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Relationship between psychoactive substance, alcohol and cigarette use in nursing students. A cross-sectional study



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ABSTRACT

Background: The increase in the use of psychoactive substances, alcohol and cigarettes in young people has become a public health problem. The identification of factors that increase or reduce the risk of exposure to these substances and the possible relationship between them is essential for planning strategies with a risk approach; hence the reason for this study. The objective was to establish the profile of use of psychoactive substances, alcohol and cigarettes and the factors associated with such use in nursing students of a higher education institution.

Methods: Quantitative, observational, analytical cross-sectional study.

Results: We included 310 students from 1st to 9th semester of a Nursing programme from a private higher education institution in Bogotá. The prevalence of psychoactive substance use in the last year was 2.96% (95%CI, 1.36–5.54), with marijuana being the substance most used (55.55%). The prevalence of alcohol and cigarette use during the last 12 months was estimated at 86.64% (95%CI, 83.24–91.0) and 12.16% (95%CI, 8.43–15.88) respectively. A statistically significant association was found between the use of these substances: alcohol use was associated with cigarette use (OR = 3.22; P = 0.006) and smoking was associated with psychoactive substance use (OR = 15.4; P < 0.001).

Conclusions: Alcohol use increases the likelihood of smoking cigarettes, and this in turn increases the likelihood of psychoactive substance use, in this university population.

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Relación entre el consumo de sustancias psicoactivas, alcohol y cigarrillo en estudiantes de Enfermería. Un estudio de corte transversal

R E S U M E N

Palabras clave:

Alcohol
Tabaco
Drogas ilícitas
Universitarios
Consumo

Introducción: El incremento del consumo de sustancias psicoactivas (SPA), alcohol y cigarrillo en población joven se ha convertido en un problema de salud pública. La identificación de los factores que aumentan o disminuyen el riesgo de la exposición a estas sustancias y la relación que puede haber entre ellas resulta fundamental para la planificación de estrategias con enfoque de riesgo, razón por la cual se planteó el presente estudio. El objetivo es establecer el perfil de consumo de SPA, alcohol y cigarrillo y los factores asociados con dicho consumo en estudiantes del programa de Enfermería de una institución de educación superior.

Métodos: Estudio cuantitativo, observacional y analítico de tipo corte transversal.

Resultados: Se incluyó a 310 estudiantes de los semestres I a IX de un programa de Enfermería de una institución privada de educación superior de Bogotá. La prevalencia de consumo de SPA en el último año fue del 2,96% (IC95%, 1,36–5,54); la marihuana es la sustancia de mayor consumo (55,55%). Las prevalencias de consumo de alcohol y cigarrillo durante los últimos 12 meses se estimaron en el 86,64% (IC95%, 83,24–91,0) y el 12,16% (IC95%, 8,43–15,88) respectivamente. Se encontró una asociación estadísticamente significativa entre los consumos: tomar alcohol se asoció con el consumo de cigarrillo (OR = 3,22; $p = 0,006$) y fumar se asoció con el consumo de SPA (OR = 15,4; $p < 0,001$).

Conclusiones: En esta población universitaria, el consumo de alcohol aumenta la posibilidad de consumo de cigarrillo, y este a su vez aumenta la posibilidad del consumo de SPA.

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Introduction

The use of psychoactive substances (PAS), alcohol, and cigarettes, by frequency, magnitude and severity, represents serious problems for public health, mainly in the young population.¹

The World Drug Report 2016² estimates that 1 in 20 people aged 15–64, approximately 250 million people around the world, used at least one drug during 2014. Among them, there are 2.3 million young adults aged 15–34 who have used drugs in the last year.

On the other hand, in Colombia, the Drug Report 2015³ states that Medellín is the city with the highest usage rates, with a prevalence of 8.2%, followed by Pereira (6.8%) and Risaralda (6.4%). Bogotá is in ninth position on this list, with a prevalence of 3.5%.

In relation to the use of substances considered legal, it was found that the number of smokers in the world is 1.1 billion,⁴ and that more than 8 million deaths occur per year, of which more than 7 million are direct users.⁵ Meanwhile, in the Americas, around one-third of the population reports daily tobacco use.⁶ On the other hand, in Colombia, the Third Preventable Mortality report shows that the department with the highest prevalence in 2008 was Amazonas (41.3%), followed by Vaupés (28.6%) and Bogota (26.3%).⁷

Regarding alcohol use, studies conducted by the WHO estimate that 55% of the general population present some level of alcohol consumption, which would be associated with 2.5 million deaths per year.⁸ Around the world, close to 2 billion people consume alcoholic beverages, which corresponds to

40% of the world population over 15 years of age.⁵ In Colombia, according to the National Study on the Consumption of Psychoactive Substances, the highest rates of current alcohol use are 49.2% among young people aged 18–24, and 45.4% among young people aged 25–34.⁶

Although these phenomena have been widely studied in different contexts,⁹ most have been limited to describing the phenomenon in terms of its frequency and magnitude, owing to which identifying the factors that increase or decrease the possibility of use and those that can be modified through interventions³ is essential to avoid negative consequences on health.¹⁰ Information on these exposures in the university population, and more specifically the students of Nursing programmes is still scarce, and given the insufficient local knowledge to guide the implementation of solutions in this context,¹¹ there is a need to investigate the consumption profile of PAS, alcohol and cigarettes among said population, with the aim of identifying the factors associated with the consumption of these substances.

Methods

Quantitative, observational, analytical cross-sectional study. It was conducted with a population of students from university training programmes. The target population is undergraduate nursing students, and the eligible population is students who agreed to participate in the study.

Students from semesters I to IX who met the inclusion criteria were included in the sample. Due to logistical difficulties, students from semester X could not be accessed, but the pro-

portion of respondents reached 53.9% of the target population, with a sample size of 310 students.

A PAS is defined as any substance of natural or synthetic origin used without a medical prescription to alter sensory perception, consciousness, or any other mental function. These substances have different classifications, but in this article, the classification will be taken based on legality; alcohol, cigarettes and caffeine are considered licit substances, and PASs, such as cocaine, marijuana, ecstasy or heroin, among others, are considered illicit.¹²

Statistical analysis

The data were collected through an anonymous, self-administered survey conducted by an interview. Participation in the study was voluntary, and once the subjects agreed to participate, they signed the consent or informed assent, as applicable, and filled out the information collection instruments, which were subsequently digitised on the RedCap 7.0.7 platform. For the statistical analysis of the quantitative variables, measures of central tendency and dispersion, such as average and standard deviation, were used after checking the normality of their distribution using the Shapiro-Wilk test. If this assumption was not verified, it was described using medians [interquartile range]. Qualitative variables were described using absolute frequencies and proportions. The comparison between user and non-user groups was analysed, taking into account a Z test for the difference between means for variables on a ratio or proportion scale with normal distribution or, failing that, non-parametric statistics (*Wilcoxon rank sum test*). For dichotomous qualitative variables, a Z test for the difference between proportions was used, and for polytomous variables, a χ^2 test was employed when the expected values in each box were ≥ 5 ; otherwise, a Fisher's exact test was used.

The association between the exposures studied and the outcomes considered was initially estimated in a bivariate manner, using *odds ratios* (OR) with their 95% confidence intervals. (CI95%), followed by a χ^2 test in order to establish the significance of said measurements. To adjust each association for the presence of confounding and interaction variables, adjusted ORs were obtained using an unconditioned multivariate logistic regression model. For the selection of the regressor variables, the *stepwise* technique was used, with an entry probability of 0.1 and an exit probability of 0.3, starting from a complete model with the variables described in the literature as effect modifiers, the statistically different ones between users and non-users, and the possible interactions that could arise. The reliability of each of these models will be appraised using re-estimation tests, *deviance*, and the Hosmer-Lemeshov goodness-of-fit test. For the statistical analysis, STATA software (version 14 SE; Stata Corp., United States) was used.

This research was approved by the Institutional Research Ethics Committee of the Institution in which the study was conducted, the approval code of which was PCI-2016-8786. This is a minimum risk investigation according to Resolution 008430 of 1993. The possible loss of data privacy was minimised by identifying each participant using codes and keeping the information collected under lock and key.

Results

Table 1 shows the prevalence of PAS, alcohol and cigarette use during the 12 months prior to the survey. The prevalence of PAS consumption was 2.96% (CI95%, 1.36–5.54) and for 55.55% of those who reported some use, it was marijuana. On the other hand, 86.64% (CI95%, 83.24–91.0) of the sample of students reported having consumed at least one alcoholic beverage of any type, 47.35% of them, less than once a month. Regarding cigarette use, 87.84% of the students reported not using them, 1.35% used them daily, 1.01% used them on a weekly basis, and 9.8% occasionally.

Table 2 shows the characteristics of users and non-users of PAS, alcohol, and cigarettes. In the majority of the variables, statistically non-significant differences are obtained. Only PAS use has a statistical association with cigarette use, just as cigarette use is related to not working, the perception of physical health, cigarette use, and alcohol use. For alcohol use, a statistical significance was found with the age of entry to the programme, economic difficulties, type of housing, socioeconomic stratum, free time, and alcohol use.

Table 3 shows the factors associated with PAS use. Cigarette use was 15.4 times more frequent among those who use PASs than among non-users, the difference being statistically significant. No other factors were found to be associated with substance use.

Table 4 shows the factors associated with cigarette use. The perception of physical health as poor was 25 times more frequent among those who smoked cigarettes than among those who did not; similarly, PAS use was 18.9 times more frequent among those who used cigarettes. Alcohol use was 2.92 times more frequent for cigarette users.

Among the factors associated with alcohol use (Table 5), it was found that receiving financial support for university expenses was 69% more frequent in the group of alcohol users. Cigarette use was 3.22 times more frequent in the group of alcoholic beverage consumers.

Discussion

The estimated prevalence of PAS use in the present study was 2.96% (CI95%, 1.36 %–5.54 %), a figure that is lower than those reported in other studies. In a study carried out on 7 academic programmes, Cogollo¹³ found a prevalence during the period (consumption in the last 12 months) of 7.9%, a figure slightly higher than that found in this study; however, estimates made by other authors may report much higher figures. Thus, for example, Castaño¹⁴ reported prevalences of 23.9, 31.5, and 39.9% during the last 30 days, 12 months, and at some point in life, respectively. These differences can be attributed to the fact that Castaño included 9 university academic programmes ($n = 343$) and also investigated the use of these substances at some point in life (lifetime prevalence), which is usually higher than that investigated in this study (period prevalence).

The substances most used were marijuana (55.55%), poppers (33.33%), and ecstasy (11.11%). In Chile, Cazenave¹⁵ conducted a study to identify the frequency of marijuana use in Nursing and Education students in the last year, finding

Table 1 – Prevalences and profiles of SPA, alcohol, and cigarette use.**Psychoactive substances***In the last year, have you used any type of psychoactive substance?^a*

Yes	9	2.96 (CI95%, 1.36–5.54)
No	295	97.04

Use according to substance

Marijuana	5	55.55
Cocaine	0	0
Inhalants	0	0
Ecstasy	1	11.11
Heroin	0	0
Medication	0	0

Poppers

3 33.33

Tusi

0 0

How often, on average, did you use marijuana in the last 12 months?

Less than once a month 5 100

How often, on average, did you use “ecstasy” in the last 12 months?

Once a month 1 100

How often, on average, did you use poppers in the last 12 months?

Once a week 1 33.33

Less than once a month 2 66.67

Alcohol*In the last year, have you had at least one alcoholic drink of any kind?^b*

Yes	266	86.64 (CI95%, 83.24–91.0)
No	41	13.36

How often, on average, did you drink alcoholic beverages during the last 12 months?^c

Almost every day	1	0.38
About 4–5 times a week	1	0.38
2–3 times a week	7	2.65
Once a week	30	11.36
2–3 times a month	52	20.08
Once a month	47	17.80
Less than once a month	125	47.35

Cigarettes*Currently, how often do you smoke cigarettes?^d †*

Daily	4	1.35
Weekly	3	1.01
Occasionally	29	9.80
Does not smoke	260	87.84

Source: authors' database.

CI95%: confidence interval 95%.

These categories were considered as recommended⁵⁷. Values are expressed in terms of n (%).^a 304 individuals responded to this variable.^b 307 individuals responded to this variable.^c 264 individuals responded to this variable.^d 296 individuals responded to this variable.

a frequency of 54.8%, fairly close to ours. Another investigation carried out by Cáceres¹⁶ at a University in Cali found the following distribution of use in the total sample: marijuana (7.1%), ecstasy (1.8%), opiates (1.5%) and cocaine (0.9%), which coincides with ours in the most used substances. Use is more prevalent among males (66.67%), up to 98% according to Cáceres.¹⁶

Regarding the associated factors, no sociodemographic, family, academic, parental, or health conditions were found that are related to a greater or lesser probability of using PASs. Nonetheless, a clear limitation related to the number of users of these substances observed in our study must be taken into account when interpreting the results. Moral¹⁷ found that there are positive associations with social variables such as conflictive relationships with parents. ($p = 0.033$),

friends who use other illegal drugs ($p = 0.031$), depression or anxiety ($p = 0.041$), emotional instability ($p = 0.037$) and attention seeking ($p = 0.044$). On the other hand, the interrelation between substance use has also been the subject of study. Thus, for example, Cogollo¹³ concludes that there is an association between alcohol use and SPA use, specifically marijuana ($OR = 4.6$), but this is not confirmed by our results.

On the other hand, the prevalence of cigarette use in this study was 12.16% (CI95%, 8.43%–15.88%), lower than that reported by other authors. For example, López¹⁸ found a prevalence of 24.0%, and the differences are attributed to the investigation of lifetime prevalence, as has already been explained.

When evaluating the frequency of use, it was concluded that it is lower than that found by other authors. In this study it

Table 2 – Sociodemographic characteristics of consumers and non-consumers of SPA, cigarettes, and alcohol in the last year.

Variable	SPA			Cigarettes			Alcohol		
	Users (n = 9)	Non-users (n = 295)	p	Active smokers (n = 36)	Non-smokers (n = 260)	p	Regular drinkers (n = 139)	Non-regular drinkers (n = 166)	p
Sex									
Males	1 (11.11)	26 (8.81)	0.572 ^a	2 (5.56)	24 (9.23)	0.753 ^a	17 (12.23)	10 (6.02)	0.0574 ^b
Age (years)	17.4 [17.8]	0.4215 ^c	17.7 [17.8]	0.545 ^c	18 [17.6]	0.0051 ^c			
<i>Do you consider you have experienced situations that you have not been able to face in the last 3 months?</i>									
No	8 (88.89)	198 (67.35)	0.280 ^a	22 (61.11)	179 (69.1)	0.351 ^b	96 (69.57)	111 (66.8)	0.682 ^b
Financial situations									
No	9 (100)	269 (91.19)	1.00 ^a	32 (88.89)	238 (91.5)	0.537 ^a	128 (92.0)	152 (91.5)	0.028 ^{a,d}
Domestic calamity									
No	9 (100)	284 (96.63)	1.00 ^a	36 (100)	250 (96.1)	0.616 ^a	135 (97.1)	159 (95.7)	0.532 ^b
Personal situations									
No	8 (88.89)	235 (79.66)	0.693 ^a	27 (75.0)	209 (80.3)	0.451 ^b	114 (82.0)	129 (77.7)	0.352 ^b
Health-related situations									
No	8 (88.89)	275 (93.22)	0.480 ^a	33 (91.67)	245 (94.2)	0.468 ^a			
	133 (95.6)	151 (90.9)	0.105 ^b						
Receives financial support									
No	1 (11.11)	96 (32.65)	0.280 ^a	1 (2.78)	21 (8.08)	0.493 ^a	15 (10.8)	9 (5.42)	0.083 ^b
Type of accommodation									
Family home	4 (44.44)	73 (24.75)	0.231 ^a	5 (13.89)	73 (28.08)	0.192 ^e	27 (19.42)	51 (30.72)	0.019 ^e
Own home	4 (44.44)	124 (42.03)		18 (50)	106 (40.7)		43 (30.94)	57 (34.34)	
Rented	1 (11.11)	98 (33.22)		13 (36.11)	81 (31.15)		69 (49.64)	58 (34.94)	

– Table 2 (Continued)

Variable	SPA			Cigarettes			Alcohol		
	Users (n = 9)	Non-users (n = 295)	p	Active smokers (n = 36)	Non-smokers (n = 260)	p	Regular drinkers (n = 139)	Non-regular drinkers (n = 166)	p
<i>Socioeconomic stratum</i>									
I	0	6 (2.08)	0.494 ^a	1 (2.78)	5 (1.98)	0.259 ^a	1 (0.74)	6 (3.7)	0.019 ^a
II	3 (33.33)	82 (28.47)		6 (16.67)	77 (30.43)		29 (21.32)	56 (34.57)	
III	3 (33.33)	148 (51.39)		19 (52.78)	128 (50.5)		76 (55.88)	74 (45.68)	
IV	3 (33.33)	42 (14.58)		9 (25)	33 (13.04)		22 (16.18)	23 (14.2)	
V	0	9 (3.13)		1 (2.78)	9 (3.56)		7 (5.15)	3 (1.85)	
VI	0	1 (0.35)		0	1 (0.4)		1 (0.74)	0	
<i>Currently working</i>									
No	8 (88.89)	253 (86.64)	1.00 ^a	29 (80.5)	225 (86.53)	0.017 ^{a,f}	106 (76.25)	118 (71.08)	0.308 ^b
<i>Father's educational level</i>									
Primary, not completed	0	41 (14.54)	0.645 ^a	5 (13.89)	36 (14.52)	0.139 ^a	18 (13.74)	23 (14.29)	0.392 ^e
Primary, completed	1 (11.11)	23 (8.16)		2 (5.56)	22 (8.87)		8 (6.11)	16 (9.94)	
Secondary, not completed	0	26 (9.22)		0	27 (10.89)		8 (6.11)	19 (11.8)	
Secondary, completed	3 (33.33)	61 (21.63)		7 (19.44)	55 (22.18)		31 (23.66)	34 (21.12)	
Technician/technologist	1 (11.11)	55 (19.50)		7 (19.44)	47 (18.95)		26 (19.85)	30 (18.63)	
Undergraduate	3 (33.33)	53 (18.79)		9 (25)	44 (17.74)		30 (22.9)	25 (15.53)	
Postgraduate	1 (11.11)	23 (8.16)		6 (16.67)	17 (6.85)		10 (7.63)	14 (8.7)	
<i>Mother's educational level</i>									
Primary, not completed	0	21 (7.12)	0.383 ^a	0	20 (7.69)	0.702 ^a	5 (3.6)	16 (9.64)	0.149 ^e
Primary, completed	0	16 (5.42)		1 (2.78)	15 (5.77)		9 (6.47)	7 (4.22)	
Secondary, not completed	0	31 (10.51)		4 (11.11)	28 (10.77)		11 (7.91)	21 (12.65)	
Secondary, completed	3 (33.33)	76 (25.76)		10 (27.78)	65 (25)		33 (23.74)	46 (27.71)	
Technician/technologist	2 (22.22)	81 (27.46)		11 (30.56)	72 (27.69)		41 (29.5)	42 (25.3)	
Undergraduate	4 (44.44)	41 (13.9)		6 (16.67)	35 (13.46)		25 (17.99)	21 (12.65)	
Postgraduate	0	29 (9.83)		4 (11.11)	25 (9.62)		15 (10.79)	13 (7.83)	

– Table 2 (Continued)

Variable	SPA			Cigarettes			Alcohol		
	Users (n = 9)	Non-users (n = 295)	p	Active smokers (n = 36)	Non-smokers (n = 260)	p	Regular drinkers (n = 139)	Non-regular drinkers (n = 166)	p
<i>Type of family</i>									
Nuclear	5 (55.56)	184 (63.01)	0.882 ^a	19 (52.78)	164 (63.8)	0.313 ^a	86 (62.77)	102 (61.8)	0.931 ^a
Single-parent	3 (33.33)	70 (23.97)		9 (25)	61 (23.74)		32 (23.36)	42 (25.45)	
Adoptive	0	1 (0.34)		0	1 (0.39)		0	1 (0.61)	
Composite	1 (11.11)	37 (12.67)		8 (22.22)	31 (12.06)		19 (13.87)	20 (12.12)	
<i>Perception of your physical health</i>									
Very good	0	31 (10.51)	0.792 ^a	2 (5.56)	28 (10.85)	0.027 ^a	18 (12.95)	13 (7.83)	0.435 ^a
Good	7 (77.78)	200 (67.8)		22 (61.11)	177 (68.6)		94 (67.63)	113 (68)	
Average	2 (22.22)	59 (20)		9 (25)	51 (19.77)		25 (17.99)	37 (22.29)	
Poor	0	5 (1.69)		3 (8.33)	2 (0.78)		2 (1.44)	3 (1.81)	
<i>Perception of your mental health</i>									
Very good	1 (11.11)	71 (24.07)	0.355 ^a	6 (16.67)	63 (24.42)	0.750 ^a	34 (24.46)	37 (22.29)	0.661 ^a
Good	8 (88.89)	170 (57.63)		24 (66.67)	149 (57.7)		80 (57.55)	100 (60.2)	
Average	0	50 (16.95)		6 (16.67)	42 (16.28)		22 (15.83)	28 (16.87)	
Poor	0	4 (1.36)		0	4 (1.55)		3 (2.16)	1 (0.6)	
<i>Hours/week of free time</i>	22 [17–26]	22 [13–44]	0.9934 ^c	36 [257]	0.81 ^c	26 [16–45]	18 [12–41]	0.0015 ^c	
<i>Currently has a partner</i>									
No	6 (66.67)	162 (54.76)	0.736 ^a	21 (58.33)	141 (54.4)	0.643 ^b	82 (58.99)	83 (50.3)	0.116 ^b
<i>Do you live with your partner?</i>									
No	9 (100)	282 (90.23)	1.00 ^a	13 (86.67)	107 (90.6)	0.564 ^b	51 (89.47)	75 (91.46)	0.134 ^b
<i>Do you have children?</i>									
No	9 (100)	270 (91.53)	1.00 ^a	35 (97.22)	237 (91.1)	0.331 ^a	130 (93.5)	150 (90.3)	0.380 ^b
<i>Do you smoke cigarettes?</i>	SPA use?	SPA use?							
Yes	5 (62.5)	31 (10.92)	0.002 ^a	5 (13.89)	3 (1.17)	<0.001 ^a	6 (66.67)	3 (33.33)	0.309 ^a
<i>Alcohol use?</i>	Alcohol use?	Do you smoke cigarettes?							
Yes	6 (66.67)	133 (45.39)	0.310 ^a	24 (66.67)	108 (42.19)	0.004 ^b	24 (66.67)	12 (33.33)	0.007 ^b

Source: authors' database.

Values are expressed as n (%) or median [interquartile range].

^a Calculated using Fisher's exact test.^b Calculated using the Z test of difference of proportions.^c Calculated using the Wilcoxon test.^d Variable answered by 288 subjects (135 drinkers and 153 non-drinkers).^e Calculated by the χ^2 test.^f Variable answered by 272 subjects (35 active smokers and 237 non-smokers).

Table 3 – Factors associated with the use of psychoactive substances.

Factor	Users, n (%)	Non-users, n (%)	Raw model ^a		Multivariate model ^b	
			OR (CI95%)	p	OR (CI95%)	p
Sex						
Males	1 (11.11)	26 (8.81)	1.29 (0.15–10.74)	0.812	1.68 (0.16–16.7)	0.657
Females	8 (88.89)	269 (91.19)	1.0 (Reference)	–	1.0 (Reference)	–
Currently working						
Yes	1 (11.11)	39 (13.36)	0.81 (0.09–6.61)	0.845	0.85 (0.09–7.93)	0.887
No	8 (88.89)	253 (86.64)	1.0 (Reference)	–	1.0 (Reference)	–
Origin same as residence						
Yes	6 (66.67)	188 (63.73)	1.13 (0.27–4.64)	0.857	0.91 (0.19–4.20)	0.910
No	3 (33.33)	107 (36.27)	1.0 (Reference)	–	1.0 (Reference)	–
Do you consider that you have experienced situations that you have not been able to face in the last 3 months?						
Yes	1 (11.11)	96 (32.65)	0.25 (0.03–2.09)	0.204	0.22 (0.02–1.96)	0.178
No	8 (88.89)	198 (67.35)	1.0 (Reference)	–	1.0 (Reference)	–
Do you receive financial support for your university expenses (tuition, transportation, food, housing and others)?						
Yes	8 (88.89)	271 (92.18)	0.67 (0.08–5.66)	0.721	0.35 (0.03–3.71)	0.386
No	1 (11.11)	23 (7.82)	1.0 (Reference)	–	1.0 (Reference)	–
Current partner						
Yes	3 (33.33)	133 (45.24)	0.60 (0.14–2.46)	0.484	0.91 (0.19–4.24)	0.914
No	6 (66.67)	161 (54.76)	1.0 (Reference)	–	1.0 (Reference)	–
Has children ^c						
Yes	0	25 (8.47)	0.55 (0.03–9.88)	0.687	1.0 (0.46)	0.589
No	9 (100)	270 (91.53)	1.0 (Reference)	–	1.0 (Reference)	–
Perceived physical health ^c						
Very good	0	31 (10.51)	1.0 (Reference)	–	1.0 (Reference)	–
Good	7 (77.78)	200 (67.80)	2.35 (0.13–42.28)	0.548	0.66 (0.10–4.07)	0.661
Average	2 (22.2)	59 (20.0)	2.64 (0.12–56.85)	0.518	2.41 (0.22–50.3)	0.489
Poor	0	5 (1.69)	5.72 (0.10–320.0)	0.341	5.64 (0.12–319.3)	0.356
Perceived mental health ^c						
Very good	1 (11.11)	71 (24.07)	1.0 (Reference)	–	1.0 (Reference)	–
Good	8 (88.89)	170 (57.63)	3.34 (0.41–27.20)	0.232	2.34 (0.26–20.6)	0.443
Average	0	50 (16.95)	0.47 (0.01–11.82)	0.640	0.56 (0.03–12.9)	0.689
Poor	0	4 (1.39)	7.22 (0.22–233.5)	0.196	6.95 (0.20–240.3)	0.234
Cigarette use						
Yes	5 (62.50)	31 (10.92)	13.60 (3.09–59.7)	<0.001	15.4 (3.43–69.2)	<0.001
No	3 (37.50)	253 (89.08)	1.0 (Reference)	–	1.0 (Reference)	–
Alcohol use						
Yes	6 (66.67)	133 (45.39)	2.40 (0.59–9.80)	0.221	1.14 (0.23–5.50)	0.865
No	3 (33.33)	160 (54.61)	1.0 (Reference)	–	1.0 (Reference)	–

Source: authors' database.

CI95%: 95% confidence interval; OR: odds ratio.

^a Estimated using logistic regression excluding confounding variables.^b Estimated by means of logistic regression adjusted for sex, presence of situations that they have not been able to face in the last 3 months and cigarette consumption.^c Calculated with the method proposed by Agresti.

was shown that 1.35% of the students are active smokers, since they use daily; in Navarro's study,¹⁹ daily use was 13.6%, and the frequencies of weekly and occasional use (31.8 and 50%, respectively) differ from those of this study (8.3 and 80.5%, respectively).

Regarding sociodemographic variables, the results are close to those of other studies. In terms of sex, of the students who consume cigarettes, 94.4% are females and 5.56% males. The

study carried out by López¹⁸ in the same university population found that 8.6% of males and 89.6% of females were smokers; 1.8% did not answer the question.

This study shows the relationship between cigarette use and different variables, but it is not possible to contrast these results. There was found to be a close relationship between not having a job and cigarette use (OR = 1.06). This characteristic is also observed in subjects who perceive their physical

Table 4 – Factors associated with cigarette use.

Factor	Users (n = 36)	Non-users (n = 260)	[0.4-5] Raw model ^a		[0.6-7] Multivariate model ^b	
	n (%)	n (%)	OR*	p	OR**	p
Sex						
Males	2 (5.56)	24 (9.23)	0.57 (0.13–2.55)	0.470	0.45 (0.089–2.31)	0.343
Females	34 (94.4)	236 (90.77)	1.0 (Reference)	–	1.0 (Reference)	–
Currently working						
Yes	5 (14.71)	36 (13.9)	1.06 (0.38–2.93)	0.899	1.37 (0.44–4.26)	0.58
No	29 (85.29)	223 (86.10)	1.0 (Reference)	–	1.0 (Reference)	–
Origin same as residence						
Yes	24 (66.67)	163 (62.69)	1.19 (0.56–2.48)	0.643	1.26 (0.55–2.89)	0.574
No	12 (33.33)	97 (37.31)	1.0 (Reference)	–	1.0 (Reference)	–
Do you consider that you have experienced situations that you have not been able to face in the last 3 months?						
Yes	14 (38.89)	80 (30.89)	1.42 (0.69–2.92)	0.336	1.96 (0.87–4.42)	0.101
No	22 (61.11)	179 (69.11)	1.0 (Reference)	–	1.0 (Reference)	–
Do you receive financial support for your university expenses (tuition, transportation, food, housing and others)?						
Yes	35 (97.22)	239 (91.92)	3.07 (0.40–23.5)	1.08	4.19 (0.40–42.9)	0.22
No	1 (2.78)	21 (8.08)	1.0 (Reference)	–	1.0 (Reference)	–
Current partner						
Yes	15 (41.67)	118 (45.56)	0.85 (0.42–1.72)	0.660	1.06 (0.47–2.39)	0.87
No	21 (58.33)	141 (54.44)	1.0 (Reference)	–	1.0 (Reference)	–
Has children ^c						
Yes	1 (2.78)	23 (8.85)	0.29 (0.03–2.24)	0.239	0.32 (0.03–2.35)	0.29
No	35 (97.22)	237 (91.15)	1.0 (Reference)	–	1.0 (Reference)	–
Perceived physical health						
Very good	2 (5.56)	28 (10.85)	1.0 (Reference)	–	1.0 (Reference)	–
Good	22 (61.11)	177 (68.60)	1.74 (0.38–7.80)	0.470	1.62 (0.33–7.76)	0.54
Average	9 (25.00)	51 (19.77)	2.47 (0.49–12.2)	0.268	2.30 (0.42–12.54)	0.33
Poor	3 (8.33)	2 (0.78)	20.9 (2.1–208.0)	0.009	25.0 (1.98–317.0)	0.013
Perceived mental health						
Very good	6 (16.67)	63 (24.42)	1.0 (Reference)	–	1.0 (Reference)	–
Good	24 (66.67)	149 (57.75)	1.69 (0.65–4.37)	0.274	1.36 (0.49–3.79)	0.55
Average	6 (16.67)	42 (16.28)	1.5 (0.45–4.96)	0.507	1.19 (0.32–4.46)	0.78
Poor	0	4 (1.55)	1 (–)	–	1.0 (0)	0
SPA consumption						
Yes	5 (13.89)	3 (1.17)	13.60 (3.09–59.70)	0.001	18.9 (3.64–98.7)	0.001
No	31 (86.11)	253 (98.83)	1.0 (Reference)	–	1.0 (Reference)	–
Alcohol use						
Yes	24 (66.67)	108 (42.19)	2.74 (1.31–5.72)	0.007	2.92 (1.26–6.75)	0.012
No	12 (33.33)	148 (57.81)	1.0 (Reference)	–	1.0 (Reference)	–

Source: authors' database.

CI95%: 95% confidence interval; OR: odds ratio; PAS: psychoactive substances.

^a Estimated using logistic regression excluding confounding variables.^b Estimated by means of logistic regression adjusted for current job, situations that they have not been able to face in the last 3 months, receiving financial support, socioeconomic stratum of the current home, children, alcohol consumption, and PAS use.^c Calculated with the method proposed by Agresti.

health as poor, although there are no studies that evaluate these characteristics.

Regarding the use of cigarettes and other substances, the evidence derived from descriptive studies indicates a possible relationship between alcohol consumption and marijuana use. Our results would support this statistically significant relationship with PASs (OR = 18.9) and with alcohol (OR = 2.92), given that the substance most used is marijuana (55.55%); therefore, if a subject uses cigarettes, they are more likely to

use marijuana, and this facilitates the use of other substances. On the other hand, statistics from the National Anti-Drug Office (ONA¹⁹) report that the main 3 starting substances are alcohol (45.99%), cigarettes (23.49%), and marijuana (21.14%).

Finally, the prevalence of alcohol use found in this study was close to those of other studies. A prevalence of 86.64% was reported (CI95%, 83.24 %–91.0 %); in contrast to two studies in the university population of the Nursing programme in Brazil,

Table 5 – Factors associated with alcohol use.

Factor	Users (n = 139)	Non-users (n = 166)	Raw model ^a		Multivariate model ^b	
	n (%)	n (%)	OR ^a (CI95%)	p	OR ^b (CI95%)	p
Sex						
Males	17 (12.23)	10 (6.02)	2.17 (0.96–4.91)	0.062	1.71 (0.648–4.54)	0.27
Females	122 (87.77)	156 (93.98)	1.0 (Reference)	–	1.0 (Reference)	–
Currently working						
Yes	20 (14.60)	21 (12.73)	1.17 (0.60–2.26)	0.637	1.86 (0.830–4.20)	0.131
No	117 (85.40)	144 (87.27)	1.0 (Reference)	–	1.0 (Reference)	–
Origin same as residence						
Yes	91 (65.47)	103 (62.05)	1.15 (0.72–1.85)	0.537	1.28 (0.747–2.21)	0.363
No	48 (34.53)	63 (37.95)	1.0 (Reference)	–	1.0 (Reference)	–
Do you consider that you have experienced situations that you have not been able to face in the last 3 months?						
Yes	42 (30.43)	55 (33.13)	0.88 (0.54–1.43)	0.615	0.92 (0.526–1.62)	0.785
No	96 (69.57)	111 (66.87)	1.0 (Reference)	–	1.0 (Reference)	–
Do you receive financial support for your university expenses (tuition, transportation, food, housing and others)?						
Yes	123 (89.13)	157 (94.58)	0.47 (0.19–1.11)	0.085	0.31 (0.116–0.85)	0.024
No	15 (10.87)	9 (5.42)	1.0 (Reference)	–	1.0 (Reference)	–
Current partner						
Yes	57 (41.01)	82 (49.70)	0.70 (0.44–1.10)	0.130	0.80 (0.466–1.38)	0.437
No	82 (58.99)	83 (50.30)	1.0 (Reference)	–	1.0 (Reference)	–
Has children^c						
Yes	9 (6.47)	16 (9.64)	0.64 (0.27–1.51)	0.319	1.03 (0.378–2.84)	0.942
No	130 (93.53)	150 (90.36)	1.0 (Reference)	–	1.0 (Reference)	–
Perceived physical health						
Very good	18 (12.95)	13 (7.83)	1.0 (Reference)	–	1.0 (Reference)	–
Good	94 (67.63)	113 (68.07)	0.60 (0.27–1.28)	0.191	0.61 (0.253–1.48)	0.276
Average	25 (17.99)	37 (22.29)	0.48 (0.20–1.17)	0.108	0.52 (0.187–1.47)	0.223
Poor	2 (1.44)	3 (1.81)	0.48 (0.07–3.30)	0.457	0.35 (0.403–3.04)	0.342
Perceived mental health						
Very good	34 (24.46)	37 (22.29)	1.0 (Reference)	–	1.0 (Reference)	–
Good	80 (57.55)	100 (60.24)	0.87 (0.50–1.50)	0.622	0.80 (0.424–1.51)	0.493
Average	22 (15.83)	28 (16.87)	0.85 (0.41–1.76)	0.673	0.85 (0.355–2.03)	0.716
Poor	3 (2.16)	1 (0.60)	3.26 (0.32–32.9)	0.316	4.22 (0.319–55.8)	0.274
Use of psychoactive substances						
Yes	6 (4.32)	3 (1.84)	2.40 (0.59–9.80)	0.221	1.12 (0.224–5.66)	0.883
No	133 (95.68)	160 (98.16)	1.0 (Reference)	–	1.0 (Reference)	–
Cigarette use						
Yes	24 (18.18)	12 (7.50)	2.74 (1.31–5.72)	0.007	3.22 (1.392–7.44)	0.006
No	108 (81.82)	148 (92.50)	1.0 (Reference)	–	1.0 (Reference)	–

Sources: authors' database.

95%: confidence interval 95%; OR: odds ratio.

^a Estimated using logistic regression excluding confounding variables.^b Estimated using logistic regression adjusted by age at entry to the academic programme, cigarette use, use of psychoactive substances, situations during the last 3 months, receiving financial support, socioeconomic stratum of housing, hours of free time at home per week and living with partner.

and another one in Mexico, which reported a use in the last year of 67.7%²⁰ and 73.5%,²¹ respectively, similar to those of this study.

Regarding the frequency of consumption of alcoholic beverages in the last year, the results of other studies are very similar to ours. It was found that 47.35% consume less than once a month and 20.08%, 2–3 times a month. In a study conducted on Nursing students in Brazil, Tavares,²⁰ found con-

sumption frequencies of 34.2% for less than once a month, and of 18.6% for 2–3 times a month.

When analysing the sociodemographic characteristics, the results are similar to those of other studies. With respect to sex, alcohol use is more prevalent among males (12.23%), and it is 2.17 times more frequent in the group of uses than in non-users in relation to females ($p=0.062$), similar to the finding

of Moral¹⁷: it is males (34%) who consume the most types of intoxicating drinks.

Regarding the use of alcohol and other substances, a relationship was found between alcohol use and cigarettes (OR=3.22). Some studies show that there is a relationship between alcohol use and PAS use. Betancourth²² affirmed that the greatest percentage of students prefer to use drugs at the time of consuming alcohol (14.6%), before liquor (6,1%) or after (4.4%). The existence of poly-drug use is thus determined, seeking to maximise the psychoactive experience or compensate for the adverse effects of the first substance used.²²

Taking into account the data obtained in this study, there is a statistically significant difference between the substances analysed and the relationship between alcohol and cigarette use. Similarly, cigarettes are related to PAS use since the substance most used is marijuana. However, temporality cannot be established between these variables, as, given that this is a cross-sectional study, it is not possible to identify the causal variables and the outcome.

As this study is cross-sectional, one of its limitations is associated with observational studies, which prevents the temporality between the exposure and the outcome of the even from being established. Our intention is to conduct studies of greater methodological complexity, such as cohort studies, enabling us to establish a temporal association between the variables studied. Apart from the aforementioned limitations, some types of bias may occur that are directly related to the type of study, principally that of measurement. This bias results from obtaining inaccurate or incomplete data, since subjects could overestimate or underestimate use. This bias was minimised by assigning a unique code within the study to ensure the confidentiality and anonymous nature of the data provided.

Conflicts of interest

No financial or personal interests were involved during this research, and the authors declare that there are no conflicts of interest.

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