

Prevalence of Alcohol Consumption among University Students in Baghdad: A Cross-section survey from Iraq

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ABSTRACT

Background: Alcohol consumption is a well-known public health problem, particularly among university students. It was poorly studied in Middle East, especially in Iraq, due to religious and social taboos. This study conducted to throw a light on the prevalence of alcohol consumption among university students in Baghdad.

Subjects and methods: A survey conducted in three universities (Baghdad, Al-Mustansiriyah and Al-Nahrain) from Baghdad city between January and May 2015. Semi-structured questionnaire form was used (Arabic translated) to collect the data from 1435 university students. The sample was selected by multistage cluster technique with probability proportion to size.

Results: The average age (range) of the studied sample was 19.8 (18 - 24) years; more than a half of them were females 760 (53%). Alcohol consumption was reported by 9.7% (95%CI: 8.2% - 11.2%) of the participants (19.7% males vs. 0.8% females). Heavy alcohol consumption was reported by 12.2% of consumers. Students living out of their families or relatives and those of non-medical group colleges found to be risk factors for alcohol consumption (PR= 2.688, 95% CI: 1.764 - 4.094) and (PR= 2.586, 95%CI: 1.432 - 4.67) respectively.

Conclusions: Consumption of alcohol was relatively prevalent among university students in Baghdad, in spite of religious and social barriers in Iraq.

Family and college staff supervision and education of the students with meetings targeting health risks and sequels of hazardous alcohol consumption are the effective ways to control this practice.

Key words: Alcohol consumption, college students, Baghdad

INTRODUCTION

Alcohol is not a component of the United States Department of Agriculture Food Patterns [1]. The Dietary Guidelines for Americans 2015 – 2020, does not

recommend that individuals start alcohol drinking for any reason [1].

The problem of excessive alcohol consumption, which is considered one of the leading patterns of substance abuse, is a major cause of public health concern in most countries of the world today [2]. Hazardous alcohol use

around the world was the cause for 3.3 million deaths yearly [3], specifically in western countries like Ireland [4], United States of America [5] and the United Kingdom [6].

University students represent a peculiar part of the society [7]. In this environment, hazardous alcohol consumption increases the risk of harmful consequences for the user or others [8]. It also showed negative effects on the motivations for study and associated with poor academic performances [9].

In a number of countries, hazardous drinking has been identified as the number-one substance abuse problem during university life [8,10].

A comprehensive review of drinking habits in European universities found a range of studies suggesting that risky levels of alcohol consumption were associated with increased levels of smoking and drug use [11]. Harrell and Karim (2008) found in a study published in the United States that male students reported significantly higher alcohol intakes than their female peers [12]; a result which simulates the findings of another study from the United States published two years earlier [13]. While an international research published in 2009 has noted a shift in alcohol consumption among university students with some studies reporting similar patterns of hazardous drinking in men and women [14].

Although the problem of alcohol use is evident in most of the countries around the world, there are comparatively few amounts of articles from some European countries and from Australia [15]. As well, little was known about the patterns of college student drinking in many parts of the world, most notably in the Middle East region and especially in Arab countries [16,17]. In these countries both cultural and religious affiliations of students have theoretically an important impact on alcohol use. It appears that both low, as well as the religion of Islam (most common in the Arab region) forbidden, the use of alcohol. Despite these norms and legal restrictions, studies have revealed the presence of problems related to alcohol use among college students in Arab countries, especially in men [18,19].

A study from Lebanon reported that 11% of the surveyed college students were alcohol consumers [19], while it was prevalent among 6.9% of Medical Sciences students in Iran [20].

In Iraq, like other developing countries, the issues of alcohol consumption are not adequately discussed despite its importance.

Objective: To throw a light on the prevalence of alcohol consumption among university students in Baghdad as well as the affecting factors for such practice.

SUBJECTS AND METHODS

This cross-sectional study was conducted in randomly selected three universities from Baghdad city (Baghdad,

Al-Mustansiriyah and Al-Nahrain) during the period from January 22 until May 1 2015.

A multi-stage cluster technique with probability proportion to size was adopted for choosing the sample (three universities out of the main five present in Baghdad city). Colleges were selected from each university according to the number of colleges, variety of available specialties and number of students in each of the three selected universities, to ensure a reprehensible sample. Seven colleges were selected from Al-Mustansiriyah University and similar number from Al-Nahrain, while nine colleges were selected from Baghdad. Subsequently, all students from the selected classes within each academic grade from 1st to 4th in the college were asked to fill the questionnaire

Sample Size [21]

$$N = \frac{[Z^2 \cdot P \cdot (1-P) / (MOE)^2] \cdot Deff \cdot \text{sex Estimates}}{\text{Expected Response Rate}}$$

Expected Response Rate

$$N = (384 \cdot 1.7 \cdot 2) / 0.8 = 1633$$

Level of Confidence Measure (Z-value): 1.96 (for 95% confidence level)

Margin of Error (MOE): 0.05

Baseline levels of the indicators (P): 0.5

Design effect (Deff): 1.7 (Describes the loss of sampling efficiency due to using a complex sample design, recommended values for cluster sampling from 1.5 to 2)

Expected Response Rate: 0.8

Number of sex estimates: 2

QUESTIONNAIRE

A semi structured questionnaire was constructed by the researchers depending on previous studies and survey instruments discussing the same subject to collect the relevant information pertaining to the study variables [18,22,23,24]. The questionnaire form translated to the Arabic language for simplification as their mother tongue was Arabic.

In addition to the information about age, sex, residence and the academic grade of the joined students, questions about alcohol consumption, number of consumed cups per day or week and duration were included.

This questionnaire was piloted on a small sample of 30 college students from different universities to test the clarity and the applicability of the study tools, and to identify the difficulties that may be faced during data collection. Necessary modifications were done then accordingly. The questionnaire was revised by a scientific committee (community medicine consultants) for reliability and content validity.

OPERATIONAL DEFINITIONS

Standard drink is approximately 10g of ethanol. However, standard drinks in different countries can contain different amounts of ethanol [25].

Moderate Alcohol consumption is defined as up to one standard drink per day for women and up to two standard drinks per day for men [26].

Heavy or high-risk drinking is the consumption of more than three standard drinks on any day or more than seven per week for women and more than four standard drinks on any day or more than 14 per week for men [26].

DATA COLLECTION

The official approvals and task facilitating documents obtained from the scientific & ethical committee in the Ministry of Health & Environment, Iraq. The researchers contacted the offices of the Dean of each of the chosen colleges to explain the objectives and rationale of the study to secure the approval for starting the field work.

The students were met in the picked out classes for about 10 minutes to explain and discuss the questionnaire items for more clarification before they were asked them to fill the questionnaire paper form.

Acceptance to fill the questionnaire was regarded as students' consent for joining the study.

The researchers visited each college twice during the morning study hours from (8:00 a.m. – 3:00 p.m.). The data collection took about 13 weeks for the three selected universities. At the end of the data collection process; 1435 questionnaire forms were completed out of the 1633 distributed questionnaire; the response rate was (87.9%). Almost similar numbers of students were selected from Al-Nahrain and Al-Mustansiriyah universities; 506 (31%) and 516 (31.6%) respectively, while 611 (37.4%) of them were from Baghdad University. The response rate was convergent all three universities [446 (88.1%) for Al-Nahrain, 456 (88.3%) for Al-Mustansiriyah and 533 (87.3%) for Baghdad University].

Data forms were anonymous. Every student was given the complete unconditioned choice to participate or not without any reward or penalty. Confidentiality of data throughout the study was assured.

STATISTICAL ANALYSIS

Each questionnaire assigned a serial identification number. The data were analysed using (Statistical Package for Social Sciences, SPSS) version 20. Normality of distribution was evaluated by Shapiro-Wilk test. Data presented as mean, standard deviation and range for continuous variables.

Frequency and percentages were used to present the categorical data. Chi-square test was used for testing

of the associations between defined dependent and independent variables accordingly.

Multivariate model was performed to calculate the prevalence ratio for risk factors' prediction of alcohol consumption among university students of Baghdad city. Levels of p-value less than 0.05 were considered significant.

RESULTS

Out of the 1435 students who joined this study; 760 (53%) of them were females and 675 (47%) were males. The mean age of the studied sample was (19.8 ± 1.6) years. More than a half of the participants were younger than 20 years. The overall age range was from 18 to 24 years. The majority (91%) were from urban areas.

Concerning the accommodation 1208 (84.2%) of the involved students were living either with their families or relatives, while the others were living in dorms, with friends or alone. Medical college group were represented by 256 students (17.8%) of the sample. Students from the first-grade form the highest percentage (31.7%), while the third-stage students were the least (21%) of the studied sample (Table 1).

The highest percentage was from College of Science 314 (21.9%), while the least was from college of Mass Media 54 (3.8%) of the sample (Data not shown).

The prevalence of alcohol consumption among the studied sample was 9.7% (95%CI: 8.2% - 11.2%), as only 139 out of 1435 joining students reported life-time usage of alcohol. All the consumers reported their usage of alcohol in the past 30 days before filling the questionnaire (Data not shown).

Alcohol consumption was prevalent among 133 (19.7%, 95%CI: 16.8% - 22.9%) male students. Only six females (0.8%, 95%CI: 0.3% - 1.7%) gave history of alcohol consumption (Table 2).

Mass media college students were at the top of alcohol consumers and the lowest percentage was among the agriculture college students. No one of the students in the college of political science gave a history of alcohol consumption (Figure 1).

Out of 139 alcohol consumer students, 89 (64%) were occasional users of beers, including all the six females. 33 (23.7%) were moderate beer users, and the remaining 17 (12.2%) were heavy drinkers of both beer and spirit (Figure 2).

In comparison among students regarding life-time alcohol usage, the results showed that alcohol consumption was significantly higher among older age group ($p=0.013$).

Predominance of alcohol consumption among male students was highly significant in comparison to females ($p<0.001$).

The prevalence of alcohol consumption among students from rural areas was higher compared to those from urban ($p<0.001$). The results also revealed that alcohol consumption among students living out of their families significantly exceeded that among those living in their families ($p<0.001$).

TABLE 1. Distribution of students, according to socio-demographic characteristics

CHARACTERS	NUMBER	PERCENT
Age groups		
18 - 20 years	753	52.5
20 - 24 years	682	47.5
Sex		
Male	675	47
Female	760	53
Residence		
Urban	1306	91
Rural	129	9
Accommodation		
Family/Relatives	1208	84.2
Others (Dorm, friends or alone)	227	15.8
College Types		
Medicine/Dentistry/Pharmacy (Medical group)	256	17.8
Other colleges (Non-Medical group)	1179	82.2
Academic Grade		
1 st	455	31.7
2 nd	359	25
3 rd	301	21
4 th	320	22.3
Total	1435	100

FIGURE 1. Prevalence of drinking alcohol among students in Baghdad, according to their college speciality.

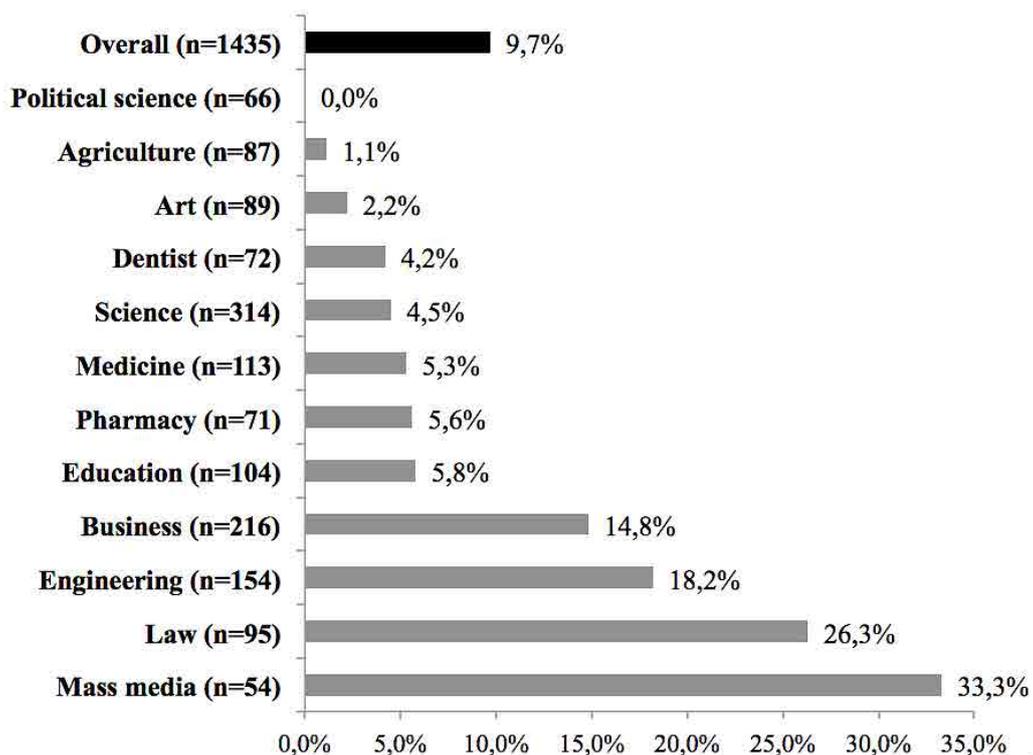


TABLE 2. Prevalence of alcohol consumption by socio-demographics of the students

VARIABLES	ALCOHOL CONSUMPTION NUMBER (%)		TEST, P-VALUE
	Yes (N=139)	No (N=1296)	
Age (years)			
18 - 20 years	59 (7.8)	694 (92.2)	$\chi^2= 6.21, p=0.013^*$
20 - 24 years	80 (11.7)	602 (88.3)	
Sex			
Male	133 (19.7)	542 (80.3)	$\chi^2= 146.19, p<0.001^*$
Female	6 (0.8)	754 (99.2)	
Residence			
Urban	109 (8.3)	1197 (91.7)	$\chi^2= 29.83, p<0.001^*$
Rural	30 (23.3)	99 (76.7)	
Accommodation			
Out of family	57 (25.1)	170 (74.9)	$\chi^2= 73.33, p<0.001^*$
Family/relative	82 (6.8)	1126 (93.2)	
College type			
Medical	13 (5.1)	243 (94.9)	$\chi^2= 7.56, p= 0.006^*$
Non-medical	126 (10.7)	1053 (89.3)	
Academic grade			
1 st	32 (7)	423 (93)	$\chi^2= 13.49, p= 0.004^*$
2 nd	43 (12)	316 (88)	
3 rd	21 (7)	280 (93)	
4 th	43 (13.4)	277 (86.6)	

$\chi^2=$ Chi-square test

*Significant $p<0.05$, two-tailed.

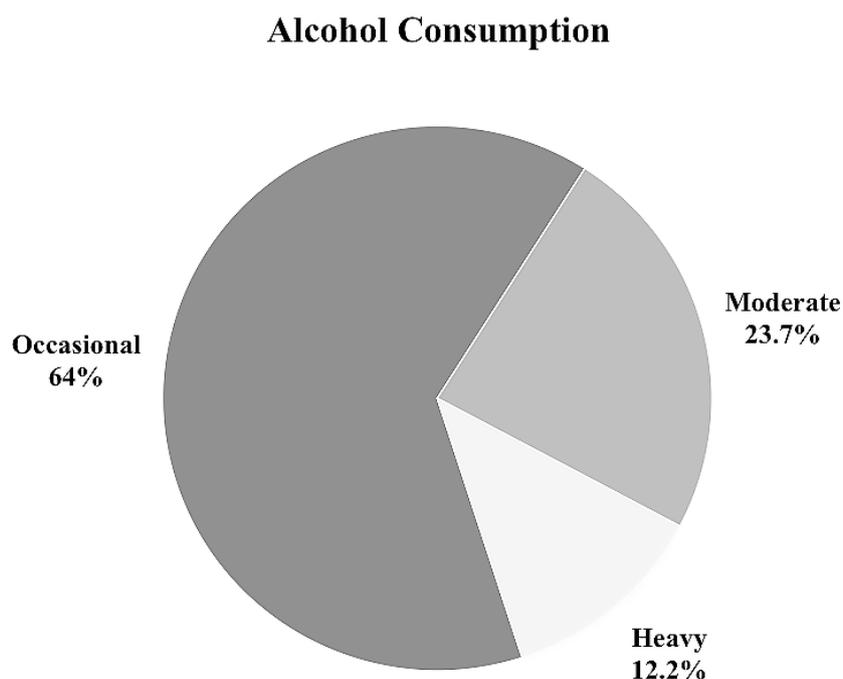
FIGURE 2. Frequency of alcohol consumption among university students in Baghdad, N=139.

TABLE 3. Multivariate model estimator of prevalence ratio for the determinants of alcohol consumption among university students

VARIABLES	B	SE	P-VALUE	PREVALENCE RATIO (95% CI)
Age				
18 - 20 years				Reference
20 - 24 years	0.241	0.323	0.455	1.273 (0.676 - 2.397)
Accommodation				
Family/Relatives				Reference
Out of family	0.989	0.215	<0.001*	2.688 (1.764 - 4.094)
College type				
Medical				Reference
Non-medical	0.95	0.302	0.002*	2.586 (1.432 - 4.67)
Residence				
Urban				1
Rural	0.309	0.25	0.217	1.362 (0.834 - 2.223)
Academic grade				
1 st			0.221	Reference
2 nd	0.431	0.263	0.101	1.538 (0.92 - 2.574)
3 rd	0.171	0.437	0.696	1.186 (0.504 - 2.793)
4 th	0.529	0.406	0.193	1.697 (0.766 - 3.758)

B= Coefficient of regression, SE= Standard error, CI= Confidence interval

The sex considered a confounder factor

*Significant $p < 0.05$

There was significant association between the percentage of students drinking alcohol with their college specialty, as the percentage was higher among non-medical specialties ($p = 0.006$). The highest percentage of life-time alcohol consumption among students was among 4th grade students while the lowest was among 1st grade students ($p = 0.004$) (Table 2).

Multivariate model was used for the prediction of alcohol consumption's determinants among university students.

The prevalence of alcohol consumption among students living out of their families or relatives found to be higher more than two times in comparison to others (PR= 2.688, 95% CI: 1.764 - 4.094).

The prevalence among students of non-medical group of colleges was also found to be two and half times superior in comparison to others (PR= 2.586, 95% CI: 1.432 - 4.67).

Students' age, residence and academic grade did not show any effect on male consumption of alcohol (Table 3).

DISCUSSION

The current study revealed that alcohol consumption was prevalent among about 1/10 of students in the universities from Baghdad city. This appeared to be less

than that reported by two studies conducted in South Africa, 2013. The first study was conducted on 120 randomly selected students from University of Utopia, where 72.5% of them found to drink alcohol [27]. The second study was carried out including 209 undergraduate students from University of Venda and revealed that 65% of the studied sample consuming alcohol [28]. In a study from United States of America that based on surveys from 119 colleges, 46.2% of 135 Muslim students reported their alcohol use [29].

On the other hand, the prevalence of alcohol consumption was much lower in the Middle East countries. In a study performed on 1992 Medical Sciences' students in Iran, 6.9% of them reported alcohol consumption [20]. In another study carried out in Iran, Reza Hosseini and his colleagues reported that only 5.7% out of 604 students from Shahid Beheshti University were using alcohol [30]. A previous study from Kurdistan/ Iraq revealed that 20.8% of Hawler Medical College students in Erbil were alcohol drinkers [18]. While another study that was carried out among 2298 students from Karbala University/ Iraq and found that only 2% were drinking alcohol [23].

These differences are thought to be due to religious taboos and the norms of the society where the person raised and live, even in different sites within the same country. Sampling techniques as well as the targeted

population in the surveys might also be blamed for these differences.

About 2/3 of alcohol consumer students in the recent study were drinking occasionally. Regular (moderate or heavy) alcohol drinking was prevalent among collectively 36% of the total consumers. Only six females admitted their usage of alcohol and all of them consumed it infrequently. This was in agreement with the study from Kurdistan/Iraq, as it showed that the majority was occasional drinkers [18]. Another study from Karbala/Iraq showed that occasional and moderate alcohol consumption was the dominant types among students, and no female had reported their usage of alcohol [23]. The results of a study from Iran also showed that occasional alcohol consumption was the prevalent type [20]. In reverse studies from Ireland [31] and United Kingdom [6], it is revealed that the regular drinkers was the dominant category. Of course the difference of the total number of alcohol drinkers, religious and social habits were the determinants for these differences.

The age average of the students in the current study was 19.8 years. The students were younger than those in other comparative studies from Kurdistan/Iraq (21.3 years) [20]. These age differences were because the current study only involved undergraduate students while others contain postgraduates as well.

Alcohol drinking was shown to be significantly higher and very dominant among males compared to females, this was also reported by studies from Iraq [18], Lebanon [19], and Iran [20,30], this was expected because of the religious and social habits in these countries that affect the reporting alcohol drinking among the students as well as between sex. This was not the case in the study among American Muslim students as there was no significant difference between students' sex [29]. This might be due to their rising in western society and trying to cope with their surrounding environment.

Students' sex is considered a confounding factor in the multivariate logistic model due to the huge difference in the prevalence of alcohol consumption between male and female students. The under-reporting of this habit, religion, social norms as well as family monitoring is the most important factor affecting the reported prevalence, especially among females.

Students, who consume of alcohols, were found to be a significantly older. Nevertheless, age difference between drinkers and non-drinkers was found to be of no real effect of this habit. Students' age had no risk of alcohol consumption in the study from Iran [20], and in a study from South Africa [28]. The significant association between older age male students is thought to be due to more independence from their families and living alone or with friends.

Living of students out of their families or relatives was found to be a risk factor of alcohol drinking. This was also mentioned by studies from Iraq [18], Lebanon [19], and Iran [20,30]. This risk might be understood due to the absence of family supervision.

Students of medical group college showed a protective effect from alcohol consumption as compared with students from other specialties, while they didn't show a significant effect in the study from Ireland [31]. Students from medical group might be more oriented about the subsequences of this risky behaviour as well as their full and hard academic schedule, which gave no room for such habits.

The prevalence of alcohol drinking among students from the rural areas in the recent study was significantly higher than those from urban areas. Similar results were reported in studies from Egypt [9] and Iran [30]. This relation was shown to be unreal by logistic regression analysis, as students from rural areas came to the universities in Baghdad and live out of their families' supervision.

The academic grade didn't show any really significant effect on the risky behaviour of alcohol drinking; this was quite similar to the study from Ireland [31]. Moreover, it agreed with a study from United Kingdom [6]. This might be due to confounding of other factors like male to female ratio in each grade, accommodation or the specialty variance between the colleges.

STUDY LIMITATIONS

The present study had some limitations that should be noted:

- the results of the study cannot be generalised for all Iraqi society;
- the participants may have underestimated their alcohol use, or even falsely denied use, given the strong cultural, religious and legal prohibitions against alcohol use in Iraq.

CONCLUSIONS

Alcohol drinking was reported by about 1/10 of the study sample, mostly among male students from non-medical group colleges and those lived out of their families or relatives. The majority were using alcohol occasionally.

Health education about hazards of alcohol consumption and its sequels must be addressed thoroughly through lectures, educational meetings, and programs. Future research attempting to understand both college students' behaviours and stress problems leading to such practice should also be encouraged and supported.

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