

# Use of psychoactive substances among students in a Dentistry course in the state of Ceará - DUSI-R instrument

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**Abstract:** Analyzing the pattern of psychoactive substance use by dentistry students at the University of Fortaleza, as well as its relation to family and social aspects and its repercussions on academic performance. The research was conducted at the University of Fortaleza, targeting students regularly enrolled in the current year's dentistry course. The survey was carried out in April and May of 2016, covering all students from the first to the last semester of the course, with a total of 257 participating students. Data collection was conducted using the DUSI-R instrument, applied via Google Drive and remotely. Consumption of nearly all psychoactive substances was observed, although some only in small percentages. The most widespread drugs among the university students were non-prescription painkillers, at 68.3%, and alcohol at 61.4%, followed by marijuana at 7.5%, tobacco at 7.4%, and non-prescription tranquilizers at 6.7%. It was noted that, regarding alcohol consumption, 35.4% reported enjoying games that involve drinking when at parties. In terms of family relationships, 17.3% of the participants reported that their parents/guardians often argue with each other. Concerning academic performance, 18.8% of the participants reported having grades below average. The pattern of illicit drug use was present in the studied sample with direct repercussions on the academic process and possibly related to the family context.

**Keywords:** Alcoholism; Narcotics; Dentistry.

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## 1. Introduction

The consumption of psychoactive substances has been increasing, as well as their global prevalence. As a result, drug abuse and dependence threaten political, economic, and social values, which contributes to the growth of medical expenses and hospitalizations, increases traffic accidents, urban violence, and even premature deaths [1]. It is a recurring fact that the consumption of psychoactive substances in various countries around the world, as well as their abusive use, currently constitute a serious public health problem in many countries, especially in developing countries like Brazil [2]. Alcohol and its harmful use cause about 2.5 million deaths per year, with a significant proportion affecting young people, including 320,000 young people aged between 15 and 29 years [2].

Due to growing concerns about the consumption habits of legal and illegal drugs, as well as their social impacts, the use of psychotropic substances has been the subject of various studies in Brazil, and prevention measures are only effective when based on the reality of consumption, making research in various segments of society extremely important [3]. Studies show that involvement with 'illicit drugs' primarily occurs within the population of adolescents and young adults. Given the large number of people under 30 years old in Brazil, problems related to the consumption of psychoactive substances can be concerning [1].

A drug is any substance that is not produced by the body and has the property of acting on one or more of its systems, leading to changes in its functioning. We cannot say

in itself whether a drug is good or bad, as there are substances used with the purpose of producing beneficial effects, such as treating diseases, and are considered medications. While there are these substances, there are others that cause harm to our health, such as poisons or toxins, which is interesting, as in some situations the same substance can be considered a medicine, and in others considered toxic. Terms like narcotic, drug, psychotropic, narcotic, or stupeficient represent synonyms for chemical substances that produce changes in the senses [4].

It is worth noting that, in general, the use of alcohol and other psychoactive substances does not originate at the university. Many studies indicate that the use of psychoactive substances primarily occurs in adolescence [2]. The improper use of alcohol, in a way that is harmful to health, is a variable for the global burden of diseases and is listed third as a major risk factor for premature deaths and disabilities in the world, as referred to in the World Health Organization's document 'Global Strategy to Reduce the Harmful Use of Alcohol' from 2010 [2]. It appears that it is during university that this use tends to become more intense and dangerous, where it often leads to abuse, and the emergence of problems related to this consumption [2]. According to Ayer-Abdalla apud Pillon; Corradi-Webster, entering academia becomes a period marked by parties and social gatherings, aimed at integrating seniors, freshmen, and students from different courses. It is common at university parties to have a large availability of alcoholic beverages, as well as their excessive consumption, being typical of a behavior pattern called binge drinking (five or more drinks on one occasion), also known as 'alcoholic binge' or 'drinking to get drunk' [2].

A highlight for health professionals, where it is justified by their responsibility in identifying and referring clients who have problems related to the use of psychoactive substances, precisely because they serve as a model for their clients, as well as the easy access and their coexistence with psychoactive substances [5]. Considering that health area students have a greater knowledge about psychoactive substances, and still have easy access to them, which, if combined with work stress, ends up making this group more vulnerable [6].

Among the consequences of the consumption of psychoactive substances among university students, there are traffic accidents, risky sexual behavior, violence, as well as academic setbacks, diminished perception, and stress. The use of psychoactive substances by academics in the health area is a worrying factor, as it causes damage to their physical and mental health, as well as to the social body [5]. According to Souza, Landim, and Perdigão, the consumption of these drugs begins to cause their impacts already in academic life, resulting in lack of attention during classes, absences, delays, and increased drowsiness. Studies by Boskovitz, Cruz, and Chiaravalotti-Neto, and Galduróz et al. corroborate this finding [7].

In Brazil, studies on the use of drugs among university students were mainly conducted in the Southeast and South regions of the country, the same occurring with studies focusing on medical school students [3]. Therefore, aiming at the relevance of this study for the prevention of the erroneous use of drugs among university students and for the formation of increasingly qualified health professionals, we decided to develop this research, with the objective of outlining the profile of the use of psychoactive substances among dental undergraduates.

## 2. Methodology

The research was conducted at the University of Fortaleza, targeting students from the Dentistry course. The survey was carried out during the months of April and May 2016, covering all students regularly enrolled, with the exclusion criteria being those who did not enroll in the semester covered by the research or who refused to participate in the study. The DUSI-R questionnaire (Drug Use Screening Inventory - Revised), the Brazilian version of an internationally applied questionnaire, was chosen and applied after approval from the Ethics Committee of Unifor, to all students of the Dentistry course at Unifor, through an online digital platform. The research subject expressed their consent

by digitally signing the Informed Consent Form (TCLE) and only after this stage were they directed to respond to the form. Data synthesis was automatically carried out by the Google Drive platform, expressed through descriptive analytical statistics. The study analyzed the consumption of psychoactive substances (including painkillers, alcohol, hallucinogens, amphetamines, anabolic steroids, cocaine/crack, stimulants, ecstasy, phencyclidine, inhalants and solvents, marijuana, opioids, tobacco, tranquilizers, others) among university students in the Dentistry course, and concurrently examined the existence of a relationship between substance use, family structure, and academic performance.

As an instrument, a validated self-administered questionnaire, the DUSI-R, was used. This tool was developed to assess and identify the abusive use of psychoactive substances, both legal and illegal, as well as to evaluate underlying risk factors which were divided into ten areas [2]. The initial part of the DUSI-R measures the frequency of use in the last month of 13 drug classes, followed by 149 "yes" or "no" questions, with affirmative answers indicating problems in different functional areas, distributed in the following areas: (I) substance use, (II) self-control behavior, (III) health, (IV) psychiatric disorders, (V) social competence, (VI) family system, (VII) academic performance, (VIII) professional performance, (IX) relationship with friends, and (X) leisure/recreation. Positive responses indicate the presence of problems. The last question of each domain constitutes the "Lie Scale," which reflects the validity of the previously provided answers, totaling thus 159 questions. The range of scores on the Lie Scale varies from zero to ten points. A score equal to five or more alerts the examiner to the possibility of invalidating the results. These ten questions are used solely to validate or invalidate the questionnaire that was answered [2].

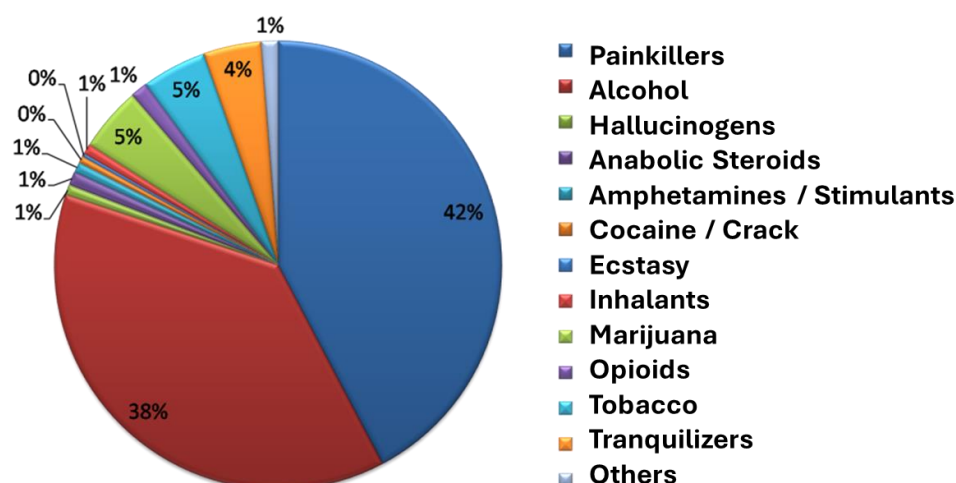
### 3. Results

In total, 257 students participated in the research, all of whom read the Informed Consent Form and agreed to participate in the study. The questionnaire consisted of two parts, where the first part measured the frequency of use in the last month of 13 substances, and the second part consisted of 149 questions, divided into 10 domains. None of the questions were mandatory to answer. For this study, responses from the first part and some responses from the second part, from domains I, VI, and VII, which deal with substance use, family system, and academic performance, respectively, were selected.

The use of psychoactive substances was evaluated in general, regardless of the number of times used, taking only the number of affirmations into account. Non-prescription painkillers had 172 (42.26%), Alcohol 154 (37.83%), Hallucinogens 3 (0.74%), Anabolic Steroids 4 (0.98%), Amphetamines/Stimulants 3 (0.74%), Cocaine/Crack 2 (0.49%), Ecstasy had 1 (0.24%), Inhalants 3 (0.74%), Marijuana 19 (4.67%), Opioids 5 (1.23%), Tobacco 19 (4.67%), Non-prescription Tranquilizers 17 (4.18%), and Other 5 (1.23%), as shown in figure 1.

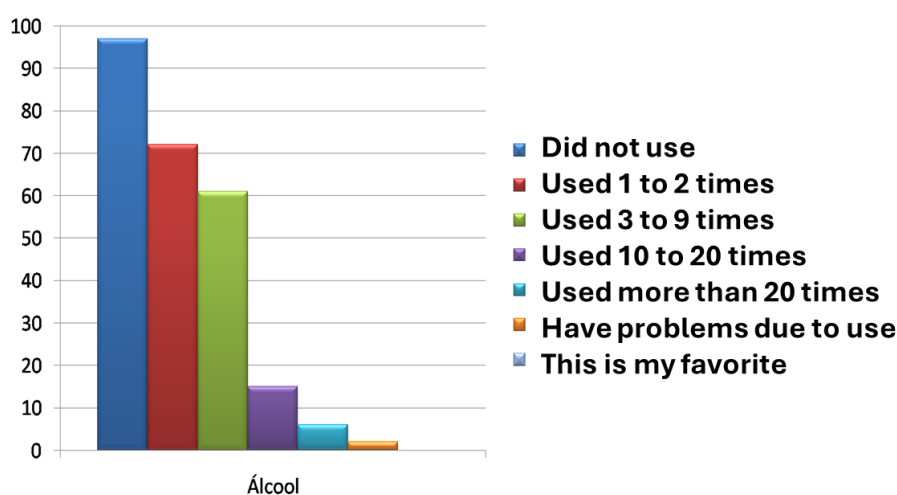
Among these drugs, the most used regardless of the number of times were Painkillers, Alcohol, Marijuana, Tobacco, and Tranquilizers. In the sample, 80 students did not use Painkillers in the last month (31.7%) and 172 did (68.3%), 97 students did not use Alcohol (38.6%) and 154 did at least once in the last month (61.4%), 235 students reported not having used Marijuana (92.5%) and 19 did (7.5%), 238 did not use Tobacco (92.6%) and 19 did (7.4%), 238 did not use Tranquilizers (93.3%) and 17 did (6.7%).

Regarding the preference of the 257 students, only 23 reported having a preference for any of these drugs, 18 stated they preferred Alcohol (78%), 2 for Painkillers (9%), 1 for Anabolic Steroids (4%) and 2 for Marijuana (8%). And in having a problem with the use of these substances, only 4 students reported, being 2 with Alcohol (50%), 1 with Painkillers (25%), and 1 with Marijuana (25%). As a result of the first part of the questionnaire, it was observed that only one substance was not reported to have been used, namely Phencyclidine (Angel Dust), with 256 students responding that they had not used it..



**Figure 1:** Use of substances among the dentistry students at the University of Fortaleza evaluated in the current study.

Regarding the frequency of use of painkillers (without prescription), there were 255 responses, where 80 people stated they did not use them (31.4%), 103 used them 1 to 2 times (40.4%), 51 used them 3 to 9 times (20%), 10 used them 10 to 20 times (3.9%), 8 used them more than 20 times (3.1%), 1 student admitted to having a problem with this drug (0.4%), and 2 stated it was their drug of choice (0.8%). The drug alcohol received 255 responses, where 97 stated they did not use it (38%), 72 used it 1 to 2 times (28.2%), 61 used it 3 to 9 times (23.9%), 15 stated they used it 10 to 20 times (5.9%), 6 used it more than 20 times (2.4%), 2 people reported having problems with its use (0.8%), and 18 stated it was their substance of choice (7.1%), as observed in figure 2.



**Figure 2:** Use of alcohol as an illicit substance among dentistry students (usage pattern over the last month) at the University of Fortaleza evaluated in the current study.

Hallucinogens (LSD, Mescaline, etc.) received 256 responses, of which 253 reported not having used them (98.8%), and 3 used them 1 to 2 times (1.2%). No one claimed to have problems with this drug nor did anyone state it as their drug of choice. The use of Anabolic Steroids had 256 responses, of which 252 reported not having used them (98.4%), 2 used them 1 to 2 times (0.8%), 2 used them 3 to 9 times (0.8%), and 1 person stated it as their drug of choice (0.4%). Regarding the use of Amphetamines/Stimulants (without prescription), there were 255 responses, of which 252 reported not having used

them (98.8%), 2 used them 1 to 2 times (0.8%), and 1 admitted to having used them more than 20 times (0.4%). No problems with this drug were reported, nor was it the favorite of anyone.

As for the use of Cocaine/Crack, 256 students responded, of which 254 reported not having used it (99.2%), 1 used it 1 to 2 times (0.4%), and 1 used it 3 to 9 times (0.4%). Ecstasy had 255 responses, and only one reported having used it 1 to 2 times (0.4%). Inhalants, Solvents (Glue, Perfume Lance, etc.) received 255 responses, where 252 reported not having used them (98.8%), 2 used them 1 to 2 times (0.8%), and 1 used them 3 to 9 times (0.4%). No problems with these drugs were reported, nor any preference. Marijuana use had 256 responses, of which 235 did not use it (91.8%), 11 used it 1 to 2 times (4.3%), 5 used it 3 to 9 times (2%), 2 used it 10 to 20 times (0.8%), 1 used it more than 20 times (0.4%), 1 reported having problems with this drug (0.4%), and 2 stated it as their drug of choice (0.8%).

The use of Opioids (Morphine, Heroin, etc.) had 257 responses, of which 252 did not use them (98%), 3 used them 1 to 2 times (1.2%), 1 used them 3 to 9 times (0.4%), 1 used them 10 to 20 times (0.4%). Tobacco also had 257 responses, where 238 reported not having used it (92.6%), 13 used it 1 to 2 times (5.1%), 2 used it 3 to 9 times (0.8%), and 2 used it more than 20 times (0.8%). No preference or problem with the use was reported for any of these drugs. Tranquilizers (without prescription) had 255 responses, of which 238 did not use them (93.3%), 14 used them 1 to 2 times (5.5%), 2 used them 3 to 9 times (0.8%), and 1 used them more than 20 times (0.4%). Regarding the use of Other drugs, 255 responded, of which 250 did not use them (98%), 3 used them 1 to 2 times (1.2%), and 2 used them 3 to 9 times (0.8%). No problems or preferences for these drugs were reported either.

As a result of the second part of the questionnaire, where traces of dependence and/or association with some school and family problems were observed. The responses observed in the first area that deals with Substance Use were as follows: when asked if "Have you ever felt a craving or strong desire for alcohol or other drugs?" 256 students responded, 66 answered yes (25.8%) and 190 no (74.2%); "Have you ever needed to use more and more alcohol or drugs to achieve the desired effect?" 254 responded, 54 yes (21.3%) and 200 no (78.7%); "Have you ever felt that you could not control the use of alcohol or drugs?" had 254 responses, with only 10 yes (3.9%) and 244 no (96.1%); "Have you ever broken rules or disobeyed laws while being 'high' under the influence of alcohol or drugs?" 255 responded, 61 yes (23.9%) and 194 no (76.1%); "Do you enjoy 'games' that involve drinks 'when you go to parties' (for example, 'shot-drinking contests' or bets on who can drink the fastest or the most)?" 257 responded, 91 yes (35.4%) and 166 no (64.6%); "Do you have problems resisting the use of alcohol or drugs?" 254 responded, only 18 answered yes (7.1%) and 236 no (92.9%). As observed in table 1, the percentage of "no" as an answer was higher than 60% in all questions.

**Table 1:** Area I. Substance use-related behavior in the studied population.

Question	Number of Responses (N)	Yes (%)	No (%)
Have you ever felt a craving or strong desire for alcohol or other drugs?	256	25.8	74.2
Have you ever needed to use more and more alcohol or drugs to achieve the desired effect?	254	21.3	78.7
Have you ever felt that you could not control the use of alcohol or drugs?	254	3.9	96.1
Have you ever broken rules or disobeyed laws while being "high" on alcohol or drugs?	255	23.9	76.1
Do you enjoy "games" that involve drinks when you go to parties (for example, "chugging contests" or bets on who can drink the fastest or the most)?	257	35.4	64.6
Do you have problems resisting the use of alcohol or drugs?	254	7.1	92.9

In the fifth area concerning the Family System, the following responses were obtained: 'Do you often have arguments with your parents or guardians that involve shouting and yelling?' 256 students responded, 44 yes (17.2%) and 212 no (82.8%); 'Are there a lack of clear rules at home about what you can or cannot do?' 255 responded, 20 yes (7.8%) and 235 no (92.2%); 'Do your parents or guardians fight a lot among themselves?' 255 responded, 44 yes (17.3%) and 211 no (82.7%). According to table 2, we can also observe a high percentage of 'no', being over 80%.

**Table 2:** Area VI - Family System related to substance use in the studied population.

Question	Number of Responses (N)	Yes (%)	No (%)
Do you often have arguments with your parents or guardians that involve shouting and yelling?	256	17.2	82.8
Are there a lack of clear rules at home about what you can or cannot do?	255	7.8	92.2
Do your parents or guardians fight a lot among themselves?	255	17.3	82.7

The results obtained in Area VII were not different from those found in other areas, showing a high percentage of 'no' answers, greater than 80% as per table 3. The responses to the questions were as follows: 'Are your grades below average?' received 256 responses, 48 yes (18.8%) and 208 no (81.2%); 'Do you miss a lot of college?' 255 responses, only 17 yes (6.7%) and 238 no (93.3%); 'Have you ever seriously thought about dropping out of college?' 256 responded, 42 yes (16.4%) and 214 no (83.6%); 'Do you often fail to do your academic homework?' 256 responses, 26 yes (10.2%) and 230 no (89.8%); 'Do you often arrive late to class?' 256 responded, 44 yes (17.2%) and 212 no (82.8%); 'Are your college grades worse than they used to be?' 256 responses, 43 yes (16.8%) and 213 no (83.2%); 'Have you ever missed or arrived late to college due to alcohol or drug use?' 255 responded, 23 yes (9%) and 232 no (91%); 'Have you ever had problems at college because of alcohol or drugs?' 253 responses, only 7 yes (2.8%) and 246 no (97.2%); 'Have alcohol or drugs ever interfered with your homework or academic assignments?' 256 responded, 20 yes (7.8%) and 236 no (92.2%).

#### 4. Discussion

This study was conducted in Fortaleza, CE, at the University of Fortaleza. It revealed that among the university students of the Dentistry course, there is a prevalence of the use of painkillers by 68.3% of the students, even surpassing the use of alcohol (61.4%). The use of tobacco and marijuana was 7.4% and 7.5%, respectively, being these the drugs with the highest number of affirmative responses for their use. It is seen that one of the problems in the application of self-report instruments relates to social desirability. This can be defined as the tendency of subjects to deny socially undesirable traits and to assume socially desirable traits, as much as the tendency to report what puts them in a favorable position [8].

**Table 3:** Area VII: Academic situation related to substance use in the studied population.

Question	Number of Responses (N)	Yes (%)	No (%)
Are your grades below average?	256	18.8	81.2
Do you miss a lot of college?	255	6.7	93.3
Have you ever seriously thought about dropping out of college?	256	16.4	83.6
Do you often fail to do your academic homework?	256	10.2	89.8
Do you often arrive late to class?	256	17.2	82.8
Are your college grades worse than they used to be?	256	16.8	83.2
Have you ever missed or arrived late to college due to alcohol or drug use?	255	9	91

Have you ever had problems at college because of alcohol or drugs?	253	2.8	97.2
Have alcohol or drugs ever interfered with your homework or academic assignments?	256	7.8	92.2

The use of psychoactive substances by university students often occurs because, at the start of a new phase in their lives, there may be a desire to explore new experiences, part of which involves the use of such substances, especially alcohol. This often begins around the age of 18, when it is legally permissible to purchase alcoholic beverages in stores, even without the consent of their guardians. The consumption of alcohol by university students often occurs for various reasons, such as to facilitate sexual activity, for pleasure, or to be sociable, as well as the large amount of advertising in the media which positively influences the intake of alcoholic beverages [9].

The high consumption of painkillers is due both to the ease of acquisition, as no prescription is needed, and to public knowledge, where, for example, someone with a headache might take paracetamol or dipyrone to relieve symptoms, although few are aware of the harmful effects that the use of drugs without proper guidance can have on the body. As these are future health professionals, it was expected that their consumption would be lower and more rationalized. However, it appears that it is precisely this greater knowledge that predisposes them to misuse [10].

Whitehorne-Smith et al. [11] assessed the use of psychoactive substances in health area faculties, showing that the most consumed drug by students was alcohol (16.6%), followed by marijuana and the misuse of prescription drugs. Our study pointed to the use of painkillers, with alcohol in second place, however, in their study, the use of painkillers was not evaluated. Teixeira [6] stated that the most used drug in the last month was alcohol (41.8%), followed by tobacco (5.2%). In his study, he stated that students used more barbiturates (1.1%) than marijuana (0.6%), whereas in our study it was the opposite, with 6.7% for barbiturates and 7.5% for marijuana.

Silva [1] showed in his research among students in the Biological Sciences area that 28.4% of the students used "illicit drugs," with the most used being marijuana (19.7%), inhalants (17.3%), and hallucinogens (5.2%). He also found that 10.5% of the students used "medications with potential for abuse," including amphetamines (6.8%), followed by tranquilizers (3.2%) and opioids (0.6%), whereas in our study, the use of tranquilizers (6.7%) was higher than that of opioids (2%) and amphetamines (1.2%).

Botti [5] in a study done on nursing students found that the use of alcohol was 89.57% as well as tobacco at 31.30%. Regarding the use of drugs, there was a preference for the use of anxiolytics (19.08%), followed by inhalants (15.52%) and marijuana (12.72%), while cocaine corresponded to 2.29%, showing the prevalence of alcohol use above other drugs, differing from our study only in the prevalence of tobacco, where in our study the use of marijuana (7.5%) surpassed tobacco (7.4%).

As observed in Table 1, which refers to the use of substances to analyze some type of dependency, even with a high percentage of psychoactive drug use, the study showed that the vast majority of participants denied any kind of problem related to them. Regarding Table 2, on the family system, more than 80% denied any kind of internal problems, not being able to associate the use of these substances with relationship difficulties or coexistence with parents, as most state not having argued with parents, nor have they fought among themselves.

Regarding the use of psychoactive substances and academic problems, the statement of "not interfering in their academic formation" was more than 80%, affirming not missing classes, not arriving late, not affecting their academic performance. Due to certain limitations, this study was only carried out using a self-administered questionnaire called DUSI-R and there were some failures in certain questionnaires, where students ended up forgetting to answer some questions. Regarding the analysis of the data pertaining to the second part of the study, it was not possible to make comparisons, as we did not find articles related to this type of analysis. Furthermore, this study targeted only one course at a private university, making it impossible to make comparisons with other university students not from the Health area.

## 5. Conclusion

It was possible to observe from this study that almost all psychoactive substances were used among Dentistry students. Some drugs had a much higher percentage than in some studies, such as non-prescription painkillers, with 68.3%, alcohol with 61.4%, and non-prescription tranquilizers with 6.7%. The easy access to these substances, combined with greater knowledge, a demanding routine, often stressful, and a demographic largely composed of young adults, makes this group more vulnerable.

This can be classified as a national public health problem, due to the high rate of use of legal and illegal psychoactive substances among university students, as shown in the studies, requiring public policies for guidance, and disseminating knowledge of the harmful effects of these substances on the body.

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**Research Ethics Committee Approval:** We affirm that the participant consented to the research by endorsing a clear consent document, and the investigation adhered to the ethical standards outlined in the Helsinki Declaration.

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**Conflicts of Interest:** None.

**Supplementary Materials:** None.

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