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The Use of Psychoactive Substances among University Students

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Abstract

For more than two years, the ethnobotanicals were considered legal substances in Romania, easily found in “weedshops” - special shops in the university campus, in school areas, or even online. An important number of victims, teenagers, college or university students, arrived in emergency units with clear signs of drug intoxication. The use of ethnobotanicals was declared intentional and for entertainment, in clubs, parties or school events. The survey identifies a rate of ethnobotanical use of 15,47% in the university campus; it also studies the reasons of consumption and the students’ beliefs and awareness of ethnobotanicals’ effects among engineering students from two different regions of the country.

Keywords:

Ethnobotanicals, legal drugs, student substance abuse, university field;

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Problem Statement

In 2009, Romania held the 4th place in the top of the countries with the most ethnobotanical shops, after Great Britain, Germany and the Netherlands (according to the European Monitoring Centre for Drugs and Drug Addiction - EMCDDA). According to another study from the same year, “The barometer of teenagers (*Attitudes and lifestyle at the level of the 12th grade high school students*” 2009), developed by the Foundation of Political Sciences within the National School of Political and Administrative Studies, Department of Sociology, omnibus study at national level, between the 15th of October – 5th of November 2009) published on the ANA website, illegal drug consumption is identified, in the case of 12th grade students, for the entire duration of their lives, at 10,7%. Of these, 16,8% are male and 6,8% female. Today, the European Commission released the results of its fourth survey exploring Youth attitudes on drugs. This ‘Flash Eurobarometer’ is based on telephone interviews conducted in May 2011 with over 12 000 randomly selected young people (aged 15–24) in all 27 EU Member States. It builds on three earlier Eurobarometer surveys carried out in 2002, 2004 and 2008.

Among the issues covered by the survey are: perceptions on the health risks of drug use; attitudes to banning or regulating substances; views on the availability of drugs; and opinions on the effectiveness of policies. For the first time, questions were included on new psychoactive substances (‘legal highs’).

On average, around 5 % of the young respondents said that they had used ‘legal highs’, with Ireland (16 %), Poland (9 %), Latvia (9 %) and the UK (8 %) among countries at the upper end, and Malta, Italy and Finland (all 1 %) at the lower end. These substances were mainly obtained through friends (54 %), at parties and/or in clubs (37 %), in specialised shops (33 %) or over the Internet (7 %).

The survey shows that young people’s attitudes to drugs remain substance-specific. Occasional drug use (used once or twice) was perceived as a ‘high risk’ to health by 23 % of respondents regarding cannabis, compared with 59 % for ecstasy and 66 % for cocaine. Regular drug use was rated as a ‘high risk’ by 67 % of respondents for cannabis and by over 90 % for cocaine or ecstasy. Those who had already used cannabis had a lower perception of its health risks than never-users.

The north-eastern region of Romania is distinguished by its consumption, registering 19,9%; the following one being the South-Eastern region, with a declared consumption of 15,1%. The results of this article indicate the fact that, in the case of 12th grade students, Bucharest is no longer the main city in Romania for drug consumption, the region București-Ilfov being the third, according to the registered percentage of 13,7%. As in previous years, the main drug for which care services (with and without hospitalisation) were solicited was heroin. Hypnotics and sedatives were on the second place, as well as cannabis, in 2008, in centres of assisted care of the Health Ministry; whereas in 2009, the treatment requests were made for other substances, especially ethnobotanicals.

The psychoactive substances

Psychoactive substances sold as “*legal drugs*” or “ethnobotanical plants” are consumed in all regions of the country. The region București/Ilfov holds the top place by its 6%, followed by the southern region by 2,5%, the centre by 1,6%, the west by 1,5%, the north-east by 1,4%, the south-east by 1,4%, the south-west by 0,9% and the north-west by 0,7%. In what concerns the prevalence of lifelong consumption, according to ANA reports, ethnobotanical consumption was registered with a frequency of 2% in 2010, overtaking the use of ecstasy (0,7%), cannabis (1,6%), cocaine (0,3%). The main drug reported by consumers of injectable drugs from the Bucharest metropolitan area is heroin (67,3%), followed by the class of psychoactive substances, sold under the name of legal drugs of “ethnobotanicals” (30,6%). The latter are most often substances similar to amphetamines by their effects and structure.

Substances with hallucinogenic effects are under national control. Some of the species and substances under national control are (Stancu M., 2013):

- sage species (*Salvia divinorum* Epling & Jativa – hallucinogenic); *Salvia divinorum* Epling & Jativa is a plant cultivated in Mexico, consumed by smoking and chewing, in order to obtain a state of inebriation different from that offered by alcohol. It was brought under legal control at the request of the Scientific Committee of the OEDT (European Observatory for Drugs and Drug Addiction) in 2007 in Sweden and in 2008 in Germany.

- species of *Mitragyna speciosa* Korth (Kratom) – a plant that creates addiction, with effects similar to those of cocaine;
- mushrooms: *Amanita muscaria* (contains muscimol – a strong GABA agonist – CNS depression); *Amanita pantherina* (very strong hallucinogen) and all species of the *Psilocybe* genre – these produce hallucinations similar to the effects of LSD (lysergic acid diethylamide);
- substances: LSA (d-lysergic acid amide); Ketamine – lead to addiction, death; piperazine derivatives – hallucinogenic; mephedrone.

These products have been sold as cigarettes, tablets, powders, vegetal fragments packed in satchets, under various names; selling prices vary according to the number of grams, e.g.: bath salts (mephedrone), Special gold – salt – 0,25g, Pulse – powder 0,5g, Fly Agaric Mushroom – dried mushrooms 12g, Spice Diamond – vegetal fragments 1g, Spice Gold Spirit – powder 3g.

For instance, Spice Gold Spirit contains *Pedicularis densiflora* (familiar to North American native tribes, who used to smoke the plant's dried flowers, with soothing and sedative effects), *Nymphaea caerulea* and *nymphaea alba* (familiar to and used by the Egyptians with soothing and euphoric effects), *Scutellaria galericullata* (familiar to and used by North American Cherokee Indians, effective against insomnia and fretfulness), *Canavalia maritima* (familiar to and smoked by natives of the Gulf of Mexico, with soothing and sedative effects), *Leonotis leonorus* (also known as wild hemp; its leaves and flower petals were smoked by South African tribes with euphoric, soothing and psychoactive effects), *Zornia latifolia* (or “false hemp”, smoked by Amazonian natives; according to those tribes, its effects are soothing and psychoactive), *Nelumbo nucifera* (pink lotus familiar to Indian culture and consumed as tea or smoked for its soothing effects), *Leonorus sibiricus* (known and used in Central and Latin America for hundreds of years, with soothing and psychoactive effects); Spice Gold Spirit contains, as adjuvants, natural aromatics extracted from rose, vanilla, honey, red clover (Stancu M., 2013).

The decrease in shop numbers and their transfer to the virtual space are due to the complex actions of the local and national authorities, namely to the closing down of these commercial units, the main official point being the Government law passed in April 2010. The

consumers' interest oriented itself towards other means of getting ethnobotanicals, through dealers and via electronic commerce. In the virtual space, the most frequent searches concerning the promotional and selling websites for ethnobotanicals have been located in Iași, Cluj and București counties (A. Botescu, 2011). The study was aimed at the student population of Iași country, one of the main university centres of Romania.

Over 3 years, a fluctuation of commercialisation and consumption of ethnobotanicals was observed, due to legislative attempts to stop the selling of legal psychoactive substances. The consequence of the first intervention by the government in the selling of ethnobotanicals in the so-called “dream shops” determined the appearance of new substances on the market. Moreover, the Governmental Ordinance No. OU 6/2010, April 2010, interdicts the commercialization of ethnobotanicals, but it does not incriminate their use.

In a study developed one year after the ordinance was applied (A. Botescu, 2011), in April 2011, 91 “dream shops” were still open in Romania, compared to 373 units identified in 2010, of which 336 were shops, while the rest were virtual units and storage spaces. The decrease in number of these shops and their transfer to virtual spaces is due to the authorities' complex actions for closing them down.

Generally, there is an acute lack of information regarding the content of the consumed substances, their effect on the human body as well as their combined use with alcohol, pills or other drugs. In these cases, the medical staff does not have enough and correct information, nor the possibility for laboratory analyses within the emergency care units. Different policies applied in order to reduce the drug consumption in the last 30 years revealed that the consumer's behaviors depends on different factors, like the historical period and political regime (MacCoun, Schelling, Reuter, 1996), or the perception about the level of addiction to the substance oscillating between considering some drugs legal or illegal.

Purpose of study

The aim of the survey is to identify the rate of ethnobotanical use in the university campus, the reason for consumption and the students'

beliefs and accurate knowledge of the effects of ethnobotanicals among engineering students. The data collected is meant to reveal possible differences engineering students from two universities in two different cities from different regions of Romania.

Research Methods

A total of 446 students from two important university cities in Romania voluntarily and anonymously answered a questionnaire about ethnobotanicals. Both cities are among the first three on top of the ethnobotanical consumption.

From February 2011 to February 2012, 269 freshman students from 9 faculties within a technical university in Iași and 177 students from technical faculties in Cluj were questioned about substance consumption. The items with multiple-choice or open answers refer to the following issues: consumption and motivation, private or public places where they usually use “legal drugs”, friends’ or colleagues’ consumption habits, different methods of procuring the drugs and proper information about the effects of the ethnobotanical use, in combination with alcohol or not.

The students voluntarily answered to the questions and confidentiality of data was respected.

The limits of the study should be taken into consideration: the study was focused on students from technical faculties and most of them are regularly joining classes.

The data has been analyzed using the SPSS 17.0 program for Windows, using frequency and descriptive data field analysis, their cross-analysis, benchmarking averages (ANOVA, T-test) and nonparametric tests (chi-square test).

Findings

446 students within two technical universities agreed to answer a questionnaire about ethnobotanicals. These students answered questions regarding the quality of information on ethnobotanical substances, their consumption, the user’s motivation, details about addictive drugs and substances and about their ways of consumption, places frequented by consumers, ways of obtaining ethnobotanicals, their own opinions about associating these with alcohol or about the banning of consumption.

The north-eastern university brings together graduates from the entire south-eastern and north-eastern region of the country and also a smaller percentage of students from other Romanian regions, due to the fact that degrees in certain fields of research may only be obtained here or in the Republic of Moldova. Consequently, the relevance of the study derives from its approach of a population segment considered vulnerable to substance abuse. The research presents 269 students from 34 cities belonging to 13 Romanian counties (Bacău, Botoșani, Constanța, Galați, Harghita, Iași, Maramureș, Neamț, Prahova, Suceava, Tulcea, Vaslui, Vrancea) and 3 Moldavian districts. Students native to the Republic of Moldova represent 1,2% of the lot.

The central region university city brings together students from all cities in the centre of the country and a low percentage from other Romanian regions, including students from the northern region. Subjects from 79 from 29 counties answered the questions (Iași, Vrancea, Neamț, Vaslui, Bacău, Botosani, Suceava, Harghita, Constanța, Galați, Prahova, Orhei, Tulcea, Maramureș, Chișinău, Fălești, Cluj, Sălaj, Bihor, Sibiu, Alba, Bistrița-Năsăud, Mureș, Satu Mare, Gorj, Hunedoara, Covasna, Brașov). Students from the Republic of Moldova represent 0,6% of the lot.

Gender distribution shows that 59,42% (N=265) are male and 40,58% (N=181) are female. The average age of the whole lot of subjects is 20, 49 years old with a standard deviation of 1,81. Actual ages range from 18 to 43 years old. However, most of these students are the average freshman age: 96,2 % are between 19 and 22 years old (19,5% are 19 years old, 40,8% are 20 years old, 26,9% are 21 years old and 9% are 22 years old).

General knowledge about ethnobotanicals, their effects and reasons for their consumption

The answers to questionnaire items showed that most students had found out about substances with psychoactive effects during their last high school years; several sources of their information on these substances were mentioned: high school tutoring classes, mass media (the critical cases presented on television channels) and friends (at private parties, at school or in clubs). The period corresponds to the emergence and development of an ethnobotanical substance market in

Romania, taking into account the fact that, in the 3 years prior to the study, the abuse of so-called “legal substances” had been one of the main concerns of drug specialists (Iorga et al, 2012).

Up to 81,17% of students consider ethnobotanicals to be drugs, 17,71% say that these are not drugs, and 1,12% declare that they do not know about these. Students from the north-eastern university are appreciate to a higher percentage the fact that ethnobotanical are drugs (85, 13% from Iași city and 75,14% from Cluj). 95,74% of subjects consider that this kind of substance are dangerous; 82,06% claim that ethnobotanicals are addictive, 17,71% claim that these are not addictive, and 0,22% declare that they do not know about this. A very low percentage of students declare themselves unaware or uninformed about ethnobotanicals, which means that a majority of students have already formed an opinion about them (although this may not be sustained by accurate data on the consumption of these substances). Out of the 69 consumers, 31 claim that ethnobotanicals are addictive, while 13 claim that the use of these substances does not result in addictive behavior.

The items were focused on the students’ information about the effects of the use of these substances on the human body. The participants were able to identify one or several effects of the use of ethnobotanicals. 80,49% of the subjects consider that ethnobotanicals cause euphoria, 72,65% hallucinations, 59,42% tachycardia, 44,17 nausea, 34,57% a comatose condition, and 33,74% believe that they may cause cerebral lesions. 60,99% of the subjects declare that they have acquaintances who use ethnobotanicals, and 48,65% have seen people using ethnobotanicals. The research shows the fact that half of the students are directly exposed to the use of new substances with psychoactive effects.

In what concerns the identification of other addictive substances, which may be considered drugs, the students mention: cocaine (32,98%), heroin (30,94%), tobacco (30,27%), alcohol (20,94%), marijuana (11,68%), coffee (8,94%), ecstasy (6,95%), hashish (4,71%), cannabis (4,71%), various pills which may be bought in drugstores (8,07%).

The students’ opinions regarding the motivation for consumption revealed the following data: pleasure (30,72%), curiosity (30,04%), weakness (25,11%), peer influence (23,77%), rebelliousness (12,56%) and addiction (9,42%). Consumers declared that the main

reasons are curiosity and peer influence, and non-consumers sustained that students look for ethnobotanicals because of their personal problems and the need for pleasure. There is no significant difference between males and females regarding the reasons for consumption.

Table 1. The distribution of participants according to their answer to the question: “Where have you seen someone using ethnobotanicals?”

Location	Iași	Cluj
Have you seen someone using ethnobotanicals	48,33%	42,20%
At parties and in clubs	13,38%	8,47%
In public areas (on the street, in parks)	10,78 %	11,30%
In private areas (apartments)	5,95%	12,99%
Everywhere	10,78%	5,65%
In schools and in high school yards	1,49%	1,69%

The prohibition of ethnobotanical consumption

14.13% of all students surveyed consider that the consumption should not be prohibited, but the distribution of answers in accordance with the subject’s own experience with these substances is not to be overlooked.

Table 2. The distribution of participants according to their answer to the question: “Do you think that ethnobotanicals should be prohibited?”

Consumption of ethnobotanicals	Total	For prohibition	Against prohibition
non-consumers	84,53% (N=377)	74,22% (N=331)	9,64% (N=43)
one consumption	10,31% (N=46)	7,62% (N=34)	2,47%(N=11)
several consumptions	5,16% (N=23)	3,14% (N=14)	2,02% (N=9)

Total	446	85,87% (N=379)	14,13% (N=63)
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The reasons why subjects believe that these substances should be prohibited are various. One major aspect is underlined by consumers who declare that these substances should be prohibited because not everyone is aware of the proper ways of consuming them. Non-consumers who claim that ethnobotanicals should not be banned explain their choice by saying that a prohibition would lead to the emergence of the desire to break the interdiction; therefore, people should be allowed to decide for themselves if they want to consume certain substances or not.

Of the 59,42% male participants, 48,88% are in favour of the prohibition and 10,31% are against the prohibition of ethnobotanical consumption. The female percentage of the research (40,58%) is divided into 36,10% in favour of the prohibition of consumption and 3,81% against the prohibition of these substances.

Ethnobotanicals and alcohol

53,14% of participants are aware that combining drugs with alcohol makes the former more dangerous. 40,13% consider that these become less dangerous when mixed with alcohol, and 5,83% claim that the blend between ethnobotanicals and alcohol does not produce additional effects.

The distribution of students from the two universities seems to indicate large differences.

Table 3. The distribution of participants according to their answer to the question: “Do you think that ethnobotanical in association with alcohol become very dangerous, less dangerous or have no additional effects?”

Alcohol and ethnobotanics	Iași	Cluj
In association with alcohol become very dangerous	87,36%	1,13%
In association with alcohol become less dangerous	9,67%	86,44%
In association with alcohol have no additional effect	2,97%	10,17%

59 of the 69 subjects who declared that they had consumed ethnobotanicals at least once also believed that mixing these with alcohol was dangerous (that is, 85,50% of those who had experienced this).

Ways of obtaining ethnobotanicals

The research reflects the fact that ethnobotanicals may be obtained by various means. All the participants identify specialised shops (weedshops, spiceshops, dreamshops) as the main way of obtaining such substances. Other types of shops are also mentioned (agriculture shops, pet shops, or even student campus grocery stores), along with the Internet (by online order, delivered by express courier services), dealers (in discos, sometimes even from the employees), campus coffee shops (by means of a password), friends and colleagues – less commonly.

The distribution of participants according to their answer to the question “Where can ethnobotanicals be purchased?” is: shops (53,36%), dealers (20,85%), internet (9,19%), friends (4,48%), campus coffee shops (2,91%) and colleagues (1,15%). There are no differences between students from the two universities regarding the latest mentioned sources, but shops and dealers are more important sources for students from the north-eastern university (74,35% from shops and 26,62 from dealers).

The consumption of ethnobotanicals in the university field

Statistics on the consumption of new substances are incomplete and difficult to carry on. The difficulties are related to the great speed at which these substances are introduced on the market and subsequently declared illegal and banned, to the hurdle of identifying the various types of substances, to the increase in consumer numbers among the young population, who has not previously experienced any other types of drugs, and to their association with high-risk drugs. A very limited number of recent studies offer data on the prevalence of the consumption of “legal drugs”.

A study carried out in Poland in 2008, among 18-year-old high school students, revealed that 3,5% of these had used “legal drugs” at least once (EMCCDA). In Romania, in 2010, the number of illegal drug consumers is as high as 10,7% of the population (GALLUP, 2011, National report on the drug situation, 2010).

The consumption in the 2 universities shows that the Iași subjects are distributed thus 85,88% non-consumers, 10,73% one consumption and 3,39% several consumptions. In the Cluj area the subjects investigated declared: 83,64% non-consumers, 10,04% one consumption and 6,32% several consumptions.

Table 4. The rate of consumption of ethnobotanicals

Rate of consumption	Males	Females	Total
Non-consumers	46,64% (N=208)	44,83% (N=169)	84,53 (N=377)
One consumption	8,30% (N=37)	2,02% (N=9)	10,31 (N=46)
Several consumptions	4,48% (N=20)	0,67% (N=3)	5,16% (N=23)

Although an overwhelming percentage of university students consider ethnobotanicals to be dangerous substances (95,76%), the research output reveals that a number of 69 students, representing 15,47% of students, have consumed ethnobotanicals at least once: 10,31% have declared that they have consumed such substances only once (of whom 80,43% are male and 19,57% are female), and 5,16% have claimed that they have consumed these several times (of whom 86,96% are male and 13,04% are female). None of the students admit to being addicted to such substances.

Regarding the subjects from Iași university, more than one third of the subjects saw consumers on the university campus (15,61% in student apartments, 15,61% in clubs or discos on the campus and 2,23% in the faculty). For Cluj university, the data collected showed that 12,99% in student apartments, 2,82% in clubs and discos on the campus and 0,56% in the faculty.

Discussion

The research offers a percentage close to the data obtained by various Romanian studies on the consumption of new substances with psychoactive effects. In the university campus, a 15,47% consumption has been identified – similar to the percentage obtained by other studies on the young population. Young males seem to be more attracted to this

pastime than young females, a 12,78% consumption having been identified in males, in contrast with the 2,69% female consumers. There is no significant difference between universities.

The information sources are part of formal and non-formal educational programs (school education, participation in prevention programmes or information projects) and informal (friends, one's own experiences, mass media information).

On the one hand, 48,65% of the participants in the research have seen people consuming substances with psychoactive effects (of whom 13,23% have experimented the sensations caused by these); on the other hand, 84,53% of the participants have declared that they have never used ethnobotanicals. Therefore, we conclude that over one third of university students are exposed to the risk of experimenting the consumption of ethnobotanical substances.

This consumption is recreational. Four main factors which motivate it may be identified: the desire to experiment the sensations produced by the use of such substances, weakness, rebelliousness and peer influence. Life inside the university campus obviously reunites and reinforces these four factors.

However, as shown by the research output, drug consumption reaches its lowest percentage at the level of schools (at pre-university level). University students' answers show that they have seen 1,57% of people using ethnobotanicals in pre-university environments, whereas the same percentage of people have been seen using them in university environments. These data lead to the question whether an educational environment policy (be it constraint or a penalty reflecting on the educational process – for instance, on its continuation) could prove be a more efficient way of reducing drug consumption than the enforcement of prohibitive laws, which have tended to increase rather than discourage consumption in the past. (MacCoun, 1993; (MacCoun, Reuter, Schelling,1996)

The reasons why students consume ethnobotanicals are various: those who have used them at least once claim to have had external motivation, such as their peers and curiosity regarding a new experience, whereas the participants who declared that they have never used this type of psychoactive substances associate their consumption to internal causes (weakness and pleasure).

Conclusions

The research determines that 15,47% of students consumed ethnobotanicals at least once and 5,16%, repeatedly. More men than women experienced the effects of ethnobotanical consumption. None of the consumers declared that (s)he was addicted to it. The students' opinion regarding the motivation revealed the following data: curiosity (30,04%), rebelliousness (12,56%), peer influence (23,77%), pleasure (30,72%), addiction (9,42%) and personal problems (25,11%). 14,13% of the surveyed students consider that the consumption should not be prohibited.

Over half of the students consider that the combination with alcohol makes drugs more dangerous, while 40,13% claim that there is no important change if ethnobotanicals are mixed with alcohol. But important differences have been registered. Students from the centre of the country seem to underestimate the gravity of the combination of these two factors, a good percentage considering that the association is less dangerous. The evaluation is made contrary by the students from eastern university, who estimate the combination as very dangerous. One possible explanation is that there were important educational projects for informing high school students about the consumption of ethnobotanicals and its effects. On the other hand, the students from the eastern university came from an area where the consumption is high, so the statistics also revealed that the lack of information about the substances could cause a wrong attitude about them.

More than one third of the subjects saw consumers on the university campus (student apartments, clubs or discos on the campus or inside the faculty). Two conclusions are essential to this study: 1. a considerable number of students tried ethnobotanicals in their past; 2. no matter if (s)he is a consumer or not, the student is nonetheless exposed to ethnobotanical consumption on university campus. The social aspects are very important in stimulating or diminishing consumption rates.

Because of the very small percentages of psychoactive substance consumers identified within schools, high schools or universities, the implementation of educational policies by means of projects must be taken into consideration at both pre-university and university level.

The lower rate regarding the consumption in schools, schoolyards and university building prove that a possible motivation for

non-consumption is the extrinsic motivation: prohibition and penalty applied by the educational environment. Unethical behaviors are penalised with effects on the educational process. On the other hand, the results are important for educational policies. School remains an important centre for morality and education, and this aspect.

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