

A Ten-year Time Laps, Regarding Drug Consumption in the Western Part of Romania

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The purpose of the research was to see the time-trends (2005/2006-2015/2016) of types and patterns of drug usage between the young adults from medical school in Timis County. The study is a comparison of two cross-sectional cohorts of student from Timis County, Romania (2005/2006: 365 females and 248 males; 2005/2016: 336 females and 123 males). In both investigations the same questionnaire was used. Through the investigation we measured the types and patterns of drugs used in relation with gender and cohort effect frequency. For the 2005/2006 evaluation 15% of boys and 4.9% of girls have tried at least one kind of drug. In the reevaluation study 2015/2016 the consumption of at least one kind of drug has risen 34.4% boys and 14.4% girls, which means meaning that the number of consumers has risen by 3 times in between investigations. The intervention to minimize the usage of any sort of drugs in a specific university environment or in the general population has to be done in very careful way in concordance with the specific patterns of usage and types of drugs.

Keywords: Drug misuse, types of drugs, medical students

The consumption of drugs between the teenagers and young adults in the world, today, is a serious problem in our days. The consumption of psychoactive substances can lead to a dependence syndrome-an array of behavioral manifestations, cognitive and physiological phenomena which develop after repeated consumption of substances and include a strong desire to intake drugs, difficulties in controlling their use and in spite all the negative consequences, the consumer gives a higher priority to the drug use than other activities and obligations. [1]

For the whole Europe, WHO estimates that over 14.6 million young adults and teenagers, ages between 15-34, or 11.7% of this population age group have used marijuana in the last year, 8.8 million of whom are age between 15-24 years, representing 15.2% of the age population [35]. The consumption varies considerable between European states from one third of the young adults in states such as Denmark, United Kingdom or France, to 8% (or 1 in 10 people) in states like Bulgaria, Romania or Turkey. In the last years the substance usage in this age group varied from 0.4 to 22.1% [2].

Experimental part

Material and methods

Subjects

The present study aimed to determine the frequency of drug abused in a sample of university students in Timis County, Romania. Structured questionnaire was used to collect data regarding drugs abuse and demographic

information. Descriptive statistics and Pearson product moment correlation were used for data analysis using the statistical package for social sciences (SPSS).

Two cross-sectional cohorts were compared in this study one from 2005/2006 and one 2015/2016. The participants for the study were selected from students who attend the University of Medicine and Pharmacy Timisoara, that include Dentistry, General Medicine, Nursery and Midwives, European University Dragan, Lugoj, Nurse Post-secondary Schools.

All the subjects were of legal age, and gave their written consent of freewill to be apart of the study. In the 2006 cohort the subjects were aged 18-25 with a median of 20, and 18-26, 21 median age for the 2016 study group. Our study is in compliance with the Helsinki Declaration.

Questioner

In 2004 a 126-item questioner was developed to investigate health-risk behavior in young adults. The questioner in discussion was part of a grant *The evaluation of risk behavior dimension in high school students and young people from vocational schools and universities in Timis County* (CORT 2004), which was carried out between 2003-2006, CNCIS code 1167, obtained by Victor Babes University of Medicine and Pharmacy Timisoara. Some of the items were modified from other instruments such as Youth Risk Behavior Survey (YRBS) [3] and European School Survey Project on Alcohol and Other Drugs (ESPAD) [4].

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Table 1
THE AGE OF BOYS WHEN THEY WERE FIRST ASKED TO CONSUME DRUGS

			Lot		Total
			2006	2016	
When you were given a drug for consumption, have you consumed it?	I haven't been offered to consume	Number	146	42	188
		% from Lot	58.9%	34.7%	50.9%
	no	Number	68	48	116
		% from Lot	27.4%	39.7%	31.4%
	yes	Number	34	31	65
		% from Lot	13.7%	25.6%	17.6%
Total		Number	248	121	369
		% from Lot	100.0%	100.0%	100.0%
sex = M					

The questionnaire was administered in a regular classroom/laboratory/clinical setting and for its completion the students needed 60 min in both evaluations 2005/2006 and 2015/2016. In the study we did not use any filter questions. The survey was conducted by public health residents and undergraduate trained students. Scripts that explained the survey procedures were read out loud. The students were guaranteed anonymity and they were reassured that all of the information from the survey will be used for the assessment regarding the health-risk behavior situation in the county of Timis. The survey has items and questions, which relate to the pattern of drug intake in the last 30 days and types of substances used.

Results and discussions

Sex prevalence of drug consumption

For the 2006 group, boys were offered a drug more significantly than girls $\chi^2(1)=22.17$, $p<0.001$. OR=2.30, IC95%=(1.62-3.26); (table 1) and as for the 2016 group tendency is the same $\chi^2(1)=14.55$, $p<0.001$. OR=2.29, IC95%=(.49-3.53) (table 2). After we eliminated those who have not been offered any type of drugs, for the 2005/2006 survey, we did not find any significant differences between the genders of accepting or not to consume ($p=0.065$), but for the 2015/2016 group, boys have significantly accepted to consume more frequently a type of drug in comparison to girls $\chi^2(1)=6.38$, $p=0.012$, OR=2.12, IC95%=(1.17-3.82).

The prevalence of drug use has remained constant between the two assessments for boys($p=0.411$), and girls ($p=0.704$).

Age consumption of drug

In the 2015/2016 group the consumption of drugs started at a much younger age than the 2005/2006 group both in boys $U=11894$, $z=-4.537$, $p<0.001$, $r=0.23$ (table 4), as well as in girls $U=54578$, $z=-4.46$, $p<0.001$, $r=0.17$ (table 3). Boys started to use drugs much earlier than girls in the 2005/2006 study $U=40653$, $z=-4.48$, $p<0.001$, $r=0.18$, but with a small difference as well as in the 2015/2016 $U=15598$, $z=-5.18$, $p<0.001$, $r=0.24$ (fig. 1).

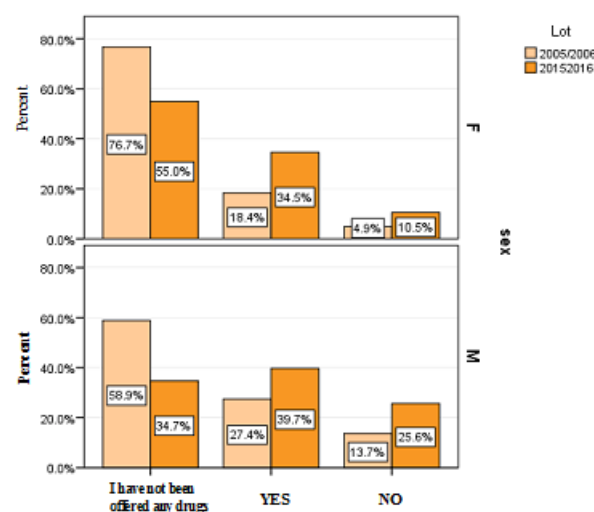


Fig.1. First time consuming drugs

Table 2
THE AGE OF GIRLS WHEN THEY WERE FIRST ASKED TO CONSUME DRUGS.

			Lot		Total
			2006	2016	
When you were given a drug for consumption, have you consumed it?	I haven't been offered to consume	Number	280	183	463
		% from Lot	76.7%	55.0%	66.3%
	no	Number	67	115	182
		% from Lot	18.4%	34.5%	26.1%
	yes	Number	18	35	53
		% from Lot	4.9%	10.5%	7.6%
Total		Number	365	333	698
		% from Lot	100.0%	100.0%	100.0%
sex = F					

Motivation for consuming the substances

For the boys, the prevalence for the next motivations: that drug use contributes to good mood ($U=12036.5$, $z=-5.59$, $p<0.001$, $r=0.30$), when I consume drugs I can communicate more easily with other people ($U=13983$, $z=-2.79$, $p=0.005$, $r=0.15$), to reward myself for an achievement ($U=13451$, $z=-3.78$, $p<0.001$, $r=0.20$), to make me feel better after something unpleasant happened to me ($U=13864$, $z=-3.13$, $p=0.002$, $r=0.16$) and because I like the effect of drugs on me ($U=13336$, $z=-3.58$, $p<0.001$, $r=0.19$), all have increased for the 2015/2016 cohort group, in comparison to the 2005/2006 cohort.

For girls the next motivations have not shown any statistical difference in the two evaluations: when I consume drugs I can communicate more easily with other people ($p=0.616$), when I find myself between people who consume drugs I do not want to create a separate opinion ($p=0.512$), to reward myself for an achievement (exam, other) ($p=0.296$), to make me feel better after something unpleasant happened to me ($p=0.139$), that is what I saw in my family ($p=1.000$), to overcome different conflicts with my family, in school or with friends ($p=1.000$), because I am a shy person ($p=1.000$).

For girls the two motivations that drug use contributes to good mood ($U=58542$, $z=-2.75$, $p=0.006$, $r=0.10$) and I like the effect that drugs give me ($U=59134$, $z=-2.69$, $p=0.007$, $r=0.10$) have risen in both studies.

Types of drug used

In the 2005/2006 study $\chi^2(1)=20.7$, $p<0.001$, $OR=3.82$, $IC95\%=(2.1-7.0)$, as well as in the 2015/2016 $\chi^2(1)=24.4$, $p<0.001$, $OR=3.3$, $IC95\%=(2.0-5.4)$, a higher proportion of boys consumed drugs than girls.

In the 2015/2016 study the percentage of boys who consumed Ecstasy $\chi^2(1)=9.6$, $p=0.002$, $OR=8.6$, $IC95\%=(1.7-43.0)$ and amphetamines $\chi^2(1)=7.2$, $p=0.007$, $OR=7.1$, $IC95\%=(1.4-36.9)$ was statistically higher than girls. For the other drugs, the percentage between boys and girls was $p>0.05$.

In both studies a higher percentage of boys consumed marijuana, $\chi^2(1)=22.8$, $p<0.001$, $OR=4.2$, $IC95\%=(2.2-7.8)$ for the 2005/2006 cohort and $\chi^2(1)=25.4$, $p<0.001$, $OR=3.4$, $IC95\%=(2.1-5.6)$ for the 2015/2016 cohort.

Drug consumption has increased from one evaluation to another in both boys $\chi^2(1)=17.2$, $p<0.001$, $OR=2.9$,

Table 3
AT WHAT AGE DID GIRLS FIRST TAKE DRUGS

			Lot		Total
			2006	2016	
At what age did you take drugs for the first time?	I have never consumed drugs	Number	348	283	631
		% from Lot	95.3%	85.2%	90.5%
	17 years or more	Number	10	42	52
		% from Lot	2.7%	12.7%	7.5%
	15-16 years	Number	7	6	13
		% from Lot	1.9%	1.8%	1.9%
	13-14 years	Number	0	1	1
		% from Lot	0.0%	0.3%	0.1%
Total		Number	365	332	697
		% from Lot	100.0%	100.0%	100.0%
sex = F					

Table 4
AT WHAT AGE DID BOYS FIRST TAKE DRUGS

			Lot		Total
			2006	2016	
At what age did you take drugs for the first time?	I have never consumed drugs	Number	211	77	288
		% from Lot	84.7%	63.6%	77.8%
	17 years or more	Number	27	32	59
		% from Lot	10.8%	26.4%	15.9%
	15-16 years	Number	8	8	16
		% from Lot	3.2%	6.6%	4.3%
	13-14 years	Number	3	3	6
		% from Lot	1.2%	2.5%	1.6%
	10 years or less	Number	0	1	1
		% from Lot	0.0%	0.8%	0.3%
Total		Number	249	121	370
		% from Lot	100.0%	100.0%	100.0%
sex = M					

IC95%= (1.7 - 4.8), as well as in girls $\chi^2(1)=17.3$, $p<0.001$, OR=3.3, IC95%= (1.8- 6.0).

The prevalence of marijuana consumption increased from one evaluation to another, both in boys $\chi^2(1)=16.1$, $p<0.001$, OR=2.8, IC95%= (1.7-4.7), as well as in girls, $\chi^2(1)=16.1$, $p<0.001$, OR=3.5, IC95%= (1.8 -6.3), but for the rest of the drugs it remained the same. The boys have increased the prevalence of Ecstasy consume $\chi^2(1)=8.5$, $p=0.007$, OR=12.2, IC95%=(1.5-102.2) and in hallucinogenic mushrooms, $\chi^2(1)=4.7$, $p=0.048$, OR=7.9. For the rest of the drugs tested, girls have not shown any significantly changes from one evaluation to another, $p>0.05$.

Drug consumption in the last 30 days

Referring to the drug use in the last 30 days in the 2005/2006 study, we did not find any significant differences in the proportions of consumer among girls and boys, $p=0.129$, and neither for the consumption of marijuana in the last 30 days, $p=0.306$.

For the 2015/2016 study, higher proportion of boys then girls were found to have been consumed drugs in the last 30 days $\chi^2(1)=30.7$, $p<0.001$, OR=7.1, IC95%= (3.2 - 15.5), and as well of marijuana $\chi^2(1)=30.7$, $p<0.001$, OR=7.1, IC95%= (3.2-15.5).

The proportion of student drug users in the past 30 days was significantly higher in the 2015/2016 study then in the 2005/2006 study, in both boys $\chi^2(1)=30.7$, $p<0.001$, OR=10.6, IC95%= (3.9 - 28.8), as well as in girls, $\chi^2(1)=5.9$, $p=0.015$, OR=5.5, IC95%= (1.2 - 25.1). Also the proportion of marijuana consumer have increased since the 2015/2016 study in comparison to the 2005/2006 study, in both boys $\chi^2(1)=33.9$, $p<0.001$, OR=16.7, IC95%= (4.9 -57.1), as well as girls, $\chi^2(1)=8.3$, $p=0.005$, OR=10.9, IC95%= (1.4 - 85.6) (fig. 2)

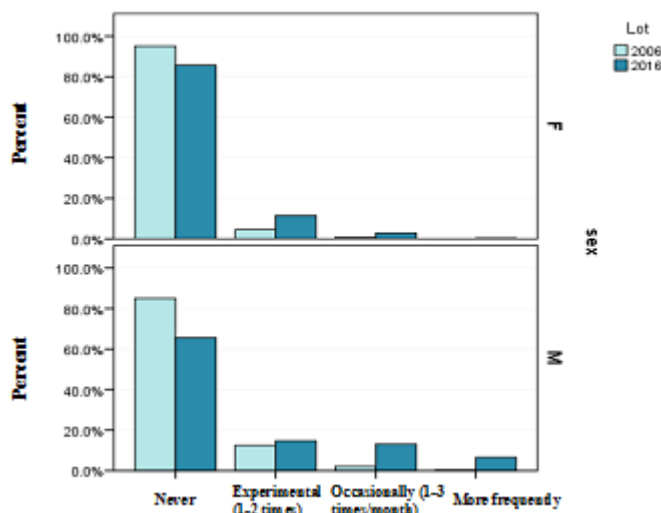


Fig. 2. How often have you used drugs until now

For the 2005/2006 group gender differences were not statistically significant in terms of drug use in the past 30 days ($p=0.159$), but in terms of lifetime drug use, boys consumed significantly more frequently then girls ($U=40530$, $z=-4.27$, $p<0.001$, $r=0.17$), with a small size difference. For the 2015/2016 lot, boys consumed significantly more frequently then girls both in the past 30 days ($U=17418$, $z=-5.33$, $p<0.001$, $r=0.25$), and throughout life ($U=15856$, $z=-5.16$, $p<0.001$, $r=0.24$), with a small to medium difference.

Overall, for boys, the consumption of drugs in the last 30 days ($U=12700$, $z=-5.88$, $p<0.001$, $r=0.31$) as well the consumption throughout life ($U=11809.5$, $z=-4.72$,

$p<0.001$, $r=0.25$), have increased significantly. For girls the usage of drugs slightly increased in both of the cases, drug use in the last 30 days ($U=58950.5$, $z=-2.88$, $p=0.004$, $r=0.11$), and lifetime usage ($U=54966.5$, $z=-4.30$, $p<0.001$, $r=0.16$).

Drug addiction

For the 2005/2006 lot, a higher proportion of girls, compared to boys, know the concept of drug addiction, $\chi^2(1)=4.3$, $p=0.039$, OR=2.2, IC95%= (1.02 - 4.8).

In the 2005/2006 lot, we did not find any proportions of girls and boys who knew any family members $p=0.421$ or colleagues $p=0.531$ being addicted to drugs of any kind.

In the 2015/2016 lot, we did not find any differences between boys and girls who knew any family member with drug addiction, $p=0.116$. Instead, the boys who knew friends $\chi^2(1)=6.4$, $p=0.011$, OR=2.0, IC95%= (1.2 - 3.5) and colleagues $\chi^2(1)=7.5$, $p=0.006$, OR=3.2, IC95%= (1.33 - 7.8), of being addicted to any kind of drugs were significantly higher than girls (fig. 3).

The proportion of student who know drug addicts has increased significantly from one study to another both in boys $\chi^2(1)=40.5$, $p<0.001$, OR=9.1, IC95%= (4.2 - 19.9), and girls $\chi^2(1)=8.62$, $p=0.003$, OR=2.1, IC95%= (1.2 - 3.4).

The proportion of those who know any family member of being a drug addict remained constant in the two evaluations, both in boys $p=0.116$, as in girls $p=0.953$. The proportion remained the same for girls in regard to knowing drug addict colleagues, $p=0.104$. In boys the proportion who know to have drug addict colleagues increased significantly $\chi^2(1)=10.7$, $p=0.001$, OR=5.75, IC95%= (1.79 - 18.5).

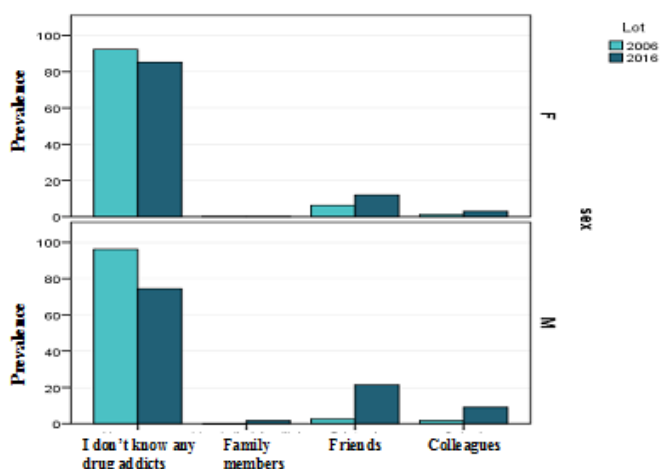


Fig. 3. Do you know any drug addicts

This study gives a unique overview of the changing trends in type and patterns of drug use in medical students from western Romania, over one decade.

For the 2005/2006 evaluation 15% of boys and 4.9% of girls have tried at least one kind of drug. In the reevaluation study 2015/2016 the consumption of at least one kind of drug has risen 34.4% boys and 14.4% girls, which means meaning that the number of consumers has risen by 3 times in between investigations.

According to the number of life-long opportunities to consume drugs, in both sexes there was a small to average increase in the frequency of drug use of all kinds for the 2015/2016 lot.

The drug with the most highest prevalence of life-long consumption is marijuana, in the 2005/2006 evaluation, boys reporting the consumption in 15.25%, and girls in 4.2%.

At the 2015/2016 reassessment, prevalence of consumption increased 2.8% for boys and 3.5% times for girls. The prevalence of amphetamine consume was of 1.3% in boy, and 0% for girls in the 2005/2006 evaluation, but it grew to 4.1% for boys and 0.6% respectively for girls. Increased prevalence of consumption has been reported in the 2015/2016 study, for hallucinogenic mushrooms, 3.3% boys and 2.1% girls, as of the 2005/2006 study, boys 0.4%, and girls 0.0%.

Consumption of drugs in the last 30 days is less represented than the lifetime consumption. If in the 2005/2006 study only 1.2% of boys and 0.3% of girls, declares consumption at least once in the last 30 days of any type of drug, at the reassessment 17.2% of boys and 3% of girls, admitted of consuming a type of drug in the last 30 days. So the increase of consumption of about 17% in boys and 10 times in girls is statistically significant and raises big problems.

Similar to our survey, WHO has reported the marijuana is the most common used drug worldwide. In 2013 it has been reported that over 181.8 million people worldwide, aged between 15-64, have used cannabis for non-medical purpose, globally.[34]. There is growing demand for treatment associated with disorders of cannabis usage and the pathologies associated with its consumption in the countries with middle to high income.

In terms of motivation of consumption for the illicit drugs, the highest ones were those with references to well being and relaxation which grew from 2.1 to 18.9% for boys, and from 1.1 to 4.5% in girls. In decreasing order of the prevalence of motivation, is the pleasure due to consumption, increasing from 1.3 to 9%(boys), and from 0.3 to 2.7%(girls).

Conclusions

Drug addiction is a long-term problem caused by a strong and uncontrollable urge to seek out drugs, being a serious and growing problem. Because of these considerations, it

is important to reduce first of all, the number of young people initiating drug use and to prevent the transition from experimental use to a real addiction. The most systematic and effective way in which the prevention could be done is through implementation of programs and curricula's that bring awareness of drug addiction [5].

So this article is in line with the current trends in drug use, including the Ethno-botanical substances [6], but also in line with patterns of alcohol use and binge-drinking behavior in Timis county and not only [7].

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Manuscript received: 14.01.2018