (\( n = 765 \)) agreed to participate, but 88 questionnaires (Marseilles, 33; Montpellier, 28; Perpignan, 27) were excluded from analysis because of incomplete answers. Thus, analysis was based on 677 fully completed questionnaires. The mean response rate (i.e., the ratio of respondents to students present) averaged 88.5% (87.4, 92.3 and 80.7% in Marseilles, Montpellier and Perpignan, respectively). The mean age of the respondents was 20.6 ± 1.7 (mean ± SD) years; 41.7% were female.

**Frequency of alcohol consumption**

Table 1 indicates that there is a gender difference in the consumption of beer (\( P < 0.001 \)), wine (\( P < 0.001 \)) and spirits (\( P < 0.001 \)). For instance, 62% of male and 33% of female students reported drinking beer at least once a month. Male students were also more likely than female students to report drinking wine more than once a month (40.8 vs. 28.4%, respectively). Similar observations applied to consumption of spirits (63.9 vs 41.5% for male and female students, respectively).

**Table 1. Self-report frequency of alcohol use among sports science university students in southern France**

<table>
<thead>
<tr>
<th></th>
<th>All (%)</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beer use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily use</td>
<td>0.7</td>
<td>1.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Two to six times per week</td>
<td>12.7</td>
<td>18.2</td>
<td>4.9</td>
</tr>
<tr>
<td>One to four times per month</td>
<td>36.2</td>
<td>42.3</td>
<td>27.7</td>
</tr>
<tr>
<td>Less than once per month</td>
<td>22.9</td>
<td>20.8</td>
<td>25.9</td>
</tr>
<tr>
<td>Never</td>
<td>27.5</td>
<td>17.4</td>
<td>41.5</td>
</tr>
<tr>
<td>Wine use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily use</td>
<td>1.2</td>
<td>1.8</td>
<td>0.3</td>
</tr>
<tr>
<td>Two to six times per week</td>
<td>8.1</td>
<td>10.9</td>
<td>4.3</td>
</tr>
<tr>
<td>One to four times per month</td>
<td>26.3</td>
<td>28.1</td>
<td>23.8</td>
</tr>
<tr>
<td>Less than once per month</td>
<td>27.2</td>
<td>27.6</td>
<td>26.6</td>
</tr>
<tr>
<td>Never</td>
<td>37.2</td>
<td>31.6</td>
<td>45.0</td>
</tr>
<tr>
<td>Spirits (whiskey, vodka, gin, pastis)*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily use</td>
<td>0.6</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Two to six times per week</td>
<td>9.9</td>
<td>14.8</td>
<td>3.2</td>
</tr>
<tr>
<td>One to four times per month</td>
<td>44.0</td>
<td>48.1</td>
<td>38.3</td>
</tr>
<tr>
<td>Less than once per month</td>
<td>26.4</td>
<td>21.4</td>
<td>33.3</td>
</tr>
<tr>
<td>Never</td>
<td>19.1</td>
<td>14.7</td>
<td>25.2</td>
</tr>
</tbody>
</table>

\( n = 677 \). *For beer and spirits use, the item ‘daily use’ was excluded from the computation of the \( \chi^2 \) statistic, because the expected numbers were <5. Significance: \( P < 0.001 \).

**Figure 1. Gender difference in the cumulative frequencies of the age of the first alcohol intoxication among a study on sports science university students in southern France (\( n = 677 \)).**

**First alcohol intoxication**

Figure 1 represents by sex and age the percentages of subjects who had been intoxicated. For the whole sample, 14.8% reported their first intoxication at 14 years old or younger, 46.5% at 15–16 years old, 35.9% at 17–19 years old and 2.8% at 20 years old or older. The difference between male and female students was not significant (\( P = 0.066 \)). However, male students were more likely than were female students to report a first intoxication at 16 years old or younger (63.9% vs. 53.3% for male and female students, respectively), and female students were more likely than male students to report their first intoxication at 18 years old or older (29 vs. 18.3% for female and male students, respectively).

**Frequency of alcohol intoxication during the previous 12 months**

The results of the Pearson’s \( \chi^2 \) test of gender difference on this parameter showed a significant difference (\( P < 0.001 \)) between men and women (Table 2), especially for a frequency higher than 10 episodes of intoxication per year (19.2 vs 2.5% for male and female students, respectively).

**Table 2. Self-report frequency of alcohol intoxication during the 12 months prior to a study on alcohol use among sports science university students in southern France**

<table>
<thead>
<tr>
<th>Alcohol intoxication</th>
<th>All (%)</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 10 times</td>
<td>12.2</td>
<td>19.2</td>
<td>2.5</td>
</tr>
<tr>
<td>Six to 10 times</td>
<td>8.2</td>
<td>9.4</td>
<td>6.5</td>
</tr>
<tr>
<td>Three to five times</td>
<td>16.1</td>
<td>15.8</td>
<td>16.5</td>
</tr>
<tr>
<td>One to two times</td>
<td>25.8</td>
<td>28.3</td>
<td>22.2</td>
</tr>
<tr>
<td>Never</td>
<td>37.7</td>
<td>27.3</td>
<td>52.3</td>
</tr>
</tbody>
</table>

\( n = 677 \). The question used to assess alcohol intoxication was that used by the French Monitoring Centre for Drugs and Drug Addictions (OFDT). The students self-estimated whether or not they were intoxicated. Precisely, the item in the questionnaire was: ‘Durant les 12 derniers mois, combien de fois avez-vous bu de l’alcool au point d’être ivre?’ (‘During the previous 12 months, how many times did you drink enough alcohol to be drunk?’) Significance: \( P < 0.001 \).
In addition, 72.7% of the male students versus 47.7% of the female students reported at least one episode of intoxication during the previous year.

**Level of competitive sport and frequency of alcohol intoxication**

No significant relation was found between the level of participation in competitive sports (departmental, regional, national and international levels) and the frequency of intoxication during the previous year (regardless of frequency) (Table 3).

**DISCUSSION**

The present data result from a survey carried out on 677 young adults studying in three sport sciences departments in universities in southern France. We fully acknowledge the limitations of our sample size. Moreover, we do not argue that our results can be generalized to all French university students, or even to all French sports students. Distinctly different patterns of alcohol use in southern and northern parts of France have been clearly identified (Beck et al., 2002). Nevertheless, when compared with a French general population survey (Legleye et al., 2001) in a similar age group (20–25 years old; n = 1328), sport sciences students reported less frequent episodes of alcohol consumption (for beer, wine and spirits), but more frequent episodes of alcohol intoxication.

Consistent with the results of previous studies (O’Malley and Johnston, 2002; Lorente and Grélot, 2003), male gender was strongly associated with weekly alcohol use among young adult athletes. Like Nyström et al. (1993), we observed a significant relationship between frequency of episodes of intoxication and gender. Specifically, men were more likely to be intoxicated more than 10 times a year, women were more likely never to be intoxicated. No significant gender difference was found on the timing of the first episode of alcohol intoxication. Frequency of intoxication was unaffected by competitive level. Consumption of large quantities of alcohol may be the norm in team sports such as soccer or rugby that are associated with ‘masculine values’ (Schneider and Greenberg, 1992; Quarrie et al., 1996). Another factor in drinking (and drug use) may be the need to reduce competitive stress and anxiety resulting from social pressures (Passer, 1983; Smoll and Smith, 1990; Bray et al., 2000). In addition, participation in sports provides opportunities for young people to drink alcohol, as well as to consume other drugs, because it takes participants to venues where they are out with adult and parental control (Osgood et al., 1996).

Our results are still preliminary as the students sampled may not be representative of all French sports sciences students. This survey will be extended within the next 2 years to examine a national sample of sports students, and students from other academic disciplines. So far, we can state that the abstinence rate of 27.9% in our sample is similar to previous observations of 27% in Italian (Roncone et al., 1996) and 26% in UK (Granville-Chapman et al., 2001) medical students.

The young adults in this study are likely to become coaches, physical education teachers or even professional athletes. These professions play an important role in education and may greatly influence the young people with whom they interact. Results of these surveys could help in developing programmes to reduce or prevent abuse of alcohol and other substances in these students who may then influence future generations.

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**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 & Alcoholism* 37, 109–120.


Table 3. Self-report frequency of alcohol intoxication during the 12 months prior to a study on alcohol use among sports science university students in southern France, according to level of competitive sport participated in

<table>
<thead>
<tr>
<th>Alcohol intoxication (%)</th>
<th>Departmental (n = 106)</th>
<th>Regional (n = 277)</th>
<th>National (n = 216) + International (n = 26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 10 times</td>
<td>11.3</td>
<td>12.8</td>
<td>12.1</td>
</tr>
<tr>
<td>Six to 10 times</td>
<td>5.7</td>
<td>8.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Three to five times</td>
<td>16.0</td>
<td>18.6</td>
<td>14.2</td>
</tr>
<tr>
<td>One to two times</td>
<td>28.3</td>
<td>26.7</td>
<td>24.1</td>
</tr>
<tr>
<td>Never</td>
<td>38.7</td>
<td>33.9</td>
<td>39.6</td>
</tr>
</tbody>
</table>

n = 625. Fifty-two subjects did not report their level of sport practice. As a rule in sport science faculties, students must perform competitive sport at least at departmental (i.e. district or county) level. However, in some physical activities such as dance, no level can be academically determined. Significance value: 0.756.
Appendix 1

Strictly Anonymous Questionnaire

(original version in French)

Sport Sciences University location: ........................................

Gender: [ ] Male  [ ] Female

Age: [ ] 1-5 years old  [ ] 6-10 years old  [ ] more than 10 years old

What is your preferred sport? ..................................................

What is the highest level you obtained in sport competition?
[ ] International  [ ] National  [ ] Regional  [ ] Local

What did you obtain this competitive level?
[ ] this year  [ ] 1 to 5 years ago  [ ] 6 to 10 years ago  [ ] more than 10 years ago

You practice this sport: [ ] in formal context (club)  [ ] in informal context (free, with friends, family, alone, etc.)

You prefer practicing this sport:
[ ] in formal context (club)  [ ] in informal context (free, with friends, family, alone, etc.)

I- ALCOHOL

What is the frequency of your alcohol consumption?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Less than once per month</th>
<th>1 to 4 times per month</th>
<th>2 to 4 times per week</th>
<th>Daily use</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Beer</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>b. Wine</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>c. Spirits (whiskey, vodka, vodka, etc.)</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

If you answered “Never” for all types of alcohol, why don’t you drink alcohol?

During the previous 12 months, how many times did you drink enough alcohol to get drunk?
[ ] Never  [ ] 1 to 2 times  [ ] 3 to 5 times  [ ] 6 to 10 times  [ ] More than 10 times

What was your age at your first alcohol intoxication? [ ] 1-5 years old

What was the location of your first intoxication?

Who were your mates during your first intoxication?

What were your reasons to drink enough alcohol to get drunk (multiple answers possible)?
[ ] [ ] in order to enhance a post-sportive performance (e.g., to increase your stress during a period of school examrations)

Did you ever drink to enhance a post-sportive performance?
[ ] [ ] yes, 1 or 2 times  [ ] yes, more frequently

Do you think that alcohol is listed as a strictly forbidden substance by the French Authority fighting against doping in sport?
[ ] [ ] yes  [ ] no  [ ] I do not know

Do you believe that alcohol is a performance enhancing drug in sport?
[ ] [ ] yes

We thank you for your participation to this survey.
Data are strictly anonymous and confidential.
The questionnaires will be analyzed by a research team.