

ORIGINAL ARTICLE

KNOWLEDGE, ATTITUDE AND CONSUMPTION PATTERN OF ALCOHOL AMONG UNIVERSITY STUDENTS AT A PRIVATE UNIVERSITY IN KUALA LUMPUR, MALAYSIA: A CROSS-SECTIONAL STUDY

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ABSTRACT

Elevated levels of alcohol consumption among university students have been frequently reported over the past decades and this remains a considerable public health problem. To avert the severity of hazardous drinking among university students, it is significant to identify their knowledge, attitude, and consumption pattern of alcohol for better feasible intervention strategies. A cross-sectional study was conducted among university students aged 18-30 years using the convenience sampling method. The questionnaire was self-designed and validated by a panel of experts. Data were collected between August and September 2020 and analysed by SPSS version 20. A total of 374 participants completed the questionnaire. The prevalence of alcohol use was 81% and about third quarters of them had their first drinking before the legal age. The mean score for alcohol knowledge was 16.05 (SD = 4.31). More than half of them had good knowledge (54%) and a positive attitude towards alcohol use (54.3%). 77.6% of them showed irregular drinking behaviour and only a minority (22.7%) engaged in risky behaviours, among them, the most common were emotional outbursts, vomiting, and hangovers. A significant relationship was observed between alcohol use with family and peer influence effect, ethnicity, living condition and perceived parents' socioeconomic status. There were lacunae in the government policies whereby the legislation and enforcement policy were insufficient to regulate or restrict the accessibility of alcoholic beverages for young people under the age of 21 and lacked strategies for enabling drinkers to track their alcohol intake. The relevant parties should focus on the necessary efforts to prevent underage drinking and improve alcohol use awareness.

Keywords: Alcohol, alcoholism, underage drinking, university student, adolescent, substance use

INTRODUCTION

Malaysia was ranked the tenth largest consumer of alcohol in 2011, with a comparatively lower level of alcohol consumption than in other countries such as the United States, Europe, Singapore, Thailand, and India¹⁻³. In 2019, there were about 11.8% of Malaysians aged 18 and older categorized as current drinkers, with a slight increment of 3.4% compared to 2015^{4,5}. Among them, 1 in 10 students were current drinkers and more than 70% had their first alcoholic drink before the age of 14 years⁶. Generally, university students have a higher prevalence of alcohol consumption and alcohol-use disorders than those of same-age non-college adolescent⁷⁻⁹. The adolescent years are a critical window of vulnerability to engage in risky behaviours including excessive alcohol use. They are given more freedom in making their own choices for their health behaviours compared to earlier or later in life¹⁰.

Excessive alcohol consumption is associated with a series of severe public health problems such as non-communicable diseases, cancer, motor-vehicle crashes, unintentional injuries, and mental and behavioural disorders including self-harm^{8,10,11}. About 3 million deaths due to alcohol

consumption were reported every year globally, which mortality is higher than diseases such as tuberculosis, HIV/AIDS, and diabetes². Every 1 in 4 students experienced academic issues from drinking, such as a higher rate of absences, getting behind in assignments, and lower grades^{7,8,12}. Excessive alcohol consumption also causes significant impacts on society and the economy apart from health consequences¹³. In the United States, excessive alcohol use was accountable for around 95,000 deaths every year and costs \$249 billion in economic costs in 2010 where three-quarters of the total economic cost was contributed to binge drinking⁹.

It is important to identify the high-risk population to provide an overview of alcohol consumption and the harms concerning alcohol use. Previous studies were mainly conducted among school-going adolescents aged between 12-17 years¹⁴. There is limited research on alcohol use among university students aged above 18 in Malaysia. Therefore, this study aimed to access knowledge, attitude, and consumption patterns of alcohol among university students to obtain further insights into adopting targeted health education strategies in their respective communities.

METHODS

Study design, settings, and sample

This descriptive study was designed as a Web-based questionnaire, cross-sectional analysis targeting a convenience sampling of registered students from UCSI University Kuala Lumpur Campus aged 18-30 years in 2020. Those who are unwilling to participate were excluded. The required sample size was 367 using Raosoft software with a 95% confidence interval, 5% margin of error, and 50% response distribution.¹⁵

Study instrument

As a preliminary step, a questionnaire in the English language was developed based on already-agreed-on professional definitions found in literature reviews^{7,16-21}; from local and common sense constructs; from researchers' values, theoretical orientations and personal experiences. The questionnaire consisted of 5 sections including Section A: 16 socio-demographic items, Sections B, C, and D: 17 knowledge items, 20 attitude items, 12 alcohol consumption pattern items; Section E: 17 alcohol use consequences items. The questionnaire was reviewed and validated by 3 experts to ensure its face and content validity. Further amendments were done based on their feedback. Subsequently, the questionnaire was piloted among 37 students (excluded from final data analysis) who met the study criteria to ascertain its reliability. The internal consistency of Cronbach's alpha coefficients for Sections B, C, and D were measured with results of 0.61, 0.82, and 0.63 respectively.

Data collection

Data were collected from August to September 2020 from web and physical. Due to the COVID-19 pandemic, all teaching and learning activities were converted to online until the end of December 2020.²² An online Google form was disseminated to the participants through various online social platforms including WhatsApp, Facebook, and CourseNetworking (CN) (an academic social learning platform of UCSI University). The QR code to access the Google form was distributed physically to participants at the campus. They were also encouraged to share the Google form link with their classmates or friends.

Data analysis

The Statistical Packages for the Social Sciences (SPSS) version 20 was used for the descriptive and inferential analysis of the data. Categorical data were summarized using frequencies and percentages while continuous data were using the Likert Scale and expressed as mean \pm standard deviation. For knowledge items, '1 mark' for

correct response and '0' mark for incorrect response and do not know. The total knowledge score ranged from 0 to 26. A higher score indicated more knowledge. The knowledge results were further categorized into good and poor knowledge of alcohol use. For positive attitude items (favour in alcohol use), scores of '0', '1', '2', '3', '4' for 'strongly disagree', 'disagree', 'neutral', 'agree', and 'strongly agree' respectively. The scoring was reversed for the negative attitude items. The attitude results were further categorized into positive and negative attitudes towards alcohol use. For degree of alcohol harm items, scores of '1', '2', '3', '4', '5' for 'never', 'rarely', 'sometimes', 'often', and 'always' respectively. There was a total of 17 levels of harm items with total scores ranging from 17 to 85. A higher score indicated a higher level of harm from alcohol use. The level of harm results was further categorized into high and low harm. The normality of the data was determined through skewness and kurtosis. The data obtained were normally distributed, using a dependent sample *t*-test and one-way analysis of variance (ANOVA) to access differences. The results were expressed in mean \pm standard deviation (SD) and a *p*-value of < 0.05 was considered statistically significant.

Ethical Consideration

This study was approved by the Faculty Research and Scholar Activities (FRSA), Faculty of Pharmaceutical Science, UCSI University and Institutional Ethics Committee (IEC-2020-FPS-038), UCSI University. Written informed consent was obtained from each participant who was assured of confidentiality and anonymity before their participation. Any type of dissemination of the data was done anonymously.

RESULTS

The sociodemographic characteristics of participants were presented in Table 1A and 1B. A total of 374 participants were involved in this study. The mean age \pm SD of participants was 21.67 years \pm 2.160 with 67.4% of females and 32.6% of males. Most of the participants were Chinese (85.3%), followed by Indians (4.3%) and Malays (1.6%). 84.5% of participants were undertaking a degree programme and 61% were from health science-related courses. 36.6% of participants stayed with their parents and their main income was from family (86.6%), followed by a study loan (53.7%), scholarship (34.8%), and working part-time (17.6%). Less than half of the participants (47.3%) had a monthly household income of RM 4,000 - RM 9,000. Only 18.4% of participants had a monthly household income of more than RM 9,000.

Table 1a: Sociodemographic characteristics of participants (n=374)

Characteristics	n (%)
Gender	
Male	122 (32.6)
Female	252 (67.4)
Ethnicity	
Malay	6 (1.6)
Chinese	319 (85.3)
Indian	16 (4.3)
Religion	
Muslim	26 (7.0)
Christian	107 (28.6)
Buddhist	213 (57.0)
Hindu	10 (2.7)
Course studied	
Health science-related	228 (61.0)
Non-health science-related	146 (39.0)
Degree of education	
Pre-U (e.g. Foundation, A-Levels)	18 (4.8)
Diploma	22 (5.9)
Degree	316 (84.5)
Postgraduate (e.g. Masters)	18 (4.8)
Marital Status	
Single	281 (75.1)
In a relationship	88 (23.5)
Married	5 (1.3)
Separated/Divorced/Widowed	0 (0)
Living situation	
University Campus (residential hall)	29 (7.8)
Alone (rented apartment)	78 (20.9)
With other friends (rented apartment)	130 (34.8)
With parents	137 (36.6)
Degree of father's education	
Primary	34 (9.1)
Secondary	179 (47.9)
Tertiary (e.g. colleges, universities)	157 (42.0)
Degree of mother's education	
Primary	29 (7.8)
Secondary	189 (50.5)
Tertiary (e.g. colleges, universities)	155 (41.4)
Source of income*	
Sponsored by family	324 (86.6)
Working part-time	66 (17.6)
Scholarship	130 (34.8)
Study loan (e.g. PTPTN)	201 (53.7)
Monthly household income	
≤ RM 4,000	128 (34.2)
> RM 4,000 - RM 9,000	177 (47.3)
> RM 9,000	69 (18.4)

Note: * indicates multiple response questions

Table 1b: Sociodemographic characteristics of participants (n=374)

Characteristics	n (%)
Perceived parents' socioeconomic status	
Wealthy	20 (5.3)
Average	338 (90.4)
Poor	16 (4.3)
Family relationship	
Friendly	328 (87.7)
Not friendly	13 (3.5)
Parents separated/ Divorced/ Late parent(s)	33 (8.8)
How often did your father drink alcohol?	
Never	121 (32.4)
Rarely	160 (42.8)
Occasionally	35 (9.4)
Regularly	24 (6.4)
Daily	7 (1.9)
Don't Know	26 (7.0)
How often did your mother drink alcohol?	
Never	199 (53.2)
Rarely	138 (36.9)
Occasionally	18 (4.8)
Regularly	7 (1.9)
Don't Know	11 (2.9)

Note: * indicates multiple response questions

Table 2 describes the responses of the participants on alcohol knowledge. Most of the participants (70.3%) never heard of or don't know the term "standard drink" and only 8% of participants knew that a serving of alcohol is not equal to one standard drink. Besides, more than half of the participants did not know the definition of binge drinking (78.9%) and heavy episodic drinking (81.8%) in Malaysia. However, 91.2% of participants did aware that pregnant and breastfeeding women should not consume alcohol. The association of sociodemographic characteristics and mean knowledge scores were presented in Table 3. The mean score for alcohol knowledge was 16.05 (SD = 4.31). Overall, 54% of participants had good knowledge of alcohol use while 46% of them had poor knowledge of alcohol use. The difference in mean knowledge scores was statistically significant between the health science and non-health science-related courses as well as between family relationships.

Table 4A and 4B summarizes the participants' attitudes toward alcohol use. In the current study, most participants did not agree drinking alcohol can boost their happiness and make them relaxed (78.9%) and release stress from assignments and exams (80.5%). 91.7 % of them did not find it difficult to stop alcohol use even though they were aware of the negative consequences of drinking alcohol. More than half of the total

participants (59.4%) agreed that heavy alcohol consumption impairs academic performance. The association of sociodemographic characteristics and mean attitude scores were presented in Table 5. The mean score for the attitude toward alcohol use was 27.93 (SD = 11.25). In this study, 54.3% of participants had a positive attitude towards alcohol use meaning they were more favourable to alcohol use. Meanwhile, 45.7% of them had negative attitudes towards alcohol use. A significant difference was shown between attitude scores with gender, ethnicity, living situation and perceived parents' socioeconomic status.

The alcohol consumption pattern was classified into three categories according to the frequency of drinking: (1) continuous drinkers = (almost) daily alcohol consumption; (2) frequent heavy drinkers = frequent alcohol consumption (2-4 days/week); (3) episodic drinkers = less frequent, irregular alcohol consumption with longer (> 5 days) sober periods as shown in Table 6A²³. In this study, 77.6% of the participants showed irregular drinking behaviour. Only 0.5 % of them were continuous drinkers and frequent heavy drinkers. Most of the participants (73.5%) consumed alcohol on weekends as shown in Table 6B. The alcoholic drink that was usually taken by participants was beer (59.1%), followed by wine (34.8%), cocktail (20.3%), whiskey (15.8%), and liquor (11.8%).

Table 2: Assessment of knowledge towards alcohol use

Knowledge Items	Correct n (%)	Incorrect n (%)
Alcohol is a drug.	134 (35.8)	240 (64.2)
Alcohol is a mood stimulating substance.	47 (12.6)	327 (87.4)
Alcohol is classified as a central nervous system depressant.	253 (67.6)	121 (32.4)
Have you ever heard the term “Standard Drink”?	111 (29.7)	263 (70.3)
A standard drink in Malaysia is equal to 10 grams of pure alcohol.	62 (16.6)	312 (83.4)
A serving of alcohol is equal to one standard drink.	30 (8.0)	344 (92.0)
The effects of alcohol on the body are different among individuals.	315 (84.2)	59 (15.8)
In Malaysia, binge drinking is defined as alcohol consumption of ≥ 6 standard drinks per sitting.	79 (21.1)	295 (78.9)
In Malaysia, heavy episodic drinking is defined as alcohol consumption of ≥ 6 standard drinks per sitting on at least one occasion weekly.	68 (18.2)	306 (81.8)
Getting drunk is the result of consuming excessive amounts of alcohol.	289 (77.3)	85 (22.7)
Do all excessive drinkers have an alcohol use disorder?	138 (36.9)	236 (63.1)
Excessive alcohol use can cause?		
high blood pressure	265 (70.9)	109 (29.1)
liver and pancreas inflammation	331 (88.5)	43 (11.5)
mental and behavioural disorders	317 (84.8)	57 (15.2)
cancers e.g. oral, esophageal, liver, breast, colon	245 (65.5)	129 (34.5)
weakened immune system	238 (63.6)	136 (36.4)
injuries due to road accidents, burns, falls, drowning	333 (89.0)	41 (11.0)
violence such as child abuse and intimate partner violence	335 (89.6)	39 (10.4)
What information should be displayed on the alcohol can or bottle?		
The ingredients used in that drink.	320 (85.6)	54 (14.4)
The strength of alcohol in that drink.	331 (88.5)	43 (11.5)
The calories content in that drink.	276 (73.8)	98 (26.2)
Warning about the harm associated with alcohol.	297 (79.4)	77 (20.6)
Pregnant and breastfeeding women should not consume alcohol.	341 (91.2)	33 (8.8)
Developing fetus will be damaged if pregnant women consumed alcohol.	311 (83.2)	63 (16.8)
Drinking alcohol can kill the SARS-CoV-2 virus.	288 (77.0)	86 (23.0)
Which types of alcoholic beverages below contain the highest alcohol content?	248 (66.3)	126 (33.7)

Table 3: Comparison of sociodemographic characteristics and mean knowledge score

Demographics Variables	Knowledge Score p-value
Gender	
Male	0.002 ^{a*}
Female	
Ethnicity	
Malay	0.049 ^{b*}
Chinese	
Indian	
Course studied	
Health science-related	0.050 ^{a*}
Non-health science-related	
Monthly household income	
≤ RM 4,000	0.011 ^{b*}
> RM 4,000 - RM 9,000	
> RM 9,000	
Family relationship	
Friendly	0.040 ^{b*}
Not friendly	
Parents separated/ Divorced/ Late parent(s)	

Note: ^a = Independent t-test, ^b = One-way ANOVA, *P <0.05, significant

Table 4a: Attitude towards alcohol use

Attitude Items	Positive attitude n (%)	Negative attitude n (%)
Drinking alcohol is a trend.	98 (26.2)	276 (73.8)
Drinking alcohol is against my personal or religious beliefs.	302 (80.7)	72 (19.3)
I like the unique and pleasant taste of alcohol.	84 (22.5)	290 (77.5)
Drinking alcohol boosts my happiness and makes me relaxed.	79 (21.1)	295 (78.9)
Drinking alcohol helps me to release stress from assignments and exams.	73 (19.5)	301 (80.5)
I tend to drink more when I am sad/despair.	66 (17.6)	308 (82.4)
I consume alcohol with my parents' consent.	93 (24.9)	281 (75.1)
Drinking alcohol is a way to strengthen relationships with friends.	83 (22.2)	291 (77.8)
I drink alcohol because my friends also drink alcohol.	72 (19.3)	302 (80.7)
I feel left out if I do not join my friends in drinking.	42 (11.2)	332 (88.8)
I feel a party without alcohol is not fun.	57 (15.2)	317 (84.8)
When alcohol is free, it is stupid not to take advantage.	59 (15.8)	315 (84.2)

Table 4b: Attitude towards alcohol use

Attitude Items	Positive attitude n (%)	Negative attitude n (%)
I can drink more when I am young and healthy.	64 (17.1)	310 (82.9)
I get annoyed when people criticise me for drinking.	55 (14.7)	319 (85.3)
I am careful to limit or avoid drinking because of concerns about possibly becoming an alcoholic.	163 (43.6)	211 (56.4)
I am fully aware of the harmful effects of alcohol use.	93 (24.9)	281 (75.1)
I can cut down or stop alcohol use anytime whenever I want.	112 (29.9)	262 (70.1)
I find it difficult to stop alcohol use even though I am aware of the negative consequences of drinking alcohol.	31 (8.3)	343 (91.7)
Heavy alcohol consumption impairs academic performance.	152 (40.6)	222 (59.4)
It is safe to drive a car after one or two alcoholic drinks.	42 (11.2)	332 (88.8)

Table 5: Comparison of sociodemographic characteristics and mean attitude score

Demographics Variables	Attitude Score p-value
Gender	
Male	
Female	0.050 ^{a*}
Ethnicity	
Malay	
Chinese	0.003 ^{b*}
Indian	
Living situation	
University campus (residential hall)	
Alone (rented apartment)	
With other friends (rented apartment)	0.006 ^{b*}
With parents	
Perceived parents' socioeconomic status	
Wealthy	
Average	0.023 ^{b*}
Poor	

Table 7 describes the degree of harmful effects associated with alcohol use. Most of the participants never had the harmful effects listed below but there were still 62 (16.6%) participants who showed emotional outbursts sometimes. Besides, 19 (5.1%) participants often vomit, and 10 (2.7%) participants often had a hangover after alcohol use. Nevertheless, a majority (65.8%) of the participants have never missed or been late for class due to alcohol consumption. The association of sociodemographic characteristics

and mean scores for harmful consequences of alcohol use were presented in Table 8. The mean score for the harmful consequences of alcohol use was 23.75 (SD = 9.80). In this study, 58.3% of the participants experienced a low degree of harmful effects associated with alcohol use while 22.7% of them experienced a high degree of alcohol harm. The difference in mean alcohol harm scores was statistically significant between males and females and degree programmes.

Table 6: Alcohol consumption patterns

Consumption Patterns	Description	n (%)
Have you ever consumed alcohol?	Yes	303(81.0)
	No	71(19.0)
Do you usually drink on?	Weekday	28(7.5)
	Weekend	275(73.5)
Age of first-time drinking alcohol (do not include any time when you only had a sip or two from a drink)	< 12	23 (6.1)
	12 - 14	32 (8.6)
	15 - 17	93 (24.9)
	18 - 20	110 (29.4)
	≥ 21	45 (12.0)
How often did you drink alcohol?	Rarely (< once a month/once a month/only during a special occasion)	269 (71.9)
	Occasionally (2-4 times a month)	25 (6.7)
	Regularly (2-4 times a week)	2 (0.5)
	Daily	2 (0.5)
Have you ever had a drink first thing in the morning (as an eye-opener) to steady your nerves or get rid of a hangover?	Yes	24 (6.4)
	No	279 (74.6)
How often do you smoke?	Regularly	7 (1.9)
	Occasionally	15 (4.0)
	In the past	13 (3.5)
	Never	268 (71.7)
How many of your friend drink alcohol?	Most of them	128 (34.2)
	Few of them	172 (46.0)
	None of them	3 (0.8)
What type of alcoholic drink do you usually take?*	Beer	221 (59.1)
	Wine	130 (34.8)
	Liquor	44 (11.8)
	Whiskey	59 (15.8)
	Cocktail	76 (20.3)
	Other	42 (11.5)
Reason for alcohol use*	To be happy	86 (23.0)
	To release stress	102 (27.3)
	To get drunk	27 (7.2)
	To work for long hours	10 (2.7)
	For fun	176 (47.1)
	For no reason	127 (34.0)
	Peer/ Social pressure	80 (21.4)
	Other	24 (7.0)
Alcohol taken*	Individually	94 (25.1)
	In group	241 (64.4)
	In front of family	159 (42.5)
Location of alcohol use*	At home	218 (58.3)
	Friend/ colleague's home	173 (46.3)
	Licensed premises	170 (45.5)
	In a field/park/street	33 (8.8)
Influencing factors of alcohol use*	Parents/Siblings/Relatives	158 (42.2)
	Friends	238 (63.6)
	Social Media	48 (12.8)
	Curiosity	114 (30.5)
	Others	7 (2.1)

Note: * indicates multiple response questions

Table 7: Degree of harmful effects associated with alcohol use

Harmful Effects Items	Never n (%)	Rarely n (%)	Sometimes n (%)	Often n (%)	Always n (%)
Emotional outburst	178 (47.6)	50 (13.4)	62 (16.6)	13 (3.5)	0 (0)
Become rude and physically aggressive	222 (59.4)	33 (8.8)	39 (10.4)	9 (2.4)	0 (0)
Injury to self or others	248 (66.3)	23 (6.1)	28 (7.5)	4 (1.1)	0 (0)
Get into a heated argument/ physical fight	251 (67.1)	27 (7.2)	21 (5.6)	4 (1.1)	0 (0)
Create conflicts with friends	253 (67.6)	24 (6.4)	21 (5.6)	5 (1.3)	0 (0)
Vomit	191 (51.1)	41 (11.0)	48 (12.8)	19 (5.1)	4 (1.1)
Have hangover	173 (46.3)	68 (18.2)	50 (13.4)	10 (2.7)	2 (0.5)
Have blackout (forget what you did/ where you were)	220 (58.8)	46 (12.3)	33 (8.8)	3 (0.8)	1 (0.3)
Engage in risky sexual behaviour	257 (68.7)	22 (5.9)	20 (5.3)	4 (1.1)	0 (0)
Drive a car while drunk	250 (66.8)	23 (6.1)	25 (6.7)	3 (0.8)	2 (0.5)
Be arrested	274 (73.3)	11 (2.9)	16 (4.3)	2 (0.5)	0 (0)
Have friends worry about your drinking/ tell you to stop drinking	230 (61.5)	31 (8.3)	27 (7.2)	12 (3.2)	3 (0.8)
Feel guilty or regret about drinking	193 (51.6)	53 (14.2)	46 (12.3)	9 (2.4)	2 (0.5)
Unable to stop drinking when you wanted to	245 (65.5)	25 (6.7)	27 (7.2)	6 (1.6)	0 (0)
Go to anyone for help to reduce your drinking	255 (68.2)	20 (5.3)	26 (7.0)	1 (0.3)	1 (0.3)
Miss or late for class/ particular important event	246 (65.8)	25 (6.7)	27 (7.2)	4 (1.1)	1 (0.3)
Unable to concentrate in class	242 (64.7)	26 (7.0)	29 (7.8)	4 (1.1)	2 (0.5)

Table 8: Comparison of sociodemographic characteristics and mean score of harmful consequences associated with alcohol use

Demographics Variables	Harmful Effects Score p-value
Gender	
Male	
Female	0.050 ^{a*}
Ethnicity	
Malay	
Chinese	0.030 ^{b*}
Indian	
Religion	
Muslim	
Christian	
Buddhist	0.004 ^{b*}
Hindu	
Course studied	
Health science related	
Non-health science related	0.007 ^{a*}
Degree of education	
Pre-U	
Diploma	
Degree	0.050 ^{b*}
Postgraduate	
Perceived parents' socioeconomic status	
Wealthy	
Average	0.008 ^{b*}
Poor	

Note: ^a = Independent t-test, ^b = One-way ANOVA, * P < 0.05, significant

DISCUSSION

More than half of the total participants showed a good knowledge of alcohol use, especially those from health science-related courses. They had a higher level of knowledge compared to those from non-health science backgrounds. The findings were supported by previous studies that medical students had an overall good knowledge of alcohol use^{18,24}. This could be due to the exposure to health risks related knowledge and had greater safety awareness toward alcohol consumption among health science participants, subsequently in a lower degree of alcohol harm. However, the findings were different from the studies conducted in Thailand and the United State whereby healthcare students were as likely to consume alcohol, 15 to 30% of them were hazardous drinkers, and approximately 1 in 10 had experienced substance use²⁵⁻²⁷. The current study showed that the participants who came from a stable, harmonious family had superior alcohol knowledge. They are less likely to be engaged in drinking compared to those from unstable or broken homes with low supervision, conflictual family climate, and problems of parents within

the family^{7,28}. A stronger bonding between adolescents and family and under parental supervision helps to instil and internalize the values and norms of their parents resulting in behaving in a norm conforming way²⁷.

Alcoholic beverages come in different container sizes and strengths²⁹. They all have different amounts of alcohol in them, and some are stronger than others. A standard drink acts as a systematised measurement to provide consistency in different serves of alcohol^{29,30}. Most of the participants were well aware of the general alcohol knowledge such as negative consequences, alcohol labelling requirements, and contraindications in a specific population. Their understanding of the standard drink, binge drinking, and heavy episodic drinking was poor. With such, they might not discern whether they drink beyond the recommended drinking amount. The education system in Malaysia mainly emphasizes the negative impacts of alcohol use in primary and secondary school^{31,32}. The importance of understanding and use of a standard drink to

calculate intake should be emphasized to promote safe drinking behaviour and encourage drinkers to take responsibility for their body health. It is difficult for the general population to determine or communicate information about a standard drink with the variability of alcohol by volume (ABV) within alcoholic beverage types. It is recommended to introduce standard drink labelling and/or health messages on all alcoholic beverages³⁰ in a way to allow the consumer to be more aware of not exceeding the maximum alcohol units. This method should be coupled with an effective monitoring system to ensure continual improvement.

Since December 2017, a few new alcohol regulations have been implemented in Malaysia including (1) legal drinking age raised from 18 to 21 years old; (2) compounded hard liquor (CHL) (a blend of 2 or more types of spirits like whiskey, rum, vodka and brandy) is only allowed to sell in glass bottles with a minimum volume of 700 mL; (3) imposition of health warning on alcoholic products to indicate “consuming alcohol can be hazardous to health”; and (4) all alcoholic products need to be displayed in a separate display cabinet or shelf from the one used for food³³. Despite the stricter regulations put in place, more than two-thirds of the participants in this study consumed alcohol before the minimum legal drinking age to as early as 18 years old.

Underage drinking is widely reported and commonly seen in countries such as the United States and Europe with high alcohol consumption^{6,34-38} and it can increase the likelihood of involving in risk-taking behaviours^{36,39}. According to a consensus study report ‘Reducing Underage Drinking’, underage drinking can lead to acute consequences such as violence, suicide attempts, sexual assault, vandalism, unintended injury and death related to driving or being involved in other risky tasks after drinking. These consequences are far more serious in those who started to consume alcohol at a young age⁴⁰. Prior studies showed youths were 12 times more likely to be engaged in unintentionally injured while under alcohol influence when they started drinking before age 15 compared to those who started drinking at age 21⁴⁰. Underage drinking is associated with the influence of parents, peers, and/or community⁴¹⁻⁴³. Among adolescents who drink alcohol, those whose peers binge drink are more likely to drink alcohol than those whose peers do not⁴⁴. This was supported by the findings that participants who were living with friends had a higher tendency to alcohol use than those living with parents.

Undeniable, peer influence effect plays a significant role in alcohol use¹⁹, parental attitudes

favouring alcohol use and their approval of underage drinking have a huge impact on adolescents drinking as well⁴⁴. The association between underage drinking and adult drinking was highlighted in previous studies that a 5% increase in binge drinking among adults/parents in a community doubled the chance of underage drinking^{42,45,46}. Targeted health education strategies should also be implemented at different levels including family, community and school to discourage and prevent underage drinking⁴⁷⁻⁵⁰.

The government should consider more effective population-based approaches such as harm-minimization and zero-tolerance policies, increasing alcohol taxes, regulating the number and concentration of alcohol outlets and enforcing dram shop liability^{42,45,51,52}. Our findings showed that the participants who perceived high parental socioeconomic status were more favourable to alcohol use. A comprehensive review revealed the association between parental socioeconomic position and adolescent alcohol consumption were inconsistent⁵³. Some studies showed a significant association and some showed negative results^{18,53,54}. Further studies using a consistent indicator for measuring parental socioeconomic position are needed to yield a more reliable result.

Age at first drink is not associated with the alcohol consumption frequency. As abovementioned, most of them started to drink alcohol before the minimum legal drinking age, however, their alcohol consumption frequency was not more than once a month and/or usually only during celebratory days. Studies showed that alcohol consumption in the general population is highly event-specific, particularly on New Year’s Eve, 21st birthday celebration, Christmas, May Day, and Midsummer Day⁵⁵. This can be correlated to an ancient drinking culture of rice wine called Lihing (in Sabah) and Tuak (in Sarawak) during harvest festivals and praying rituals such as Hari Gawai widely celebrated in Sarawak and Pesta Keamatan in Sabah by the Bumiputera. During the Chinese New Year festival, drinking alcohol was a bridge for relationship building⁵⁶. The findings showed that the Chinese had a higher tendency to alcohol consumption compared to Malays. Malays are forbidden from alcohol consumption due to religion and Islamic law^{16,56}. A similar study from Hatta M et al reported alcohol use was the lowest among Malays while Chinese had the largest number in alcohol use⁵⁷.

The significant differences in religious belief and practice may influence alcohol consumption patterns. There was a total of 26 local and international Muslim students from Bangladesh,

Egypt, Jordan, Pakistan, and Russia participated in this study. From the results, all local Muslim students have had never consumed alcohol. However, 38% of international Muslim students had a history of alcohol use. The World Health Organization (WHO) reported a list of countries with alcohol consumption per capita by adults in 2004⁵⁸. In this report, alcohol consumption was observed among Muslim countries, especially in Muslim minority countries⁵⁸. A Pakistan study showed that 17% of Pakistan participants admitted they ever experimented with cigarettes, alcohol, or drugs⁵⁹. More reliance data is needed to elicit the relationship between religious and cultural factors in alcohol consumption.

In Malaysia, beer is a common alcoholic beverage available at traditional coffee shops, convenience stores, restaurants, and dram shops ranging from RM 7 to RM 22 for a single bottle/can depending on their size and brand⁶⁰. Alcoholic drinks with a higher alcohol content such as wines, whiskeys, brandy and spirits are only available at the dram shops or licensed premises with a price up from hundreds to thousands⁶¹. Alcoholic beverages were highly promoted and sold online during the COVID-19 pandemic period⁶². With the easily accessible and lower price of beer, it is not surprising that beer was the most preferred alcoholic beverage among university students⁶³.

The increased availability of alcoholic beverages signals a higher chance of alcoholism and subsequently increases the risk of hazardous alcohol use³⁸. The participants reported the main reason for alcohol consumption was for fun and the findings were consistent with an Indian study¹⁹. Other than that, about one-third of them drank used alcohol mainly for recreational purposes. However, most of them disagreed that alcohol use can help to release their academic stress from assignments and examinations. These results were different from a study showing alcohol is used as a way to deal with stress, escape from problems, and get over boredom²⁴. Nevertheless, the most common harmful effects of alcohol use experienced by participants were emotional outbursts, vomiting, and hangovers. Although only a small fraction of them engaged in risky sexual behaviour or physical fight, the possible harms caused by alcohol should not be overlooked. Males are inclined to use psychoactive substances such as alcohol, marijuana, nicotine and heroin because they are more daring to experiment with new things than females⁷. In connection with this, they have a higher risk of hazardous drinking patterns and are more likely to experience negative consequences from alcohol use. This was supported by our findings and other studies^{64,65}.

This study provided baseline information on alcohol consumption among university students and discussed the current implemented regulations which highlighted the need for more concerted action, effective governance, and appropriate engagement of all relevant stakeholders to the targeted population. By effectively working together, the negative health and social consequences of alcohol can be reduced.

The limitation of this study, it was only conducted among students from a private university, therefore the findings cannot represent the alcohol use among university students in other regions of Malaysia. Besides, the study was mainly conducted among young, educated university students so the findings may not be generalized in other settings. Further research is recommended using a larger sample size with different sociodemographic backgrounds to obtain heterogeneous data.

CONCLUSION

It is easy to overlook or discount the health and social damage caused or contributed to by alcohol drinking. In the present study, most university students had good knowledge of basic alcohol information, but they had inadequate knowledge of standard drink, binge drinking, and heavy episodic drinking terms. Besides, more than half of them had positive attitudes towards alcohol use. Even though most university students rarely consume alcohol and showed to experience a low level of harm from alcohol use, almost 70% of them had their first drink before the legal drinking age and their friends were the main cause of their alcohol use. The result of this study established that there were lacunae in the government policies whereby the legislation and enforcement policy were insufficient to regulate or restrict the accessibility of alcoholic beverages for young people under the age of 21 and lacked strategies for enabling drinkers to track their alcohol intake. The current efforts should be strengthened and emphasized at different levels including the government, community, family and school with the targeted health education strategies to prevent underage drinking and improve alcohol use awareness.

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Conflict of interest

The authors have declared that no conflict of interest exists.

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