



Texto & Contexto - Enfermagem

ISSN: 0104-0707

ISSN: 1980-265X

Universidade Federal de Santa Catarina, Programa de Pós  
Graduação em Enfermagem

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DRUGS FOR COSTA RICA UNIVERSITY STUDENTS  
Texto & Contexto - Enfermagem, vol. 28, Esp., e416, 2019  
Universidade Federal de Santa Catarina, Programa de Pós Graduação em Enfermagem

DOI: <https://doi.org/10.1590/1980-265X-TCE-CICAD-4-16>

Available in: <https://www.redalyc.org/articulo.oa?id=71465278007>

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## KNOWLEDGE OF THE CONSEQUENCES AND USE OF DRUGS FOR COSTA RICA UNIVERSITY STUDENTS

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### ABSTRACT

**Objective:** to determine the relationship between knowledge of consequences and drug use in undergraduate students of a university in San José, Costa Rica.

**Method:** the cross-sectional study examines the demographic profile of the sample and the relationship between knowledge of consequences, drug use and academic performance. The study focuses on three types of drugs: alcohol, marijuana and cocaine. Three variables will be analyzed: demographic data, knowledge of consequences and use of drugs.

**Results:** the relationship between knowledge of consequences and use of drugs was made using of the T-test. The sample had 272 students, 28.2% (n=77) of them were men and 71.4% were women (n=195). They were selected from the areas of social sciences (n=137, 50.2%), and from the area of health sciences (n=136; 49.8%). Alcohol was the most used drug (n=217, 79.8%), followed by marijuana (n=72, 26.6%) and finally cocaine (n=3, 1.1%) in the last 12 months.

**Conclusion:** the results shown indicate that there is no significant relationship between such variables. The findings are important at the level of drug policies to support the development of new preventive strategies for drug use.

**DESCRIPTORS:** Knowledge. Drug effect. Students. Universities. Alcohol. Marijuana. Cocaine. Drugs.

**HOW CITED:** Chaves JJF, Khenti A. Knowledge of the consequences and use of drugs for Costa Rica university students. *Texto Contexto Enferm* [Internet]. 2019 [cited YEAR MONTH DAY]; 28(Spe):e416. Available from: <http://dx.doi.org/10.1590/1980-265X-TCE-CICAD-4-16>

# CONHECIMENTO DAS CONSEQUÊNCIAS E DO USO DE DROGAS EM ESTUDANTES UNIVERSITÁRIOS COSTARRIQUENSES

## RESUMO

**Objetivo:** determinar a relação entre o conhecimento das consequências e o uso de drogas em estudantes de graduação de uma universidade em San José, Costa Rica.

**Método:** este estudo, de corte transversal, examina o perfil demográfico da amostra e a relação entre o conhecimento das consequências, o uso de drogas e o desempenho acadêmico. A pesquisa centra-se em três tipos de drogas: álcool, maconha e cocaína. Três variáveis foram analisadas: os dados demográficos, o conhecimento das consequências e o uso de drogas.

**Resultados:** a relação entre o conhecimento das consequências e o uso de drogas foi realizada através do uso do T-test. A amostra foi composta por 272 estudantes, sendo 28,2% (n=77) homens e 71,4% mulheres (n=195); selecionados da área de ciências sociais (n=137; 50,2%), e da área de ciências da saúde (n=136; 49,8%). O álcool foi a droga mais utilizada (n=217; 79,8%), seguida da maconha (n=72; 26,6%) e, finalmente, a cocaína (n=3; 1,1%) nos últimos 12 meses.

**Conclusão:** os resultados demonstram que não existe relação significativa entre tais variáveis, e são importantes no nível das políticas de drogas para apoiar o desenvolvimento de novas estratégias preventivas para o uso de drogas.

**DESCRIPTORIOS:** Conhecimento. Efeito de drogas. Estudantes. Universidades. Álcool. Maconha. Cocaína. Drogas.

# CONOCIMIENTO DE LAS CONSECUENCIAS Y USO DE DROGAS EN ESTUDIANTES UNIVERSITARIOS COSTARRICENSES

## RESUMEN

**Objetivo:** determinar la relación entre conocimiento de consecuencias y uso de drogas en estudiantes de pregrado de una universidad en San José, Costa Rica.

**Método:** el estudio, de corte transversal, examina el perfil demográfico de la muestra y la relación entre conocimiento de consecuencias, uso de drogas y rendimiento académico. El estudio se enfoca en tres tipos de droga: alcohol, marihuana y cocaína. Se analizarán tres variables: datos demográficos, conocimiento de consecuencias y uso de drogas.

**Resultados:** la relación entre conocimiento de consecuencias y uso de drogas se realizó mediante el uso de la prueba T-test. La muestra fue de 272 estudiantes, con un 28.2% (n=77) de hombres y 71.4% de mujeres (n=195); seleccionados de las áreas de ciencias sociales (n=137; 50.2%), y del área de ciencias de la salud (n=136; 49.8%). El alcohol fue la droga más utilizada (n=217; 79.8%), seguida por marihuana (n=72; 26.6%) y finalmente la cocaína (n=3; 1.1%) en los últimos 12 meses.

**Conclusión:** los resultados mostrados indican que no hay una relación significativa entre tales variables. Los hallazgos son importantes a nivel de políticas de drogas para apoyar el desarrollar de nuevas estrategias preventivas de uso de drogas.

**DESCRIPTORIOS:** Conocimiento. Efecto de droga. Estudiantes. Universidades. Alcohol. Marihuana. Cocaína. Drogas.

## INTRODUCTION

The use of drugs represents a growing phenomenon at the national and international level, from which effects generated in public health have been identified,<sup>1</sup> as well as the delinquency that from this has been generated,<sup>2</sup> with the respective consequences at a biological, psychological and social level in consumers, which generates great concern and interest, when talking about a complex, dynamic and multi-causal phenomenon that represents a challenge for the states and their governments in the world.<sup>3</sup> This also coincides with what happened in many other nations in recent years,<sup>4</sup> where it is estimated that 5% of the adult population globally used drugs at least once since 2015, as well as the fact that about 29.5 million drug users suffer from some type of problematic use of substances in 2017.<sup>5</sup> This has also become an important topic of analysis worldwide, as mentioned by the Office of the United Nations Against Drugs and Crime, the use of drugs continues to be a high cost, with loss of human lives and productive years.<sup>6</sup>

Therefore, this phenomenon becomes a very important aspect to study this phenomenon, and in the case of the present study, the undergraduate students of a public university in San José, Costa Rica, where the study was conducted, had the target population. relationship between the knowledge of the consequences and the use of alcohol, marijuana and cocaine, taking as starting point the epidemiological data that indicate that they are the three psychoactive substances of greater consumption in this population.

Regarding the mentioned substances, alcohol it is the most consumed licit psychoactive substance in the world,<sup>5</sup> and the one that causes the most significant burden related to diseases and death in most countries, where a global consumption in 2010 of 6.2 liters of pure alcohol, consumed per person in the group of 15 years or more, has also been identified, which translates into 13.5 grams of the said substance per day, bringing many negative consequences, such as social and economic effects, as well as disability and deaths.<sup>7</sup> In the case of university students, it is identified that in the same university in which the study was conducted, it was published that, in 2015, there was 78.4% of a sample of 250 students of social sciences, human sciences and health sciences. This substance was also determined in a study as the most harmful compared to tobacco and marijuana in groups of university students from Norway and the United Kingdom, which in turn agrees with other studies in European countries.<sup>8</sup>

On the other hand, marijuana corresponds to the illicit drug most consumed, with an estimate in the World Drug Report 2017, of 183 million people who used it in 2014.<sup>5</sup> In this sense, from the international point of view, the use of this substance has generated a great impact on the health of the population of university students from all countries, which generates a significant public health problem. Its use in this population is associated with negative consequences in the short and long term in physical and mental health, in addition to its impact on academic performance and the increased risk of having problems associated with the consumption of other substances such as alcohol. Among the effects mentioned are poor academic performance and attendance; decreased cognitive functionality; deficits in attention and memory; respiratory problems and increased heart rate.<sup>9-10</sup>

Regarding the use of cocaine, globally there has been an overall increase in the manufacture of pure cocaine hydrochloride of 25% since 2013,<sup>5</sup> which also indicates a significant increase in the number of people in treatment for disorders related to its use in Latin America and the Caribbean,<sup>4</sup> which is also considered an important public health problem, where a severe impairment in the performance of tasks is identified, since there is a great alteration in concentration and executive function, generated by the neurological effects of this substance.<sup>11</sup>

In Costa Rica, significant consumption of drugs has been identified, which use rates are increasing, due to social, biological and psychological factors, referring to it as a public health problem

at the Institute on Alcoholism and Drug Dependence.<sup>1</sup> Consistent with the previously introduced theme and the previous analysis carried out, we share the concern about the increase in the epidemiological indicators that are identified in the undergraduate university student population at an international and national level.<sup>12-13</sup>

Therefore, the objective of the study is to determine the relationship between knowledge of consequences and the use of alcohol, marijuana and cocaine in undergraduate students of a public university in San José, Costa Rica, and it was hypothesized that the score obtained from knowledge of consequences on the use of alcohol, marijuana and cocaine is associated with less use of these substances in undergraduate students of a public university in San Jose, Costa Rica, during 2014.

## METHOD

The research corresponds to a quantitative, correlational and cross-sectional study, as part of a multicentric study in nine countries, six of them from Latin America and three from the Caribbean. It was carried out at a public university in San Jose, Costa Rica, between March 2012 and December 2014.

The countries where the multicentered study was carried out were: Chile, Brazil, Jamaica, Trinidad and Tobago, Suriname, Costa Rica, Nicaragua, El Salvador and Mexico. In addition, the rationale for having selected the areas of study of social sciences and health sciences is that they coincided among all the participating universities, which at the time of the proposal was a determining factor for the development of the research. It is important to mention that this research was reproduced in Costa Rica and the other eight countries and each one followed the same procedure established in the elaboration of the research proposal.

In the case of Costa Rica, the selected university has its headquarters in the province of San José, capital of the Republic. In addition, at the time of the development of the research there was a total student population enrolled of 54,160 undergraduate students, distributed in 13 sites that cover the entire Costa Rican territory. In the case of health sciences (medicine, nursing, human nutrition, health technologies, public health, microbiology and dentistry) there were 3,719 students enrolled and in the case of social sciences (collective communication, political science, social work, psychology, history and archive, geography, anthropology and sociology) there were 3,493 students enrolled.

The target population in this study was 272 university undergraduate students, randomly non-probabilistic selected. This sample was taken into account once the calculation of the statistical power of 0.05% of significance was made when testing the hypothesis, where according to the data obtained from the nine universities represented, it was obtained at the time of the research proposal that the number of students should be approximately 250 per institution, from a total estimated population of 24,000 students for the areas mentioned in the totality of participating universities.

The students were recruited from randomly selected courses, from the careers of each area, where the moments of application of the informed consents were coordinated and the questionnaire in the class hours, following a hierarchical order, beginning with each dean of faculty, then with each career director, coordinators of the courses and finally with the teachers. In this sense, on the careers of the area of social sciences a total of 137 students were obtained (50.2%) and, of health sciences, 136 students (49.8%) were obtained.

Regarding the data collection instrument, we could mention the use of a self-administered questionnaire, prepared by the team of researchers at the Addiction and Mental Health Center (CAMH) during the months of May to August 2012, in Toronto, Canada. They were completed in a classroom, with prior authorization from the teacher and after completing the informed consent form. The questionnaire included 71 questions. Six of them addressed sociodemographic characteristics of the participants (age, gender, residence, socioeconomic level, educational level and religious belief).

In addition, 42 items were included to identify the knowledge score of the consequences of the use of alcohol, marijuana and cocaine, seven to determine the use of said substances and one to determine academic performance. The time to answer them was 30 minutes.

To identify the knowledge score of consequences related to alcohol, marijuana and cocaine, a scale was built based on the ACSUS instrument on adverse consequences of the use of substances,<sup>14</sup> the theoretical framework that supports the research, based on Engel's biopsychosocial model<sup>15</sup> and the consequences of the use of drugs indicated in the ASSIST manual.<sup>16</sup> To accomplish that, three scales of 14 maximum points each were made, for each drug with binary value of yes or no with some distractors that consisted of incorrect answers. To complete the data collection, regarding the frequency of consumption, the ASSIST scale was used as a basis for the elaboration of questions about drug consumption.<sup>16</sup> The scale elaborated by the research group contains an item on substance use at some time in life, with three possible answers: never, in all life but not in the last year, and in the last year. For this study the options "never" and "yes, in the last year" were used. This selection was made contemplating the purpose of this study, taking into account the presence of factors and triggering moments for the use of substances at different times of the year, called "High-risk Time Periods", such as the new year and other holidays,<sup>17</sup> as well as periods in which there is an intense consumption of alcohol<sup>18</sup> and in summer holiday season<sup>19</sup> which allowed us to expand the possibilities of finding students who have had the substance use practices of interest for the present study. The ASSIST guide is also recommended for use in developing countries due to its reliability and validity.<sup>20</sup> They, after the application, generated the nominal variables "Knowledge of the consequences for the use of drugs" and "Drug consumption".

Following the process, the statistical analysis was performed using the program SPSS version 17 for Windows, academic license #, for the organization and consequent evaluation of the relationship between the variables described above. In order to guarantee the validity of the information placed in the SPSS matrix, we worked with the double typing technique, of which two assistants participated, who were students of the fifth year of nursing.

The specifically inductive analysis used descriptive statistics through T-test tests, which were used to determine statistical measures to examine the associations between the results of the variables on knowledge of the consequences of drug use: "Knowledge of the consequences of the use of alcohol", "knowledge of the consequences of the use of marijuana" and "knowledge of the consequences of the use of cocaine"; and the use of each of the psychoactive substances in the population participating in the study. The levels of difference to be considered significant in the mean of the variable must be greater than 0.05 (two tails).

## RESULTS

The sample size was 272 students (N = 272), with 28.2% (n = 77) of men and 71.4% of women (n = 195); distributed in the area of social sciences (n = 137, 50.2%), and of the area of health sciences (n = 136, 49.8%). It was identified that 68.8% of the people in the sample live in their parents' house during the lesson time, 28.7% of the university campus and 2.5% live on the university campus. Religious beliefs are shown as very important in 33%, important in 27.5%, somewhat important in 17.9% and not important in 21.6%.

Table 1 shows the prevalence of drug use by people in the sample in the last year. The most reported drug consumed in this period is alcohol, with 79.8% of people, with respect to marijuana, it was consumed by 26.6% and cocaine was the least consumed drug, with 1.1% in the period mentioned above. Regarding the above, it is important to clarify that within the results of the measurements there were participants who used the study substances individually or concomitantly, so the sum between the percentages is 106.4%. It should also be noted that given the circumstance that in the measurement

of drug use in the population studied, as a statistical data, the use of drugs was ever measured in life, but not in the last year, this means that there is a percentage of the population that is not taken into account and that in the sum of the percentages the result is less than 100%.

**Table 1** – Prevalence of drug use in the last 12 months, Costa Rica, 2014.

	N	%
Alcohol		
Yes, in the last 12 months	217	79.8
No	16	14.3
Cannabis (marijuana)		
Yes, in the last 12 months	72	26.6
No	156	57.6
Cocaine		
Yes, in the last 12 months	3	1.1
No	264	97.1

Table 2 shows the results of the T-test to examine the associations between the results of the knowledge score of consequences and alcohol use among students who used alcohol in the last 12 months, in the variables related to “Knowledge of consequences”, Where it is identified that there is no significant association between the variables, where a score was obtained on the knowledge of the consequences of 12.7 of a possible maximum of 14.

**Table 2** – Average knowledge of consequences of alcohol use by individuals who used alcohol in the last 12 months, Costa Rica, 2014.

Alcohol use, last 12 months	n	Knowledge of consequences of alcohol use		p-value p<.05
		Average	Standard deviation	
Yes	217	12.7189	1.45909	.451

Table 3 shows the results of the T-test measurement for the determination of the significant difference or not between the students who used marijuana and those who did not, in the last 12 months, according to the values obtained in measuring the knowledge of the consequences. The values obtained show a significant difference greater than 0.05 (two tails), which, as in the previous substance, does not show a significant association between the variables.

**Table 3** – Mean knowledge of consequences of marijuana use in individuals who used marijuana vs. individuals who did not use it in the last 12 months, Costa Rica, 2014.

Use of marijuana, last 12 months	n	Knowledge of consequences of marijuana use		p<.05
		Average	Standard deviation	
Yes	72	10.2083	2.57254	3,289



Table 4 shows the results of the T-test, to determine if there are significant differences between students who used cocaine and those who did not, in the last 12 months. According to the values of “Knowledge of consequences”. It is important to note that according to the T values, the levels of significant difference in the mean of the variable is greater than 0.05 (two tails).

**Table 4 – Mean knowledge of consequences of cocaine use in individuals who used vs. individuals who used cocaine in the last 12 months, Costa Rica, 2014.**

Cocaine use, last 12 months	n	Knowledge of consequences of cocaine use		p-value p<.05
		Average	Standard deviation	
Yes	3	10.6667	4.04145	.558

## DISCUSSION

The knowledge of the consequences and the use of drugs in university students is an issue that has not been widely researched in Costa Rica from the point of view of the methodological approach of the present study, since what was identified in the bibliographic review carried out to establish a state of the question. The results of this investigation allow us to understand the relationship that exists between the variables from the quantitative point of view.

It is important to highlight that the results of some demographic characteristics of the sample, where the similarity in rates of both academic areas is evident (social sciences and health sciences), in the university in the research was developed in Costa Rica, where it is obtained an average age of 23 years, and the majority of students (76.6%) are in their fourth year or higher years in their careers.

In addition to the above characteristics, and in relation to the use of drugs, it should be noted that the variable on alcohol use in the last 12 months of 79.8% for the sample, could represent the presence of a very common habit in this group, being important to emphasize that the results obtained in this measurement are comparable with other studies, both in women,<sup>21</sup> as in men in which the prevalence of alcohol consumption as the most consumed drug is highlighted by the authors. In addition, the consumption of marijuana of 26.6% in the sample is a very significant topic, since it is an illicit drug, and a very relevant fact for the development of the research is that the least consumed drug by the people in the sample is cocaine.

When measuring the relationship between drug use and knowledge of its consequences, using the measurement of the T-test, to determine if there are significant differences between students who have used drugs and those who have not, in the last 12 months before completing the questionnaire, in the mean of “knowledge of consequences”, as a result, the measurement of two tails (2-tailed), in all the comparisons results in more than 0.05. From the above, a statistically significant difference cannot be established between knowledge of the consequences and the use of drugs. Therefore, the hypothesis: “The knowledge of consequences on the use of alcohol, marijuana and cocaine will be associated with a lower use of these substances (alcohol, marijuana and cocaine)”, would be rejected.

In this sense, it is important to take as a starting point the generalized risks that include genetic predisposition, psychosocial factors that induce the use of any drug, as well as environmental factors, which include the availability of the substances, the opportunities to use them and the social norms favorable to the use of drugs,<sup>22</sup> as well as drug abuse in the family and the influence of peers.<sup>23</sup>

In the case of knowledge of the consequences as a psychosocial factor and the use of alcohol, it is important to note that this behavior was considered in countries like Italy and many others in the West as part of social life and the process of globalization is also mentioned as a factor diffuser of consumption habits between societies.<sup>18</sup>



For its part, the use of marijuana has been related to different factors that motivate its use, such as reasons for improvement, social reasons, expansion, coping and compliance, which make people have consumed this substance despite the knowledge of the consequences of this behavior, such as driving under the effects of the substance, saying or doing embarrassing things, using it on nights when you have planned not to do it and feeling confused, slow, tired or stunned in the morning after consumption.<sup>24</sup> Finally, the foregoing, coincides with the provisions of the Inter-American Drug Abuse Control Commission,<sup>14</sup> organization that “despite the available information on the negative effects of drug use, the evidence indicates that this message is not coming with enough force to young people in the Member States”.

In that sense, the use of drugs depends on a variety of social factors (family, means), biological and psychological, in each individual and each group, as mentioned in studies conducted in familiar, social and individual environments.<sup>10,15-16</sup> This represents a very important situation to take into account, having decisions and political strategies based on the disclosure of the consequences of drug use, so that the measurement of these variables becomes very important to support these political decisions.

The study is limited to a delimited population, with statistical indicators, which do not allow to deepen personal questions, opinions or other qualitative data. To the previous thing the methodological characteristic of the anonymity in the handling of the questionnaires is added, which does not allow to deepen in the answers realized by the and the participants. Finally, the representativeness of the sample is identified with respect to the student population of the selected university, as well as the exclusion of the other study areas, and the totality of university students from the selected country.

## CONCLUSION

The relationship between knowledge of consequences and the use of drugs in university students opens a great opportunity to become aware of the quality and meaning of drug policies based on scientific research in Costa Rica, a very important topic to consider on decisions for strategies for the promotion of health and the prevention of diseases.

It is important to continue developing the themes of this study from the point of view of the great diversity of issues related to the phenomenon of drugs in the world, implementing other methodologies, such as qualitative research on the variables that were developed.

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## NOTES

### CONTRIBUTION OF AUTHORITY

Study design: Chaves JJF, Khenti A.

Data collect: Chaves JJF

Data analysis and interpretation: Chaves JJF, Khenti A.

Discussion of the results: Chaves JJF, Khenti A.

Writing and / or critical review of content: Chaves JJF, Khenti A.

Review and final approval of the final version: Chaves JJF

### ACKNOWLEDGMENT

To the Government of Canada/DFAIT, Organization of American States, Inter-American Commission for the Control of Drug Abuse, the Centre for Addiction and Mental Health, and the students who participated in the sample of the study and all the people who directly or indirectly were involved in the study. To the attendees Rebeca Pérez and Jorge Badilla.

### ETHICS COMMITTEE IN RESEARCH

Ethical approval was provided by the Ethics Committee of the Centre for Addictions and Mental Health, by the Research Program of the School of Nursing, by the Ethics Committee of the University of Costa Rica and by the Vice-Rector for Research of the University of Costa Rica. Once the project was approved by the authorities, the research proposal was presented to the corresponding governmental authorities, in the case of Costa Rica, to the Costa Rican Institute on Drugs on Friday.

### CONFLICT OF INTEREST

There is no conflict of interest.

### HISTORICAL

Received: June 19, 2018.

Approved: April 1, 2019

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