

# PREVALENCE OF ALCOHOL USE AND ASSOCIATED FACTORS AMONG STUDENTS OF MEDICAL SCIENCES IN CENTRAL IRAN

## ROZPOWSZECHNIENIE I CZYNNIKI ZWIĄZANE Z UŻYWANIEM ALKOHOLU PRZEZ STUDENTÓW NAUK MEDYCZNYCH W CENTRALNYM IRANIE

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### Abstract

**Introduction:** Alcohol use among medical students is a serious problem that has many adverse effects to health. The aim of the present study is to investigate the prevalence of alcohol use and associated factors among Iranian students of medical sciences.

**Material and methods:** This cross-sectional study was conducted on 681 students in Kashan University of Medical Sciences (a university in centre of Iran) from 16th August to 17th October 2019. The sample size was allocated through stratified random sampling based on the num-

### Streszczenie

**Wprowadzenie:** Spożywanie alkoholu przez studentów medycyny jest poważnym problemem, który powoduje wiele niekorzystnych skutków zdrowotnych. Celem niniejszej pracy było zbadanie rozpowszechnienia spożywania alkoholu przez irańskich studentów nauk medycznych i czynników z tym związanych.

**Materiał i metody:** W przekrojowym badaniu w okresie od 16 sierpnia do 17 października 2019 roku uczestniczyło 681 studentów Kashan University of Medical Sciences. Na podstawie liczby studentów na każdym wydziale obliczono wielkość

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ber of students in each faculty. A valid researcher-made questionnaire was used to measure the alcohol use in individuals, families, close friends and to collect demographic characteristics. Logistic regression was applied for statistical analysis.

**Results:** Participants in this study (313 male and 368 female students) had a mean age of 26 years (SD = 2.4). The results showed that 4% of students (7.1% in men and 1.4% in women) consume alcohol. Alcohol use among students was associated with alcohol use among family, close friends and tendency to use alcohol in the last year and living in a dormitory ( $p < 0.05$ ).

**Discussion:** Cultural and family background, attitudes of peers and condition of residency are the most significant factors leading to alcohol use among students of medical sciences in Kashan Medical University.

**Conclusions:** Our findings suggest that there is an urgent need to plan for prevention of alcohol use and promotion of lifestyle components with a focus on cultural, academic and social factors.

**Keywords:** Medical students, Alcohol use, Addiction.

próby za pomocą losowego doboru warstwowego. Do pomiaru spożycia alkoholu przez studentów, ich rodziny i przyjaciół oraz do zebrania danych społeczno-demograficznych wykorzystano kwestionariusz opracowany przez badaczy. Do analizy statystycznej zastosowano regresję logistyczną.

**Wyniki:** Średni wiek uczestników badania (313 studentów i 368 studentek) wyniósł 26 lat (SD = 2,4). Alkohol spożywało 4% studentów – 7,1% mężczyzn i 1,4% kobiet. Picie alkoholu przez studentów było związane ze spożywaniem alkoholu w rodzinie i wśród przyjaciół, a także ze skłonnością do używania go w ostatnim roku oraz z mieszkaniem w akademiku ( $p < 0,05$ ).

**Omówienie:** Uwarunkowania kulturowe i rodzinne, postawy rówieśników i miejsce zamieszkania to najważniejsze czynniki, które skłaniają do picia alkoholu studentów nauk medycznych w Kashan Medical University.

**Wnioski:** Wyniki badania sugerują, że istnieje pilna potrzeba opracowania programów profilaktyki problemów alkoholowych, a także promocji stylu życia uwzględniającego czynniki kulturowe, akademickie i społeczne.

**Słowa kluczowe:** studenci medycyny, spożywanie alkoholu, uzależnienie.

## ■ INTRODUCTION

University students are exposed to lifestyle-related risk factors [1]. Although lifestyle and health related behaviours generally develop in early life, these are established throughout college and can negatively impact students health [2]. Choosing any lifestyle in terms of diet, physical activity, alcohol use and smoking not only affects students' personal lives but also influences the behaviour and lifestyle of related persons [3]. Medical students are more aware of healthy lifestyle components because of their professional status, but there is no guarantee they adopt healthy behaviours [4]. Numerous studies in Iran have shown a lack of proper diet, adequate physical activity, weight management and good sleep patterns among medical students. Furthermore, addiction is a threat to Iranian students' health [5, 6].

Alcohol consumption is one of the most serious threats to students psychological and physical

health [7] and European students drink alcohol more than their peers in other continents [8]. Investigations has shown that about 72% of students drink alcohol on weekends and in the dormitory. Globally, 38% of 18-25 year-old adolescents annually drink alcohol and 11% are heavy drinkers [9]. Although alcohol use is illegal due to Islamic restrictions in Iran, its use has increased among young Iranians [10, 11]. There has been different reports regarding prevalence of alcohol use among Iranian students, varying from 7% to higher in other studies [12, 13].

The adverse effects of alcohol use in students of higher education are well described [14] and include academic failure, criminal behaviour, high-risk sexual behaviour and depression [15]. There are various factors that lead to a higher probability of alcohol use of which social factors, educational level, ethnic/racial background and personal characteristics are the most significant variables [16, 17].

In this study, we seek to determine the status of alcohol consumption and related risk factors among medical students for the following reasons: first, studies on the prevalence of alcohol use among Iranian medical students are limited, second, despite the cultural and social barriers, the increase in alcohol consumption is a challenging issue and third, identification of factors related to alcohol use could be a basis for planning educational and preventive interventions.

## ■ MATERIAL AND METHODS

### Participants

This cross-sectional study was conducted on 681 students of Kashan University of Medical Sciences (a university in centre of Iran) from 16<sup>th</sup> August to 17<sup>th</sup> October 2019. The Ethics Committee of Kashan University of Medical Sciences approved this study with ID code of IR.KAUMS.NUHEPM.REC.1397.071. The inclusion criteria for participants were spending at least one semester as a medical student at Kashan Medical University and not having graduated at the time of the study. The sampling method was random stratified and in accordance with the population of each faculty and gender. In order to apply the sample size to the number of male and female students in the whole university, the ratio attributed to both sexes in the total number of participants was also considered. There were 2002 medical students in this university and according to proportional allocation, the sample size for the schools of the public health, nursing and midwifery, medicine, paramedical and dentistry was 104, 195, 170, 161 and 51 students respectively. The interviewer attended the classes at each faculty and randomly distributed the questionnaire to the participants.

### Measurements

A socio-demographic questionnaire was used to assess the participants' demographic characteristics including age, sex, marital status, place of residence, educational level and source of income. A researcher-made questionnaire was applied to measure alcohol use. The questions "Have you ever used alcohol during the last six months?" and "Have any of your family members (father, mother, brother, and sister) consumed alcohol during the last six months?"

were applied to determine alcohol use among students and their family members. The latter question was also applied to measure alcohol use among the immediate and expanded family (grandfather, grandmother, uncle, aunt, cousin) and close friends. Finally, the question "Have you desire to use alcohol (whether or not you drink alcohol) the last six months?" was applied to measure tendency to use alcohol.

The comprehensiveness, relevance and clarity of this instrument were assessed through an expert panel including two epidemiologists, two psychologists and three researchers in the field of addiction. Reliability was evaluated by test-retest among 30 medical students and an intra-class correlation coefficient index was calculated. The validity and reliability indices of this researcher-made instrument were satisfactory (CVI, CVR, and comprehensiveness indexes more than 0.8 and ICC index more than 0.7).

### Data collection

The interviewer explained the purpose of the study to the participants and assured them no personal data would be published. Informed consent was taken verbally. Subjects then completed the questionnaire personally and without the interviewer's intervention. In order to maintain confidentiality, the individuals placed the questionnaires in a box without noting any personal details, and the box was opened at the end of the data collection process. The interviewers who distributing the questionnaire were not medical students and studied at another university to ensure the accuracy of data collection.

The obtained data were entered into SPSS software version 25 and analysed. Quantitative data were analysed using mean and standard deviation, and categorical data by employing frequency and percentage. A simple logistic regression analysis used in model 1, and multiple logistic regression analysis was run to assess the factors associated with alcohol use adjusted to other variables in model 2. All analyses were based on a 95% confidence level.

## ■ RESULTS

### Baseline characteristics of participants

The subjects included 313 men and 368 women. The mean age was 26 years (SD = 2.4) and

**Table I.** Demographic characteristics of the participants ( $N = 681$ )

Variables	Men ( $n = 313$ ) Count (%)	Women ( $n = 368$ ) Count (%)	Total ( $N = 681$ ) Count (%)	<i>p</i> -value
University degree				
Bachelor	196 (62.6)	243 (66)	439 (64.5)	0.112
Master of sciences	10 (3.2)	10 (2.7)	20 (2.9)	
Ph.D.	107 (34.2)	115 (31.3)	222 (32.6)	
Marital status				
Single	235 (75.1)	290 (78.8)	525 (83)	0.001
Married	38 (12.1)	78 (21.2)	116 (17)	
Faculty				
Public health	31 (9.9)	73 (19.8)	104 (15.3)	0.421
Paramedical	81 (25.8)	80 (21.7)	161 (23.6)	
Medical	77 (24.6)	93 (25.3)	170 (25)	
Dentistry	29 (9.3)	22 (6)	51 (7.5)	
Nursing and midwifery	95 (30.4)	100 (27.2)	195 (28.6)	
Source of income				
Family dependent	217 (69.3)	300 (81.5)	517 (75.9)	0.001
Independent	25 (8)	15 (4.1)	40 (5.9)	
Dependent/independent	71 (22.7)	53 (14.4)	124 (18.2)	
Type of residence				
Dormitory	196 (62.6)	188 (51.1)	384 (56.4)	0.071
With family	113 (36.1)	171 (46.5)	284 (41.7)	
Other	4 (1.3)	9 (2.4)	13 (1.9)	

most of the participants (83%) were single. In terms of education, participants were mostly undergraduate (64.5%) and Ph.D. level (32.6%). As regards income status, most participants were family-dependent (76%). More than half (56%) lived in dormitories, while 42% resided with their families (Table I).

#### Prevalence of alcohol use among students, their families and close friends

Table II shows the prevalence of alcohol use among students, their families and close friends. About 4% ( $n = 27$ ) of students reported that they drink alcohol (7.1% men and 1.4% women). The results showed that 4.6% of students reported alcohol use among their family members and 12.9% reported a history of alcohol use in their immediate and expanded family. The prevalence of alcohol use for participants' close friends was 26.9%. The tendency to drink alcohol was found to be 17.6%.

#### Alcohol use and its associated factors

The relationship between alcohol use and each of associated factors was determined using multiple logistic regression (Table III). According to the findings, alcohol use among those students whose parents had a history of alcohol use was higher than those whose parents had no such experience (OR = 3.29, CI 95% = 1.10-5.49). In addition, the proportion of alcohol use in students whose close friends drank alcohol was higher than those with non-drinking close friends (OR = 4.10, CI 95% = 1.27-6.44).

Moreover, there was a positive association between being an alcohol consumer and the tendency to drink alcohol in the last year (OR = 6.28, CI 95% = 2.15-9.07). Regarding the type of residence, results showed that alcohol use among students living at home was lower than among those living in dormitories ( $p < 0.05$ ). There was no significant relation between alcohol use and marital status, educational level and source of income ( $p > 0.05$ ).

**Table II.** Alcohol use among participants, immediate and expanded families, close friends and the tendency to use alcohol (%) (*N* = 681)

Variables	Men ( <i>n</i> = 313) Count (%)	Women ( <i>n</i> = 368) Count (%)	Total ( <i>N</i> = 681) Count (%)	<i>p</i> -value
Alcohol use among				
Students				
Yes	22 (7.1)	5 (1.4)	27 (4)	0.512
No	291 (92.9)	363 (98.6)	654 (96)	
First degree relatives				
Yes	22 (7)	9 (2.4)	31 (4.6)	0.112
No	291 (93)	359 (97.6)	650 (95.4)	
Second degree relatives				
Yes	49 (15.7)	39 (10.6)	88 (12.9)	<b>0.047</b>
No	264 (84.3)	329 (89.4)	593 (87.1)	
Close friends				
Yes	117 (37.4)	66 (17.9)	183 (26.9)	0.224
No	196 (62.6)	302 (82.1)	498 (73.1)	
Tendency to use alcohol				
Yes	86 (27.5)	34 (9.2)	120 (17.6)	<b>0.023</b>
No	227 (72.5)	334 (90.8)	561 (82.4)	

Alcohol use in the case of students, immediate and expanded families and close friends was assessed during the six months prior to the study. Tendency to use alcohol was assess during the six months prior to the study.

**Table III.** The adjusted relationship between alcohol use and related factors using multiple logistic regression (*N* = 681)

Variables	Model 1 Crude Exp (β)	CI 95%		<i>p</i>	Model 2 Adjusted Exp (β)	CI 95%		<i>p</i>
		Lower limit	Higher limit			Lower limit	Higher limit	
Marital status								
Single (reference)	1	1	1	1	1	1	1	1
Married	0.64	0.29	1.46	0.264	0.33	0.043	1.75	0.187
Type of residence								
Dormitory (reference)	1	1	1	1	1	1	1	1
With family	0.47	0.19	0.89	<b>0.041</b>	0.33	0.12	0.78	<b>0.034</b>
Independently	1.69	0.63	1.12	0.067	1.42	0.95	4.36	0.234
Family alcohol use								
No (reference)	1	1	1	1	1	1	1	1
Yes	1.94	1.06	3.95	<b>0.026</b>	3.29	1.10	5.49	<b>0.044</b>
Expanded family alcohol use								
No (reference)	1	1	1	1	1	1	1	1
Yes	0.81	0.22	1.49	0.06	0.81	0.21	2.47	0.241
Close friends alcohol use								
No (reference)	1	1	1	1	1	1	1	1
Yes	2.94	1.14	4.03	<b>0.044</b>	4.10	1.27	6.44	<b>0.033</b>
Tendency to use alcohol								
No (reference)	1	1	1	1	1	1	1	1
Yes	6.33	3.14	9.27	<b>0.014</b>	6.28	2.15	9.07	<b>0.003</b>

## ■ DISCUSSION

This study was conducted to determine the prevalence of alcohol use and associated factors in Kashan University of Medical Sciences, Iran. Our study showed a 4% prevalence of alcohol use among medical students. Studies have reported varying prevalence of alcohol use among Iranian students. The prevalence of alcohol use among students at Tehran University of Medical Sciences was reported as 9.6% in 2015 [12]. In another study at the Medical Universities of Kermanshah and Isfahan, the prevalence of alcohol use was about 10% in 2014 [18]. In 2013, a study stated that the prevalence of alcohol use was 6% in students of Zanjan University of Medical Sciences [19]. The prevalence of alcohol use in previous studies at 13 University of Medical Sciences in Iran [20] and Tabriz University students in 2019 [21] was reported as 9.7% and 7% respectively. It seems that the estimates of alcohol use prevalence in different regions can be affected by cultural and social factors beside the differences in the definition of alcohol consumption and size of the target population.

Our study also showed that alcohol use was more probable in the case of students whose parents and close friends had a history of alcohol consumption. These results were consistent with the findings of Arsalan in 2019 [22], Ogilvie in 2018 [23] and Greenfield *et al.* in 2010 [24]. Kendler *et al.* and Liam Mahedy's studies in 2018 showed strongly that students with alcohol dependent parents tended to consume alcohol [25, 26], which is a similar finding to ours. Since most of students' communication, lifestyle and social behaviours are formed in contact with family and friends [27], having family members or close friends with a history of alcohol use can be a key factor for facilitating access to alcohol and habit development.

Based on our findings, alcohol use among students living in dormitories was likely to be higher than those who lived with their family. This is consistent with a study conducted by Hulya Sirin *et al.*, who assessed student alcohol use in nine provinces of Turkey in 2018 [28]. Other studies were consistent with our findings [29, 30]. Students living in dormitories appear to be at a higher risk of alcohol abuse and dependence due to the absence of supervision. Therefore it seems that the regula-

tion of student admission policies at the university where students reside can play a preventive role in reducing the culture of composition and its negative impacts by changing lifestyles and the consumption of psychoactive substances.

In this study, in addition to measuring the prevalence of alcohol consumption among students, we wanted to assess the percentage of medical students who tend to consume alcohol with a self-reported question to determine if students are at risk for alcohol consumption, whether or not they are consumers. Our results showed about 18% of students intended to use alcohol and alcohol use in students was positively associated with tendency to drink alcohol. Consistent with these results, other studies have shown the relationship between alcohol use and the tendency to use alcohol in students [31, 32]. Since this study showed that about 18% of students tend to use alcohol, it seems that one individual's tendency can make other students susceptible to alcohol or substance abuse. Improving the quality of lifestyles as well as promoting cultural and behavioural patterns in students can be effective factors to reinforce tendencies to use alcohol.

As for the limitations in this study, since alcohol use was measured by self-reported questions, the findings may be at risk of being under-reported. To solve this limitation, the interviewees were assured confidentially in answering the questions and there was no supervision while they filled out the questionnaires. A questionnaire collection box was used for the security of participants' data. In addition, interviewers were selected from non-medical students so that participants could complete the questionnaire with confidence. The employment of statistical methods to identify hidden populations in future studies related to smoking, alcohol consumption and drug abuse is suggested. In addition, due to the far too low number of drinking women in our sample and very low number of drinkers in general, we removed women from the regression analysis to prevent spurious results.

## ■ CONCLUSIONS

Our study indicated that alcohol use prevalence is lower than in the findings of the national studies and surveys in other Iranian medical universities. However, considering the findings related to

tendency to use alcohol, it seems that a significant proportion of students are at risk of alcohol use. Our findings suggest there is an urgent need to

plan for prevention of alcohol use and promotion of lifestyle components with focus on cultural, academic and social factors.

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### Conflict of interest/Konflikt interesów

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### Ethics/Etyka

The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

The work described in this article has been carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) on medical research involving human subjects, Uniform Requirements for manuscripts submitted to biomedical journals and the ethical principles defined in the Farmington Consensus of 1997.

Treści przedstawione w pracy są zgodne z zasadami Deklaracji Helsińskiej odnoszącymi się do badań z udziałem ludzi, ujednoliconymi wymaganiami dla czasopism biomedycznych oraz z zasadami etycznymi określonymi w Porozumieniu z Farmington w 1997 roku.

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