Licit and Illicit Drugs Consumption among Students of the Federal University of Rondonia, Porto Velho Campus: A Cross Sectional Analysis 2011-2017

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Authors' contributions

This work was carried out in collaboration among all authors. Author RVR designed the study, wrote the protocol, interpreted the data, wrote the draft of the manuscript, did the critical review of the content and approved the final version of the manuscript. Authors CJGS and GLNT designed the study, wrote the protocol, collected the data, performed the statistical analysis, interpreted the data, wrote the draft of the manuscript, did the critical review of the content and approved the final version of the manuscript. Author SVEF did the critical review of the content, approved and translated the final version of the manuscript. Author UMSM did the critical review of the contente, approved and translated the final version of the manuscript. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Aim: To perform a comparative analysis of the pattern of illicit drug consumption among students at the Porto Velho campus of the Federal University of Rondônia in 2011 and 2017. Study design: This is a cross-sectional and longitudinal study. Place and Duration of Study: Federal University of Rondonia Foundation (UNIR) campus José Ribeiro Filho, Porto Velho – Rondonia (Brazil), 2017. **Methodology:** The sample in 2017 comprised 352 students divided by knowledge centers, to tabulate and consolidate statistical data the software Statistical Package for the Social Sciences

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and Microsoft Excel were used, it was considered a 95.0% CI and 0.5% standard deviation.
Results: 54.1% of the students are female, the average age is 23 years old, drug intake in 2017 increased when compared to 2011, alcohol (from 72.3% to 75.9%), tobacco (from 23.0% to 32.2%), marijuana (from 10.7% to 24.7%), there was a similar effect on cocaine and/or crack, amphetamines and/or ecstasy, inhalants, hallucinogen use, opioids, antipsychotics and antidepressants.
Conclusion: In the comparison between the years 2011 and 2017, there was an increase in drug usage by college students, it is expected that the results found in this study may promote strategies of action to prevent and combat drug consumption among academics.

1. INTRODUCTION

For young people, entering higher education can be a critical period, due to the transformations that this phase may result, such as changes in their way of life, social groups and daily activities, which may cause many to behave in an unhealthy way, including the consumption of drugs [1,2,3,4].

The World Drug Report notes that approximately 275 million people worldwide aging between 15-64 years reported having used at least one drug during 2014. Surprisingly, the World Health Organization (WHO) emphasizes that the largest mortality coefficient is attributed to licit drugs, that is, those allowed by current legislation, estimating 450,000 drug-related deaths worldwide in 2015 [5,6].

In Brazil, regarding the intake of licit drugs, it is estimated that 24.0% of the population over 18 years old consume alcoholic beverages and 15.0% make use of tobacco, according to data from the National Health Survey (PNS) of 2013. Concerning the deaths registered in 2015, approximately 12.6% occurred due to diseases associated with smoking (chronic obstructive diseases, cardiovascular diseases, pneumonia and cancer) [7].

The Second National Survey on Alcohol and Drug showed that the substance with the highest prevalence of consumption among Brazilian youth and adolescents was marijuana (5.8%), denoting that 7.8 million people have used the substance at least once in their lives [8]. Currently, the emphasis is on college students, who are mostly young and more prone to drug intake, due to multiple factors that range from the need for social acceptance, ease of access, to pressure for positive results in academic performance [2,4,9].

According to Brazilian law, some of the consumed drugs are classified as licit, such as tobacco and alcohol, and illicit, like marijuana, cocaine/crack, inhalants, opioids, amphetamines, hallucinogens and others. A survey covering drug intake in all the 27 Brazilian state capitals showed that, during life, at least 72.0% of respondents make regular use or have already consumed alcohol, 27.8% tobacco, 13.8% marijuana, 10.5% amphetamines, 8.4% tranquilizers, and 6.5% inhalants [10].

The consumption of drugs among students is a matter of public health concern as there is an association with different risk factors such as the relation of alcohol with driving, sexually transmitted infections, worsening academic performance and development of psychic and pulmonary diseases [3,10,11].

Therefore, the aim of this research was to perform a comparative analysis between the pattern of licit and illicit drug intake among students of the Porto Velho campus of the Federal University of Rondonia (UNIR) in 2011 and 2017, in order to understand whether there has been an increase in the consumption of drugs or a change of the sociodemographic profile of the students and if these changes follow what is being seen in literature. Beyond that, identify risk factors that possibly contributed to changes in the consumption profile, with a goal of implementing specific protection and prevention actions and strategies aimed at these undergraduates.

2. METHODS

This is a cross-sectional research with a quantitative approach, conducted in 2017 at the Federal University of Rondonia Foundation (UNIR) campus José Ribeiro Filho, in order to enable the analysis of licit and illicit drug consumption by college students in Porto Velho,

based on the comparison with similar data obtained in 2011, by the same research group.

The sample was obtained through stratified probabilistic sampling. It was required a sample of 352 students, among the 3,928 regularly enrolled in 2017, for a 95% confidence interval. The sample was divided into 28 courses and grouped into clusters according to the teaching core, Health Sciences (NUCSAU), Applied Social Sciences (NUCSA), Technology (NT), Humanities (NCH), Exact and Earth Sciences Nucleus (NCET). Because of a significative difference comparing the number of students belonging to each nucleus, the percentages of students were calculated and added adjusted by its relative size to the overall student base. Thus, data were collected from 57 (16,19%) students of NUCSAU, 101 (28,70%) of NUCSA, 37 (10,51%) of NT, 96 (27,28%) of NCH and 61 (17,32%) of NCET.

A semi-structured and anonymous self-administered questionnaire, adapted both from the model proposed by the World Health Organization (WHO) and the model used by UNESP (State University of São Paulo) was applied. It was built by researchers from several countries under the coordination of the World Health Organization (WHO) in order to detect the use of alcohol, tobacco and other psychoactive substances, having been translated into several languages, including Brazilian Portuguese, and tested for its reliability and feasibility. The ASSIST test-retest reliability study was carried out with 236 different ones, in different locations around the world, with good reliability (Kappa coefficients between 0.58 to 0.90 for the main questions) and its use considered for the purposes of this study [12]. The students had to mark their information according to sociodemographics, academics and substance use (tobacco, alcohol, marijuana, cocaine, stimulants, sedatives, inhalants, hallucinogens and opiates) variables.

The data was organized by tabulating the information obtained through the software SPSS (Statistical Package for the Social Sciences), version 24.0, the statistical graphs were performed by Microsoft Excel 2010, the chi-square test (c2) was observed, just as a 95.0% confidence interval and a 0.5% standard deviation, the descriptive analysis of the collected data was preceded by the elaboration of the SPSS software database.

3. RESULTS

3.1 Sociodemographic Profile

The sociodemographic profile, specifically in the variable gender, showed that between 2011 and 2017, there were no significant changes, the female gender remained predominant among respondents, being in 2011 of 56.0%, and 54.1% in 2017 (Table 1).

It was verified there was no significant difference in the variable "marital status", except for the increase in singles (79.0% in 2011 to 83.7% in 2017). Besides, in the age distribution of the population, there was an increase in the average age among respondents (21 years in 2011 to 23 years in 2017).

Regarding the number of children, there was a 2.0% variation, with an elevation among those students who did not have children, in 2011, this cohort was 85.0% of the sample, rising to 87.0% in 2017 (Table 1).

3.2 Drug Consumption Profile

About the prevalence of consumption of licit and illicit substances between the research of 2011 and 2017, respectively, the substance with the most frequent consumption was alcohol, with a level of intake similar in both years studied (72.3% and 75.9%, respectively), followed, in a distant second place, by tobacco, which, although, showed a sharp increase (23.0% and 32.2%, respectively) (Table 2).

The substances with the highest relative increase observed were amphetamines and/or ecstasy, which quadrupled during the study period (1.6% and 7.1%, respectively), followed by opioid analgesics, which tripled (0.7% and 2,3%, respectively). The consumption of marijuana (10.7% and 24.7%, respectively) and hallucinogens (3.4% and 8.0%, respectively) more than doubled comparing both studies. Mark almost reached by hypnotic and/or sedative substances (3.6% and 7.1%, respectively) (Table 2).

In line with the results obtained, a Brazilian nationwide study [10] shows that the drugs most consumed by students are alcohol (86.2%), tobacco (46.7%) and marijuana (26.1%).

Among the group who reported urgency of monthly consumption in 2011, the leading substances were alcohol, tobacco, marijuana,

hypnotics and/or sedatives. The results of the 2017 study are similar, however, there was an increase observed within the intake of alcohol and cannabis, and, the most worrisome can be seen in the 2017 study, there was the insertion of new drugs in the universe of academics, specifically cocaine (0.3%), amphetamines and/or ecstasy (0.6%), inhalants (0.6%), antipsychotics (0.3%), antidepressants (0.3%), hallucinogens (0.9%), opioids (0.3%) and other substances (0.3%) (Graph 1).

The insertion of new drugs in the research may be related to the greater opportunity of dialogue about the subject, there's a chance, they are not "new" drugs, they just were only reported in the second moment of the research despite being there all the time.

When comparing both studies, conducted in 2011 and 2017, alcohol, tobacco, and marijuana remained the most consumed drugs, but we observed in 2017 a significant decrease in weekly alcohol consumption, which went from 13.4% in 2011 to 8.2% in 2017. Also, there was an important increase in tobacco consumption, that was 0.9% during the 2011 survey, and, by 2017, went to 2.6%, marijuana from 0.2% to 1.5%, hypnotics and/or sedatives of 0.2% to 0.9%, hallucinogens from 0.2% to 0.6%. It is noteworthy that there was no intake of amphetamines and/or ecstasy and other drugs, we can observe absence in both studies of cocaine and/or crack consumption, inhalants and opioids by the academics (Graph 2).

In the present study, it is noted that the urgency of consumption of college students in 2017 has increased compared to 2011, the drugs that students feel most urgently need in the last 3 months are alcohol, tobacco and marijuana. Also, it was observed in 2017 a growing use of inhalants, hypnotics and/or sedatives, hallucinogens and opioids.

Table 1. Characterization of a sample of students of the Federal University of Rondônia, 2011 and 2017. Porto Velho, Rondônia, Brazil

Variable	Year	
	2011	**2017**
Sex		
Female	56.0%	54.1%
Male	44.0%	45.9%
Teaching core		
NUCSAU	42.0%	16.19.%
NUCSA	20.0%	28,70%
NT	18.0%	10.51%
NCH	11.0%	27.28%
NCET	9.0%	17.32%
Marital status		
Single	79.0%	83.7%
Married	12.0%	8.9%
Live with partner	3.0%	6.0%
Divorced	1.0%	1.1%
Widower/Widow	0%	0.3%
Children		
Yes	15.0%	13.0%
No	85.0%	87.0%
Number of children		
1 child	8.0%	6.8%
2 children	3.0%	4.2%
3 to 5 children	2.0%	2.0%

Table 2. Prevalence of licit and illicit substances consumption among students of the Federal University of Rondônia, 2011 and 2017. Porto Velho, Rondônia, Brazil

Substance	Year	
	2011	**2017**
Alcohol	72.3%	75.9%
Tobacco	23.0%	32.2%
Marijuana	10.7%	24.7%
Cocaine and/or crack	3.4%	4.5%
Amphetamines and/or ecstasy	1.6%	7.1%
Inhalants	5.5%	7.4%
Hypnotic and/or sedative substances	3.6%	7.1%
Antipsychotics	-	2.3%
Hallucinogen	3.4%	8.0%
Opioids	0.7%	2.3%
Antidepressants	-	7.1%
Others	3.0%	1.1%
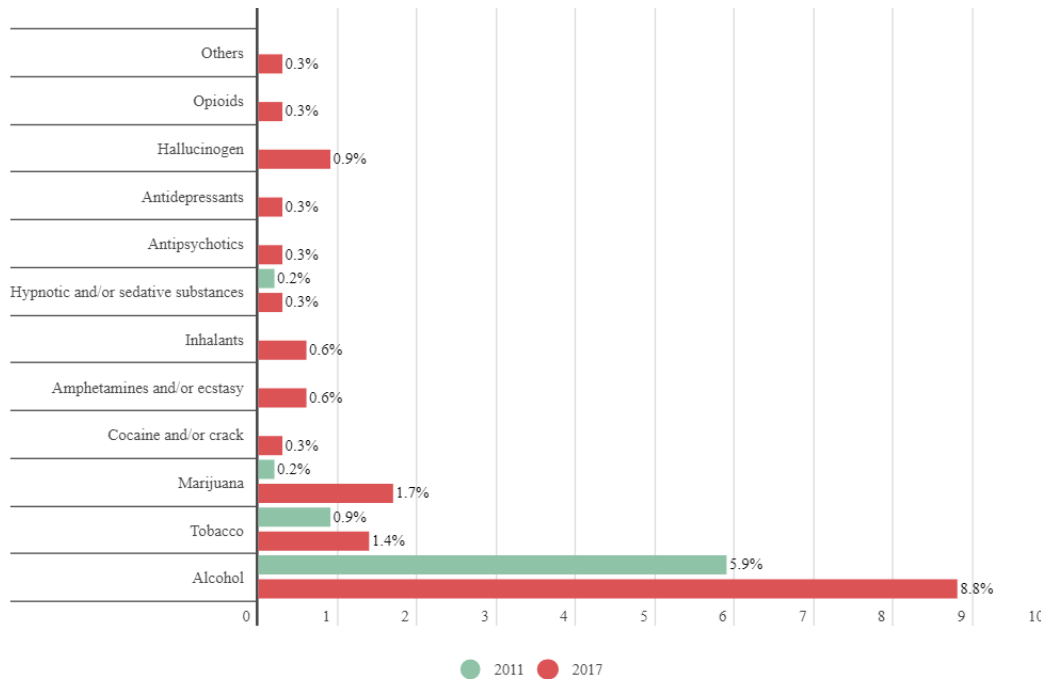
Graph 1. Urgency of consumption of licit and illicit substances with monthly periodicity in the last three months of the academics of the Federal University of Rondônia, 2011 and 2017. Porto Velho, Rondônia, Brazil
Source: The researcher
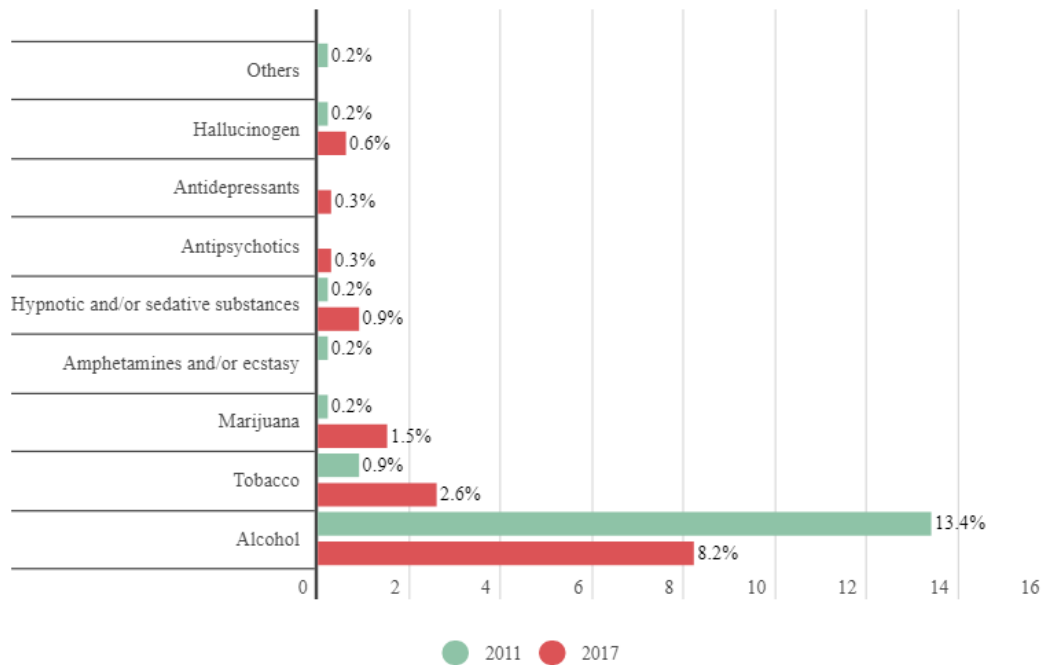
Graph 2. Urgency of licit and illicit drugs consumption with weekly periodicity in the last 3 months, of the academics of the Federal University of Rondônia, 2011 and 2017. Porto Velho, Rondônia, Brazil
Source: The researcher

4. DISCUSSION

The findings of the gender variable are statistically similar to those found at the "I National Survey on the Use of Alcohol, Tobacco, and Other Drugs among College Students in the 27 Brazilian Capitals", in which a female predominance, of 56.8%, was shown in the sample. That margin can be explained by evolutions in cultural paradigms, such as reduced fertility rate, later age for female marriages and earlier insertion of men in the labor market, that is, factors that can contribute to a relative increase in education among women [10].

The marital status data corroborate with the "IV National Survey of Socioeconomic and Cultural Profile of Undergraduate Students" in which 86.0% of the students interviewed in 2014 reported being single, and can be attributed to the fact that young people are commonly presenting an average age of 23 years old and financial stabilization is currently seen as a priority over marriage [13].

Regarding substance consumption among academics, The Social Research Institute of the University of Michigan, through a recent survey, showed that alcohol intake among college students (79.0%) is higher than among non-college students (75.0%). The use of marijuana (39.0%) and amphetamine (9.8%) are also higher among college students, which may explain the high consumption of these substances in the sample of the present research [14]. Increased intake of psychotropic drugs, may occur due to great social pressure, in which the hypothesis of any suffering would be against life, in this context, individuals seek these substances to increase attention, concentration, cognitive performance, fight sadness, failure, depression, denial of suffering [2,15].

Another variable analysed was consumption's urgency, which is defined by need or strong desire to consume some type of drug. When this impulse is not satisfied, the individual presents diverse symptoms, such as irritability, excessive insomnia, sweating, asthenia, aggression, nausea and a lack of interest in their daily activities [11,16].

Regarding daily consumption, in concordant research to this survey, the University of Western Santa Catarina found that 3.32% of its psychology students felt a strong desire to consume tobacco daily, 2.33% of academics felt this desire once or twice or weekly and 1.0% monthly. The alcohol intake is even stronger, with 14.95% of students feeling this desire to drink once or twice in the last three months, 8.97% weekly, 4.98% monthly and 3,99% daily [17].

5. CONCLUSION

Given the data obtained, it is essential to proceed with a continuous investigation of changes in the pattern of overall illicit and licit drug usage, as the present study only compares the period between 2011 and 2017. This recommendation follows both the high consumption and the higher rates of use regarding these drugs, a fact that should be a matter of concern due to the health damage that may cause.

It is important to observe that the increase in the consumption data of these drugs could be explained by the changes in society's paradigms and a greater debate about the subject, resulting in more reliable data and a smaller number of students omitting the intake of the substances.

As a possible limitation of the study, the questionnaire had no more "accessible" names of drugs, that is, more widespread names to facilitate the understanding of the students and closer proximity to data that represent reality.

Another difficult aspect while executing the research, was the scarce literature about specific drugs, especially about lean, or purple drank, a drug with a widespread use in Brazil, but until now, with few studies on the subject.

It is important to make more researches on the subject and adapt the questionaries to use the drugs popular names. That would help to deepen the knowledge about the consumption of drugs among college students and obtain results more representative of the reality, in order to monitor the damage cause by these substances intake and make the academic community aware of its risks.

CONSENT

The inclusion criteria of the interviewees were: to be a student regularly enrolled at the courses offered by the Federal University of Rondônia, Porto Velho Campus, to accept participating in the proposed research, by complete answering

the questionnaire and signing the consent form. The exclusion criteria considered were: not being a student at the Federal University of Rondônia, not signing the informed consent form, expressing refusal to participate or inconsistencies with the questionnaire.

Finally, the students were given a research consent term, which was read and eventual doubts were clarified.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the Research Ethics Committee of Federal University of Rondônia Foundation (UNIR), Campus José Ribeiro Filho, under registration CAAE 48093115.4.0000.5300, and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. In line with the recommendations of Brazilian National Health Council Resolution 466/12 that considers the participation of individuals in research [18], the study entitled "Study of Alcohol Consumption: From Social Drinking to Problems, Drinking Typification, Traffic, Complication and Treatment, Consequences of Health and Prevention" was submitted to the Research Ethics Committee (CEP) of the Federal University of Rondônia Foundation (UNIR), Campus José Ribeiro Filho, under the opinion number CAAE 48093115.4.0000.5300.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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