ALCOHOL USE AMONG ENTRANTS TO A HONG KONG UNIVERSITY

SIAN GRIFFITHS1,*, JOSEPH T. F. LAU1, JULIE K. W. CHOW1, S. S. LEE1, PAULINE Y. M. Y. KAN2 and S. LEE3

1School of Public Health, 2University Health Service and 3Hong Kong Mood Disorders Center, The Chinese University of Hong Kong, Shatin, Hong Kong, China

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Abstract — Aim: This study of first year entrants to one of the major universities in Hong Kong describes the pattern of their alcohol consumption, their binge drinking, alcohol abuse, and dependence. Methods: A retrospective cross-sectional study was conducted. A representative sample of year 1 students 2630/2968 (89%) newly admitted to the Chinese University of Hong Kong in 2003 were recruited to participate in a structured self-administered questionnaire. Results: First year university students in Hong Kong have low rates of ever drinking alcohol (62%), and the rates of binge drinking and alcohol-related problems were 7 and 0.8%, respectively. The pattern of binge drinking is more common than weekly drinking (2.3%). Binge drinkers are more likely to have experienced alcohol-related interpersonal problems or (95% CI) = 6.5 (1.7–24.5). Males were more likely to drink, to binge drink, and to drink frequently. Conclusions: In contrast with students in the west, the majority of first year university students in Hong Kong are not binge or regular drinkers. However, there is a subgroup who smoke, drink more, and use alcohol as a means of coping with stress. This group may be particularly in need of a brief intervention, such as providing counseling and referral services.

INTRODUCTION

Alcohol is widely consumed in many countries and globally an estimated two billion people drink alcohol (World Health Organization, 2005). Although drinking alcohol is socially acceptable, it is potentially harmful to health. While many people drink without any serious adverse effects, drinking to intoxication or binge drinking has been noted to be associated with a wide variety of negative social and behavioural impacts. Among young people in the USA and Northern Europe, uncontrolled alcohol consumption is a growing problem. In the USA, up to 50% of young alcohol users report binge drinking (Serdula et al., 2004), and a study of US college students found that the rate of frequent binge drinking (binging \(\geq 3\) times in a 2 week period) had increased from 20 to 23% in the period of 1993–1999 (Wechsler et al., 2000). Binge drinking is particularly prevalent among young people, leading to personal, relationship and delinquency problems (Jernigan 2001). Surveys in Europe have correlated alcohol abuse with impaired academic or occupational performance; damage to objects or clothing; physical injuries or accidents; and relationship problems with teachers, parents, or peers (Hibell et al., 1997). Binge drinkers are more likely to be involved in violence and drink driving. In UK, young binge drinkers (18–24 years old) are five times more likely to be involved in violent crime and seven times more likely to cause criminal damage (Richardson and Budd, 2003). Binge drinking can reduce students’ academic performance and also have a negative impact on other students (Wechsler et al., 2000). For example, one of the secondhand binge effects experienced by 1% of non-binge drinkers living in high-binge campuses was being the victim of sexual assault or date rape.

The prevalence of alcohol use is high among Asian university students, including mainland China. For example, 61% of Singaporean (Irinalowitz and Hong, 1988) and 85% of Korean (Kim, 2002) university students reported alcohol use. About 8% of Singaporean alcohol users drank weekly (Irinalowitz and Hong, 1988) and 45% of Japanese university students drank monthly with their friends (Sobue et al., 2002). In mainland China, a study on university students (aged 18–35 years, mean age was 21.1) in Nanning, Guangxi Province, indicated that 30% of men and one-tenth of women drank at least once a week (Lu et al., 1997). However, the prevalence of weekly binge drinking among the general youth population (aged 18–24 years) was only 1.3% (Ustun et al., 2003). Amongst university students in Hong Kong, 61% reported alcohol use in their lifetime and 14% of those who drank admitted to binge drinking defined as having consumed \(\geq 5\) alcoholic drinks in at least one occasion during the past month (Abdullah et al., 2002). The trend towards heavy episodic alcohol use in Hong Kong was also found in the Behavioural Risk Factor Survey (2006), which showed that the rate of binge drinking at least once in the past month among adult alcohol users had increased from 24 to 29% in the period 2004–2005 and those who binged \(\geq 3\) times within 1 month among heavy drinkers has also risen from 35 to 45% (Centre for Health Protection, 2005, 2006). Thus, given experience of the impact of globalization on other behaviours such as eating patterns and diet, it is possible that the patterns of binge drinking amongst young people in Hong Kong may be influenced by the western lifestyle that favours drinking and smoking at young age (Metintaş et al., 1998). The present study is one of the few student surveys conducted at the entry of university prior to the actual commencement of classes. This allows us to have a baseline for the investigation of the changes of drinking patterns during university years.

METHODS

Sample

Questionnaires were returned by 2630 out of 2968 (89%) Year 1 students who were newly admitted to the Chinese University of Hong Kong (CUHK) in 2005 (\(n = 2968\)). They were recruited for the survey at the health screening checks, which are mandatory for all students, and are run by the University...
Health Service. The survey lasted for one week before the students began school. Of all students, 89% attended for health checks and were invited to join the study. All of them gave consent and completed the survey. Those who did not present themselves at the health centre were not covered by the study, but the final sample was representative of all freshmen. Students who could read Chinese and were able to respond to written questions in Chinese were eligible for the survey, regardless of their ethnicity, age, or gender. Ethical approval was obtained from the Survey and Behavioural Research Ethics Committee of the Chinese University of Hong Kong. The respondents were informed in the questionnaire that this survey would be conducted anonymously and its content would not be associated with their health records at the university. The students were asked to complete both their health records and the questionnaire at a classroom of university in the health centre. They handed in the questionnaires to the clinic nurses.

Instruments
A structured self-administered questionnaire in Chinese was used. The prevalence and patterns of alcohol use, smoking status, and stress management strategies were assessed by questions modeled on the survey conducted by the Behavioural Risk Factor Surveillance System (BRFSS) of Hong Kong Centre for Health Protection (CHP). Alcohol-related problems including alcohol dependence and abuse were assessed according to the criteria of Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) from American Psychiatric Association (APA) (American Psychiatric Association, 1994). The criteria of alcohol abuse include interference with major roles, recurrent interpersonal problems, recurrent alcohol use in situations in which it is physically hazardous, and recurrent alcohol-related legal problems, while alcohol dependence is defined by unsuccessful efforts to cut down alcohol use.

Measurement
The prevalence of alcohol and tobacco use was ascertained. ‘Ever drinkers’ were defined as ones who had consumed any amount of alcohol in their lifetime and those who had never drunk were defined as ‘never drinkers’. ‘Abstainers’ were described as those who had consumed alcohol in their lifetime but had not drunk any alcohol in the past year.

Ever drinkers included regular (drink 1–7 days a week) and occasional alcohol consumers (drink ≤1–3 days a month). Binge drinking described those who drank ≥5 drinks in a row in the past month.

Statistical analysis
Age and gender-specific prevalence for binge drinking, alcohol abuse and dependency, reasons for drinking, type of alcoholic beverage consumed, means of stress management and other factors (such as socio-demographic factors, tobacco use, and type of living arrangement.) were investigated using the χ²-test, univariate odds ratios, and multivariate logistic regression methods.

RESULTS

Background characteristics
Of the students, 46% were male and the mean age was 18.9 (±1.1 years) which was representative of the students admitted to the university in the preceding year.

Prevalence of alcohol use
Of all students, 62% (72% men, 53% women, P < 0.01) had ever drunk alcohol, and 7% (12% men, 3% women, P < 0.01) reported binge drinking (Table 1) and 1.4% (2.3% men, 0.6% women) were regular drinkers. Of all students from China, 59% were ever drinkers and 6.8% were binge drinkers. Only 0.6% of all students had experienced episodes of alcohol abuse (10 men, 5 women) (Table 1) and 0.3% experienced dependence, namely inability to stop or cut down on drinking (6 men, 1 woman) (Table 1).

Patterns of alcohol use among ever drinkers
The most common type of alcoholic beverage consumed was beer (82%), followed by table wine (42%), spirit (4%), and Chinese rice wine (3%) (Table 2). Men were more likely to consume beer and spirits, while women were more likely to drink table wine (P < 0.05).

Of those who had drunk alcohol, 9% had abstained for 1 year, while 89% were only occasional drinkers (drink ≤1–3 days a month) and 2% were regular drinkers (Table 2). Of those who had ever drunk alcohol, 11% admitted binge drinking (5.2% in men and 7% in women, P < 0.01) described those who drank ≥5 drinks in a row in the past month.

Table 1. Profile of the respondents

<table>
<thead>
<tr>
<th></th>
<th>Male n (%)</th>
<th>Female n (%)</th>
<th>Total n (%)</th>
<th>P (χ²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>100 (8.5)</td>
<td>253 (18.5)</td>
<td>353 (13.8)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Business administration</td>
<td>260 (21.6)</td>
<td>351 (25.0)</td>
<td>611 (23.5)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>14 (1.3)</td>
<td>31 (2.2)</td>
<td>45 (1.8)</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>332 (27.9)</td>
<td>110 (8.0)</td>
<td>442 (17.4)</td>
<td></td>
</tr>
<tr>
<td>Medicine</td>
<td>104 (8.8)</td>
<td>212 (15.6)</td>
<td>316 (12.5)</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>271 (22.9)</td>
<td>162 (11.9)</td>
<td>433 (17)</td>
<td></td>
</tr>
<tr>
<td>Social science</td>
<td>109 (9.0)</td>
<td>259 (18.7)</td>
<td>368 (14.2)</td>
<td></td>
</tr>
<tr>
<td>Law</td>
<td>0</td>
<td>1 (0.1)</td>
<td>1 (0)</td>
<td></td>
</tr>
<tr>
<td>Place of birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>945 (78.5)</td>
<td>1058 (75.6)</td>
<td>2003 (76.9)</td>
<td>0.23</td>
</tr>
<tr>
<td>China (arrived at HK at age ≤10 years)</td>
<td>87 (7.2)</td>
<td>113 (8.2)</td>
<td>200 (7.7)</td>
<td></td>
</tr>
<tr>
<td>China (arrived at HK at age &gt;10 years)</td>
<td>146 (12.1)</td>
<td>199 (14.5)</td>
<td>345 (13.5)</td>
<td></td>
</tr>
<tr>
<td>Other countries</td>
<td>27 (2.2)</td>
<td>24 (1.7)</td>
<td>51 (2.1)</td>
<td></td>
</tr>
<tr>
<td>Smoking status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never smoker</td>
<td>1150 (95.0)</td>
<td>1369 (97.6)</td>
<td>2519 (96.4)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Ever smoker</td>
<td>56 (4.6)</td>
<td>32 (2.4)</td>
<td>88 (3.4)</td>
<td></td>
</tr>
<tr>
<td>Currently smoking</td>
<td>5 (0.4)</td>
<td>1 (0.07)</td>
<td>6 (0.2)</td>
<td></td>
</tr>
<tr>
<td>&gt;5 cigarettes per day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%Ever drinker</td>
<td>870 (72)</td>
<td>747 (53)</td>
<td>1617 (61.9)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>%Binge drinkera</td>
<td>140 (11.6)</td>
<td>39 (2.8)</td>
<td>179 (6.9)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>%Binge drinkerb</td>
<td>140 (11.6)</td>
<td>39 (2.8)</td>
<td>179 (6.9)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>%Alcohol abuse</td>
<td>10 (0.83)</td>
<td>5 (0.36)</td>
<td>15 (0.57)</td>
<td>0.44</td>
</tr>
<tr>
<td>%Alcohol dependence</td>
<td>6 (0.5)</td>
<td>1 (0.07)</td>
<td>7 (0.27)</td>
<td>0.13</td>
</tr>
</tbody>
</table>

aData among all respondents (n = 2613: 1211 males, 1402 females).

bBase: among ever drinkers only (n = 1617: 870 males, 747 females).
drinking (16% men, 5% women). Men were more likely to binge drink and drink more frequently than women ($P < 0.05$).

The most common reasons given for alcohol use were social purposes (59%) and party or celebration (54%), followed by its good taste (11%), euphoric or excited feeling (6%), good for health (6%), relaxation (5%), and increase in confidence (1%) (Table 2). Men were significantly more likely to consume alcohol for relaxation, excitement, and social reasons, while women tended to drink for celebration purpose and its good taste ($P < 0.05$). When experiencing stress, smoking (1%) and drinking (3%) were rarely used to cope with stress. Among all students, reading or listening to music (69%) and taking more rest (67%) were listed as the main stress management strategies. Other common strategies used included talking to somebody (64%), shopping or other leisure activities (61%), doing exercise (50%), and eating (38%). Women were more likely to manage stress by talking to somebody, getting rest, eating, and shopping, while men were more likely to manage stress by exercising and drinking ($P < 0.05$).

No significant differences in alcohol consumption were associated with socio-economic status. Regression tests showed that being male [OR (95% CI) = 2.2 (1.9–2.6)] was the only significant factor. Amongst all students, the prevalence of ever smoking was only 3.6% (61 men, 33 women), and only seven students (5 men, 1 woman) smoked more than five cigarettes per day (Table 1). Men were significantly more likely to have ever smoked ($P < 0.05$).

**Patterns of alcohol use among binge drinkers**

The majority of binge drinkers (96%) drank beer (Table 3). Women were more likely to drink table wine, but less likely to drink beer ($P < 0.05$). Only one-tenth drank alcohol regularly every week and their main reasons for alcohol use were socialization (74%) and being at a party (54%). In total, 5% had experienced alcohol-related problems and women were more likely to experience recurrent interpersonal problems ($P < 0.05$). More than one-tenth of binge drinking men (15%) used alcohol to cope with stress. Binge drinkers were more likely to consume beer [OR (95% CI) = 5.7 (2.7–12.3)] and spirits [OR (95% CI) = 6.3 (3.8–10.5)] and to be regular drinkers [OR (95% CI) = 8.9 (4.6–17.2)] as compared with non-binge drinkers. They were also more likely to drink for relaxation [OR (95% CI) = 4.8 (2.9–8.0)], socialization [OR (95% CI) = 2.2 (1.6–3.1)], and euphoric feeling [OR (95% CI) = 4.2 (2.7–6.7)], but less likely to drink for its good taste [OR (95% CI) = 0.4 (0.2–0.8)].
Binge drinkers born in mainland China were more likely to drink due to celebration and its good impact on health as compared with Hong Kong bingers. All binge drinkers were much more likely to have experienced alcohol-related problems [OR (95% CI) = 6.8 (2.8–16.7)] than non binge drinkers, especially interpersonal problems [OR (95% CI) = 6.5 (1.7–24.5)] and consuming alcohol in physically hazardous situations [OR (95% CI) = 10.9 (2.4–49.0)]. When experiencing stress, they were more likely to use alcohol [OR (95% CI) = 9.1 (4.9–17.0)], and tobacco [OR (95% CI) = 8.7 (2.8–27.4)] to cope with their negative emotion.

**Factors associated with binge drinking**

The multivariate logistic regression tests showed that binge drinking among those who had drunk alcohol was positively associated with male gender [OR (95% CI) = 3.3 (2.2–4.8)], tobacco use [OR (95% CI) = 4.2 (2.5–7.2)], and stress management by drinking [OR (95% CI) = 5.4 (2.7–10.9)], but was negatively associated with stress management by reading or listening to music [OR (95% CI) = 0.7 (0.5–1.0)]. Similar results were obtained for binge drinking among all students with the exception that association with stress management by reading or listening to music was not statistically significant.

**DISCUSSION**

Approximately one-half of the university entrants in the study had never consumed any alcohol in their lifetime or had not consumed alcohol in the preceding year. The majority of those who reported drinking drank less than once a month. Less than one-tenth of all students were binge or regular drinkers, and binge drinking was more common than regular drinking. Beer was the primary choice of alcoholic beverage and alcohol was drunk mainly for social reasons. The high rate of abstinence among young people has also been observed among other university students in Hong Kong in which 39% had never consumed alcohol in their lifetime and the most commonly listed reason for drinking was social mixing (48%) (Abdullah et al., 2002). Our finding that 55% of CUHK students drank occasionally and only 1% drank every week describes lower alcohol consumption than that found in the general population of young people aged 15–24 years of whom 24% drank occasionally and 4% weekly. This difference needs to be explored further as does the finding that all students born in mainland China in our study drank much less frequently than reported levels for university students in China (1 versus 21% regular drinkers) (Lu et al., 1997).

Other studies in Hong Kong have found that the observed rates of heavy episodic drinking among the adult population ranged from 1.0 to 9% (Abdullah et al., 2002; Junghorban et al., 2003; Centre for Health Protection, 2005; Department of Health and University of Hong Kong, 2005; Lau et al., 2005). Binge drinking rates among the students in our survey were similar to those in other studies (Abdullah et al., 2002) and for young people in general in Hong Kong (7.0%) (Department of Health and University of Hong Kong, 2005). However, the rate of binge drinking among students born in mainland China was found to be higher than that reported for young people (1.3% in 18–24 years) in mainland China (Ustun et al., 2003), while the prevalence of alcohol dependence found in this sample was lower than that reported for the general population (3.8% in 15 years or older) in mainland China (Hao et al., 2004). The number reporting binge drinking three times or more in a month amongst binge drinkers was lower than those in the general adult population (aged 18–64 years) in Hong Kong (9.5% compared with 45%) (Centre for Health Protection, 2006).

Alcohol consumption patterns amongst Chinese communities tend to be lower than those in other countries. For example a community study in the UK found that the prevalence of ever alcohol consumption was 63% among Chinese men and 29% among women compared with 93% among European men and 89% among European women (White et al., 2001).

Binge drinking rates amongst young adults in our survey are also much lower than those in Europe (aged 18–24 years). The WHO Global Status Report on Alcohol (2004) estimated the rates of binge drinking amongst young people to be 20% in the Czech Republic, 10% in Georgia, 12% in Hungary, 14% in Latvia, and 18% in Slovakia (World Health Organization, 2004) and in US (24% in 18–20 years and 30% in 21–25 years) (Serdula et al., 2004). Even higher rates of heavy alcohol use have been reported among US college students with ~25–44% reporting to binge drinking (Wechsler et al., 2000; Windle, 2003; Sheffield et al., 2005). In UK, a recent study found that a quarter of young women aged 23 years reported binge drinking (>7 units/occasion) in public (Jeffersis et al., 2005). Heavy drinking is also common among female university students, with a majority of those who drank (59%) reporting binging and almost half (42%) reporting drinking more than 14 units in the last week prior to the survey (Underwood and Fox, 2000).

Some predictive factors have been suggested to explain the observed low drinking rates in young Chinese people. These include both genetic factors and social, political, and cultural influences. Approximately 31–48% of Chinese people have inheritance of at least one ALDH2*2 allele, a protective genetic factor that slows down the removal of acetaldehyde during alcohol metabolism (Thomasson et al., 1991; Goedde et al., 1992; Chen et al., 1999; Luezak et al., 2004), therefore making them susceptible to flushing (Wall and Ehlers, 1995). This may make people feel sick and prevent them from drinking large amounts of alcohol (Wall and Ehlers, 1995). In addition, cultural norms in Hong Kong and mainland China encourage light drinking as beneficial for health, but excessive drinking is less socially accepted. The custom of social drinking rather than solitary drinking is another protective factor which might influence frequency and amount (Wei et al., 1999). Another cultural protective factor could be the relatively strong family bonding and the emphasis placed on Chinese family values. In Chinese culture, family harmony is highly valued and is a protective factor against alcohol and tobacco use (Trinidad et al., 2003). The majority of new students from Hong Kong continued to live at home, which may mean less frequent night social gatherings and heavy drinking. This might explain relatively higher rates amongst male students from mainland. In the west, other factors have been shown to affect young adult drinking, such as the accessibility and price of alcohol, legal drinking age, and university policies concerning alcohol (Wechsler et al., 2000; Jernigan,
tion and tobacco found in the present study fits with the well-documented pattern (White et al., 2001; Abdullah et al., 2002; Janghorbani et al., 2003). This means that targeted intervention could be designed to focus on smokers to reduce harm from both alcohol and tobacco. Strategies to reduce the potential harm of binge drinking could also be introduced, targeting those who are most at risk. In England, the alcohol harm reduction strategy promotes the message of ‘sensible’ levels of alcohol consumption in campuses and provides information about the consequences of heavy alcohol use to all students (Prime Minister’s Strategy Unit, 2004). Education about alcohol, its harmful effects, and effective interventions can usefully be included in training to identify alcohol-related problems, and all those working with young people can be included. Availability of counseling and referral services is also important (Prime Minister’s Strategy Unit, 2004, Sheffield et al., 2005).

This study sample of first year students new to the university environment thereby provides appropriate baseline data for further study over time, allowing assessment of the impact of socialization within university life (such as living in residential halls) on changes in drinking patterns. However, it is likely that being better educated and being a high achiever will have a protective effect on alcohol use patterns, as it was noted that school problems have been found to be associated with illicit drug use (Fung and Chan, 2005) and those with lower educational achievement are likely to be utilizing their free time in other ways than studying. Hence, the results of this study are not necessarily generalizable to all people in their late teens in Hong Kong. Comparative patterns and attitudes amongst young people are areas for future research as well as the influence of cultural and family values.

One limitation of the present study is the possibility of under-reporting, which may have contributed to the low rates of drinking frequency and alcohol-related problems. However, the response rate was high and the study was anonymous. This sample of new entrants might be particularly subject to under-reporting of alcohol consumption, despite the anonymity of the questionnaire, as it could be perceived to be socially unacceptable. Another limitation is that the identification of abuse and dependence is not based on interviewer-administered diagnostic instruments and is not validated by clinicians due to the large sample size, anonymity, and resource limitations. Along with the fact that students might under-report on a sensitive topic such as alcohol drinking and related problems in the context of a university entrance health check, the results must be considered preliminary and potentially an underestimate of the actual situation. Thus, we did not carry out clinical reappraisals on identified respondents who met criteria for alcohol abuse by using clinically trained interviewers and standard diagnostic schedules. This is because the surveys were anonymous and did not ask participants for contact details.

A sequential and longitudinal study will be conducted to explore the change of drinking rates in university student population and to make comparison with the general public at large. The frequency of drinking is expected to increase once students commence their classes. As shown in a previous study on Year 1 and 3 university students in Hong Kong (Abdullah et al., 2002), 19% of them drank regularly every week (as compared with the 1.4% prevalence reported in our study of university entrants), suggesting that many never or occasional drinkers begin to drink weekly since starting classes. Therefore, the beginning period of first year courses may be a critical window period for programs or strategies aimed at prevention of heavy alcohol use. Many problems resulting from alcohol use which were shown to be experienced by university students (Lu et al., 1997, Wechsler et al., 2000) should be included in the future research, such as missing classes, poorer academic performance, or criticism by close friends or parents (Lu et al., 1997). Comparison with young people leaving the educational system would also provide valuable insights. As family relationships have been shown to be strong predictors of alcohol use, they also should be explored or assessed in future studies to identify their association with alcohol abuse (Fung and Chan, 2005, Trinidad et al., 2003).

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REFERENCES


