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Comparison of the Frequency of Stimulant Drug Use among University Students

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ABSTRACT

Considering the high prevalence of stimulant drug use among students and its harmful consequences, we decided to investigate the frequency of stimulant drug use and its effective factors in students of different majors. Therefore, we can develop preventive intervention strategies in universities. In this cross-sectional study, 450 students of the Faculty of Medicine, Engineering, and Pharmacy of Kerman University in 2022-2023 participated. The students' information including age, gender, major, history of drug use, history of alcohol use, place of residence, use of stimulants, reason for use, history of psychiatric disease, and history of chronic disease were extracted and recorded and analyzed. The results showed that 21.3% of the students used stimulants, 42.9% smoke, 17.1% use narcotics, 81.7% consume alcohol. Although gender and marital status were not statistically significant, more men and more unmarried students used stimulants. Also, the marital status. The age, living accommodation, field of study, level of education, history of smoking, narcotic use, and alcohol use, and history of chronic and psychiatric disease were statistically significant in stimulant use. The average age of students who used stimulants was higher (23.37 years). Also, students who lived in their accommodation used stimulants more. The frequency of use of stimulants in pharmacy and in PhD students were more than other majors. The frequency of use of stimulants was significant based on the field of study, age, history of smoking, drugs, and alcohol.

Keywords: Factors, Stimulant, Students.

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INTRODUCTION

Addiction is a complex syndrome characterized by compulsive and uncontrollable urges to engage in specific behaviors despite negative consequences. (1) It can significantly impact individuals' lives, destroying families and damaging communities (1). Also, it affects a high percentage of the population, leading to health, family, and work-related problems (2). Addiction to industrial drugs is a significant issue that severely threatens the health of millions of people around the world. The tendency towards addiction and the use of industrial drugs alienates individuals from spiritual and social culture, leading to the deterioration of personal lives and societal structures. Few phenomena have threatened human societies as profoundly as addiction. The issue of drug addiction, especially to psychoactive substances, is of such importance that it receives comprehensive attention in every country, as addiction is often the root of other criminal behaviors, demonstrating a strong correlation between addiction and criminal activity (3).

Stimulant drug use among university students, particularly in medical fields, is a growing concern. Studies have reported prevalence rates ranging from 11% to 52.2% for stimulant use among medical students (4) (5). The most commonly used stimulants include methylphenidate, amphetamines, and alcohol (6). Despite awareness of potential complications, many students continue to use stimulants and even recommend them to others (5). Students primarily use these drugs to improve attention, academic performance, and energy levels (7).

Factors such as accessibility, easy access to drugs, lack of parental awareness and lack of family involvement, prolonged adolescence, drug use by parents, prevalence of drug use among peers, disruption of traditional family hierarchies, lack of life skills, depression, and misconceptions about the safety and benefits of drugs all contribute to youth's inclination towards drug use (8) (9).

Prevention and intervention strategies are crucial, with recommendations including engaging in physical activities, practicing mindfulness, seeking professional help, and maintaining a balanced lifestyle (9). These findings highlight the need for targeted interventions, including psychoeducational programs and awareness campaigns, to address stimulant use and self-medication among university students (5) (10).

MATERIAL AND METHODS

Research Setting, Population, and Sample Size

The present study is a descriptive cross-sectional study conducted at the Kerman Branch of the Islamic Azad University. The study population consisted of 450 students of Medical, Engineering, and Pharmacy universities during the academic year 2023-2024.

Inclusion and Exclusion Criteria

Inclusion criteria included students who were currently studied in the Medical, Engineering, and Pharmacy University of Kerman during the academic year 2023-2024. Exclusion criteria was students who did not want to participate in the study.

Method and Tools for Data Collection

Data was collected using a form that consisted of two sections: Demographic information of the students, including age, gender, field of study, history of drug use, history of smoking, history of alcohol consumption, and place of residence. The other section consists of information

regarding stimulant substance use, including the type of stimulant and the reason for use.

The study was done through a proportional random sampling method to ensure representation from all of the chosen universities. Lists of students were obtained from relevant units, and the sample size was determined through statistical calculations. Random number tables were used to select the study population. Four interviewers, trained in a briefing session, were employed to administer the questionnaires. The questionnaires were completed uniformly and anonymously by the students, ensuring confidentiality. In cases of non-participation, replacement samples were randomly selected.

Data Analysis Tools and Methods

The data analysis involved descriptive statistics to outline the research variables using frequency distribution and descriptive measures. Hypotheses were tested, with normality assessed using the Kolmogorov-Smirnov one-sample test. Independent t-tests and Chi-square tests were employed to examine the research questions. Data analysis was conducted using SPSS software version 20, with a significance level set at 0.05.

RESULTS

450 students participated in this study. The average age of the students was 23.02±1.94, with 233 males (51.8%) and 217 females (48.2%). Most participants were unmarried (425, 94.4%), while 25 (5.6%) were married. Regarding field of study and level of education, 153 of participants were pharmacy students (34%), 147 were medical students (32.7%), and 150 were engineering students (33.3%). From 450 participants, 300 students (66.7%) were pursuing a PhD, 114 (25.3%) were undergraduates, 30 (6.7%) were associate degree students, and 6 (1.3%) were master's students.

Living arrangements showed that most of the participants lived only with their parents (208,46.2%). 128 (28.4%) had their own accommodation, 104 (23.1%) lived in a dormitory, and 10 students (2.2%) had two accommodations: their parents and a dormitory. Students were asked about smoking habits, drugs use, alcohol use and some kinds of stimulants use. 14 students (3.1%) smoked a pack or more per day. While only 15 (3.3%) people used drugs regularly, 40 (8.9%) of them used alcohol frequently (Table 1).

Table 1

The frequency of cigarette, drug, and alcohol use among the students

	never		Occasionally		Regularly	
	frequency	percentage	frequency	percentage	frequency	percentage
Cigarette	243	54.0%	159	35.3%	34	7.6%
Drug	373	82.9%	62	13.8%	15	3.3%
Alcohol	246	54.7%	164	36.4%	40	8.9%

Regarding the stimulants use, 96 students (21.3%) used stimulants and 354 (78.7%) did not experience it. Among the stimulant users, the most common substance was Ritalin (57 students, 59.4%). (table2)

Table 2

Type of Stimulant used among the students

Stimulant Type	Frequency	Percentage (%)
Ritalin	57	59.4
Vyvanse	20	20.8
Methamphetamine	8	8.3
Ritalin and Vyvanse	4	4.2
Ritalin and Crystal Meth	3	3.1
Other	4	4.2

Self-medication was reported by 75 students (78.1%), while 21 (21.9%) used stimulants based on a doctor's prescription. A total of 71 students (15.8%) had a history of psychiatric disorders.

Also, chronic medical conditions were reported by 32 students (7.1%). Students who used stimulants had a higher average age (23.37± 1.88 years) compared to those who did not (22.93±1.94 years), and this difference was statistically significant (p-value=0.04). Regarding the gender effect on stimulant use, although it was more common among males (56 students, 58.3%) compared to females (40 students, 41.7%), the difference was not statistically significant (p-value=0.14).

Pharmacy students had the highest rate of stimulant use (48 students, 50%) compared to medical (32 students, 33.3%) and engineering students (16 students, 16.7%), and this difference was statistically significant (p-value = 0.001).

Also, the frequency of stimulate use in PhD students (80 students, 83.3%) was higher than other levels, which was statically significant (p-value=0.001). Although unmarried students were more likely to use stimulants (92 students, 95.8%) compared to married ones (4 students, 4.2%), the difference was not statistically significant (p-value = 0.50). Besides that, students living in their own accommodation had the highest rate of stimulant use (41 students, 42.7%) compared to other groups, and this difference was statistically significant (p-value = 0.001) (Table 3).

Table 3

The frequency of stimulant use by different factors

factors		Stimulant Use		No Stimulant Use		p-value
		frequency	percentage	frequency	percentage	
gender	male	56	58.3	177	50	0.14
	female	40	41.7	177	50	
Major	Pharmacy	48	50%	105	29.7	0.001
	Medicine	32	33.3%	115	32.5	
	Engineering	16	16.7%	134	37.9	
Marital Status	Unmarried	92	95.8%	333	94.1	0.50
	Married	4	4.2%	21	5.9	

Living Arrangement	Personal Accommodation	41	42.7	87	24.6	0.001
	Living with parents	30	31.2	178	50.3	
	Living in a dorm	15	26	79	22.3	
	Living both with parents and in a dorm	0	0	10	2.8	
Educational level	PhD	80	83.3	220	62.1	0.001
	Master	0	0	6	1.7	
	bachelor	13	13.5	101	28.5	
	Colleague graduates	3	3.1	27	7.6	

Regarding the simultaneous use of stimulant and other substances, in cigarette smokers, stimulant use was most prevalent among students who occasionally smoked, with 57 individuals (59.4%), significantly higher than other groups (p-value = 0.001).

The prevalence of stimulant use was highest among students who did not use narcotics, with 53 individuals (55.2%), and this was significantly higher than in other groups (p-value = 0.001). Among students who occasionally consumed alcohol, stimulant use was prevalent in 51 individuals (53.1%), significantly higher than in other groups (p-value = 0.001).

Table 4

Prevalence of stimulant use among students based on simultaneous use of other substances

		Stimulant use		Not stimulant use		p-value
		Frequency	Percentage	Frequency	Percentage	
Smoking habits	Never	14	14.6%	229	64.7%	0.001
	Occasionally	57	59.4%	102	28.8%	
	Regularly	14	14.6%	20	5.6%	
	One pack a day or more	11	11.5%	3	0.8%	
The history of narcotic use	Never	53	55.2%	320	90.4%	0.001
	Occasionally	34	35.4%	28	7.9%	
	Regularly	9	9.4%	6	1.7%	
alcohol consumption history	Never	17	17.7%	229	64.7%	0.001
	Occasionally	51	53.1%	113	31.9%	
	Regularly	28	29.2%	12	3.4%	

The prevalence of stimulant use was 31 individuals (32.3%) among students with a history of psychiatric disorders, statistically significant (p-value = 0.001). Also, Stimulant

use was reported by 20 students (20.8%) with a history of chronic illness, significantly higher than the number of students with chronic illness who did not use stimulants (12 students, 3.4%). It was statistically significant (p-value = 0.001).

DISCUSSION

Stimulant use among university students is a significant concern, with prevalence rates varying across studies. While our results showed that 21.3% students use stimulants, another study in Turkey found that 6.8% of students had used drugs at least once in their lifetime (11).

Some other studies indicate that stimulant drug use is prevalent among university students, with reported rates ranging from 16% to 18% (12) (7).

Risk factors for stimulant use include older age, living in dormitories, male gender, and a history of psychiatric disorders (13) (14). These findings are almost similar to this study, only in our study, students who lived in their own accommodation alone used more stimulants. In the current study, the number of men who used stimulants was more than that of women, although it was not statistically significant. Another study reported illicit use of prescribed stimulant medication by 17% of male and 11% of female students (7), which is similar to ours. One study showed that Factors associated with stimulant use include having friends who use drugs, smoking, alcohol consumption, and parental separation (11).

Findings from one study on the prevalence and factors influencing psychoactive substance use at Shiraz University and Shiraz University of Medical Sciences, involving 640 students, indicated that male students had higher usage rates than female students, and married students reported higher usage rates than single students, similar to our study.

Compared to medical students, Shiraz University students had significantly higher consumption of alcohol, narcotics, and cigarettes (15).

In a study by Mardani et al. on 310 students at Bandar Abbas Azad University, the age range for initiating substance use was 22 to 25 years. Cigarette, hookah, alcohol, and opium use were significantly higher among male students compared to females (16).

A study on substance use among 108 medical students in Tehran indicated that hookah was the most commonly used substance, followed by cigarettes and alcohol, while crystal meth and heroin had the lowest usage rates. Morphine, Ritalin, and tramadol ranked fourth, fifth, and sixth in substance use among medical students. Also, it showed that 16.3% of art students, 8.85% of humanities students, 6% of engineering students, and 5% of medical students reported using substances (17).

In our study, the stimulant use had a relation with the history of psychiatric disease. Another study showed that stimulant use disorders are particularly prevalent among individuals with psychosis, with a pooled rate of 8.9% (18; 4). The recognition of substance-induced mental disorders, including stimulant-induced psychoses, has important treatment implications and contributes significantly to the rates of comorbidity between substance use disorders and psychiatric conditions (19).

To address this issue, researchers suggest increasing risk perception through education, providing social alternatives to risky activities, and maintaining parental involvement during college years (14).

CONCLUSION

We found that 21.3% of students used stimulants. Cigarette use was reported by 35.3%

of students occasionally, 6.7% regularly, and 3.1% smoked one or more packs per day. Narcotic use was noted by 13.8% occasionally and 3.3% regularly. Alcohol consumption was reported by 36.4% of students occasionally and 8.9% regularly.

Stimulant use was more common among male students. The average age of students using stimulants was higher, a statistically significant difference. Medical students used stimulants more frequently than engineering students, a difference attributed to the high pressure in medical programs.

Single students reported higher stimulant use than married students, likely due to feeling more freedom.

Problems and limitations

This study faced several limitations. First, there was a lack of comprehensive scientific resources (such as specialized books and journals) on synthetic drugs. The limited availability of previous research on the topic posed challenges. Gaining the trust of participants required significant time, and there was considerable difficulty in obtaining cooperation from various institutions, such as universities and libraries, which restricted access to necessary resources. Additionally, the sensitive nature of the topic made it challenging to ensure honest and accurate responses from participants.

Ethical Considerations

Participant information was kept strictly confidential, and only credible and reliable sources were utilized. The latest research methodologies were employed, ensuring that ethical considerations in the use of resources and research articles were strictly adhered to. *This study was* reviewed and approved by the Ethics Committee of the Kerman Azad University of Medicine, Iran, under the registration number IR.IAU.KERMAN.REC.1402.079.

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Transparency declaration

There is no conflict of interests.

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