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Factors Involving in the Substance Abuse among Medical Students and its Association with medical students' general health: mixed-method study

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Abstract

Background: Substance abuse has a reciprocal association with the individuals' general health; and its incidence among medical students is highly variable over time.
Objectives: The present study aimed to investigate the factors involved in the substance abuse and its association with medical students' general health.
Methods: The present mixed-method study was conducted on the medical students of Azad University of Tabriz in 2018 with Stratified Random Sampling. Data were collected using the General Health Questionnaire-28 (GHQ-28) and a researcher-made substance abuse questionnaire and then was analyzed through tests, chi-square, ANOVA, post hoc Howell Games and Multivariate regression models were using the SPSS16.
***Results*:** 150 medical students with a mean age of 26.98±3.46 are participating in the present study. 17.3% of students were substance abusers. The highest rate of abuse was related to Ritalin. The mean scores of the general health of addicted and non-addicted students were 42.65±11.95 and 23.62±16.83 respectively, and it was statistically significant (p= 0.012). Academic pressure was the main reason for Substance Abuse. Anxiety and insomnia were the most essential predictors decreasing general health among students with substance abuse.
Conclusion: The prevalence of substance abuse among medical students was unexpected. Medical students are at risk of addiction due to the inadequate distribution of academic pressure and other predisposing factors. The implementation of practical strategies in training environments, families, and society is very important to prevent and improve the current status.

Keywords: medical students, substance abuse, addiction, general health, public health

Introduction

Substance abuse is an unresolved global problem. According to the latest statistics, the prevalence of substance abuse in the world population estimated to be 10-30% that is growing every year [1,2]. Substance abuse can have multiple effects on behavioral-cognitive systems and even psychological symptoms. This global pathological phenomenon, not only hurts individual health, but can also have a detrimental effect on the psychological and even moral state of society [3]. The rate of substance abuse is increasing

worldwide, and this increase is more rapid in developing countries [4]. The youth is the main population of each country at risk for substance abuse [2]. It is a global epidemic among young people and can have negative effects on their education and professional life. The prevalent age range of substance abuse is from 18 to 25 years in the world [1]. Students constitute a large proportion of a country's youth. During the student course, special changes sometimes occur in the students' lifestyles. During this period, students experience independence, freedom, and liberation from parental supervision. It is a period of minimal parental control, academic pressure of university, living with strangers with different cultures, new interactions with the academic system, new responsibilities, and being in an environment with different values [3-5].

Unfortunately, the developing countries, especially the Middle East, are the main routes for substance trafficking to other regions of the world due to specific geographical conditions, leading to the facilitation of the youth access to drugs [6]. Even though there is no accurate prevalence rate of substance abuse in different parts of the region, the Iranian studies have reported the prevalence of substance abuse to be 2% to 3% [7,8]. This prevalence is not a fixed number and changes each year, requiring the annual studies in this field. Ghoreishi et al. (2017) reported an approximate rate of drug-related deaths to be about 38.2 per million populations in Iran [9]. The global prevalence of the disease is not only affected by regional divisions, but various other factors are reciprocally effective in the prevalence of addiction among students as well. The most important factors are anxiety, stress, occupational challenges, academic pressure, and sleep disorders [10].

As mentioned, the academic pressure can also be an important factor in the prevalence of addiction among students. For instance, medical and paramedical fields are more at risk of addiction than others because of the availability of drugs, high job stress, insomnia, heavy courses, mere knowledge about different kinds of drugs, and not preventive knowledge and attitudes about side effects of substance abuse. Approximately 10%-15% of hospital staff experience substance abuse [8,10]. Furthermore, the substance abuse rate was about 20% and higher among medical students than staff [11], indicating the Necessity for preventive care in the entry into medical fields. Substance abuse among students can cause multiple personal-social, economic, educational, and quality of life damages that can significantly affect the individuals' general health [12-14]. Given the effectiveness of factors such as specific geography of Iran, academic pressure, job stress, changes in the prevalence of substance abuse over time, and other factors involved in the addiction prevalence, the present study was conducted in 2018 to investigate the factors involved in the substance abuse among medical students of Tabriz as a significant challenge for the general health of the medical profession.

Methods

The present mixed-method study (descriptive-analytical and qualitative) was conducted with the participation of medical students (at all grades) at Islamic Azad University of Tabriz, Iran, in 2018 with Stratified Random Sampling. Different current semesters were selected as classes for sampling the grades, and then the research units were randomly selected using the attendance list of each semester and according to the population of each class. Inclusion criteria consisted of medical students who had completed at least an academic year and were studying. Exclusion criteria included students who were not willing to participate in the study or had certain mental disorders. Given an alpha error of 5% and a power of 80%, the minimum sample size was obtained equal to 133 by using the Power and Sample Size software; and the final sample size of 160 was considered to increase the accuracy of the study. 10 individuals were not willing to continue the research, and eventually, the study continued with the participation of 150 individuals.

The research tools were as follows: demographic information questionnaire (including age, sex, education year, marital status, place of residence, nativity, and awareness of drug definition), general health questionnaire, and researcher-made substance abuse questionnaire that was completed with a structured interview. The General Health Questionnaire-28 (GHQ-28) is a standard 28-question tool that was created by Goldberg and Hillier. The tool consists of four general domains, physical aspect, anxiety symptoms, social dysfunction, and depression [15]. The Likert scale

was used for scoring the questionnaire. The maximum score was 84, and higher scores indicated excellent mental health. The Reliability and validity of the tool were confirmed in the Iranian population by Noorbala et al. (2009) [13]. The questionnaire was completed as a self-report in the presence of a researcher. The cut-off point in the questionnaire (GHQ-28) included healthy (0-6), mild (7-11), moderate (12-16), and severe (17-21) for the subscales, and healthy (0-22), mild (23-40), moderate (41-60), and severe (61-84) for the total score [13,15]. Substance abuse questionnaire was a researcher-made and standardized tool based on the opinions of ten experts, faculty members, scholars, and relevant studies. The questionnaire included questions about the experience of hypnotic and psychoactive drug use, type of substance used, cause of use, accelerated use situations, side effects, and attempt to withdraw. The content validity indicator (CVI) was obtained equal to 0.87.

First, the general health questionnaire was completed in quantity section, then in the qualitative section of this study the Substance abuse questionnaire was used; and if the addiction was proven, the cause of each item or the most frequency state was immediately asked and recorded in a semi-structured interview for 10–20 minutes. It was then re-read for the students and approved after recording. In addition to the interviewer, the observer also witnessed the interview, and also confirmed the data validity (Credibility, Dependability). Initial codes were then extracted from meaning units, including a sentences or paragraphs related to each other. The codes, which were associated with each other, were then integrated based on similarities and classified and considered as the sub-category. Several subcategories were put in a general and higher category based on at least a common property, and the base section was analyzed using the content analysis. Researchers in the group then discussed and investigated the cause of each item for substance abusers and reached a 90% agreement. It was examined and confirmed by two faculty members out of the research group and expert in quantitative and qualitative research (transferability, Confirm ability). Based on criteria DSM-5 and ICD-11, a drug addict chronically exhibited the pathological behaviors for substance abuse (alcohol, caffeine, cannabis, hallucinogens, inhalants, opioids, sedatives, hypnotics, and anxiolytics, stimulants, and tobacco) [16].

The present study had a code of ethics from The Islamic Azad University of Tabriz with a thesis number 10210101971002. The study was conducted following the ethics of research. Subsequently, the information was registered with numbers and anonymous and the principle of confidentiality was adhered to according to the Declaration of Helsinki1964.

Data were analyzed using the SPSS16 and reported as mean± standard deviation. Frequency distribution tests, chi-square, and one-way ANOVA were used for data analysis. Furthermore, Games-Howell post-hoc was utilized for pairwise comparisons. Multivariate regression models were used to assess the predictive domains of the effects of substance abuse on general health. The p-value was considered less than 0.05 for establishing statistical significant relationships.

Results

In the present study, 150 medical students of the Islamic Azad University of Tabriz, Iran were included in the study in an internship and stager courses. The mean age of the research population was 26.98±3.46, among whom 81 (54%) were male, and 69 (46%) were female. 43.3% of all students were aware of psychoactive substances and their harmful effects (Table1).

Table 1: Demographic Characteristics of Medical Students

Factors					N	%
Gender				Male	81	54
				Female	69	46
Age	M	SD	Max-Min	22-27	86	57.3
	26.98	3.46	22-39	28-32	51	34.0
				33-39	13	8.7
Place of residence				With Family	74	49.3
				Dorm	50	33.3
				Private house with friends	18	12.0
				Private house alone	8	5.3
Education Level				Stager	71	47.3
				Intern	79	52.7
Marital status				Single	80	53.3
				Married	70	46.3
Nativity				Yes	72	48
				No	78	52
Smoking				Yes	83	55.4
				No	67	44.6
Alcoholism				Yes	44	29.4
				No	106	70.6
Awareness of drug abuse				Yes	65	43.3
				No	85	56.7

17.3% (n= 26) of students had a history of substance abuse. The prevalence of smoking, which was not considered as an addiction, was equal to 83 (55.4%). All students taking psychoactive and hypnotic drugs also smoke a cigarette. The prevalence of smoking was equal to 23 (27.7%) in females and 60 (72.3%) in males. There was no report on opium, cannabis, and heroin in the present study. Furthermore, 44 (29.4%) students were alcohol abusers, among whom 22 (50%) had experienced abuse of psychoactive and hypnotic drugs. There was no statistically significant correlation between alcohol use and psychoactive and hypnotic drugs (p= 0.091).

The highest rate of abuse was related to Ritalin and prevalence of other drug was shown in (Table 2).

Table 2: Prevalence of Drug Abuse in Medical Students by Demographic Factors

Demographic Factors				Type of drug used						P-value
				Zolpidem	Tramadol	Marijuana	Ritalin	Diazpam	Total	
				N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
				3(11.5)	4(15.4)	3(11.5)	14(53.8)	2(7.8)	26(100)	
Age	M	SD	Age(22-38)	26.33(1.15)	26.5(2.38)	25.66(1.52)	28.28(3.96)	25.50(2.12)	27.26(3.26)	0.0001
	26.98	3.46	Onest of abuse 20-28	23.66(0.57)	23.25(0.95)	24(1)	24.28(2.46)	23.50(2.12)	23.96(1.92)	0.082
Gender			Male	0(0)	4(21.1)	3(15.8)	12(63.2)	0(0)	19(73.1)	0.002
			Female	3(42.9)	0(0)	0(0)	2(28.6)	2(28.6)	7(26.9)	
Education Level			Stager	1(11.1)	2(22.2)	1(11.1)	4(44.4)	1(11.1)	9(34.6)	0.931
			Internship	2(11.8)	2(11.8)	2(11.8)	10(58.8)	1(5.9)	17(65.4)	
Marital status			Single	2(11.1)	4(22.2)	3(16.7)	7(38.9)	2(11.1)	18(69.2)	0.169
			Married	1(12.5)	0(0)	0(0)	7(87.5)	0(0)	8(30.8)	
Place of residence			With Family	0(0)	1(8.3)	1(8.3)	10(83.3)	0(0)	12(46.2)	0.056
			Dorm	2(33.3)	0(0)	1(16.7)	1(16.7)	2(33.3)	6(23.1)	
			Private house with friends	0(0)	1(33.3)	0(0)	2(66.7)	0(0)	3(11.5)	
			Private house alone	1(20)	2(40)	1(20)	1(20)	0(0)	5(19.2)	
Nativity			Yes	0(0)	2(20)	1(10)	7(70)	0(0)	10(38.5)	0.383
			No	3(18.8)	2(12.5)	2(12.5)	7(43.8)	2(12.5)	16(61.5)	

The mean score of general health in non-addicted students was 42.65± 11.95, and the mean score of general health in addicted students was 23.62± 16.83 that was statistically significant (p= 0.012) (Table3-1)

Table 3-1: Comparison of the General Health of Non-Addicted and Addicted Medical Students

General Health	Non-Addicted (n=124)		Addicted (n=26)		P-value
	M	SD	M	SD	
Somatic Symptoms	14.19	4.48	7.87	4.43	0.007
Anxiety And Insomnia	11.42	6.01	8.21	4.46	0.011
Social Dysfunction	7.69	4.9	8.03	4.59	0.198
Severe Depression	6.92	4	7.88	4.31	0.389
GHQ-28 total scale	42.65	11.95	23.62	16.83	0.012

M: Mean SD: Standard Error

Table 3-2 compares various dimensions of students' general health. In terms of classification of severity of general health disorder, the highest rate belonged to moderate health damage (57.7%) (Table 3-2).

Table 3-2: Severity of General Health Dimensions in Non-Addicted and Addicted Medical Students

General Health	Severity	Non-Addicted (n=124)	Addicted (n=26)	p
		N(%)	N(%)	
Somatic Symptoms	Healthy	39(31.5)	2(7.7)	0.001
	Suspected	67(54)	4(15.4)	
	Moderate	13(10.5)	11(42.3)	
	Severe	5(4)	9(34.6)	
Anxiety and Insomnia	Healthy	47(37.3)	7(26.9)	0.001
	Suspected	59(47.5)	13(50)	
	Moderate	16(12.7)	2(7.7)	
	Severe	2(2.5)	4(15.4)	
Social Dysfunction	Healthy	44(35.5)	2(46.2)	0.005
	Suspected	63(50.8)	6(23.1)	
	Moderate	14(11.3)	8(30.8)	
	Severe	3(2.4)	0(0)	
Severe Depression	Healthy	101(81.4)	17(65.4)	0.001
	Suspected	19(15.3)	3(11.5)	
	Moderate	4(3.3)	5(19.2)	
	Severe	0(0)	1(3.9)	
GHQ-28 total scale	Healthy	73(58.9)	2(7.7)	0.001
	Suspected	32(25.8)	7(26.9)	
	Moderate	16(12.9)	15(57.7)	
	Severe	3(2.4)	2(7.7)	

M: Mean, SD: Standard Error, P: P-value

The results of the interview indicated that the most common reason for students' tendency to use psychoactive and hypnotic drugs was related to academic pressure with a frequency of 10 cases (38.2%). Smoking (100%), history of addicted friends (64.5%), and emotional problems (42.3%) were the most important accelerating factors of risk of substance abuse, not its main cause (Table 4). Furthermore, the most important predictive domains of general health in non-addicted students included were anxiety and social functioning, but in addicted students depression, anxiety and social function were the most predictive domains. Interestingly, anxiety and insomnia were the strongest predictor of general health decline in the students (Table 5).

Table 4: Assessment of the Factors Involved in Starting, Continuing Drug Abuse, its Complications and Attempt to Withdraw among Students

Factors			N(%)	Description
			26(100)	
Age of Substance abuse Initiation		20-24	18(69.2)	They reported the lack of control over the emotions associated with a new event to solve the problem (academic pressure, stress, psychological problems, loneliness, and insomnia) as the main cause of the tendency to drug abuse at an early age.
		25-28	8(53.8)	
Drug	Type of addiction	Ritalin	14(53.8)	Ritalin tablet was the highest consumption because it was a good excuse to increase the study power.
		Diazepam	2(7.8)	
		THC	3(11.5)	
		Tramadol	4(15.4)	
		Zolpidem	3(11.5)	
Accelerated Factor	Smoking	No	0(0)	The cigarette is not considered as a drug in society; hence, it is highly consumed and is usually the way to enter the world of addiction.
		Yes	26(100)	
	Have addict friends	Yes	17(65.4)	Friends had a huge impact on the first consumption experience and even the continued consumption, but it is widely reported that friends were accelerators of the consumption, rather than its main reason.
		No	9(34.6)	
	Emotional problem	Yes	11(42.3)	A significant number of participants reported the emotional problems as the personal and social challenges of the medicine.
		No	15(57.7)	
Reason	Reason for Addiction	Friends History	2(7.8)	Unbalanced training programs put a lot of stress on students who had chosen awkward strategies to overcome fatigue. The academic pressure was not distributed regularly as it was very high pressure in a period, and at low pressure with more holidays in another period.
		Habitation in Dorm	3(11.5)	
		Academic Pressure	10(38.2)	
		Psychiatric History	4(15.4)	
		Stress Level	6(23.5)	
		Insomnia	1(3.6)	
Dosage	Increasing Dose	Yes	15(57.7)	Significant long-term use of the drugs was observed after several temporary beneficial effects.
		No	11(42.3)	
	Substance Abuse	Irregular	18(69.2)	All people who used drugs regularly first started abusing drugs irregularly.
		Regular	8(30.8)	
	Dose	Daily	15(57.7)	The lack of a coherent- leisure curriculum substituted bad habits for healthy activities.
		weekly	11(42.3)	
Complication	Academic Failure in addict student	No	8(30.8)	The main cause of the failure was the focus on the preparation of the substances.
		Yes	18(69.2)	
	Dysfunction	No	6(23.5)	Lack of confidence was the most reported cause of the inability to perform medical tasks.
		Yes	20(76.5)	
	Dependency	Yes	17(65.3)	Psychological dependence was the most common state of dependence.
		No	9(34.7)	
	Side Effects	Yes	8(30.8)	The most common complications were sweating, nausea, headache, restlessness, violence, and insomnia.
		No	18(69.2)	
Treatment	Attempt to withdraw	Yes	8(30.8)	The professors' recommendation was reported as the most common reason for quitting, and the atmosphere among friends was the main reason for failure.
		No	18(69.2)	
	Mediocre Behavior	Yes	11(42.3)	The visit to a strange physician was reported as the most common treatment behavior. The interesting finding was that many individuals had refused to continue the treatment because of the fear of meeting the physician in the future.
		No	15(57.7)	

Table-5: Predictive Domains of Medical Students' General Health

General Health domains	Non-Addicted					Addicted				
	B	SE	Beta	t	P	B	SE	Beta	t	P
(Constant)	0.311	2.243		0.138	0.890	0.608	9.388		0.065	0.949
Somatic Symptoms	0.285	0.582	0.075	0.490	0.625	0.681	0.392	0.276	1.735	0.097
Anxiety And Insomnia	1.207	0.543	0.320	2.221	0.028	1.218	0.340	0.613	3.578	0.002
Social Dysfunction	1.154	0.554	0.315	2.082	0.039	0.923	0.407	0.378	2.267	0.034
Severe Depression	0.238	0.599	0.061	0.397	0.692	1.354	0.504	0.454	2.688	0.014

SE: Standard Error of β, B: β, P: P-value

Discussion

The present study aimed to investigate the prevalence and factors involved in substance abuse among medical students. The prevalence of substance abuse was 17.3% in medical students. Ritalin (methylphenidate), Zolpidem, and diazepam were the most commonly abused drugs. In a study by Khademi et al. (2013), the prevalence of Ritalin use was reported to be 48% among medical residents and the main reason for using it was the attendance at the residency exam, and the result was consistent with the present study [17]. Unlike the present study, the prevalence of Ritalin abuse was reported to being negligible (less than 5%) in a study by Jalilian in Iran (2013) [18]. These differences exist in other countries, so that Goreishi et al. reported the highest rate of substance abuse, including heroin, Grass, Crack, LSD, and tramadol, among medical students during 6 years ago [19], but Arora et al. (2016) reported the most common substance abuse among Indian students as follows: alcohol, cigarettes, hookah, bhang, Chewing tobacco, and other drugs with lower amounts [11]. It seems that the type of substance and the prevalence of abuse of different substances are also highly correlated with factors such as culture, geographical area, and availability of the drug, so the differences in dosage and prevalence of substance abuse between different studies are acceptable.

Another aim of the present study was to determine medical students' general health. The general health of addicted students was significantly lower than non-addicted students. According to reports, 50 to 90 percent of substance abusers seem to have mental disorders [12]. Several studies in different populations have reported significant relationships between substance abuse and general health status [20,21], suggesting that individuals with anxiety and depression have less ability and skill to solve environmental problems and adjustments; hence, they find fewer solutions to dealing with environmental stressors. Several factors can lead to substance abuse. In the present study, the academic pressure was the main cause of substance abuse among students. Based on the literature reviews, the following cases were reported as predisposing factors for the onset of various substance abuse: academic pressure, seeking to enhance academic performance, seeking to increase level of consciousness during study, peers' temptations, having a high social class, a desire for experience, the lure of popularity, accessibility, poor mental health, perceived adult drug use, reducing stress, improving the intellectual process, and mind preparation, changing social values, seeking to be accepted by others, to be sociable, lack of religion, low self-esteem, for waking up at night, poverty, for personal enjoyment, academic dissatisfaction, for enhancing satisfaction during sex, for relieving boredom and fatigue, for having high mood, Love failure, for adaptation to issues, poor relationship with parenting, family disputes, industrialization, urbanization, globalization, cultism, violence, and conflict- ridden cultures [4-11]. The report of this reason may be a kind of justification or available reason to ignore other reasons by attributing the cause of consumption. From the authors' point of view, this issue is a fully multi-factorial issue and requires more detailed psychoanalysis and specialized interviews to examine them more precisely.

The prevalence of substance abuse was higher in men than in women. In this regard, Arora et al. (2016) confirmed the results of the present study [11]. The overall culture of society seems to be an important factor, in other words, a protective factor among women. However, the author believes that this difference may not be real and maybe the result of an estimation error due to self-reported differences in two sexes [19]. Researchers have reported the existence of behavioral differences in substance abuse between

two sexes in many cases as a distinctive phenomenon [22]. In the present study, students with a history of substance abuse were in moderate disorder status and suspected to have anxiety and sleep disorder. In a study by Jawed et al. (2018) on the quality of life and general health status among medical students and its association with psychoactive medication abuse, in line with our study, the students who abused the psychoactive substance had moderate general health status disorders [23]. In the individuals, subgroups were also in critical condition of general health status, anxiety, and social communication. According to the present finding, it seems that psychoactive substances had an effect on the production of serotonin in the body, leading to disorder, anxiety, and general health deterioration. The analysis of the issue indicates that substance abuse appeared to have a two-way relationship with general health. On this basis, three states are possible: First: The individuals with lower general health were more likely to abuse drugs; second, substance abuse can have negative effects on the individuals' general health; and third: both variables have simultaneous mutual effects (general health- substance abuse).

Students, who used psychoactive and hypnotic substances, were more likely to have emotional problems. On the other hand, emotional stress was found to be the main cause of the issue. It was found that stresses and emotional problems could disrupt the cortisol axis and the circadian rhythm (sleep) [24]. Emotional stress, along with forced sleep deprivation and a change in the circadian rhythm status, eventually lead to a sleep disorder that drives the individuals to consume hypnotic drugs. The Results of the present study indicated that substance abuse exacerbated daily functioning disorder. The main cause of this issue is related to family conflict and issues. Students' performance has a significant relationship with their physical and mental health [23]. Explanation of this effect is acceptable due to the negative effects of substance abuse on the physical-psychological health. There was also the academic failure in students who had substance abuse. The students attributed the cause of the issue to focus on the preparation of the substances. However, it seems that the cause of academic failure among consumer students is not solely related to this factor because substance abuse hurts various aspects of students' mental and social performance.

The lack of a coherent curriculum led to the substitution of inappropriate substance abuse habits for healthy recreation. Having fun in people can increase the quality of life in people. A study proved the effect of recreation on the creation of individuals' identity [25]. The study reported that recreation could enhance the individuals' sense of independence. It is interesting to know that recreation can even reduce delinquent behavior in individuals. Accordingly, recreational therapy is an effective method of preventing and treating substance abuse [24]. Therefore, the alternative training programs for reducing the workload and fatigue, and increasing quality of life can lead to better outcomes . According to the self-report of participants, low self-esteem was the biggest barrier to follow-up of their disease treatment (substance abuse). Numerous studies have found that there is a relationship between low self-esteem and a tendency for substance abuse; and the self-satisfaction or control of emotions and behavior are the reasons for this tendency in individuals [25,26]. In the present study, anxiety and insomnia were identified as the strongest predictors of substance abuse in students with a history of substance abuse. Results of multiple studies indicate that 64-80% of people with a history of substance abuse have had mental health disorders for at least once or even more [27]. The relationships of substance abuse, anxiety, and insomnia have been contradictory reported. Some studies have confirmed the relationship [28,29], but others have rejected any relationship [30,31]. This contradiction is due to the type of consumed substance [32].

Conclusion

The prevalence of substance abuse among medical students was high and unexpected. Students described the academic pressure as the most common cause of substance abuse. The inappropriate distribution of academic pressure, along with accelerating factors such as cigarette smoking, a history of addicted friends, and emotional problems, made medical students who had easy access to drugs, more likely to be addicted. Therefore, students who did not have the skills to overcome environmental stressors sought refuge in substance abuse. Furthermore,

the students' general health was mostly affected by anxiety and insomnia, and it was closely linked to the use of Ritalin. It seems necessary to rewrite a curriculum proportional to psychological aspects for medical students. Furthermore, developing preventive programs can enhance students' ability to overcome environmental stressors in dealing with risk factors.

A limitation of the present study was the self-reported prevalence assessment in the physical presence of participants. It is suggested conducting a similar study with an online design assessment. The authors believe that a lot of people, especially women, may conceal the truth due to the regional culture; and this deficiency decreases in the case of assessment via cyberspace. It also suggested conducting a study with a qualitative approach to this issue to reveal various and possible reasons for substance abuse. Scheduling time for medical students to study can have a positive impact on their physical and mental health; therefore, it is suggested reducing the students' workloads and great involvement by increase the number of students.

Key Point

- The prevalence of substance abuse among medical students was high and the highest rate of abuse was related to Ritalin.
- Academic pressure was the main reason for Substance Abuse. Also, smoking, history of addicted friends and emotional problems were the most important accelerating factors for substance abuse.
- Anxiety and insomnia were the most essential predictors decreasing general health among students with substance abuse.
- The general health of addicted students was significantly lower than non-addicted students.
- The implementation of practical strategies in training environments, families, and society is essential to prevent and improve the current status.

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Conflict of interest

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