Original Article



The Prevalence and the Contributing Factors of Substance Abuse Among Medical Sciences Students

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Abstract

Background: The prevalence of substance abuse (SA) among youth has increased in recent years. However, limited data exist about SA among medical sciences students. Therefore, this study assessed SA prevalence and contributing factors among medical sciences students.

Methods: This cross-sectional study was conducted in 2019. Participants were 238 medical sciences students randomly selected from Kashan University of Medical Sciences, Kashan, Iran. The data collection instrument was the SA prevalence assessment questionnaire developed by the Mental Health Center of the Ministry of Health of Iran. Data were analyzed using the SPSS (v. 22.0) software.

Findings: The most commonly abused substances were waterpipe tobacco (31.9%), cigarettes (20.2%), and alcoholic beverages (10.5%). Most participants with a history of SA had started SA before entering university. The prevalence rates of waterpipe tobacco smoking, cigarette smoking, and alcohol consumption were 9.2%, 8.8%, and 4.2% in the past month and 16.4%, 18.1%, and 7.6% in the past year, respectively. The prevalence of SA among dormitory students and students with lower grade point averages was significantly higher than among non-dormitory students and students with higher grade point averages.

Conclusion: The onset age of SA was mainly before eighteen years, so strategies are needed to reduce SA in secondary schools. Moreover, strategies are needed to prevent and reduce SA at universities, particularly among dormitory students and students with lower grade point averages. University authorities should use effective educational and counseling programs to prevent student SA. **Keywords**: Addictive behavior, Substance abuse, Student

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Introduction

Substance abuse (SA) is a highly prevalent problem around the world. It refers to a set of cognitive, behavioral, and physiological symptoms, which show that the afflicted individuals continue to use a substance despite its serious adverse effects on their lives.¹ The reports of the United Nations Office on Drug and Crime in 2014 show that more than 5% of adults aged 15–64 years have used addictive substances at least once in their life.² The estimations of the Substance Abuse and Mental Health Services Administration in 2013 also revealed that the prevalence of addictive SA among American students was 22.3%.³ Studies in Iran also showed that in 2016, at least 1.12 million people were addicted to addictive substances,⁴ and 530 000 people were addicted to alcohol.⁵

SA is a multifactorial phenomenon. Its contributing factors include the need for pain relief or peace, desire

to achieve experience or pleasure, improvement of concentration and academic performance, entertainment, ostentation, stress reduction, life problems, need for social acceptance, physical or emotional abuse, mental disorders, such as depression and anxiety, and personality disorders, such as impulse control inability.⁶ SA among the youth who live far from family can also be due to factors such as limited access to facilities, separation from family, and inadequate emotional support.⁷

There are no reliable data on the prevalence of SA among medical sciences students, though some studies have reported it to be 20%–40% in Iran.⁸ Factors contributing to SA among medical sciences students include a high load of assignments, peer pressure, easy access to substances, and a desire to achieve popularity.⁹ A study reported that familial and sociocultural factors, SA among peers, and accessibility of SA can influence the desire to start SA.¹⁰

© 2024 The Author(s); Published by Kerman University of Medical Sciences. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (https://creativecommons.org/licenses/by-nc/3.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. SA among students can lead to adverse consequences such as academic problems, academic failure, and greater prevalence of SA in society due to the public modeling of the behaviors of individuals with academic education.¹¹ It is also associated with physical health problems such as hepatitis and acquired immunodeficiency syndrome, heavy financial costs, suicide, delinquency, marital breakdown, and death.¹²

A study in 2010 on medical and nonmedical students in Greece reported that the average prevalence of cigarette smoking was 47%. Most cigarette smokers started cigarette smoking at the age of sixteen years, and the most common reasons for cigarette smoking were smoker friends and smoker mothers. That study also reported that the prevalence of cigarette smoking among nonmedical students was higher than that of medical students (50.2% vs. 35.3%).13 Another study in 2015 in a medical sciences university in Iran also showed that the prevalence of SA among dormitory students was 15.4%, the most commonly abused substances were cigarettes (47.4%) and waterpipe tobacco (42.9%), and 48% of students with SA had started it before they were eighteen years old.¹⁴ A study in 2023 on students in a university in Spain also reported that most students abused alcohol and tobacco but did not abuse illegal substances. Besides, students with lower grade point averages and male students had greater SA than students with higher grade point averages and female students. However, female students reported higher intake of analgesics.15

Despite the wealth of studies into the prevalence of SA among students and the increasing prevalence of SA among students in Iran, there are limited data in this area among medical sciences students in Iran. Studies in this area in various areas in Iran can provide valuable and reliable data for comparison and policy making. Therefore, the present study was conducted to address this gap. The study aimed to assess the prevalence and the contributing factors of SA among medical sciences students.

Methods

Design

This cross-sectional study, conducted in 2019, assessed the prevalence and contributing factors of SA among medical sciences students.

Participants and setting

The study population consisted of all students of Kashan University of Medical Sciences in Kashan, Iran. For sampling, the name lists of the male and female as well as dormitory and non-dormitory students of the medical, allied medicine, health, nursing, and dentistry faculties were created and used to randomly and proportionately select eligible students through stratified random sampling based on gender, faculty, and living arrangement. The only eligibility criterion was being a student in the study setting in the 2019–2020 academic year, and the only exclusion criterion was voluntary withdrawal from the study.

The sample size was calculated using the formula for the sample size of a proportion estimation study in a small population.¹⁶ The parameters for sample size calculation were a confidence level of less than 95%, a *d* of 5%, an SA prevalence of 30% (25, 26), and a population size of 3000. Accordingly, a sample size of 237 students was estimated to be necessary. Participants were female (60%) and male (40%) students with bachelor's, master's, and doctoral degrees.

Instruments

Data were collected using the SA prevalence assessment questionnaire developed by the Mental Health Center of the Ministry of Health of Iran. This questionnaire has four main parts: demographic characteristics, family characteristics, SA prevalence, and SA risk and protective factors, including personal, familial, social, peer-related, and university-related factors. A study reported that the Cronbach's alpha of this questionnaire was 0.81.¹⁷ Participants personally completed the study instrument in thirty minutes through the self-report method.

Data analysis

Data were analyzed using the SPSS (v. 22.0) software. Central tendency, dispersion, and frequency measures were calculated, and the chi-square test was used to analyze the relationships.

Results

A total of 238 medical sciences students participated in the study. The attrition rate was 5%, and the mean age of participants was 20.63 ± 2.1 years. Tables 1 and 2 show the demographic characteristics of students and their parents. The prevalence rates of the history of cigarette smoking, waterpipe tobacco smoking, and alcohol consumption were 20.2%, 31.9%, and 10.5%, respectively. The most commonly used addictive or psychoactive substance was cannabis (4.6%). Over half of the participants reported starting SA before entering university (Table 3).

The most common reason for SA was the desire to experience substances, with a prevalence of 14.71% for cigarette smoking, 5.88% for waterpipe tobacco smoking, and 1.26 for alcohol consumption and addictive substances (Table 4).

Around 36.6% of participants reported easy or very easy access to substances at university or dormitory, and 67.6% of them reported easy access to addictive substances in the city. The prevalence of easy access to alcoholic beverages at university and in the city was 33.2% and 60.9%, respectively. Moreover, 11.2% of participants reported a history of being offered to buy substances, especially at university (6.3%). Most participants reported inadequate education about SA prevention (62.2%), and almost one-

Table 1. Participants' demographic characteristics

Characteristics		No. (%)
Gender	Female	142 (59.7)
	Male	96 (40.3)
Marital status	Single	212 (89.1)
	Married	26 (10.9)
Academic degree	Bachelor's	148 (62.2)
	Professional doctorate	70 (29.4)
	Master's and PhD	20 (8.4)
Academic year	First	128 (53.8)
	Second	72 (30.3)
	In dormitory	133 (55.9)
Living arrangement	With family	87 (36.5)
	Alone or with friends	18 (7.6)
History of academic probation	Yes	13 (5.4)
	No	225 (94.6)
Satisfaction with the field of study	Satisfied	93 (39.1)
	Relatively satisfied	116 (48.7)
	Dissatisfied	29 (12.2)

third of them reported the high prevalence of addictive SA at their university (34%).

Concerning SA by friends, 9.6% of participants reported that all or most of their friends had a history of cigarette smoking, and 29.4% of them reported that few of their friends smoked cigarettes in the past year. Moreover, the prevalence rates of waterpipe tobacco smoking, alcohol consumption, addictive SA, and illegal drug abuse among all or most friends were 16.4%, 4.7%, 2.9%, and 5.5%, respectively. Besides, 72.7%, 82.4%, 32.9%, 21.9%, and 50% of participants reported a high prevalence of cigarette smoking, waterpipe tobacco smoking, alcohol consumption, addictive SA, and illegal drug abuse among university students, respectively.

The prevalence of the history of SA before the age of eighteen was 48.9% for cigarette smoking, 71.4% for waterpipe tobacco smoking, 50% for alcohol consumption, 50% for cannabis, 66.7% for ecstasy, 42.9% for opium, 75% for heroin, 80% for Lysergic acid diethylamide (LSD), 85% for methamphetamine, 70% for ritalin, 78.8% for tramadol, and 50% for performance-enhancing substances.

The prevalence rates of cigarette smoking, waterpipe tobacco smoking, and alcohol consumption among male vs. female participants were 26.3% vs. 16.5%, 32.6% vs. 32.4%, and 11.6% vs. 10.1%, respectively, with no significant between-group difference (P > 0.05). Their prevalence rates among dormitory and non-dormitory students were 24.2% vs. 14%, 36.9% vs. 24.4%, and 14.1% vs. 4.7%, respectively. There was no significant difference between dormitory and non-dormitory students, considering the prevalence of cigarette smoking (P = 0.062). In contrast, the prevalence rates of water

Table 2. The characteristics of participants' parents

Characteristics		No. (%)
Father's educational	Illiterate	8 (3.4)
	Below high-school diploma	40 (16.8)
	High-school diploma	73 (30.7)
	Associate or bachelor's degree	74 (31.1)
	Master's or higher	43 (18.1)
	Illiterate	19 (8)
	Below high-school diploma	51 (21.4)
Mother's educational level	High-school diploma	80 (33.6)
	Associate or bachelor's degree	64 (26.9)
	Master's or higher	24 (10.1)
	Employed	158 (66.4)
Father's employment status	Unemployed	8 (3.4)
	Retired	72 (30.2)
	Employed	55 (23.1)
Mother's employment	Homemaker	165 (69.3)
	Retired	18 (7.6)
	Together	220 (92.4)
Parents living arrangement	Separated	4 (1.7)
	Death of one or both	14 (5.9)
	Very good	4 (1.8)
Family financial	Good	142 (64.3)
status	Poor	74 (33.5)
	Very poor	1 (0.5)
	Highly religious	17 (7.4)
Family religiosity	Religious	150 (65.2)
status	Moderately religious	57 (24.8)
	Very slightly religious	6 (2.6)

tobacco smoking and alcohol consumption among dormitory students were significantly higher than those of non-dormitory students (P < 0.05). The prevalence rates of cigarette smoking, waterpipe tobacco smoking, and alcohol consumption among single vs. married participants were 21.9% vs. 8.7%, 23.9% vs. 30.4%, and 11.4% vs. 4.3%, respectively, with no significant betweengroup difference (P > 0.05). Finally, the prevalence rates of cigarette smoking, waterpipe tobacco smoking, and alcohol consumption among medical and dentistry students vs. other students were 27.8% vs. 16.4%, 38% vs. 28.9%, and 12.7% vs. 19.9%, respectively, and betweengroup differences were not significant (P > 0.05).

The total point averages of students with cigarette smoking, waterpipe tobacco smoking, and alcohol consumption were 15.51 ± 1.67 , 15.96 ± 1.38 , and 15.50 ± 1.36 , while the total point averages of students without cigarette smoking, waterpipe tobacco smoking, and alcohol consumption were 16.43 ± 2.4 , 16.37 ± 2.6 , and 16.34 ± 2.38 , respectively. The total grade point average of cigarette-smoking participants was significantly lower

Table 3. The prevalence of SA at different time intervals

Substance type —	First use		Time interval		
	Before university	At university	In life	In the past month	In the past year
Cigarette	32 (69.5)	16 (30.5)	48 (20.2)	22 (9.21)	39 (16.4)
Waterpipe tobacco	53 (69.7)	23 (30.3)	76 (31.9)	21 (8.8)	43 (18.1)
Alcoholic beverages	13 (52)	12 (48)	25 (10.5)	10 (4.2)	18(7.6)
Cannabis	5 (45.5)	6 (54.5)	11 (4.6)	8 (3.4)	8 (3.4)
Ecstasy	2 (50)	2 (50)	4 (1.7)	3 (1.3)	4 (1.7)
Opium	3 (50)	3 (50)	6 (2.5)	3 (1.3)	4 (1.7)
Heroin	1 (50)	1 (50)	2 (0.8)	2 (0.84)	2 (0.84)
LSD	2 (66.7)	1 (33.3)	3 (1.3)	3 (1.3)	3 (1.3)
Methamphetamine	1 (100)	0	1 (0.4)	1 (0.4)	1 (0.4)
Cocaine	1 (33.3)	2 (66.7)	3 (1.3)	3 (1.3)	3 (1.3)
Crack	0	1 (100)	1 (0.4)	1 (0.42)	1 (0.42)
Morphine	4 (57.1)	3 (42.8)	7 (2.9)	3 (1.3)	3 (1.3)
Pethidine	2 (66.7)	1 (33.3)	3 (1.3)	3 (1.3)	3 (1.3)
Ritalin	8 (61.5)	5 (38.5)	13 (5.5)	3 (1.3)	3 (1.3)
Tramadol	7 (77.8)	2 (22.2)	9 (3.8)	3 (1.3)	7 (2.9)
Methadone	2 (50)	2 (50)	4 (1.7)	3 (1.3)	3 (1.3)
Performance-enhancing substances	4 (50)	4 (50)	8 (3.4)	4 (1.7)	4 (1.7)
Herbal substances	8 (61.5)	5 (38.5)	13 (5.5)	3 (1.3)	4 (1.7)
Other over-the-counter drugs	12 (54.5)	10 (45.5)	22 (9.2)	3 (1.3)	7 (2.9)

Table 4. The reasons for substance abuse

Reason	Cigarette or waterpipe smoking	Alcoholic beverages	Addictive substance	Tranquilizers
Achieving experience	34 (14.71)	14 (5.88)	3 (1.26)	4 (1.68)
Achieving peace	20 (8.4)	9 (3.78)	1 (0.42)	7 (2.94)
Promoting a sense of well-being	19 (7.98)	8 (3.36)	2 (0.84)	2 (0.84)
Engaging in artistic activities	4 (1.68)	2 (0.84)	2 (0.84)	8 (3.36)
Having a good time with friends	23 (9.66)	7 (2.94)	1 (0.42)	4 (1.68)
Being accepted by peers	4 (1.68)	6 (2.52)	0	2 (0.84)
Escaping monotonous life	9 (3.78)	5 (2.10)	0	3 (1.26)
Reducing anger and failure	9 (3.78)	6 (2.52)	1 (0.42)	5 (2.10)
Achieving more sexual pleasure	3 (1.26)	2 (0.84)	0	2 (0.84)
Enhancing the effects of other substances	5 (2.10)	3 (1.26)	0	2 (0.84)
Pain reduction	4 (1.68)	4 (1.68)	0	2 (0.84)
Achieving pleasure	13 (5.46)	9 (3.78)	0	2 (0.84)
Compulsory use due to dependence	3 (1.26)	2 (0.84)	2 (0.84)	2 (0.84)
Management of sexual problems	3 (1.26)	2 (0.84)	0	1 (0.42)
Forgetting problems	7 (2.94)	5 (2.10)	1 (0.42)	4 (1.68)
Disease management	3 (1.26)	3 (1.26)	0	2 (0.84)
Staying awake	5 (2.10)	2 (0.84)	0	1 (0.42)
Achieving more energy	2 (0.84)	2 (0.84)	2 (0.84)	1 (0.42)
Getting intoxicated	2 (0.84)	1 (0.42)	2 (0.84)	2 (0.84)
Losing weight and improving physical fitness	2 (0.84)	1 (0.42)	2 (0.84)	2 (0.84)
Managing anxiety and depression	10 (4.20)	2 (0.84)	2 (0.84)	7 (2.94)
Improving the ability to study more and better	1 (0.42)	2 (0.84)	1 (0.42)	2 (0.84)
Reducing stress	9 (3.78)	3 (1.26)	1 (0.42)	6 (2.52)
Managing sleep problems	3 (1.26)	1 (0.42)	1 (0.42)	7 (2.94)
Looking like an adult	5 (2.10)	2 (0.84)	1 (0.42)	3 (1.26)
Imitating family members	2 (0.84)	4 (1.68)	1 (0.42)	2 (0.84)
Imitating celebrities	4 (1.68)	2 (0.84)	1 (0.42)	2 (0.84)

than their non-smoker counterparts (P=0.03). However, there was no significant difference between participants with and without waterpipe tobacco smoking and alcohol consumption, concerning their total grade point average (P>0.05). Moreover, participants reported easy access to all substances except for crack (Table 5).

Discussion

This study assessed the prevalence and the contributing factors of SA among medical sciences students. The findings showed that the most commonly abused substances among medical sciences students were waterpipe tobacco (31.9%), cigarettes (20.2%), and alcoholic beverages (10.5%). In agreement with these findings, two previous studies in Iran reported waterpipe tobacco and cigarettes as the most commonly abused substances among students, with prevalence of 29.7% and 25.1%¹⁸ and 26.6% and 22.7%, respectively. However, a study on secondary school students in Nigeria¹⁹ and university students in Hong Kong²⁰ reported that the most commonly abused substances were cigarettes, opium, and alcohol. This difference among studies concerning the most commonly abused substances is attributable to the differences among the participants' relationships and social behaviors, the history of SA among their family members and close friends,²¹ their school types and educational levels, and their mothers' educational levels.²² Waterpipe tobacco smoking is associated with a high risk of oral, gastric, esophageal, and lung cancer, altered respiratory function, and infertility. Smoking even one cigarette can lead to palpitation and increase blood pressure.23 Therefore, effective strategies are needed to reduce the abuse of these substances among students.

Most participants with SA in the present study had started SA before the age of eighteen years. A previous study also reported the same finding.¹⁴ Another study in Iran showed that the average SA onset age was 17.6 years.²⁴

Table 5. Students' opinions about the accessibility of different substances

	Accessibility N (%)				
Substance type	Very difficult	Fairly difficult	Fairly easy	Very easy	
Alcoholic beverages	33 (13.87)	57 (23.95)	104 (49.70)	41 (17.23)	
Cannabis	40 (16.81)	56 (23.53)	94 (39.50)	45 (18.91)	
Ecstasy	50 (21.01)	75 (31.51)	80 (33.61)	29 (12.18)	
Opium	39 (16.37)	61 (25.63)	89 (37.39)	46 (19.33)	
Cocaine	55 (23.11)	78 (32.77)	79 (31.19)	22 (6.24)	
Methamphetamine	48 (20.17)	74 (30.9)	81 (34.01)	31 (13.02)	
Ritalin	35 (14.71)	60 (25.21)	89 (37.39)	51 (21.43)	
Tramadol	33 (13.87)	61 (25.63)	91 (38.24)	50 (21.01)	
Methadone	39 (16.37)	67 (28.15)	85 (35.71)	44 (18.49	
Heroin	52 (21.85)	91 (38.24)	69 (28.99)	23 (9.66)	
Crack	50 (21.01)	88 (36.97	70 (29.41)	25 (10.50)	

Moreover, a study showed a significant relationship between cigarette smoking onset and adolescence.²⁵ SA frequency is influenced by many factors, such as lack of protection, peers' SA, sensitivity to peer support, positive attitude towards SA, and easy access.²⁶ Strategies to reduce SA among adolescents are essential to effectively reduce SA prevalence.²⁴

We also found that the prevalence of cigarette smoking throughout life (20.2%), in the past month (9.2%), and in the past year (16.4%) was slightly higher than the rates reported in other countries.^{27,28} These values in a study on medical sciences students in Iran were 17.6%, 5.3%, and 8.8%, respectively.²⁹ Another study on medical sciences students in Iran found that the prevalence of tobacco smoking in the past year, past month, and current day was 10.1%, 5.8%, and 1.8%, respectively.³⁰ In a study in the United States, these values were 11.3%, 20.1%, and 4.2%, respectively.²⁷ In 2015, the prevalence of cigarette smoking in European countries was 46% throughout life and 21% in the past month.²⁸ These findings imply that the prevalence of cigarette smoking in Western countries is higher than in Iran.

Our findings also indicated that the prevalence of alcohol consumption in life (10.5%), in the past month (4.2%), and in the past year (7.6%) was almost the same as the rates reported in previous studies in Iran and lower than the rates reported in studies in other countries.^{27,29,31} These values in a study on medical sciences students in Iran were 16.1%, 2.2%, and 7%, respectively.²⁹ Another study in Iran reported that the prevalence of alcohol consumption among university students was 9.5%.32 The prevalence of alcohol consumption among college students in a study in Brazil was 80.5 in the past year and 62.1% in the past month.³¹ A study in the United States also showed that the prevalence of alcohol consumption was 81.4% in life, 79% in the past year, and 63.2% in the past month.²⁷ Based on the findings of these studies, the prevalence of alcohol consumption in Iran is much lower than in Western countries, which may be due to the illegality of alcohol consumption in the Islamic culture of Iran. Previous studies also confirmed the inhibitory effects of religiosity on alcohol consumption.^{33,34}

We also found that the prevalence rates of cigarette smoking, waterpipe tobacco smoking, and alcohol consumption among male students were higher than among female students, though the differences were not significant. However, some previous studies reported a significantly higher prevalence of SA among male students.^{35,36} Moreover, our findings indicated that SA was insignificantly higher among single students than their married counterparts, which agrees with another study.³⁷ It seems that marriage protects individuals against SA by strengthening their emotional support. Other studies have confirmed the family's pivotal role in preventing and reducing SA.¹⁵

Another finding of the present study was that the

prevalence rates of waterpipe tobacco smoking and alcohol consumption were significantly higher among dormitory students compared to non-dormitory students. Dormitory students are at higher risk for SA because they have weaker parental support and are under more peer pressure. Therefore, strategies to improve parental support may reduce SA among students.¹⁴

Study findings also revealed the desire to achieve experience and have fun with friends as the most common reasons for cigarette smoking, waterpipe tobacco smoking, and alcohol consumption among medical sciences students. However, the most common reasons for abusing tranquilizers were to engage in artistic activities, promote peace of mind, and manage sleep problems. A study on university students in Iran reported peer support as the main reason for SA.³⁵ Another study on secondary students in Trinidad and Tobago also indicated that their alcohol consumption had a significant positive correlation with their fathers' alcohol consumption.³⁸ Students' SA has many different contributing factors. Lifestyle modification and promoting healthy cultural and behavioral patterns among students may effectively reduce their SA.

Limitations

An important limitation of this study was the probability of some participants' non-honest answers to the study instruments due to the social sensitivity of SA. We attempted to manage this limitation through anonymous data collection. Moreover, this study did not assess the duration, amount, and frequency of SA.

Conclusion

The most commonly used substances among medical sciences students were waterpipe, tobacco, cigarettes, and alcoholic beverages, and most students had started SA before the age of eighteen and believed that education about SA was inadequate. Moreover, single students, dormitory students, students with educational problems, and students with lower grade point averages were more at risk for SA. Most students abused substances to experience them. Therefore, SA-related educational programs for adolescent and university students are needed to prevent and reduce SA among them. Examples of such programs are programs on life skills, effective emotion management, risks and complications of SA, and promotion of physical exercise. Mental health authorities can use the present study's findings in mental health improvement programs, particularly in university mental health counseling centers.

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Authors' Contribution

Conceptualization: Hamidreza Gilasi, Sayyed Alireza Talaei. **Formal analysis:** Hamidreza Gilasi.

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Competing Interests

The authors have no conflict of interest.

Ethical Approval

The Ethics Committee of Kashan University of Medical Sciences, Kashan, Iran, approved this study (code: IR.KAUMS.REC.1398.033). The participants were informed of the study's aim, method, and advantages, their questions were answered, and they were assured of anonymous reporting of the study findings.

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References

- Jandaghi F, Neshat-Doost HT, Kalantari M, Jabal-Ameli S. The effectiveness of cognitive-behavioral stress management group training on anxiety and depression of addicts under methadone maintenance therapy (MMT). J Clin Psychol. 2012;4(4):41-50. doi: 10.22075/jcp.2017.2106.
- Reed MB, Wang R, Shillington AM, Clapp JD, Lange JE. The relationship between alcohol use and cigarette smoking in a sample of undergraduate college students. Addict Behav. 2007;32(3):449-64. doi: 10.1016/j.addbeh.2006.05.016.
- Substance Abuse and Mental Health Services Administration. Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2014. Available from: https://www.samhsa.gov/data/ sites/default/files/NSDUHresultsPDFWHTML2013/Web/ NSDUHresults2013.htm.
- 4. Amin-Esmaeili M, Rahimi-Movaghar A, Sharifi V, Hajebi A, Radgoodarzi R, Mojtabai R, et al. Epidemiology of illicit drug use disorders in Iran: prevalence, correlates, comorbidity and service utilization results from the Iranian Mental Health Survey. Addiction. 2016;111(10):1836-47. doi: 10.1111/ add.13453.
- Amin-Esmaeili M, Rahimi-Movaghar A, Sharifi V, Hajebi A, Mojtabai R, Radgoodarzi R, et al. Alcohol use disorders in Iran: prevalence, symptoms, correlates, and comorbidity. Drug Alcohol Depend. 2017;176:48-54. doi: 10.1016/j. drugalcdep.2017.02.018.
- Siyam S. Drug abuse prevalence between male students of different universities in Rasht in 2005. Zahedan J Res Med Sci. 2006;8(4):279-85. [Persian].
- Foroutani MR, Rezaeian M. Knowledge and drug abuse among university students in the town of Larestan. Iran Journal of Nursing. 2005;18(43):21-9. [Persian].
- 8. Parvizi S, Ahmadi F, Nikbakht Nasrabadi AR. Adolescents'

perspectives on addiction: a qualitative study. Iran J Psychiatry Clin Psychol. 2005;10(3):250-7. [Persian].

- de Carvalho e Martins MC, Vilanova CM, do Nascimento Ferreira de Carvalho IL, de Souza Filho M, de Sousa L, Andrade F. Alcohol use by Brazilian college students. Fam Med Med Sci Res. 2016;5(1):194. doi: 10.4172/2327-4972.1000194.
- Rhemtulla M, Fried El, Aggen SH, Tuerlinckx F, Kendler KS, Borsboom D. Network analysis of substance abuse and dependence symptoms. Drug Alcohol Depend. 2016;161:230-7. doi: 10.1016/j.drugalcdep.2016.02.005.
- Sajadi A, Bakhshani N, Hoseinbar M. The Prevalence of Drug Abuse in Students of Medical Science of Zahedan University. The 3rd National Addiction Congress in Iran; 2004; Yazd, Iran. [Persian].
- 12. Ardakani M, Rafati A. Diagnosis and Treatment of Addiction. Yazd: Tebgostar; 2009. [Persian].
- Alexopoulos EC, Jelastopulu E, Aronis K, Dougenis D. Cigarette smoking among university students in Greece: a comparison between medical and other students. Environ Health Prev Med. 2010;15(2):115-20. doi: 10.1007/s12199-009-0110-0.
- Babaei Heydarabadi A, Ramezankhani A, Barekati H, Vejdani M, Shariatinejad K, Panahi R, et al. Prevalence of substance abuse among dormitory students of Shahid Beheshti University of Medical Sciences, Tehran, Iran. Int J High Risk Behav Addict. 2015;4(2):e22350. doi: 10.5812/ijhrba.22350v2.
- 15. Llorent-Bedmar V, Torres-Zaragoza L, Vidigal-Alfaya S. Legal and illegal drug consumption among students at the University of Seville (Spain). Educ Sci. 2023;13(1):55. doi: 10.3390/educsci13010055.
- 16. Ayatollahi MT. Principles and Methods of Biostatistics. Tehran: Amir Kabir; 2023. [Persian].
- Dolatshahee B, Yaghubi H, Riazi SA, Peyravi H, Hassan Abadi HR, Poursharifi H, et al. Construction and validation of "national scale of students life profile": a preliminary study. J Appl Psychol Res. 2016;7(3):115-25. doi: 10.22059/ japr.2016.60970. [Persian].
- Momen-Nasab M, Najafi SS, Kaveh MH, Ahmadpour F. Prevalence of risky health behaviors among the students of Khorramabad universities. Yafteh. 2006;8(2):23-9. [Persian].
- Eneh AU, Stanley PC. Pattern of substance use among secondary school students in Rivers State. Niger J Med. 2004;13(1):36-9.
- Abdullah AS, Fielding R, Hedley AJ. Patterns of cigarette smoking, alcohol use and other substance use among Chinese university students in Hong Kong. Am J Addict. 2002;11(3):235-46. doi: 10.1080/10550490290088018.
- 21. Epstein JA, Botvin GJ, Baker E, Diaz T. Impact of social influences and problem behavior on alcohol use among inner-city Hispanic and black adolescents. J Stud Alcohol. 1999;60(5):595-604. doi: 10.15288/jsa.1999.60.595.
- 22. Arslan H, Sari E. Effects of socioeconomic levels of families and family relations on substance addiction of adolescents. Med Sci. 2019;8(3):726-31.
- Taraghijah S, Hamdiyeh M, Yaghoubi N. Predictors of smoking shisha in public universities. J Res Med Sci. 2010;34(4):249-56. [Persian].
- 24. Serajzadeh SH, Feizi I. Drugs and alcohol use among Iranian

students: a survey study on state non-medical universities. Social Welfare Quarterly. 2007;6(25):85-110.

- 25. Madadi A, Nogani F. The Textbook of Addiction and Substance Abuse. Tehran: Jame-e-Negar; 2004. p. 10. [Persian].
- Richardson JL, Dwyer K, McGuigan K, Hansen WB, Dent C, Johnson CA, et al. Substance use among eighth-grade students who take care of themselves after school. Pediatrics. 1989;84(3):556-66.
- Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE, Miech RA. Monitoring the Future National Survey Results on Drug Use, 1975-2014: Volume II, College Students and Adults Ages 19-55. Ann Arbor, MI: Institute for Social Research, University of Michigan; 2015.
- Hibell B, Guttormsson U, Ahlström S, Balakireva O, Bjarnason T, Kokkevi A, et al. The 2015 ESPAD Report: Substance Use Amongst Students in 36 European Countries. Stockholm, Sweden: EPSAD; 2015.
- 29. Abbasi-Ghahramanloo A, Rahimi-Movaghar A, Zeraati H, Fotouhi A. Pattern of substance use among students of medical sciences in Tehran, Iran: a latent class analysis. J Subst Use. 2018;23(6):648-54. doi: 10.1080/14659891.2018.1489007.
- Amin-Esmaeili M, Rahimi-Movaghar A, Yunesian M, Sahimi-Izadian E, Moinolghorabaei M. Trend of smoking among students of Tehran University of Medical Sciences: results from four consecutive surveys from 2006 to 2009. Med J Islam Repub Iran. 2013;27(4):168-78.
- Wagner GA, de Oliveira LG, Barroso LP, Nishimura R, Ishihara LM, de Andrade Stempliuk V, et al. Drug use in college students: a 13-year trend. Rev Saude Publica. 2012;46(3):497-504. doi: 10.1590/s0034-89102012005000033.
- Kabir K, Mohammadpoorasl A, Esmaeelpour R, Aghazamani F, Rostami F. Tobacco use and substance abuse in students of Karaj universities. Int J Prev Med. 2016;7:105. doi: 10.4103/2008-7802.190091.
- Afifi RA, El Asmar K, Bteddini D, Assi M, Yassin N, Bitar S, et al. Bullying victimization and use of substances in high school: does religiosity moderate the association? J Relig Health. 2020;59(1):334-50. doi: 10.1007/s10943-019-00789-8.
- de Andrés-Sánchez J, Belzunegui-Eraso A, Fernández-Aliseda S. Religion as a protective factor against adolescent smoking habits: evidence from Spain. Christian Journal for Global Health. 2021;8(2):16-23.
- Talaei A, Mokhber N, Fayyazi Bordbar MR, Javanbakh A, Samari AA. Patterns and correlates of substance use among university students in Iran. Iran J Psychiatry Behav Sci. 2008;2(2):15-22.
- 36. Ahmadi J, Maharlooy N, Alishahi M. Substance abuse: prevalence in a sample of nursing students. J Clin Nurs. 2004;13(1):60-4. doi: 10.1046/j.1365-2702.2003.00841.x.
- 37. Kenna GA, Wood MD. Substance use by pharmacy and nursing practitioners and students in a northeastern state. Am J Health Syst Pharm. 2004;61(9):921-30. doi: 10.1093/ ajhp/61.9.921.
- Singh H, Maharaj HD, Shipp M. Pattern of substance abuse among secondary school students in Trinidad and Tobago. Public Health. 1991;105(6):435-41. doi: 10.1016/s0033-3506(05)80613-4.