GSC Advanced Research and Reviews

eISSN: 2582-4597 CODEN (USA): GARRC2

Cross Ref DOI: 10.30574/gscarr

Journal homepage: https://gsconlinepress.com/journals/gscarr/

(RESEARCH ARTICLE)

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Characteristics of psychoactive substances consumption among students of first and fifth year of Faculty of Medicine of Sarajevo University

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GSC Advanced Research and Reviews, 2021, 06(03), 181–187

Publication history: Received on 15 February 2021; revised on 19 March 2021; accepted on 22 March 2021

Article DOI: https://doi.org/10.30574/gscarr.2021.6.3.0058

Abstract

A psychoactive or psychotropic substance is a chemical substance that acts primarily upon the central nervous system, altering mental processes, e.g., cognition or affect. Their use can lead to addiction, so in common language 'substance abuse' implicate dependence-producing effect. In general, initiation to substance use happen during adolescence and early adulthood. The aim of this study was determining the pattern of psychoactive substance consumption among students at Faculty of Medicine of Sarajevo University. A cross-sectional study was conducted during May 2019 at Faculty of Medicine of Sarajevo University. The survey covered 102 students, who attended first and fifth year of study. The research instrument was a self-administered anonymous questionnaire. Results were expressed as percentages and means ± standard deviation. During statistical analysis we performed Chi-squared and the bivariate testes. A sample included 102 students, of which 66 (64.7%) were female and 36 (35.3%) were male, while 52 (51.0%) attended first year and 50 (49.0%) attended fifth year. The majority of students (91.2%) had consumed caffeine. Consumption of cigarettes reported 63.7% of students, and consumption of alcohol reported 60.8% of students. Statistically significant differences in consumption of alcohol (P<0.0005), THC (P<0.0005), cocaine (P=0.001), and amphetamine (P=0.017) were found between gender. Statistically significant differences in consumption of cigarettes (P=0.034), caffeine (P=0.017), alcohol (P=0.007), THC (P<0.0005), and sedatives (P=0.003) were found between two study group. The use of psychotropic substances in youth represents a serious public health problem. Students should implement their knowledge, not only in their practice environment, but in everyday life.

Keywords: Substance abuse; Initiation to substance use; Addiction medicine

1. Introduction

A broad category of chemicals that affect mental processes are psychoactive drugs, alcohol, and nicotine. These substances, after consumption, alter perception, consciousness, cognition, mood and emotions [1]. Their use can lead to psychic or physical dependence. It means there is an intense focus on using a certain substance(s), because the person's ability to function in in everyday life becomes impaired [2]. This is result of ability of chemicals to activate of the brain reward system. Each class of drugs produces reward by different pharmacological mechanisms. However, activation of the system produces feelings of pleasure, often described as a "high". With direct activation of reward system alterations of brain function cause a cluster of cognitive, behavioral, and physiological symptoms. According to classification of mental disorders the substance-related disorders are divided into two groups: substance use disorders and substance-induced disorders. Intoxication, withdrawal, and other substance/medication-induced mental disorders (psychotic disorders, bipolar and related disorders, depressive disorders, anxiety disorders, obsessive-compulsive and related disorders, sleep disorders, sexual dysfunctions, delirium, and neurocognitive disorders) are conditions that may be classified as substance-induced disorders [3]. During history psychoactive substances have been widely used all over the world, but they became great problem in second half of the 20th century [4]. Substance abuse causes numerous

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health issues [5]. The risk of death from cardiovascular diseases, all cancers, diseases of the respiratory system is increased by tobacco use [6]. Alcohol consumption is a causal factor of noncommunicable diseases such as liver cirrhosis, some cancers and cardiovascular diseases. Some mental and behavioral disorders, including alcohol dependence, are associated with risk of injuries [7]. Hazard of over-dose, suicide and trauma is present at illicit drug dependent users [5]. Adolescence and early adulthood are the key periods of initiation to substance use, as well as development of substance use disorders [8]. College students are particularly at risk involved due to increased academic obligations, lack of parents control, peer pressure, easy accessibility [9]. Medical students are trained to be able to deal with the problem associated with substance abuse and their habits and attitudes are of great importance [10]. The aim of this study was determining the pattern of psychoactive substance consumption among students at Faculty of Medicine of Sarajevo University.

2. Methods

2.1. Design and Sample

A cross-sectional study was conducted during May 2019 at Faculty of Medicine of Sarajevo University. The survey covered 102 students, who attended first and fifth year of study. Simple random sampling was used to select respondents from different groups.

The study was conducted according to the research ethics guidelines laid down in the Declaration of Helsinki [11]. Verbal informed consent was obtained from all students before completing the self-administered questionnaire.

2.2. Data Collection

The research instrument was a self-administered anonymous questionnaire, which was consisted of two sections. First section applied to age, gender, year of study, living environment, reasons of consumption. The second section focused on psychoactive substance use, the consummation of cigarettes, caffeine, alcohol, THC (*tetrahydrocannabinol)*, hookah, sedatives, cocaine, amphetamine.

2.3. Data Analysis

Statistical analyses were performed using the Statistical Package for Social Sciences (version 13.0, SPSS, Inc) software.

Results were expressed as percentages and means ± SD (standard deviation). To correlate pattern of PAS use regarding gender and years of study, chi-squared analyses were conducted. In the bivariate analysis, the association between substances use was estimated. All reported P values were made on the basis of 2-sided tests; differences were considered statistically significant at $P < 0.05$.

3. Results

A sample included 102 students, of which 66 (64.7%) were female and 36 (35.3%) were male, while 52 (51.0%) attended first year and 50 (49.0%) attended fifth year. General information is shown in Table 1.

Table 1 General information of students participated in the study

Students	**First year (N=52; 51.0%)**		**Fifth year (N=50; 49.0%)**	
	N (%)	Age (mean±SD)	N (%)	Age (mean±SD)
Females (N=66; 64.7%)	39 (59.1)	19.54±0.85	27(40.9)	23.74±1.02
Males (N=36; 35.3%)	13(36.1)	19.62±0.51	23(63.9)	23.91±1.04

The mean age of female students attended first year was 19.54±0.85 year, and the mean age of male students attended first year was 19.62±0.51year. The mean age of female students attended fifth year was 23.74±1.02year, and the mean age of male students attended first year was 23.91±1.04 year.

Students were asked to report living environment (Figure 1) and reasons for PAS consumption (Figure 2).

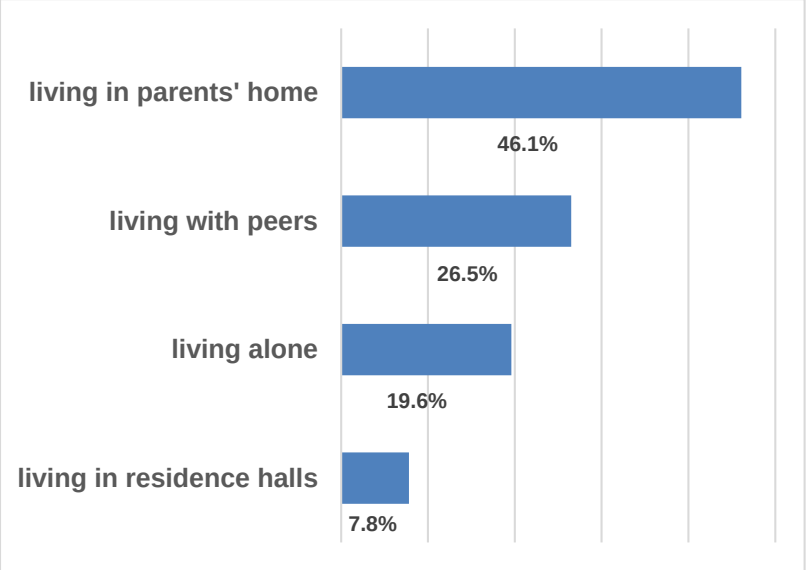

Figure 1 Living environment of students

The majority (46.1%) of students in our sample lived in parents' home.

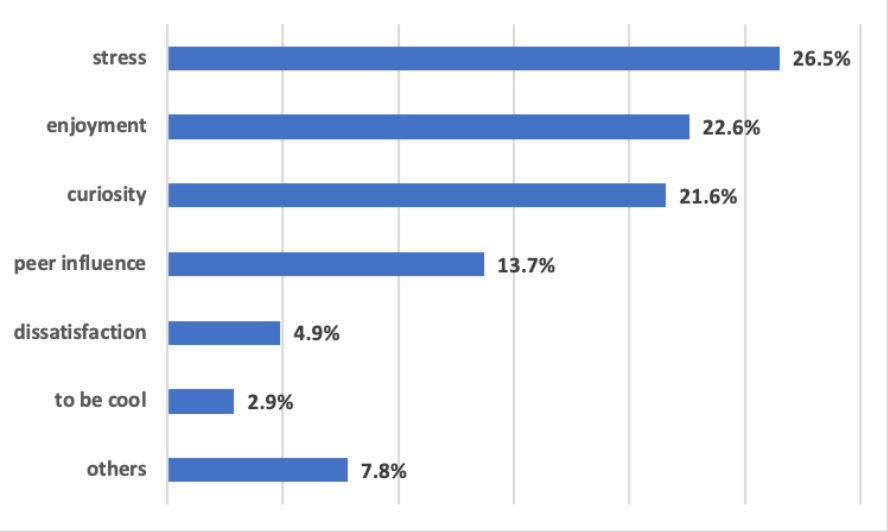

Figure 2 Reason for PAS consumption

The most common motif to consume PAS was stress, found at found at 26.5% of students, followed by enjoyment, found at 22.6% of students and curiosity, found at 21.6% of students.

We analyzed ratio between students that had / had not consumed substances of interests (Figure 3).

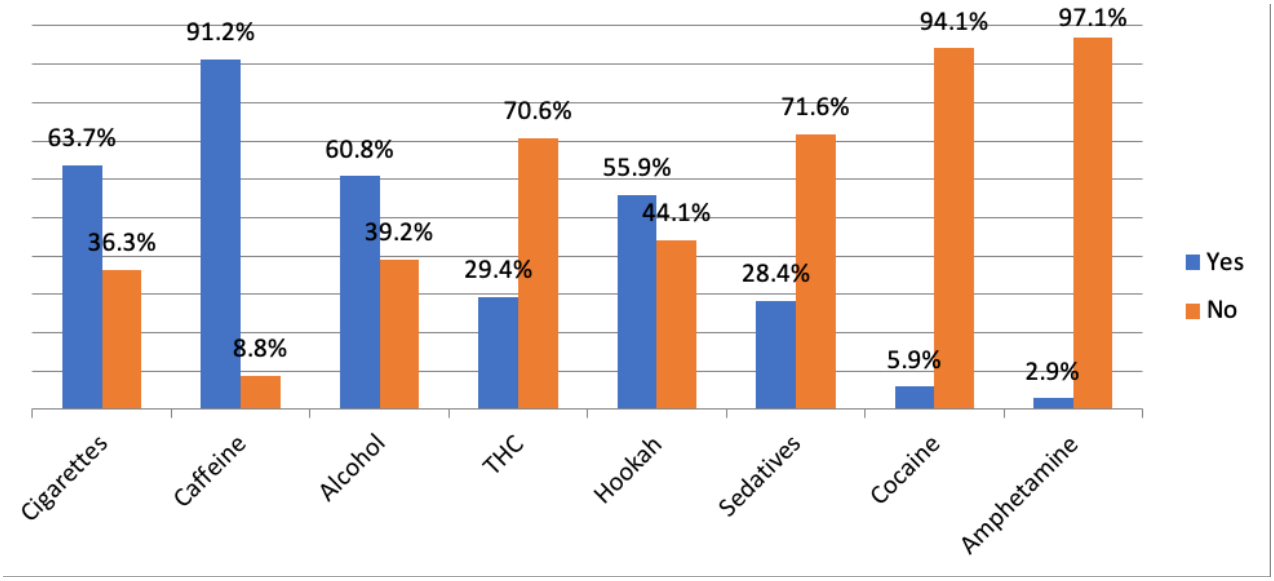

Figure 3 Ratio between students that had / had not consumed substances of interests

The majority of students (91.2%) had consumed caffeine. Consumption of cigarettes reported 63.7% of students, and consumption of alcohol reported 60.8% of students.

In the bivariate analysis, the association between substances use was estimated (Table 2).

Table 2 The association between substances use.

Pearson correlation	Cigarette	Caffeine	Alcohol	THC	Hookah	Sedatives	Cocaine	Amphetamine
Cigarette	1	0,340**	0,355**	0,263**	0,356**	0,159	0,180	0,131
Caffeine	0,340**	1	0,104	0,049	0,072	0,119	0,078	0,054
Alcohol	0,355**	0,104	1	0,386**	0,257**	0,150	0,201*	0,140
THC	0,263**	0,049	0,386**	1	0,357**	0,166	0,296**	0,142
Hookah	0,356**	0,072	0,257**	0,357**	1	0,079	0,222*	0,155
Sedatives	0,159	0,119	0,150	0,166	0,079	1	0,027	0,019
Cocaine	0,189	0,0778	0,200*	0,296**	0,222*	0,027	1	0,450**
Amphetamine	0,131	0,054	0,140	0,142	0,155	0,019	0,450**	1

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

In our sample consumption of cigarettes correlate with consumptions of caffeine, THC, and hookah. Students that consumed cocaine were those that were in contact with alcohol, hookah, and especially THC. And these students were those with higher chance to consumed amphetamine.

Consumption of individual psychoactive substances was analyzed in relation to gender (Table 3) and year of study (Table 4).

Table 3 Consumption of individual psychoactive substances in relation to gender.

PAS use		**Females**		**Males**		**p**
		N	%	N	%	
Cigarettes	Yes	38	57.6	27	75.0	0.080
	No	28	42.4	9	25.0	
Caffeine	Yes	60	90.0	33	91.7	0.897
	No	6	9.1	3	8.3	
Alcohol	Yes	31	47.0	31	86.1	<0.0005
	No	35	53.0	5	13.9	
THC	Yes	10	15.2	20	55.6	<0.0005
	No	58	84.8	16	44.4	
Hookah	Yes	34	51.5	23	63.9	0.229
	No	32	48.5	13	36.1	
Sedatives	Yes	21	31.8	8	22.2	0.305
	No	45	68.2	28	77.8	
Cocaine	Yes	-	-	6	16.7	0.001
	No	66	100.0	30	83.3	
Amphetamine	Yes	-	-	3	8.3	0.017
	No	66	100.0	33	91.7	

Statistically significant differences in consumption of alcohol (P<0.0005), THC (P<0.0005), cocaine (P=0.001), and amphetamine (P=0.017) were found between gender.

Table 4 Consumption of individual psychoactive substances in relation to study year.

PAS use		First year		Fifth year		p
		N	%	N	%	
Cigarettes	Yes	28	53.8	37	74.0	0.034
	No	24	46.2	13	26.0	
Caffeine	Yes	44	84.6	49	98.0	0.017
	No	8	15.4	1	2.0	
Alcohol	Yes	25	48.1	37	74.0	0.007
	No	27	51.9	13	26.0	
THC	Yes	11	21.2	19	38.0	0.062
	No	41	78.8	31	62.0	
Hookah	Yes	25	48.1	32	64.0	0.105
	No	27	51.9	18	36.0	
Sedatives	Yes	8	15.4	21	42.0	0.003
	No	44	84.6	29	58.0	
Cocaine	Yes	1	1.9	5	10.0	0.083
	No	51	98.1	45	90.0	
Amphetamine	Yes	-	-	3	47	0.073
	No	52	100.0	6.0	94.0	

Statistically significant differences in consumption of cigarettes (P=0.034), caffeine (P=0.017), alcohol (P=0.007), THC (P<0.0005), and sedatives (P=0.003) were found between two study group.

4. Discussion

Presence of legal drugs, like alcohol and tobacco, as well as illicit too, is characteristic of modern life. Age of substance use initiation is linked to different health risk. Individuals who initiate use of PAS in adolescence have greater risk of addiction than those who initiate use during adulthood [12]. College students make up one of the largest groups of drug abusers. During the college life a lot of students used the psychoactive substances for the first time and young people (ages 18 to 24) are at a heightened risk of addiction [13]. To establish strategy of prevention of substance use and addiction it is important to determine pattern in different population group. The aim of this study was determining the pattern of psychoactive substance consumption among students at Faculty of Medicine of Sarajevo University. To do this a cross-sectional study was conducted during May 2019 in the sample of 102 students, who attended first and fifth year of study. We analyzed difference in the consummation of cigarettes, caffeine, alcohol, THC, hookah, sedatives, cocaine, amphetamine between gender and different age group. The majority of students (91.2%) had consumed caffeine. Consumption of cigarettes reported 63,7% of students, and consumption of alcohol reported 60.8% of students. In population 15 years and older there were 38.3% of smokers in B&H according to WHO estimation from 2018 [14]. In our sample between gender there were statistically significant differences in consumption of alcohol ($P<0.0005$), THC ($P<0.0005$), cocaine ($P=0.001$), and amphetamine ($P=0.017$). Similar trend with higher substance use in male college students have been found in other studies [15]. Between two age group there were statistically significant differences in consumption of cigarettes ($P=0.034$), caffeine ($P=0.017$), alcohol ($P=0.007$), THC ($P<0.0005$), and sedatives ($P=0.003$). Increasing age is significantly associated with use of psychoactive substances among university students. This can be associated with the sense of responsibility, as well as the sense of independence [16]. In our sample the most common motif to consume PAS was stress, found at 26.5% of students, followed by enjoyment, fount at 22.6% of students and curiosity, fount at 21.6% of students. Generally, the first time use of psychoactive substances is led by feeling of having fun and curiosity followed by family issues or personal problems [16].

Substance use among medical students is similar to general young adult pattern of use. It is associated with consequences which may include interpersonal altercations, serious suicidal ideation, cognitive deficits, compromised academic performance, and driving under the influence of substances [17]. There are suggestions that medical students who frequently use drugs or drink to excess during medical school, which includes after-exam partying, are at risk for developing a pattern of habitual use [18]. An emerging medical field, addiction medicine, can overlap the gap of the prevention and treatment of risky substance use and addiction has prevented [19,20].

5. Conclusion

The use of psychotropic substances in youth represents a serious public health problem, especially in circumstances of easy availability of many substances like alcohol, tobacco (cigarettes and hookah) and other drugs. Students should implement their knowledge, not only in their practice environment, but in everyday life.

Compliance with ethical standards

Acknowledgments

The authors would like to thank the participants who involved in this study.

Disclosure of conflict of interest

The authors declare that they have no competing interests.

Statement of informed consent

Informed consent was obtained from all individual participants included in this study.

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