Cogitare Enfermagem

ORIGINAL ARTICLE

USE OF PSYCHOACTIVE SUBSTANCES AND ACADEMIC PERFORMANCE OF UNIVERSITY STUDENTS IN THE HEALTH AREA

HIGHLIGHTS

1. The study identifies drugs used among university students in the health area.
2. It expands understanding of drug use among university students.
3. It analyzes the influence of drugs on academic performance.
4. It stimulates drug use prevention among university students.

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ABSTRACT

Objective: to verify the most prevalent psychoactive substances used among undergraduate students in the health area and their interference in academic performance. **Methods:** a total of 115 Nursing and Physical Education students from a public university in inland Ceará, Brazil, answered the *Drug Use Screening Inventory* questionnaire in 2021. To analyze the results, Pearson's chi-square and likelihood ratio statistical tests were used. **Results:** a total of 65 (56%) students used analgesics, 54 (47%) drank alcohol and 14 (12.2%) smoked marijuana. There was no statistical association between use of psychoactive substances and academic performance. However, among those who used analgesics or alcohol, more than 1/3 analyzed their performance as poor/terrible or fair, and half of those who smoked marijuana analyzed it in the same way. **Conclusion:** the study contributed to understanding the psychoactive substances prevalent in the university context and associated aspects, emphasizing the need for interventions.

DESCRIPTORS: Health Sciences Students; Nursing Student; Alcohol; Tobacco; Cannabis.

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INTRODUCTION

Entering university is a milestone in a person's life, exerting direct impacts on routine and different habits. Generally, this event usually occurs during adolescence, a period marked by several physical and psychosocial changes, with young people exposed to many situations of vulnerabilities and changes in habits and behaviors, among them, psychoactive substance use, which constitutes a public health problem both in Brazil and in the world. And this is no different among university students[1].

When entering university, young people often start to live in cities other than their parents' and/or guardians', in university residences or sharing houses with peers[2]. These changes generate an autonomy and emancipation process in young individuals, enabling new experiences, opportunities and the establishment of new social bonds that influence these students' behavior[3-4].

For other young people, however, this moment can be a period of significant vulnerability, which can generate stress, anxiety and demands, with impacts on their well-being[5]. These facts contribute to insecurity and instability in life, rendering them more susceptible to peer influence and to seeking fun and relaxation in environments where psychoactive substances can be found. It is emphasized that psychoactive substance use can be associated with other risk behaviors such as driving under the influence of alcohol or having unprotected sex, as young people are often in situations of internal and external conflicts[2-3,5-6].

Thus, it is inferred that use and abuse of alcohol and/or other drugs is a reality in the university context. However, this use does not always originate at the university, as most students have already experienced it before entering higher education[4]. These young people often drink alcohol to deal with difficulties arising from post-traumatic stress disorder[7].

Another issue is that university life sometimes has obstacles of an emotional nature that can even interfere with the students' performance, such as demotivation to continue studying, anxiety or sleep disorders, followed by feelings of abandonment and sadness[8]. It was observed that, in the university life routine, certain students present changes in behavior, showing themselves sad, depressed, angry, euphoric or even indifferent, even missing academic activities[4]. It is also to be noted that abusive use of alcohol, tobacco and other drugs is a risk factor for suicidal ideation among university students[6,9].

In addition to contributing to young people's low academic performance, these factors become worrisome when considering that, upon entering university, many young individuals start living alone or with classmates, far from their parents and guardians, beginning to take decisions alone in a phase marked by significant vulnerability: adolescence[10]. The Ministry of Health National Policy for Comprehensive Care for users of alcohol and other drugs emphasizes the existence of family ties and the intensification of contact between the components of each family nucleus as a protective factor against use of alcohol and other drugs[11], a support source that may be impaired for most university students.

It is possible to find higher rates of binge drinking and related problems among those who are college peers than among those who are not[12]. Use of alcohol and/or other drugs among university students refers to pleasure, happiness, facilitation of social interactions and escape from problems[4]; there are indications that the students are influenced to use substances, considering the benefits much more than the risks.

Among university students, those in the health area deserve to be highlighted in relation to the use of psychoactive substances, considering that, in everyday life and as future professionals, they should be totally prudent in recognizing and following-up on the treatment of patients with problems related to the use of psychoactive substances[8].

Thus, this study aimed at verifying the most prevalent psychoactive substances among undergraduate students in the health area and their interference in academic performance.

METHODOLOGY

A descriptive and exploratory study with a quantitative approach and a cross-sectional design, developed at the Health Sciences Center (*Centro de Ciências da Saúde*, CCS) of a State University based in inland Ceará, Brazil, semi-arid region of the Northeastern *Sertão*. This municipality has an estimated population of 197,663 inhabitants, in a territorial space of 2,122.897 km², according to diverse information from the Brazilian Institute of Geography and Statistics[13]. The CCS offers two courses in the health area: Undergraduate Nursing (Bachelor's degree) and Physical Education (Undergraduate and Bachelor's degrees).

The study included 115 higher education students attending courses in the health area, of both genders and enrolled in all active semesters of the Nursing and Physical Education courses. The inclusion criteria were as follows: being enrolled in the selected courses and wanting to participate in the study. Students with some type of disability or dysfunction that precluded self-completion of the questionnaire were excluded. As discontinuity criterion, those students with 20% or more of unanswered questions were excluded.

When considering the COVID-19 pandemic, classes took place remotely, as there was a need to maintain social distancing as a way to prevent the disease, as many university students and/or family members were affected by the virus. Thus, a non-probability and convenience sample was chosen.

Due to the COVID-19 pandemic, the Nursing course did not offer admission tests for two semesters. During the study period, 270 students were enrolled in the Nursing course, of which 79 (29.2%) participated in the study. 171 students were enrolled in the Physical Education course (Undergraduate degree), of which 25 (14.6%) took part in the research. In the Bachelor's degree course in Physical Education there were 198 students enrolled, and 11 (9.9%) participated in the study.

Data collection took place in the first half of 2021, through an online questionnaire on *Google Forms*, sent to the students through a *WhatsApp* group with participation of Nursing students. The Academic Center intermediated the approach for the Physical Education course, announcing the study and the objectives and sending the questionnaire to the students.

The questionnaire was divided into three parts, consisting of objective questions: 1) sociodemographic information; 2) self-evaluation of the university students' academic performance in the current semester of the undergraduate course (scale from Very low – 1 to Excellent – 10); and 3) the DUSI (*Drug Use Screening Inventory*) questionnaire to investigate drug use and associated factors among the university students.

DUSI was translated and validated for Brazil[14]; it assesses the consumption frequency of alcohol, tobacco and illicit drugs (amphetamines, ecstasy, cocaine, crack, marijuana, hallucinogens, tranquilizers, anxiolytics, steroids, inhalants and solvents) in the 30 days prior to the interview and factors related to such use, followed by 15 questions that address problems associated with substance use. The DUSI questions are answered with "YES" or "NO", and the affirmative answers mean presence of problems.

The data were analyzed using the *Statistical Package for the Social Sciences* (SPSS) computer program, version 20.0, and are presented in tables. The significance level was 5%. A descriptive analysis was performed to characterize the sample. A univariate analysis was used to verify the association between the consumption of licit (tobacco and alcohol)

and illicit drugs, in addition to the independent variables, adopting the Pearson's chi-square and the likelihood ratio ($p<0.05$) tests.

The study was guided by Resolution 466/12 of the National Health Council, which establishes guidelines and regulatory norms for research involving human beings. It was approved by the Ethics Committee of *Universidade Estadual Vale do Acaraú* (UVA), as per opinion No. 4,433,295.

RESULTS

The female gender prevailed among the participants, with 75 (65.2%) subjects; 111 (96.6%) were aged between 18 and 30 years old, 64 (55.7%) declared themselves brown-skinned, and 70 (60.9%) earned family incomes between one and two minimum wages. 92 (80%) participants asserted professing some a religion, with 87 (75.7%) declaring themselves Catholics. Regarding place of residence, 52 (45.2%) students lived in the city where the University was located; likewise, 51 (44.3%) lived with their parents. Referring to marital status, 66 (57.4%) students were single and had no steady partners. In relation to sexual orientation, 88 (76.5%) participants stated being heterosexual; 112 (97.4%) had no children.

Table 1 presents the data related to the number of students and the number of times they consumed psychoactive substances in the last 30 days.

Table 1 – Distribution of the number of students, according to use of psychoactive substances in the last 30 days. n=115. Sobral, Ceará, Brazil. 2021

Characteristics	n	%
Alcohol		
I didn't use it	61	53
I used it 1-2 times	34	29.6
I used it 3-9 times	20	17.4
I have problems with this substance	2	1.7
I'm fond of this drug	48	41.7
Tobacco		
I didn't use it	109	94.8
I used it 1-2 times	4	3.5
I used it 3-9 times	2	1.7
I have problems with this substance	3	2.6
I'm fond of this drug	2	1.7
Marijuana		
I didn't use it	101	87.8
I used it 1-2 times	9	7.8
I used it 3-9 times	5	4.3
I have problems with this substance	2	1.7

I'm fond of this drug	11	9.6
Inhalants/Solvents		
I didn't use them	111	96.5
I used them 1-2 times	4	3.5
I'm fond of these drugs	1	0.9
Tranquilizers		
I didn't use them	107	93
I used them 1-2 times	6	5.2
I used them 3-9 times	1	0.9
I used them more than 20 times	1	0.9
I have problems with these substances	1	0.9
I'm fond of these drugs	6	5.2
Analgesics		
I didn't use them	50	43.5
I used them 1-2 times	41	35.7
I used them 3-9 times	23	20
I used them 10-20 times	1	0.9
I have problems with these substances	1	0.9
I'm fond of these drugs	10	8.7
Opioids		
I didn't use them	114	99.1
I used them 1-2 times	1	0.9
Anabolics		
I didn't use them	113	98.3
I used them 1-2 times	2	1.7
I have problems with these substances	2	1.7
I'm fond of these drugs	2	1.7
Other drugs		
I didn't use them	114	99.1
I used them 1-2 times	1	0.9
I have problems with these substances	1	0.9
I'm fond of these drugs	1	0.9
Total	**115**	**100**

Source: The Authors (2022).

Regarding use of psychoactive substances by the students in the last month, it is highlighted in Table 1 that 65 (56.5%) reported using analgesics, 54 (47%) drank alcohol, 14 (12.1%) smoked marijuana, eight (7%) resorted to tranquilizers, six (5.2%) consumed tobacco, and four (3.5%) used inhalants. For most of the substances, the participants used

them at least once or twice in the last 30 days. It was noted that 48 (41%) students stated that they enjoyed alcohol, 11 (9.6%) marijuana and 10 (8.7%) analgesics. Psychoactive substances, cocaine, amphetamine/stimulants, ecstasy and hallucinogens were not reported by the students.

Table 2 presents the use of these substances by the students in the last 12 months, indicating substance involvement intensity.

Table 2 – Use of psychoactive substances in the last 12 months and substance involvement intensity by the students. n=115. Sobral, Ceará, Brazil. 2021.

Involvement with alcohol and other drugs	No.	%
Craving/Strong desire		
Yes	33	28.7
No	82	71.3
Need to increase consumption to achieve the desired effect		
Yes	35	30.4
No	80	69.6
Uncontrolled use		
Yes	4	3.5
No	111	96.5
Dependence		
Yes	8	7
No	107	93
Stops doing some activity for having spent money on drugs		
Yes	12	10.4
No	103	89.6
Disobeys the law by being under the effect of some drug		
Yes	26	22.6
No	89	77.4
Shifts from happy to sad as a result of the effect of some drug		
Yes	9	7.8
No	106	92.2
Shifts from sad to happy as a result of the effect of some drug		
Yes	31	27
No	84	73
Car accident due to being under the influence of some drug		
Yes	9	7.8
No	106	92.2
Accidentally hurt someone else or themselves while under the influence of some drug		
Yes	11	9.6

No	104	90.4
Conflict with friends and/or family members due to substance use		
Yes	10	8.7
No	105	91.3
Relationship problem with friends due to substance use		
Yes	16	13.9
No	99	86.1
Withdrawal symptoms after the effect of some drug		
Yes	9	7.8
No	106	92.2
Memory breakdowns to remember what they did while under the influence of some drug		
Yes	44	38.3
No	71	61.7
Games that include drinking when going to parties		
Yes	47	40.9
No	68	59.1
Problems resisting the urge to consume		
Yes	5	4.3
No	110	95.7
Impaired academic performance		
Yes	26	22.6
No	89	77.4

Source: The Authors (2022).

Among the results, it was noted that 47 (40.9%) participants expressed their like for games involving alcohol and other drugs; 44 (38.3%) reported memory breakdowns to remember what they did under the influence of substances; for 35 (30.4%), it was necessary to consume more alcohol and other drugs to achieve the desired effect; 33 (28.7%) expressed craving and a strong desire for these substances; 31 (27%) changed their behavior from apparently sad to happy under the influence of psychoactive substances; and 26 (22.6%) students disobeyed laws under the influence of alcohol and other drugs. In addition, 26 (22.6%) undergraduates stated that their use of licit and illicit substances impaired their academic performance in the current semester.

Regarding academic performance, Table 3 presents the distribution of the number of students, according to the undergraduate course and the analysis of academic performance (self-assessment).

Table 3 – Distribution of the number of students, according to the undergraduate course and to the academic performance variables. n=115. Sobral, Ceará, Brazil. 2021

Variables	Poor/ Terrible		Fair		Good		Excellent		p*
	n	%	n	%	n	%	n	%	0.000
Physical Education-Bachelor's Degree	2	18.2	0	0.0	9	81.8	0	0	
Physical Education-Undergraduate Degree	6	24	12	48	5	20	2	8	
Nursing	2	2.5	22	27.8	45	57	10	12.7%	

Source: The Authors (2022).
*Pearson's chi-square test

In the Physical Education course – Bachelor's degree, it was evidenced that nine (81.8%) students evaluated their academic performance in the current semester as good. However, in the Physical Education course – Undergraduate degree, 12 (48%) students considered their own academic performance as fair. In the Nursing course, 55 (69.7%) students rated their performance as good or excellent.

Table 4 presents the relationship between use of the three psychoactive substances most consumed by the study participants in the last 30 days and the association with academic performance.

Table 4 – Distribution of the number of students, according to the use of over-the-counter analgesics, alcohol and marijuana, in the last 30 days, and academic performance. n=115. Sobral, Ceará, Brazil.

Use of analgesics in the last 30 days					
	Yes		No		
Academic Performance	n	%	n	%	p[1]
Poor/Terrible	7	10.8	3	6	0.816
Fair	18	27.7	16	32	
Good	33	50.8	26	52	
Excellent	7	10.8	5	10	
Alcohol use in the last 30 days					
	Yes		No		
Academic Performance	n	%	n	%	p[1]
Poor/Terrible	5	9.3	5	8.2	0.785
Fair	18	33.3	16	26.2	
Good	25	46.3	34	55.7	
Excellent	6	11.1	6	9.8	
Marijuana use in the last 30 days					

	Yes		No		
Academic Performance	**n**	**%**	**n**	**%**	**p[2]**
Poor/Terrible	4	28.6	6	5.9	0.095
Fair	3	21.4	31	30.7	
Good	5	35.7	54	53.5	
Excellent	2	14.3	10	9.9	

Source: The Authors (2022).
[1]Pearson's chi-square
[2]Likelihood ratio

There was no statistically significant association between use of the three psychoactive substances (analgesics, alcohol and marijuana) most consumed by the university students and the study participants' academic performance. However, among those who used analgesics, 25 (38.5%) analyzed their performance as poor/terrible or fair; among those who used alcohol, 23 (42.6%) reported that their performance was poor/terrible or fair; and, among those who used marijuana, seven (50%) made this same assessment regarding their academic performance.

DISCUSSION

Over-the-counter analgesics were the most prevalent psychoactive substance among the study participants. More than half of these students reported having used these substances in the last 30 days. Among them, more than 1/3 rated their academic performance as poor/terrible or fair. This finding reveals a self-medication practice among university students in the health area. However, the motivations for this use were not researched; therefore, no relationship with the studies can be asserted.

The self-medication practice was identified in a study carried out in Fortaleza-CE with university students from a private institution, when 99.5% of them stated that they self-medicated[15]. Immoderate use of controlled substances is common; this is frequently, and especially in competitive environments, to try to enhance academic performance[11].

As shown in other studies, alcohol was the legal psychoactive substance most consumed by the students, with prevalent consumption in almost half of the participants. It was the psychoactive substance most appreciated by the study participants. Another study carried out at a Public University from the Northeast also identified expressive alcohol consumption, as 70% of the participants drank alcoholic beverages, with having fun with friends as the main reasons[16]. This drug was also the most consumed by Psychology students in the university environment[2].

Use onset for these substances does not necessarily occur when entering university. However, this consumption can be intensified or even stimulated due to the change process that permeates university students' lives[17]. Oftentimes, alcohol is incorporated into young people's lives at an early age by family members and friends, with pleasure and happiness aspirations. Young university students select alcohol as the drug of choice to minimize the pressure of everyday life and the problems they experience[4].

Faced with this reality, use of alcohol and other drugs should be treated as a problem concerning childhood, adolescence and youth, preventing its onset, in addition to ensuring treatment, assistance and care for users of these substances. In this sense, the National Policy on Drugs was approved in 2019, which, among its objectives, aims at raising awareness

and protecting the Brazilian society from the social, economic and public health harms represented by the use, misuse and addiction to licit and illicit drugs[18].

Marijuana was the illicit drug most consumed by the study participants in the last 30 days, corroborating another study carried out with medical students at a Public University in the Brazilian semi-arid region, exposing 80.2% and 32.67% prevalence for alcohol and marijuana use, respectively[19]. Marijuana is one of the most consumed illicit drugs in today's society and nearly 9% of all marijuana users become addicted at some point in their lives. This rate rises to 17% in early users[20].

Also in Brazil, marijuana is the most consumed illicit substance among the population, especially in adolescents. The above generates an alert for the harmful consequences of chronic use, such as greater difficulties in concentration, learning and memory, depression and anxiety symptoms, decreased motivation, psychotic symptoms and schizophrenia, among other harms[18].

Substance use by university students becomes even more worrying due to the influence on the academic performance of future professionals. Among the study participants who used marijuana in the past 30 days, half of them rated their academic performance as poor/terrible or fair. This finding may indicate the influence of this substance on academic performance, although this result was not statistically significant.

In relation to tobacco use, it is considered as positive that very few university students reported using the substance in the last 30 days, given that it is a legal drug used in today's society and easily bought. These findings disagree with other studies carried out with students in the health area[19]. In addition, it is weighed as a positive event the fact that the participants denied use of cocaine, amphetamines/stimulants, ecstasy and hallucinogens, in the last 30 days, signaling that these substances are not yet present in the university environment, focus of this study.

It was identified that use of these psychoactive substances brought about associated problems for university students. Almost half of the university students stated that they liked games involving alcohol and other drugs; more than one third reported memory breakdowns to remember what they did under the influence of substances and had the need to consume more alcohol and other drugs to achieve the desired effect, in addition to expressing cravings and a strong desire for these substances. These findings are worrying, as they may interfere with university students' academic performance, considering that nearly one fourth of the participants stated that their use of licit and illicit substances impaired their academic performance in the current semester.

It is noted that there was no statistically significant association between use of the three most prevalent psychoactive substances (analgesics, alcohol and marijuana) and academic performance. However, among those who resorted to analgesics or alcohol, more than one third analyzed their performance as poor/terrible or fair, and half of those who used marijuana analyzed their academic performance in the same way.

It is emphasized that the results obtained in the study are only restricted to the sample of university students in the health area from a Public University center located in a municipality from inland Ceará, Brazil. Therefore, they should not be generalized due to the divergent Brazilian contexts.

As limitations, we should mention the COVID-19 pandemic, with classes taking place remotely, which may have contributed to the fact that some university students did not participate in data collection through the online questionnaire for various reasons, among which it is mentioned that they were not aware of the study, Internet-related limitations or even having been affected by COVID-19 or having a family member under this condition, as well as excessive academic activities, at a time when mental health was affected by the pandemic. Furthermore, for being a topic surrounded by taboos, it is possible that some university students may have denied consumption of psychoactive substances in the

questionnaire, even if their anonymity was guaranteed.

CONCLUSION

The study results revealed the practice of using psychoactive substances among university students attending Nursing and Physical Education courses at a public university in inland Ceará, Brazil, as well as the associated factors and the relationship with academic performance. It was found that analgesics, alcohol and marijuana were present in the university context, causing problems associated with their use. On the other hand, there was little tobacco use in the last 30 days. Cocaine, amphetamines/stimulants, ecstasy and hallucinogens were not used in the last 30 days. These findings corroborate other studies and indicate that this is a multifactorial phenomenon.

There was no statistically significant association between use of psychoactive substances and the academic performance of the university students in the health area participating in the study. However, some students considered that the psychoactive substance use impairs academic performance. It was found that users of analgesics, alcohol and marijuana analyzed their academic performance as poor/terrible or regular.

The results indicate a challenge to be faced by governments, universities and other actors involved in the university context. A challenge that also includes the family, in preventing or reducing abusive use of these psychoactive substances, especially among these young individuals, who are future health professionals.

The study will contribute to better understanding psychoactive substance use in the university environment and the vulnerabilities of this population group, which constitutes an important part of society. In addition, it will be able to guide decision-making by the university's senior management in changing this reality, based on the creation and/or adequacy of prevention programs for the use of these psychoactive substances and harm reduction; thus contributing to health promotion and to improving university students' quality of life.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **Sousa FMA de, Sousa LMD de, Aragão JMN, Almeida PC de, Bezerra SMN**. Drafting the work or revising it critically for important intellectual content - **Sousa FMA de, Sousa LMD de, Aragão JMN, Oliveira EM, Almeida PC de, Bezerra SMN, Vasconcelos MIO.** Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **Sousa FMA de, Aragão JMN, Oliveira EM, Bezerra SMN.** All authors approved the final version of the text.

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