Academic and personal problems among Australian university students who drink at hazardous levels: web-based survey

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Abstract

Issue addressed: Australian university students consume large amounts of alcohol. There is little published information about personal and academic problems associated with this behaviour. We sought to estimate the prevalence, and identify variables associated with, alcohol-related problems among undergraduate hazardous drinkers.

Methods: The control group members (942 undergraduates, 53.3% male, mean age 19.4 years) of an Internet-based intervention trial, who scored ≥8 on the Alcohol Use Disorders Identification Test, completed two validated questionnaires about their experience of alcohol-related problems in the preceding four weeks. Regression models were used to identify associations between individual characteristics and alcohol-related problems.

Results: One-quarter of participants had missed a class (25.6%) and/or had been unable to concentrate in class (25.7%), and 45% reported that their drinking had impacted negatively on their learning or grades. The most frequent non-academic problems were hangovers (74.8%), blackouts (44.8%), emotional outbursts (30.5%), vomiting (28.1%), arguments (20.2%) and drink-driving (23.2%). Male gender, lower age, being a smoker, being in the Faculty of Health (versus Humanities) and living in shared housing (versus with parents/guardians) were each associated with alcohol-related problems, while year of study had no association.

Conclusions: There is a high prevalence of preventable alcohol-related problems among undergraduates drinking at hazardous levels and a need for restriction of the availability and promotion of alcohol as well as intervention for individuals at high risk.

So What? Universities have a duty of care to large populations of young people drinking at hazardous levels and should make greater efforts to address hazardous alcohol consumption.

Introduction

Hazardous drinking is common among university students [1-3], including in Australia [3]. In New Zealand and the USA the prevalence of alcohol use disorders is substantially higher in university students than in the non-student population of the same age [4, 5]. In addition, students experience the 'secondhand' effects of others' drinking , including damaged property and being assaulted [3]. Firsthand alcohol-related problems are known to be very common, including blackouts, injury, suicide attempts, and unintended sexual activity. Harm to others (i.e., interpersonal and sexual violence) and harm to tertiary institutions (e.g. property damage and student attrition has also been extensively documented in other countries [6, 7].

Young male students are more likely to experience 'public domain' consequences [7] such as aggression and property destruction [7, 8], while young female students more often experience personal adverse events but frequently do not report them[7]. Hazardous drinking is also correlated with drink-driving (including as a "designated driver") [9], smoking [10, 11] and illicit drug use [12]. Increased alcohol consumption reduces time spent studying [13, 14] and intellectual functioning [15, 16], and is correlated with lower academic achievement [17].

These problems have not been recently investigated in Australia in population-based (i.e., based on random sampling) studies with reasonable response rates. We sought to estimate the prevalence and correlates of acute alcohol-related personal and academic problems among undergraduates.

Methods

Participants

The sample comprised undergraduates aged 17–24 years who were: enrolled full-time at a university in Perth, Western Australia, studying on campus.

Procedure

A random sample of 13,000 full-time undergraduates aged 17–24 years were sent a personally addressed letter by the research team, inviting them to participate in an online survey about alcohol [18]. The letter explained that they would soon receive a hyperlink to the questionnaire in an email message, that responses would be confidential and that the research team was independent of the university administration. Students were offered the opportunity to win 1 of 40 A$100 gift vouchers for participating. After one week, a reminder email was sent to those who had not yet responded, encouraging completion of the questionnaire. A second reminder was sent 10 days later. Of those invited, 7,237 responded (a 56% response rate) and completed a baseline assessment of past and current alcohol use, tobacco use and secondhand effects of drinking [3]. Through this process, 2,435 students (34% of the respondents) were identified as drinking at hazardous levels (a score of ≥8 on the Alcohol Use Disorders Identification Test [19]), and enrolled in a randomised controlled trial of a brief online alcohol intervention [20], which included a screening only control group (n = 1184).

One month after the intervention, all trial participants (n = 2,435) were sent a letter and then an email containing a hyperlink to an online follow-up questionnaire. Included with the letter was a AUD6 sandwich voucher that could be redeemed irrespective of further participation. There were 942 control group participants followed up (i.e., 80% of the control group). These recruitment and follow-up procedures are described in detail elsewhere [18, 20] and illustrated in Figure 1.

Ethics statement

The study was approved by the Curtin University Human Ethics Committee (Approval no. HR 189/2005) and respondents provided informed consent to participate.

INSERT - FIGURE 1

Measures

The baseline data collected from students included age, gender, citizenship (Australian or New Zealand resident versus non-resident), year level of degree (first, second, third, fourth or higher), faculty of enrolment (Business, Engineering & Science, Health, or Humanities), residence (living in a shared house, with a parent(s) or guardian(s), as a boarder or alone or with partner/children), and smoking status.

The one-month questionnaire included items on the following: the frequency of alcohol consumption in the previous four weeks (range, 0–28 days); the number of standard drinks consumed on a typical occasion; the Academic Role Expectations and Alcohol Scale (AREAS) [21], a validated measure consisting of four items assessing the frequency of academic problems as a result of drinking and one item rating the extent to which drinking negatively affecting learning and grades; and the Alcohol Problems Scale (APS) [21], a validated 14-item checklist of harms experienced as a result of drinking. Possible responses for the APS were 'yes', 'no' and 'prefer not to answer'. All items had a four-week reference period.

Data analysis

Multinominal logistic regression models were used to assess associations of hypothesised explanatory variables and academic problems (AREAS). Binary logistic regression models were used to test for associations of hypothesised explanatory variables with personal problems (items from the APS). A full model includes all of the demographic variables, smoking status, drinking frequency, typical occasion quantity and experimental group. User-defined parsimonious models were used, in which only variables with a p value < 0.05 from Wald tests after estimation were retained in the final models.

Analysis shows that of the 942 participants, 0.85% of participants missed one or more questions on alcohol-related problems or said that they 'prefer not to answer', and these values were coded as missing. A p value < 0.05 was regarded as significant. All analyses were performed using Stata SE 12.0 (StataCorp LP, College Station, Texas, USA).

Results

Demographics

Of 942 participants 58.2% were aged 17-19 years (mean 19.4, SD 1.8) and 53.3% were male. Australian or New Zealand citizens comprised 94.8% of the respondents, and most lived with their parent(s) or guardian(s) (66.7%) (**Table 1**). Current smokers made up 16.5% of the participants.

INSERT - TABLE 1

Alcohol-related academic problems

In the preceding four weeks, as a result of drinking, 14.9% of participants reported being late for class at least once, 25.6% had missed a class, 25.7% had been unable to concentrate in class and 10.4% had failed to complete an assignment on time (**Table 2**). Almost half the participants (45%) thought that their drinking had impacted negatively on how much they had learned or their grades, and 5.6% reported the impact as 'quite a lot' and 1.7% as 'a great deal'.

Multinominal logistic regression models show that the frequency of drinking and the amount of alcohol consumed on a typical drinking occasion were significantly associated with study behaviour (**Table 3**). The more frequently participants drank the more likely they were to have been late for class, to have missed a class and/or to have been unable to concentrate. The greater the consumption per typical drinking occasion the more likely participants were

to have missed a class or failed to complete an assignment on time. For example (**Table 3**, model 2), students who drank more frequently were significantly more likely to have missed a class four or more times (relative risk ratio (RRR) = 1.12 [95% confidence interval (CI) = 1.06–1.19]) as were those who consumed larger quantities (1.13 [1.06–1.21]).

Current smokers were also significantly more likely to have missed a class, but smoking status was not significantly associated with other academic problems. Men were significantly less likely to have been unable to concentrate in class (**Table 3**, model 3) on two (RRR = 0.50 [95% CI = 0.29–0.85]) or three (0.32 [0.15–0.69]) occasions than women.

The frequency of drinking and the amount of alcohol consumed on a typical occasion were significantly associated with self-perceived impact on learning and grades (**Table 3**). Smoking status, age, faculty and year level were not associated with this outcome. Students who drank more frequently and/or consumed larger quantities of alcohol were more likely to think that their drinking negatively affected their learning and grades.

INSERT - TABLE 2

INSERT - TABLE 3

Alcohol-related personal problems

The most frequently reported personal problem was 'hangover' (74.8%), followed by 'blackouts' (44.8%), 'emotional outbursts' (30.5%) and 'vomiting' (28.1%) (**Table 4**). About 23% of participants reported either driving a car after consuming too much alcohol to be able to drive safely, or being a passenger when the driver had consumed too much alcohol.

Current smokers drank significantly more frequently (times/month, mean ± standard deviation (SD): 11.0 ± 7.1) than non-smokers (8.0 ± 5.6) ($p < 0.001$); however, there was no significant difference in the number of standard drinks consumed by smokers (7.6 ± 4.1) and non-smokers (7.2 ± 4.6) ($p = 0.25$) on a typical occasion.

The frequency of drinking and the quantity of alcohol consumed on a typical day of drinking were significantly associated with personal problems (**Table 5**). Students who drank more frequently were more likely to report having all of the types of personal problems on the APS except for being arrested, and those who consumed more alcohol were significantly more likely to report having all of the types of personal problems except for drink-driving. Current smokers, who drank more frequently than non-smokers, were more likely than non-smokers to report being aggressive (OR = 2.04 [95% CI = 1.18–3.53]), being unable to pay bills (2.55 [1.54–4.25]), drink-driving (2.05 [1.40–3.01]) and/or being passengers of a drink-driver (1.72 [1.26–2.55]).

Students aged 20–24 were less likely to experience vomiting than 17–19 year olds (OR = 0.68 [95% CI = 0.50–0.92]). Older students were also less likely to report being physically aggressive towards someone (OR = 0.79 [95% CI = 0.68–0.92]), regretting a sexual encounter (0.87 [0.76–0.99]), stealing private or public property (0.73 [0.62–0.86]) or committing an act of vandalism (0.70 [0.57–0.87]).

Men were less likely than women to report having hangovers (OR = 0.51 [95% CI = 0.37–0.70]), emotional outbursts (0.29 [0.21–0.39]), arguments (0.65 [0.46–0.91]), blackouts (0.68 [0.49–0.94]) and an inability to pay bills (0.50 [0.31–0.80]), but they were more than twice as likely to be physically aggressive towards someone (2.30 [1.35–3.92]) or steal (2.29 [1.31–3.99]) and five times as likely to engage in vandalism (5.39 [2.23–13.01]). The type of residence was associated only with sex-related harms, with students living with a parent(s) or guardian(s) being less likely to report unhappy (OR = 0.55 [95% CI = 0.32–0.95]) or regrettable (0.46 [0.29–0.73]) sexual encounters than those in shared houses. Students living alone, with partners/children or as boarders were significantly more likely to report unsafe sex than those in shared houses (2.55 [1.11– 5.83]). The faculty in which students studied was associated only with blackouts, with students enrolled in the Faculty of Health

more likely to report blackouts than students from the Faculty of Humanities (1.72 [1.14–2.59]).

INSERT - TABLE 4

INSERT - TABLE 5

Discussion

This study identified that a significant proportion of university students who drink at hazardous levels experience alcohol-related problems, with the most frequent being hangovers, blackouts, emotional outbursts, vomiting, arguments and drink-driving. Consistent with other studies those who consumed more alcohol and drank more frequently were more likely to experience alcohol-related personal and academic problems.

Men were more than twice as likely to be physically aggressive or steal and over five times as likely to engage in vandalism as women. While other studies have not been limited to hazardous drinkers this gender difference is consistent [7, 8, 21]. Interestingly, there were no significant gender differences in the likelihood of participants to report unsafe, unhappy or regrettable sex. Although gender convergence in student drinking behaviour has been widely noted in the literature, primarily because of increases in binge drinking among young women [22, 23], our previous research from the same overall sample [3] found significant differences in the quantities consumed by men and women [3]. The women in that study consumed less alcohol than the men (mean volume per typical occasion of 5.1 versus 8.7 standard drinks); however, biological differences in metabolic processing, body weight and fat-to-water ratios mean that women can typically achieve the same level of intoxication while consuming less alcohol [8, 24]. Women in the current study were more likely than men to experience blackouts, potentially increasing their vulnerability to sexual coercion [25].

A large proportion of participants (approximately 23%) reported drink-driving or being a passenger of a drink-driver. As the current study was based at a predominantly commuter university, the prevalence of drink-driving raises duty-of-care concerns about alcohol availability on campus. Research is needed to determine where drinking is occurring on or near campus, the pattern and intensity of consumption, and how students are being transported from the campus area.

Although many participants reported that their drinking impacted negatively on their learning, the actual experience of alcohol-related problems may not lead to behaviour change. Despite experiencing negative consequences, many students continue to drink; however, some may change their drinking habits [26]. These changes may result from weighing up the positive and negative consequences [27]. In addition, drinking alcohol tends to provide immediate positive reinforcement to the drinker, whereas negative impacts may become apparent over the long term [28]. In a study of 263 undergraduates that explored the nature and frequency of positive and negative alcohol-related consequences, Park and colleagues [26] found that students reported positive consequences more frequently and more strongly than negative consequences. It is also important to note that students may not agree on what constitutes a negative consequence. Mallett and colleagues [27] studied college students' perceptions of the positivity and negativity of alcohol-related consequences and found that several 'negative' consequences such as blackouts, hangovers and waking up in someone else's bed, were rated as 'positive' by a significant proportion of the sample. Additionally, cognitive impairment, although traditionally considered to be a negative consequence of excessive drinking, may not be viewed as negative by all drinkers [8]. This idea is supported by the findings of Polizzotto *et al*. [29], who found that the broad awareness of harms related to binge drinking did not affect participation; rather, vomiting and losing consciousness were seen as 'badges of honour'. Therefore, using negative consequences as deterrents in

272 campus-based interventions may be unwise, given that students may perceive some
273 consequences as neutral or positive [27].
274
275 The current study has several limitations. First, the participants were a screened sub-sample
276 from a larger study with a 56% response rate. Although this response rate is higher than
277 many surveys of university populations [30], it remains likely that estimates will be biased by
278 selective non-response [31]. The larger study had a higher proportion of younger students,
279 women and Australian/New Zealand residents than the wider university population; however,
280 there were no significant differences in alcohol consumption measures between early and
281 late survey respondents [3], and there was no evidence that the 20% of control participants
282 lost to follow-up in the trial were different at baseline from those who were followed up [20].
283 Accordingly, the prevalence estimates may not be severely biased.
284
285 This study assessed alcohol-related problems only among students who had been identified
286 as drinking at hazardous levels and therefore does not offer comparison with the experience
287 of moderate drinkers. Given that this study found that more frequent and greater alcohol
288 consumption increased the likelihood of harm, it is likely that more moderate drinkers have a
289 lower prevalence of such problems, as found in most other studies [32-34]. Many students
290 (including non-drinkers) experience harm caused by the drinking behaviour of others [3, 35],
291 and these secondhand effects remain an important justification for population intervention
292 strategies. Notably, alcohol-related problems were reported only for the preceding four
293 weeks such that the prevalence of harms across the entire year is substantially higher.
294

295 Conclusions

296 University administrators should be concerned by the high prevalence of preventable
297 alcohol-related problems, and their impact on academic performance and student welfare.
298 Further examination of student drinking through multi-institutional and longitudinal studies

would improve knowledge of modifiable environmental risk factors and the effectiveness of policies. Evidence-based environmental [36] and individual level [37] interventions exist but the research is limited almost entirely to the USA. Efforts to adapt, develop, and evaluate interventions for the Australian context, including vocational training institutes (TAFE colleges), are urgently needed. This will require partnership between institutions, scientists, and funding agencies.

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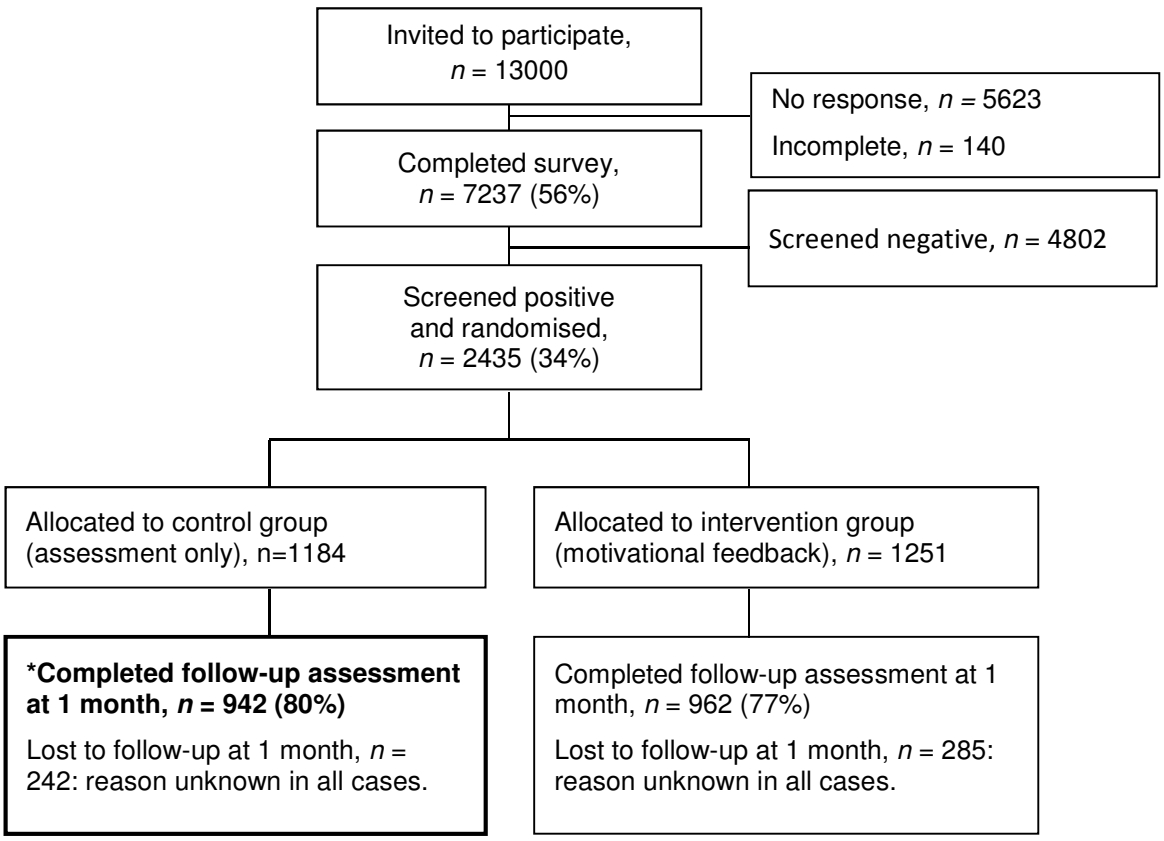
FIGURE



**Sample analysed for this study*

Figure 1. Intervention trial and group allocation

TABLES

Table 1 Demographics, smoking status and alcohol use.

Characteristic	Proportion of participants (%)*
Age	
17–19	58.2
20–24	41.8
Gender	
Female	46.7
Male	53.3
Citizenship	
Australian/New Zealand citizen	94.8
Non-citizen	5.2
Year level	
1st year	26.8
2nd year	31.4
3rd year	28.4
4th year or above	13.4
Faculty	
Humanities	19.4
Business	20.6
Engineering & Science	31.6
Health	28.4
Residence status	
Shared house	26.8
With parent(s) or guardian(s)	66.7
Other (alone, partner/children, boarder)	5.6
Unknown	0.9
Current smoker	
No	83.2
Yes	16.5
Unknown	0.2
Age, mean (SD) (years)	19.4 (1.8)
Number of days per month on which alcohol consumed, mean (SD)	8.5 (5.9)
Number of drinks containing alcohol on a typical day when having alcohol, mean (SD)	7.2 (4.5)

*n = 942

428 **Table 2** Frequency of academic problems related to drinking (according to the AREAS) in
429 the previous four weeks.

Academic problem	Not at all (%)	Once (%)	Twice (%)	Three times (%)	Four or more times (%)
Late for class, *n* = 942	85.1	8.6	3.4	1.2	1.7
Missed a class, *n* = 942	74.4	13.2	6.8	3.2	2.4
Unable to concentrate in class, *n* = 939	74.3	12.7	6.9	3.4	2.7
Failed to complete an assignment on time, *n* = 942	89.6	6.7	2.1	1.0	0.6

430

Table 3 Association of demographics, smoking status, alcohol use and experimental group with alcohol-related academic problems (AREAS) among students drinking at hazardous levels.

Model	Once, compared with 'not at all' RRR [95% CI]	Twice, compared with 'not at all' RRR [95% CI]	Three times, compared with 'not at all' RRR [95% CI]	Four or more times, compared with 'not at all' RRR [95% CI]
Model 1: Late for class, *n* = 941				
Current smoker	1.65 [0.94–2.87]	1.99 [0.88–4.51]	2.06 [0.56–7.55]	2.37 [0.81– 6.93]
Drinking frequency	1.06 [1.02–1.10][b]	1.11 [1.06–1.17][c]	1.16 [1.08–1.26][c]	1.14 [1.06–1.21][c]
Typical amount	1.05 [1.00–1.10][a]	1.13 [1.06–1.20][c]	1.09 [0.98–1.20]	1.05 [0.96–1.16]
Model 2: Missed a class, *n* = 940				
Current smoker	1.69 [1.03–2.76][a]	2.63 [1.46–4.75][c]	3.17 [1.43–7.03][b]	2.63 [1.03–6.69][a]
Drinking frequency	1.05 [1.01–1.08][b]	1.06 [1.02–1.10][b]	1.08 [1.02–1.14][b]	1.12 [1.06–1.19][c]
Typical consumption	1.05 [1.01–1.09][a]	1.08 [1.03–1.14][b]	1.07 [1.00–1.16]	1.13 [1.06–1.21][c]
Model 3: Unable to concentrate in class, *n* = 939				
Male (female, RRR = 1)	0.72 [0.48–1.08]	0.50 [0.29–0.85][a]	0.32 [0.15–0.69][b]	0.62 [0.26–1.46]
Drinking frequency	1.06 [1.02–1.09][c]	1.09 [1.05–1.13][c]	1.11 [1.05–1.16][c]	1.12 [1.06–1.18][c]
Typical consumption	1.03 [0.98–1.08]	1.11 [1.05–1.17][c]	1.13 [1.05–1.20][c]	1.15 [1.07–1.23][c]
Model 4: Failed to complete an assignment on time, *n* = 941				
Current smoker	2.25 [1.25–4.07][b]	2.44 [0.90–6.58]	3.33 [0.83–13.31]	0.91 [0.10–8.48]
Drinking frequency	1.00 [0.96–1.05]	1.08 [1.01–1.14][a]	1.09 [1.00–1.19][a]	1.09 [0.98–1.21]
Typical consumption	1.05 [1.00–1.11]	1.14 [1.06–1.23][c]	1.10 [0.99–1.23]	1.18 [1.06–1.31][b]
Model 5: Negative impact on learning and grades, *n* = 939 Direction from 'not at all', 'a little', 'quite a lot', to 'a great deal': OR [95% CI]				
Drinking frequency	1.08 [1.05–1.10][c]			
Typical consumption	1.14 [1.11–1.18][c]			

The results of models 1–4 are derived from multinominal regressions. The data are presented as the relative risk ratio (RRR) and 95% confidence interval (CI) for the groups who rated their experience as 'once', 'twice', 'three times' or 'four or more times' compared with those who said 'not at all' (RRR = 1). The results of model 5 were derived from an ordered logistic regression, and the data are presented as the odds ratio (OR) and 95% CI. Each model included the following variables: age, gender, citizenship, year level, faculty, residence status, smoking status, drinking frequency and the amount of alcohol consumed on a typical occasion. Only variables with a *p* value <0.05 in Wald tests remained in the final model and are reported in the table. [a]$p < 0.05$, [b]$p < 0.01$, [c]$p < 0.001$.

442 **Table 4** Prevalence of alcohol-related personal problems (according to the APS) in the
443 previous four weeks.

Personal problem	**'Yes' (%)**
You had a hangover, *n* = 940	74.8
You had an emotional outburst, *n* = 939	30.5
You experienced vomiting, *n* = 939	28.1
You had an argument, *n* = 939	20.2
You were physically aggressive towards someone, *n* = 938	9.3
You had a period of time that you could not remember (blackout), *n* = 939	44.8
You were unable to pay your bills as a result of spending too much money on alcohol, *n* = 937	9.3
You had unsafe sex, *n* = 937	9.7
You were in a sexual situation you weren't happy about at the time, *n* = 935	7.1
You had a sexual encounter you later regretted, *n* = 936	11.1
You suffered an injury that required medical attention, *n* = 938	2.8
You drove a car after you had perhaps had too much to drink to be able to drive safely, *n* = 933	23.2
You were a passenger in a vehicle where the driver had perhaps had too much to drink to be able to drive safely, *n* = 936	22.7
You stole private or public property, *n* = 939	8.3
You committed an act of vandalism, *n* = 938	5.2
You were removed or banned from a pub or club, *n* = 939	5.9
You were arrested, *n* = 939	0.8

444 **Table 5** Association of demographics, smoking status, alcohol use and experimental group with alcohol-related personal problems (APS)
445 among students drinking at hazardous levels.

Problem	Drinking frequency OR [95% CI]	Amount of alcohol OR [95% CI]	Current smoker OR [95% CI]	Age* OR [95% CI]	Male OR [95% CI]	Other demographics OR [95% CI]
Hangovers	1.06 [1.03–1.09][c]	1.18 [1.12–1.23][c]	-	-	0.51 [0.37–0.70][c]	-
Outbursts	1.05 [1.02–1.07][c]	1.06 [1.02–1.09][c]	-	-	0.29 [0.21–0.39][c]	-
Vomiting	1.02 [1.00–1.05][a]	1.10 [1.07– 1.14][c]	-	Age (17–19, reference OR = 1) 20–24: 0.68 [0.50–0.92][a]	-	-
Arguments	1.08 [1.05–1.11][c]	1.10 [1.06–1.14][c]	-	-	0.65 [0.46–0.91][a]	-
Aggression	1.07 [1.03–1.11][c]	1.14 [1.09–1.19][c]	2.04 [1.18–3.53][a]	0.79 [0.68–0.92][b]	2.30 [1.35–3.92][b]	-
Blackouts	1.05 [1.03–1.08][c]	1.18 [1.14–1.23][c]	-	-	0.68 [0.49–0.94][a]	Faculty (Reference: Humanities,) Business 1.03 [0.66–1.61] Eng & Sci 1.43 [0.94–2.18] Health 1.72 [1.14–2.59][a]
Unpaid bills	1.05 [1.02–1.09][b]	1.09 [1.04–1.14][c]	2.55 [1.54–4.25][c]	-	0.50 [0.31–0.80][b]	-
Unsafe sex	1.09 [1.05–1.12][c]	1.13 [1.08–1.18][c]	-	-	-	Residence (Shared house, reference OR = 1) With parent/guardian: 0.80 [0.48–1.33] Other: 2.55 [1.11–5.83][a]
Unhappy sex	1.09 [1.05–1.13][c]	1.09 [1.04–1.14][c]	-	-	-	Residence (Shared house, reference OR = 1) With parent/guardian: 0.55 [0.32–0.95][a] Other: 0.61 [0.18–2.14]
Regrettable sex	1.06 [1.03–1.09][c]	1.10 [1.06–1.15][c]	-	0.87 [0.76–0.99][a]	-	Residence (Shared house, reference OR = 1) With parent/guardian: 0.46 [0.29–0.73][c]

							Other: 0.46 [0.16–1.37]
Injuries	1.07 [1.01–1.13][a]	1.11 [1.05–1.19][b]	-	-	-	-	
Driving a car	1.06 [1.03– 1.08][c]	-	2.05 [1.40–3.01][c]	-	1.71 [1.24–2.37][c]	-	
Passenger in a car	1.05 [1.02–1.08][c]	1.11 [1.07–1.14][c]	1.72 [1.26–2.55][b]	-	-	-	
Theft	1.09 [1.05–1.13][c]	1.11 [1.06–1.16][c]	-	0.73 [0.62–0.86][c]	2.29 [1.31–3.99][b]	-	
Vandalism	1.09 [1.05–1.14][c]	1.09 [1.03–1.15][b]	-	0.70 [0.57–0.87][c]	5.39 [2.23–13.01][c]	-	
Ban from pub	1.08 [1.04–1.12][c]	1.14 [1.09–1.20][c]	-	-	-	-	
Arrest	-	1.23 [1.12–1.36][c]	-	-	-	-	

The results are derived from binary logistic regression analysis and presented as the odds ratio (OR) and 95% confidence interval (CI) for participants who said that they had experienced alcohol-related harms compared with those who said they did not. The full model included the following variables: age, gender, citizenship, year level, faculty, residence status, smoking status, drinking frequency and the amount of alcohol consumed on a typical occasion. Only variables with a p value <0.05 in Wald tests remained in the final model and are reported in the table. [a]$p < 0.05$, [b]$p < 0.01$, [c]$p < 0.001$. *Age was entered into regression models as a continuous variable, with the exception of the model for 'vomiting', in which age was grouped into two categories on the basis of preliminary results obtained during the model building process.