Sociodemographic Factors Affecting Tobacco, Alcohol, and Cannabis Consumption among Kosovar University Students

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Abstract

Tobacco, cannabis, and alcohol consumption, found to be most common among college students, is known to cause life-threatening diseases, and is correlated with social, financial and health problems. For the present study, we aimed to assess the sociodemographic factors affecting tobacco, alcohol, and cannabis consumption among university students. A cross-sectional study was conducted from January to March 2020, on a random sample of 507 undergraduates, between the ages of 18 and 24. The research instrument was a self-administered questionnaire with questions on the sociodemographic characteristics, and questions regarding the consumption of tobacco, alcohol, and cannabis.

The mean ± standard deviation age of study sample was 21.56 ± 1.81 years, and 56.4% participants were females. The lifetime prevalence of tobacco usage among the study sample was 66.7%, alcohol 54.2%, and the cannabis had a prevalence of 13.8%. About 46.2% ($n = 234$) were co-users of tobacco smoking and alcohol, and 12.6% ($n = 64$) were co-user of tobacco smoking, alcohol consumption, and drug use. Analyzed with Pearson's chi-squared test, there was no statistically significant difference between students from private and public institutions on lifetime, past 1 year/1 month of tobacco smoking, alcohol consumption, and cannabis use ($p > 0.05$). The logistic regression model for dependent variable cannabis abuse in the past 1 year is associated with lower odds among female students (odds ratio: 0.337, 95% confidence interval: 0.167–0.682; $p = 0.002$). Smoking, drinking, and cannabis were found to be highly prevalent among university students. These findings can help program managers and policy makers devise effective and appropriate control programs and policies for substance-using university students.

Keywords
- tobacco
- alcohol
- cannabis
- university students
- questionnaire
- sociodemographic factors

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Introduction

The consumption of tobacco, alcohol, and cannabis is found to be most prevalent among university students, and this behavior could lead to future social, financial, and health issues.[1] Tobacco, alcohol, and illegal drug use causes numerous diseases, most of which last a lifetime.[2] Several studies[3–5] have been published regarding the prevalence of smoking, alcohol consumption and illicit drug usage among the students, predominately found more commonly among male students rather than female, although the number of female students partaking in substance use has recently increased. Undergraduate students who move away from their parent's house and find themselves having a more independent college life may be influenced by the university environment.[6] Factors like intense academic pressure, low self-esteem, and living in dormitories with students they hardly know further increase the risk of substance use.[6,7]

When it comes to smoking, there are currently an estimated 1.2 billion active smokers (29% of the adult population) worldwide. Alcohol use is deemed more alarming, with nearly two billion alcohol users (48% of the adult population).[8] The global burden of disease attributed to alcohol and illicit drugs is estimated at 5.4%, while tobacco use is only 3.7%. Globally, the prevalence of alcohol use disorders is significantly higher than the prevalence of drug use disorders. Worldwide, around 39 deaths per 100,000 inhabitants are attributable to the use of alcohol and illicit drugs, of which 35 deaths are attributable to the use of alcohol and 4 to the use of illicit drugs.[9] Europeans suffered proportionately more, but in absolute terms the mortality rate was greatest in low- and middle-income countries with large populations and where the quality of data was more limited.[1]

Until recently, no reliable epidemiological data are available on the prevalence of smoking, alcohol or cannabis use in Kosovar students. A limited number of surveys with school children[10,11] was available, and in 2011 Kosovo also conducted the European School Survey Project on Alcohol and Other Drugs (ESPAD) on 15 to 16 years old school children,[12] but they have excluded university students and have often not reported at all about alcohol and cannabis use. In addition, based upon surveillance and monitoring systems from the Ministry of Health, Institute of Public Health and Psychiatry Clinic, there is little scientific knowledge about risk factors of substance use among university students. Their reports or guidelines have given only the prevalence rates of substance use according to basic demographic variables without controlling for potential confounding factors.

In Kosovo, affordable alcohol is prohibited for anyone under the age of 18, while the use of illicit drugs is forbidden by law (Ministry of Health, 2002). However, young people in Kosovo are exposed to alcohol and other substances and drink more frequently than adults.[12] These negative influences have an impact not only on health but also on behavior,[13] which lead to poor academic performance and worsened learning skills.[14]

The aim of this study was to assess the sociodemographic factors affecting tobacco, alcohol, and cannabis consumption among students of different higher education institutions in Gjilan, Kosovo.

Materials and Methods

Study Design

This was a cross-sectional descriptive study. The study was conducted during the 2019 to 2020 academic year in two universities (public and private) located in Gjilan, Kosovo.

Participants

The study population comprised of undergraduate students, all studying social science. The sample was stratified by type of university (public/private). The principal of each university was contacted and after explaining the nature of the study, their permission was sought to involve the university in a survey. Once permission was granted, the university supplied the list of the classes in the faculties and a random sample containing three classes per year from each school was then selected by the researchers. Classrooms were randomly selected from each year by using the cluster sampling technique along with a precise number of students that have been proportionately allocated for each year and each student was selected through simple random sampling techniques. Simple random sampling technique was subject in proportion with gender distribution, class size, and faculty size.

From January to March 2020, a random sample of 507 undergraduates, between the ages of 18 and 24 (~16% of the undergraduate student population of 3235) participated in the survey regarding tobacco, alcohol, and drug inducted behavior, lifestyle, and college student achievement. The sample size calculation was performed for this study at the sample size calculator Web site: http://www.raosoft.com/samplesize.html, and, with a 95% confidence interval (CI), 5% margin of error, and 50% proportion of the total population size of 3235 students, it was calculated that a total of 344 surveys is needed for this research.

This study involved purely voluntary participation. The objectives of the study were explained to the students and they were informed about their right to refuse without any negative consequences. We obtained written informed consents from the participants.

Data Collection

This survey was conducted in classrooms through student-completed questionnaires, under the supervision of the researcher, who explained the purpose of the survey and highlighted the confidential nature with which the responses would be treated. The study protocol had been approved by The Ethic Committee of the Faculty of Medicine, University of Prishtina "Hasan Prishtina," and is fully compliant with the Helsinki Declaration's provisions on research involving human participants.

Research Instruments

The research instrument was a self-administered questionnaire with close-ended questions on the sociodemographic

characteristics, and also included questions regarding the consumption of tobacco, alcohol, and cannabis, developed in Albanian language by the study researchers based on the literature. The questions intended to find out whether they have ever tried tobacco or alcohol in their lifetime, whether they have tried tobacco or alcohol in the previous month and year, as well as how often they smoked or drank. Additionally, the same types of questions were asked regarding cannabis consumption. They were close-ended questions and the responses were restructured during the analysis, so that the logistic regression analysis could be performed. For this purpose, among the questions related to the frequency of cigarette smoking, alcohol drinking and cannabis usage, the "never used in a lifetime" answer was coded as "0" whereas "all other use frequencies (1-50 times and more)" was marked as "1" to conduct the logistic regression separately as dependent variables. The questionnaire was piloted among 20 medical students before applying for approval from the Ethical Committee. The reliability analysis showed a Cronbach's α of 0.911 ($n = 507$) and an item-total correlation between 0.544 and 0.770.

Selection Criteria

Only full-time students of the selected higher education institutions, irrespective of their year of study, were enrolled.

Sociodemographic Characteristics

Sociodemographic characteristics included gender (-male/female), educational institution (public/private), living setting (urban/rural), living spaces (alone in apartment, in dormitory with students, at home with parents), employment (employed, not employed), marital status (single, engaged, married), monthly family income—which was segmented into three categories: low (200–399 Euro), middle (400–599 Euro), high (over 600 Euro)—father's education (primary school, secondary school, university or postgraduate), mother's education (primary school, secondary school, university or postgraduate), and physical activity (vigorous, moderate, inactive). Students who regularly exercised, at least three times a week for more than 1 hour, were considered to be moderately active. Students who exercised more than the moderate intensity were considered to be vigorous, and those who exercised less than the moderate intensity were considered inactive.

Statistical Analysis

Continuous variables were reported as mean ± standard deviation (SD) and categorical variables were reported as frequency (n) and percentages (%). The comparison of the prevalence of tobacco consumption, alcohol use, and cannabis abuse between public and private educational institution students was done using Pearson's chi-squared test. Considering the fact that some of the variables were categorical, regression analysis was utilized in place of partial correlations. A multivariate logistic regression model was used to evaluate the effect levels after statistically significant risk factors were discovered in univariate analysis for tobacco consumption, alcohol use, and cannabis abuse in the past year. To conduct the analysis, the "Not used in the past 12 months" was coded as "0" in the cigarette smoking, alcohol use, and cannabis use questions, whereas "Used in the past 12 months" was marked as "1." Variables with a p-value less than 0.05 were regarded as independent risk factors in logistic regression analysis. Each risk factor's odds ratio (OR) and 95% CI were calculated. All data were analyzed with SPSS v21 (IBM Corp, Armonk, NY, USA). Statistical significance was set at p-value less than 0.05.

Results

About 56.4% ($n = 286$) of our participants were female and 43.6% ($n = 221$) were male. The mean ± SD age was 21.56 ± 1.81 years; 255 participants were from private institution, and 252 from public institution. The majority of the students were living in urban areas, were not employed, were engaged, and did moderate physical activity (►**Table 1**).

Prevalence of tobacco, alcohol, and cannabis use for lifetime, in the past 1 year/1 month is shown in ►**Table 2**. Cigarette and alcohol use is highly prevalent among college students, with 66.7% of students having smoked in their lifetime, 54.2% in the past year, and 44.6% in the past month, and the majority of students, 54.2% of them, reporting alcohol use in their lifetime, 46.7% in the past year, and 32.3% in the past month. Cannabis, while less common, has still been reported to have been used by a substantial proportion of the students, with 13.8% reporting its use in their lifetime, 10.8% in the past year, and 8.3% in the past month (►**Table 2**). About 46.2% ($n = 234$) participants were co-users of tobacco smoking and alcohol, and 12.6% ($n = 64$) were co-users of tobacco smoking, alcohol consumption, and drug use. There was no statistically significant difference between students from private and public institutions on lifetime, in the past 12 months, and in the past 1 month on tobacco smoking, alcohol consumption, and cannabis use (Pearson's chi-squared test, $p > 0.05$; ►**Table 2**). ►**Fig. 1** presents the prevalence of tobacco smoking, alcohol consumption, and cannabis use over one's lifetime, in the past 1 year/1 month time frame by gender. The prevalence of tobacco smoking, alcohol consumption, and cannabis use was lower among female students compared with their male counterparts (►**Fig. 1**). There was no statistically significant difference in age between those consuming tobacco, alcohol, and cannabis use in the past 12 months ($p > 0.05$; ►**Table 3**.). Analyzed with chi-squared test, the prevalence of tobacco, alcohol, and cannabis use in the past 12 months period was more prevalent among males ($p < 0.05$; ►**Table 3**).

The frequency of tobacco smoking, alcohol consumption, and cannabis use by gender is given in ►**Fig. 2**. Male participants use more frequently alcohol compared with females.

In the multiple logistic regression for dependent variable tobacco, smoking is associated with lower odds of female gender (OR: 0.393, 95% CI: 0.257–0.601; $p < 0.0001$), higher odds of drinking alcohol in the past year (OR: 5.700, 95% CI:

Table 1 Sociodemographic characteristics of study sample according to type of university

	Public ($n = 252$) Mean ± SD or *n* (%)	Private ($n = 255$) Mean ± SD or *n* (%)	Total
			Mean ± SD or *n* (%)
Age (years)	21.61 ± 1.83	21.51 ± 1.79	21.56 ± 1.81
Gender			
Male	106 (42.1)	115 (45.1)	221 (43.6)
Female	146 (57.9)	140 (54.9)	286 (56.4)
Living setting			
Urban	246 (97.6)	137 (53.7)	383 (75.5)
Rural	6 (2.4)	118 (46.3)	124 (24.5)
Living spaces			
Alone in apartment	8 (3.2)	17 (6.7)	25 (5.0)
In dormitory with students	194 (77.6)	200 (78.7)	394 (78.2)
At home with parents	48 (19.2)	37 (14.6)	85 (16.9)
Employment			
Employed	52 (20.6)	49 (19.2)	101 (19.9)
Not employed	200 (79.4)	206 (80.8)	406 (80.1)
Marital status			
Single	95 (37.7)	92 (36.1)	187 (36.9)
Engaged	136 (54.0)	148 (58.0)	284 (56.0)
Married	21 (8.3)	15 (5.9)	36 (7.1)
Family income			
Low	8 (3.2)	17 (6.7)	25 (4.9)
Middle	196 (77.8)	201 (78.8)	397 (78.3)
High	48 (19.0)	37 (14.5)	85 (16.8)
Fathers' education			
Primary school	6 (2.4)	7 (2.7)	13 (2.6)
Secondary school	113 (44.8)	105 (41.2)	218 (43.0)
University or postgraduate	133 (52.8)	143 (56.1)	276 (54.4)
Mothers' education			
Primary school	54 (21.4)	49 (19.2)	103 (20.3)
Secondary school	196 (77.8)	201 (78.8)	397 (78.3)
University or postgraduate	2 (0.8)	5 (2.0)	7 (1.4)
Physical activity			
Vigorous	70 (27.8)	70 (27.5)	140 (27.6)
Moderate	180 (71.4)	181 (71.0)	361 (71.2)
Inactive	2 (0.8)	4 (1.6)	6 (1.2)

Abbreviation: SD, standard deviation.

3.7395–8.692; $p < 0.0001$), and cannabis use in the past year (OR: 8.122, 95% CI: 2.392–27.580; $p = 0.001$; ►**Table 4**).

The logistic regression model for dependent variable alcohol consumption showed an association with lower odds of female gender (OR: 0.588, 95% CI: 0.385–0.897; $p = 0.014$), greater odds of having self-income (OR: 2.612, 95% CI: 1.544–4.421; $p < 0.0001$), cigarette smoking in the past year (OR: 5.366, 95% CI: 3.498–8.232; $p < 0.0001$), as well as cannabis use in the past year (OR: 3.298, 95% CI: 1.502–7.245; $p = 0.003$).

However, the logistic regression model for dependent variable cannabis abuse is associated with lower odds of being female (OR: 0.337, 95% CI: 0.167–0.682; $p = 0.002$), higher odds of mothers' secondary school education (OR: 2.436, 95% CI: 1.113–5.332; $p = 0.026$), and university education (OR: 20.087, 95% CI: 3.000–29.422; $p = 0.002$),

Table 2 Prevalence of tobacco, alcohol, and cannabis use for lifetime, in the past 12 months and in the past month according to type of university

		Lifetime, *n* (%)			Past 12 months, *n* (%)			Past 1 month, *n* (%)			
		Public	Private		Total	Public	Private		Total	Public	Private		Total
Tobacco	Yes	169 (67.1)	169 (66.3)	X2 = 0. 036 $p = 0.85$ 1	338 (66.7)	139 (55.2)	136 (53.3)	X2 = 0. 170 $p = 0.68$ 0	275 (54.2)	116 (46.0)	110 (43.1)	X2 = 0. 430 $p = 0.51$ 2	226 (44.6)
	No	83 (32.9)	86 (33.7)		169 (33.3)	113 (44.8)	119 (46.7)		232 (45.8)	136 (54.0)	145 (56.9)		281 (55.4)
Alcohol	Yes	137 (54.4)	138 (54.1)	X2 = 0. 003 $p = 0.955$	275 (54.2)	127 (50.4)	110 (43.1)	X2 = 2. 683 $p = 0.101$	237 (46.7)	85 (33.7)	79 (31.0)	X2 = 0. 483 $p = 0.508$	164 (32.3)
	No	115 (45.6)	117 (45.9)		232 (45.8)	125 (49.6)	145 (56.9)		270 (53.3)	167 (66.3)	176 (69.0)		343 (67.7)
Cannabis	Yes	32 (12.7)	38 (14.9)	X2 = 0. 517 $p = 0.47$ 2	70 (13.8)	24 (9.5)	31 (12.2)	X2 = 0. 909 $p = 0.34$ 0	55 (10.8)	19 (7.5)	23 (9.0)	X2 = 0. 365 $p = 0.54$ 6	42 (8.3)
	No	220 (87.3)	217 (85.1)		437 (86.2)	228 (90.5)	224 (87.8)		452 (89.2)	233 (92.5)	232 (91.0)		465 (91.7)

smoking tobacco in the past year (OR: 8.586, 95% CI: 2.506–29.422; $p = 0.001$), and alcohol consumption in the past year (OR: 3.558, 95% CI: 1.576–8.030; $p = 0.002$).

Discussion

In this study, we aimed to identify the risk factors of tobacco, alcohol, and cannabis use among university students. It has been confirmed that smoking behaviors are linked with the sociodemographic and health-related variables (gender, income and physical activity as well as the living spaces, employment, and mother's education). Similarly, several factors that influence the consumption of alcohol and drugs have been analyzed.

Exposure to smokers (friends, parents, and teachers), easy access to tobacco, low socioeconomic status, poor academic performance, low self-esteem, lack of perceived risk of use, and lack of skills to resist influences regarding tobacco use are factors associated with cigarette smoking among the youth.[15,16]

Our findings coincide with formerly published evidence[17,18] that smoking tobacco and drinking alcohol are more common that cannabis usage worldwide.

Friends who smoke, use drugs and/or alcohol, influence or instigate students to begin consuming these substances.[3,19,20] Young people often reach out toward the first smoke, the first alcoholic drink, or the first dose of drug just out of curiosity, and the desire to become a part of a special social clique comes afterwards.[20]

The study findings showcase that the rate of tobacco consumption has become higher among male students in comparison to that among female ones in the past year and in the past month. The studies[21–25] that have examined this connection present higher numbers of smokers among male students, and we have received the same results. In general, men tend to smoke at higher rates than women.[26] Such differences may be a result of a combination of cultural, traditional, and behavioral factors.[27] Surprisingly, in one study done in Brazil,[28] the gender variable was not linked with smoking.

In addition, male students, in particular, tend to consume alcohol more often and in higher quantities, mainly during social gatherings and for social enhancement motives.[18,29]

Regarding cannabis consumption, the data of our study are comparable with the reported data of other studies.[19,30] Approximately 10.8% of students have disclosed that they have smoked cannabis in the past 12 months, and 8.3% in the previous 30 days. Our study, along with associating studies,[30,31] reports a higher frequency of cannabis consumption in males and those of higher family income.

Students that start consuming alcohol and drugs do it so they can appear more social, more attractive, and more mature in comparison to their peers. Women usually have been found to smoke tobacco to appear more elegant (in relation with weight control).[24]

This is in line with another study,[32] where the author confirms that the consumption of any of these illicit drugs amid Kosovar students is 7%; it is relatively low compared

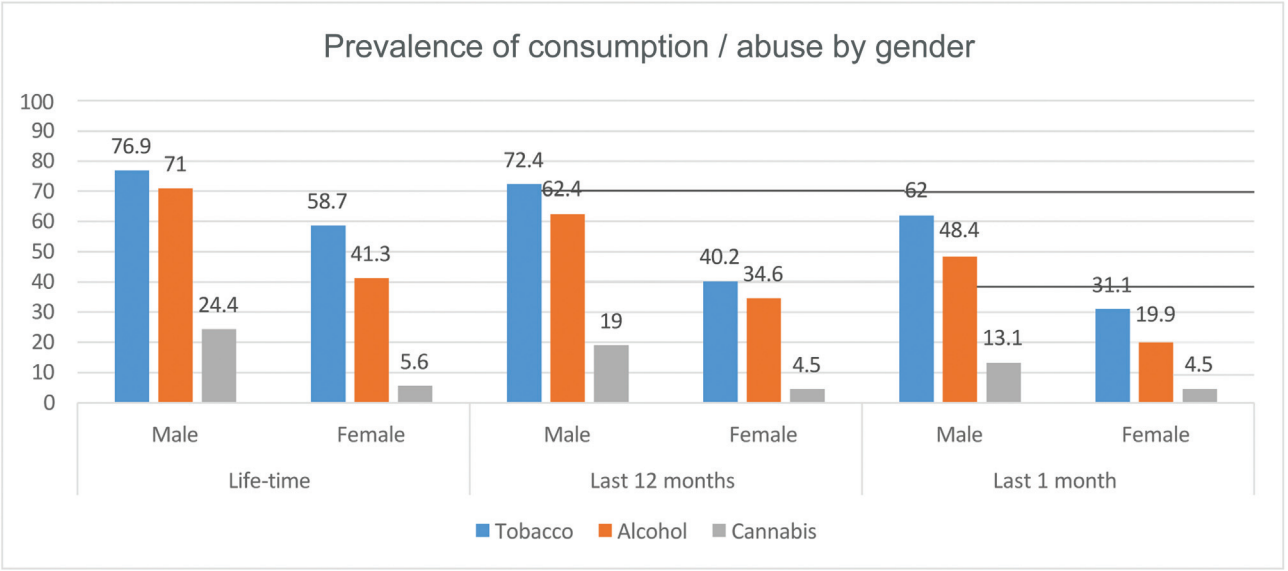

Fig. 1 The prevalence of tobacco smoking, drinking, and cannabis abuse by gender (%).

with the average ESPAD,[33] which is 20%. Roughly 10% male students and 4% female students have tried illicit drugs at least once in their life. This pattern is similar to the one noted in ESPAD countries. Similar to ESPAD countries, the most popular and important drug in Kosovo is cannabis.[32]

We have also observed the simultaneous consumption of tobacco, alcohol, and cannabis. A student who smokes is more likely to consume alcohol and vice versa. These results are consistent with other studies, where students who smoke seem to be at an increased risk for alcohol consumption[34] and those who drink alcohol take more cigarettes during drinking episodes.[35] Furthermore, the consumption of tobacco and/or alcohol may be associated with the use of illegal substances (e.g., cannabis).[20,29,30]

Several researches[22,28,31,36] have measured potential associations between socioeconomic status and substance use behavior among students. Our study exhibited that community-level features (i.e., unemployment, living setting, and family income) were associated with the prevalence of smoking, alcohol drinking, and using cannabis. Additionally, the study[22] displayed that people living in more economically deprived areas were more exposed, and subsequently more prone, to smoking, compared with people living in less-deprived areas. Verifying these discoveries, others have revealed that living in regions with lower mean income is connected with a larger probability of smoking.[36] Moreover, while some studies have suggested that heavy drinking is more widespread in regions with low socioeconomic status,[28] different studies have perceived that the highest levels of alcohol consumption are linked with a higher socioeconomic status.[22,31,36] Other studies have also indicated that alcohol-drinking problems are associated with a high socio-economic level.[23,29]

In our study, there was no statistically significant difference between students from private and public institutions on lifetime, in the past 1 year/1 month of tobacco smoking, alcohol consumption, and cannabis use ($p > 0.05$). Kosovar students who attend private colleges generally belong to families with high-income earnings and have a more tolerant family environment, in regard to alcohol use. Demirbas[23] reported that students who graduated from private high schools had an increased risk of drinking fortnightly or more frequently. Likewise, a study[37] showed that in Iranian community students in private schools are at higher risk for use of cigarette and marijuana.

Thus, this study emphasizes the significance of being aware of the factors linked with cannabis, alcohol, and tobacco consumption among university students, along with recognizing potential students who are at greater risk of consumption. This can contribute to the management, planning, creation, and application of more impactful interferences in health education programs, or motivational and psychoeducational interferences to raise awareness among students concerning these issues and decrease the consumption behaviors.[38] Likewise, student consumption policies should be managed with interdisciplinary action; it must not be left unnoticed. Proof has showcased that such adjustments in laws and rules are necessary to bring about changes in the social norms of student/campus life.[39]

Strengths and Limitations

The findings of this study must be reflected in light of the following limitations. Primarily, the study was cross-sectional, so causal inferences cannot be made. Second, the study relied on self-reported information, which could raise probable matters associated with social desirability bias. Since cannabis is still deemed an illicit substance, students might have under- reported their own substance use. Additionally,

Table 3 Tobacco, alcohol, and cannabis use in the past 12 months based on the sociodemographic characteristics of study sample

	Tobacco			Alcohol			Cannabis		
	No, *n* (%)	Yes, *n* (%)	*p*-Value	No, *n* (%)	Yes, *n* (%)	*p*-Value	No, *n* (%)	Yes, *n* (%)	*p*-Value
Age mean ± SD (years)	21.5 ± 1.8	21.6 ± 1.8	0.699	21.6 ± 1.8	21.5 ± 1.8	0.385	21.5 ± 1.8	21.9 ± 1.4	0.135
Gender			<0.0001			<0.0001			<0.0001
Male	61 (12.0)	160 (31.6)		83 (16.4)	138 (27.2)		179 (35.3)	42 (8.3)	
Female	171 (33.7)	115 (22.7)		187 (36.9)	99 (19.5)		273 (53.8)	13 (2.6)	
Living setting			0.878			0.007			0.065
Urban	176 (34.7)	207 (40.8)		191 (37.7)	192 (37.9)		347 (68.4)	36 (7.1)	
Rural	56 (11.0)	68 (13.4)		79 (15.6)	45 (8.9)		105 (20.7)	19 (3.7)	
Living spaces			0.018			0.001			0.003
Alone in apartment	5 (1.0)	20 (4.0)		8 (1.6)	17 (3.4)		17 (3.4)	8 (1.6)	
In dormitory with students	190 (37.7)	204 (40.5)		228 (45.2)	166 (32.9)		360 (71.4)	34 (6.7)	
At home with parents	36 (7.1)	49 (9.7)		34 (6.7)	51 (10.1)		72 (14.3)	13 (2.6)	
Employment			<0.0001			<0.0001			0.732
Employed	29 (5.7)	72 (14.2)		31 (6.1)	70 (13.8)		91 (17.9)	10 (2.0)	
Not employed	203 (40.0)	203 (40.0)		239 (47.1)	167 (32.9)		361 (71.2)	45 (8.9)	
Marital status			0.811			0.038			0.086
Single	83 (16.4)	104 (20.5)		89 (17.6)	98 (19.3)		171 (33.7)	16 (3.2)	
Engaged	131 (25.8)	153 (30.2)		156 (30.8)	128 (25.2)		253 (49.9)	31 (6.1)	
Married	18 (3.6)	18(3.6)		25 (4.9)	11 (2.2)		28 (5.5)	8 (1.6)	
Family income						0.001			0.003
Low	5 (1.0)	20 (3.9)	0.019	8 (1.6)	17 (3.4)		17 (3.4)	8 (1.6)	
Middle	191 (37.7)	206 (40.6)		228 (45.0)	169 (33.3)		363 (71.6)	34 (6.7)	
High	36 (7.1)	49 (9.7)		34 (6.7)	51 (10.1)		72 (14.2)	13 (2.6)	
Fathers' education			0.857			0.066			0.535
Primary school	5 (1.0)	8(1.6)		6(1.2)	7(1.4)		11(2.2)	2(0.4)	
Secondary school	101 (19.9)	117(23.1)		104(20.5)	114(22.5)		198(39.1)	20(3.9)	
University or postgraduate	126 (24.9)	150 (29.6)		160 (31.6)	116 (22.9)		243 (47.9)	33 (6.5)	
Mothers' education			<0.0001			<0.0001			0.01
Primary school	30 (5.9)	73 (14.4)		31 (6.1)	72 (14.2)		93 (18.3)	10 (2.0)	
Secondary school	201 (39.6)	196 (38.7)		236 (46.5)	161 (31.8)		356 (70.2)	41 (8.1)	
University or postgraduate	1 (0.2)	6 (1.2)		3 (0.6)	4 (0.8)		3 (0.6)	4 (0.8)	
Physical activity			0.001			<0.0001			0.054
Vigorous	1 (0.2)	5 (1.0)		3 (0.6)	3 (0.6)		3 (0.6)	3(0.6)	
Moderate	184 (36.3)	177 (34.9)		212 (41.8)	149 (29.4)		323 (63.7)	38 (7.5)	
Inactive	47 (9.3)	93 (18.3)		55 (10.8)	85 (16.8)		126 (24.9)	14 (2.8)	

Abbreviation: SD, standard deviation.

heavier consumers might not have been present when the study was administered. Lastly, the student participation was from only one region of Kosovo and the results cannot be generalized for the whole country. In future research, the study sample may be larger, representing all regions of the country.

Conclusion

This study highlighted that smoking, drinking, and cannabis are highly prevalent among university students, notably among male students. Further, we observed the simultaneous consumption of tobacco, alcohol, and cannabis. The

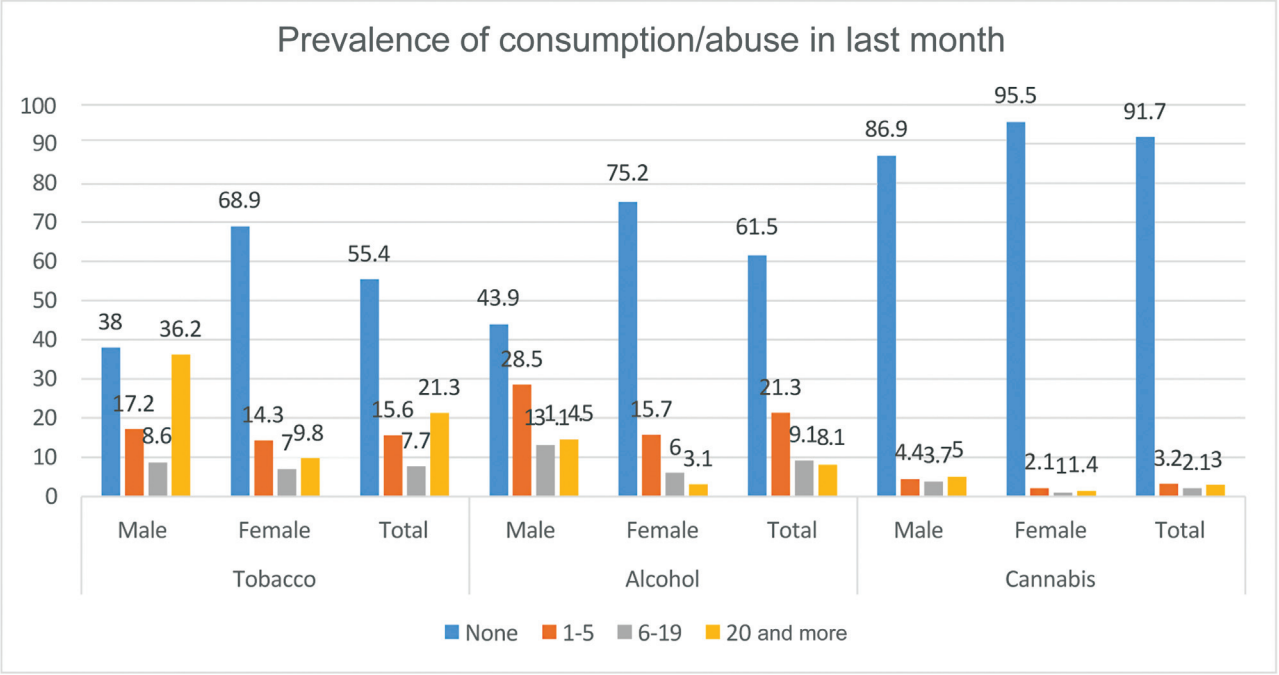

Fig. 2 The prevalence of tobacco smoking, drinking, and cannabis abuse by gender and frequency in the past month (%).

Table 4 Multiple logistic regression analysis of tobacco, alcohol, and cannabis use in the past 12 months

	Tobacco		Alcohol		Cannabis	
	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value
Gender						
Female	0.393 (0.257–0.601)	<0.0001	0.588 (0.385–0.897)	0.014	0.337 (0.167–0.682)	0.002
Male	1		1		1	
Employment						
Has self-income	–	–	2.612 (1.544–4.421)	<0.0001	–	–
Doesn't have self-income			1			
Mothers' education						
Primary school	–	–	–	–	1	
Secondary school					2.436 (1.113–5.332)	0.026
University					20.087 (3.000–134.496	0.002
Last year tobacco smoke						
No	–	–	1		1	
Yes			5.366 (3.498–8.232)	<0.0001	8.586 (2.506–29.422)	0.001
Last year alcohol use						
No	1		–	–	1	
Yes	5.700 (3.739–8.692)	<0.0001			3.558 (1.576–8.030)	0.002
Last year cannabis abuse						
No	1		1		–	–
Yes	8.122 (2.392–27.580)	0.001	3.298 (1.502–7.245)	0.003		

Abbreviations: CI, confidence interval; OR, odds ratio.

consumption of tobacco and/or alcohol was associated with the use of cannabis and vice versa. As the results of our study reveal, using one of these three substances is a risk factor for the use of others. These findings can help program managers and policy makers to better understand the current situation of substance-using students, and therefore devise effective and appropriate control programs and policies for university students. Providing careful attention to the risk factors will benefit prevention and treatment efforts that are specific of substance use in adolescents.

Authors' Contributions

ZI and VBM were observing this research project, had full access of this study's data, and in the meantime they took responsibility to show integrity for the data. ZI, AM, and DS designed the study. VBM and AM provided instruction on the use of instruments for the outcome measures used in this study. ZI and BT analyzed and interpreted the data. ZI, AM, and VBM prepared the manuscript. BT helped in statistical analysis.

Availability of Data

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflict of Interest

None declared.

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