

AN INCREASING TREND OF ILLICIT DRUG USE AMONG ROMANIAN UNIVERSITY STUDENTS FROM 1999 TO 2011

NARAŠČUJOČI TREND UPORABE PREPOVEDANIH DROG MED ROMUNSKIMI UNIVERZITETNIMI ŠTUDENTI OD LETA 1999 DO LETA 2011

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ABSTRACT

Aim. The present study investigates the evolution of illicit drug use among Romanian university students from 1999 to 2011.

Keywords:
illicit drug use,
Romanian youth,
health promotion

Methods. The study was performed in Cluj-Napoca, Romania, in three phases: in 1999 (T1), in 2003 (T2) and in 2011 (T3). The study was carried out by means of anonymous questionnaires among university students aged 19-24.

Results. The results show that among girls the lifetime illicit drugs use increased statistically significantly from 2.5% in 1999 to 7.5% in 2003 and to 15% in 2011. Among boys the trend was also increasing, the prevalence of illicit drug use was 14.2% at T1, 18.1% at T2, and it increased dramatically to 30.6% at T3. The percentage of students reporting cannabis use was almost identical with the total prevalence of illicit drug use. Ecstasy was the second most frequent drug used by the students; its consumption had also an increasing trend during the examined periods (from 0 to 5.6% among girls and from 0.8% to 11.2% among boys). The results of the bivariate correlation analyses show that lifetime illicit drug use was associated with having friends who experimented with illicit drugs both among boys and girls. Moreover, girls who declared stress management problems and depressive episodes were more likely to try illicit drugs, while among boys illicit drug use was associated with poorer academic performance.

Conclusions. The data pointed out by our study call for comprehensive actions regarding the prevention of illicit drug use among Romanian young people.

IZVLEČEK

Namen. Ta študija se nanaša na porast uporabe prepovedanih drog med romunskimi univerzitetnimi študenti v obdobju od leta 1999 do leta 2011.

Ključne besede:
uporaba prepovedanih
drog,
romunska mladina,
promocija zdravja

Metode. Študija je bila razdeljena v tri sklope v romunskem mestu Cluj-Epoca; prvi sklop je bil izveden leta 1999 (T1), drugi leta 2003 (T2), zadnji pa leta 2011 (T3). Za namene študije je bila izvedena anonimna anketa med univerzitetnimi študenti, starimi med 19 in 24 let.

Rezultati. Rezultati kažejo, da se je doba uporabe prepovedanih drog pri ženskah bistveno statistično povečala iz 2,5% v letu 1999, na 7,5% v letu 2003 in 15% v letu 2011. Trend pri moških prav tako narašča, saj je prevalenca uporabe prepovedanih drog v letu 1999 znašala 14,2%, v letu 2003 18,1%, v letu 2011 pa močno poskočila na 30,6%. Odstotki študentov, ki so navedli uporabo kanabisa so bili skoraj identični s skupno prevalenco uporabe prepovedanih drog. Ekstazi (MDMA) je bil pri študentih na drugem mestu; uporaba te droge je prav tako beležila naraščajoči trend v obravnavanem obdobju (od 0 do 5,6% pri ženskah in od 0,8% do 11,2% pri moških). Rezultati analiz bivariantne korelacije kažejo, da je obdobje uporabe prepovedanih drog tako pri moških kot pri ženskah povezano s prijatelji, ki so eksperimentirali s prepovedanimi drogami. Študentke, ki so navajale težave z zdravljenjem stresa in obdobji depresije, so bolj nagnjene k uporabi prepovedanih drog, medtem ko je uživanje prepovedanih drog pri moških povezano s slabšimi študijskimi rezultati.

Zaključki. Podatki, ki smo jih pridobili s študijo, zahtevajo celostne ukrepe v smeri preprečevanja uporabe prepovedanih drog med romunsko mladino.

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1 INTRODUCTION

The concept "illicit drug" includes cannabis (herbal cannabis and cannabis resin), amphetamines, LSD or other hallucinogens, crack, cocaine, ecstasy and heroin. Illicit drug use by young people has serious health and social consequences (1). These effects depend on the type and potency of drug, route of administration, consumed dose, frequency of use and health status of the user. Illicit drug use represents a threat to mental stability and increases the odds of death from accidental or intentional drug overdoses, as well as engagement in other unsafe behaviours, such as driving under the influence, having unprotected sex, being involved in delinquent behaviour and dropping out of school. Teens that begin drug use at an early age are at risk of developing addiction and continued drug habits into and throughout adulthood (2-10). Moreover, intravenous drug use is associated with an increased risk of acquiring HIV/AIDS and hepatitis B and C, due to the sharing of used needles (10, 11).

After the fall of the communist regime in 1989, Romania started a process of political, economic and socio-cultural changes, which led, in 2007, to the admission of Romania into the European Union. Along with these socio-economic changes, the health risk behaviours of Romanian young people, such as illicit drug use, also suffered several changes (10-12). National representative studies carried out by the National Agency against drugs in Romania, show that the prevalence of illicit drug use during lifetime among the general population older than 15 years increased from 1.7% to 4.3% from 2007 to 2010. The highest prevalence at both time points were among the age group 15-24 years - 4.1% in 2007 and 9% in 2010 (13). One quarter of European 18-21 year olds and 41% of 21-24 years olds report having consumed an illicit drug in their lifetime (14). Moreover, studies from other countries underline the importance of drug use studies among university students, since they focus on people 18-25 years old, which is the age group that has been demonstrated to have the highest prevalence of drug use in the general population in several countries, but also because they might be at risk due to several individual factors (stress, depression, anxiety) as well as contextual influences (peer social norms and peer pressure, accessibility to illicit drugs, spending leisure time in places where they can purchase illicit drugs) (14-20).

Hence, the present study investigates the evolution of illicit drug use among Romanian university students between 1999 and 2011, giving a special attention to possible gender differences. Factors associated with illicit drug use will be also investigated.

2 METHODS

2.1 The Study Sample and Procedure

The study was performed in Cluj-Napoca, an important university town in the North-West region of Romania, in 1999 (T1), in 2003 (T2), and in 2011 (T3). It involved university students randomly chosen from 8 dorms belonging to the 4 main universities of the town. In 1999, a number of 60 students (30 girls, 30 boys) living in the selected dorms were randomly chosen from each university, driving to a total sample of 240 students (7). In 2003 and 2011, the sample selection was the same, but at each time point 80 students (40 girls and 40 boys) were randomly chosen from each university, leading to a sample of 320 students in each of the last two waves. Students' age was between 19-24 years.

The selection of students was made by randomly choosing two participants per room from 15 different rooms of each dorm in 1999, and from 20 different rooms of each dorm in 2003 and 2011 (dorms had rooms with 2-4 students living in each room). The students were informed about the voluntary participation in the study. The refusal rate was low (between 2.8% and 3.7%) and the students who refused to participate were replaced with students chosen from the same university, living in the same dorm.

2.2 The Instrument

All students were asked to fill in an anonymous questionnaire, which investigated several issues connected to illicit drug use. This questionnaire was developed especially for this study based on the data from the existing literature. The data collection performed in 1999 investigated only the issues connected with illicit drug use, while in 2003 and 2011, the questions connected with the investigation of illicit drug use were included in a questionnaire investigating a broader area of health risk behaviours among university students (10).

The present study is including the following variables: the use of illicit drugs at least once during a lifetime and in the last month, the number of times of illicit drug use during a lifetime, the type of used drugs, the temptation to use illicit drugs without doing it, the intention to use drugs in the future. Due to the availability of the data collected by the questionnaires used in 2003 and 2011, the following pieces of information were also included regarding these two time points: an academic performance declared by students (0-in the first third of their academic year group, 1-in the second third of their academic year group and 3- in the last third of their academic year group), declaring having stress management problems (-2 -I totally disagree, -1- I disagree, 0-I do not know, 1-I agree,

2-I totally agree), declaring having depressive episodes (-2 -I totally disagree, -1- I disagree, 0-I do not know, 1-I agree, 2-I totally agree) and declaring having friends who experimented with an illicit drug use at least once during their lifetime (0-No/I do not know, 1-Yes)

2.3 Data Analyses

The data analysis was performed with SPSS-15 statistics program. Statistical significance is reported at $p < 0.05$.

The chi-square tests were used in order to evaluate the differences regarding the illicit drug use related behaviours, which were observed between boys and girls in each time period, but also between the data regarding female or male samples collected at different time points. For the data collected in 2003 and 2011, bivariate correlations were used in order to assess the association between illicit drug use during lifetime (0-no, 1-yes) and several other variables, namely: academic performance (0-in the first third of their academic year group, 1-in the second third of their academic year group and 3- in the last third of their academic year group), declaring stress management problems (-2-I totally disagree, -1-I disagree, 0-I do not know, 1-I agree, 2-I totally agree), declaring having depression episodes (-2 -I totally disagree, -1-I disagree, 0-I do not know, 1-I agree, 2-I totally agree) and having a friend who has experimented with illicit drug use at least once during lifetime (0-no/I do not know, 1-yes).

3 RESULTS

3.1 The Prevalence and Patterns of Illicit Drug Use

Table 1 shows that illicit drug use was more frequent among boys than girls at all three time points. Among girls the consumption of illicit drugs at least once during lifetime increased statistically significantly from 2.5% in 1999 to 7.5% in 2003 and 15% in 2011. Among boys the trend was also increasing, the prevalence was 14.2% at T1, 18.1% at T2, and it increased dramatically to 30.6% at T3. The use of illicit drugs more than 2 times during lifetime has also increased among both genders.

The illicit drug use in the last month was observed mainly in 2011, the prevalence being 2.5% among girls and 6.2% among boys.

Table 1 also shows that herbal cannabis and cannabis resin were the drugs most frequently consumed. Thus, the percentage of students reporting cannabis use was almost identical to the total prevalence of illicit drug use. Ecstasy was the second most frequent illicit drug used by the students; its consumption had also increased from the first to the third time point (from 0 to 5.6% among girls and from 0.8 to 11.2% among boys). The other types of illicit drugs were less frequently consumed.

The temptation to use illicit drugs among students who did not consume illicit drugs during lifetime (non-users) also increased from T1 to T3, both among girls (from 0 to 7.3%) and boys (from 3.8% to 11.7%).

The intention of using drugs in the future among the non-users was absent at T1, but it increased at T3 to 2.9% among girls and to 7.6% among boys. Among students who consumed illicit drugs at least once during their lifetime the intention of consuming illicit drugs in the future also increased between the first and the last time point, from 0 to 12.5% among girls and from 5.8% to 14.3% among boys.

3.2 Factors Associated with Illicit Drug Use during Lifetime

The results of the bivariate correlation analyses show that both in 2003 and 2011 illicit drug use at least once during lifetime among girls was associated with having friends who experimented with illicit drug use at least once ($r=0.274$, $p < 0.001$ in 2003; $r=0.351$, $p < 0.001$ in 2011). Moreover, in 2011 girls who used illicit drugs at least once during lifetime were more likely to declare stress management problems ($r=0.239$; $p < 0.01$) and depressive episodes ($r=0.180$, $p < 0.05$).

Among boys illicit drug use at least once during lifetime was associated at both time points with having friends who experimented with illicit drug use ($r=0.348$, $p < 0.001$ in 2003; $r=0.340$; $p < 0.001$ in 2011) as well as with having poorer academic performance ($r=0.169$; $p < 0.05$ in 2003; $r=0.163$; $p < 0.05$ in 2011).

Table 1. Illicit drug use related behaviours among Romanian university students.

Behaviour	1999		2003		2011	
	Girls	Boys	Girls	Boys	Girls	Boys
	N=120 %	N=120 %	N=160 %	N=160 %	N=160 %	N=160 %
Lifetime use of any illicit drug						
Never	97.5 ^{a,b}	85.8 ^b	92.5 ^{a,c}	81.9 ^c	85 [*]	69.4
1-2 times	1.7 ^b	10	4.4 [*]	11.9	7.5 [*]	15.6
More than 2 times	0.8 ^{a,b}	4.2 ^b	3.1 [*]	6.2 ^c	7.5 [*]	15
Illicit drug use in the last month	0	0	0	0.6 ^c	2.5 [*]	6.2
Lifetime use of different types of illicit drugs						
Herbal cannabis/cannabis resin	2.5 ^{a,b}	14.2 ^b	7.5 ^{a,c}	17.5 ^{a,c}	14.4 [*]	29.4
Cocaine	0	2.4	0	2.5	0	3.7
Amphetamines	0	0	1.2	3.7	2.5	3.1
Ecstasy	0 ^b	0.8 ^{a,b}	1.2 ^{a,c}	5 ^c	5.6 [*]	11.2
LSD	0	0	0	2.5	1.2	2.5
Heroin	0	0.8	0	0.6	0	0
Lifetime temptation of using illicit drugs among students who never used these substances	0 ^b	3.8 ^b	2.7 ^{a,c}	6.1 ^c	7.3 [*]	11.7
Intention to use illicit drugs in the future among students who never used these substances						
Probably yes	0	0	0	2.5 ^c	2.9 [*]	7.6
Definitely yes	0	0	0	0	0	0
Intention to use illicit drugs in the future among students who declared consumption of these substances at least once during lifetime						
Probably yes	0 ^b	5.8	8.33	10.3	12.5	14.3
Definitely yes	0	0	0	0	0	0

a - statistically significant differences at chi 2 test between the samples from 1999 and 2003 ($p < 0.05$)

b - statistically significant differences at chi 2 test between the samples from 1999 and 2011 ($p < 0.05$)

c - statistically significant differences at chi 2 test between the samples from 2003 and 2011 ($p < 0.05$)

* - statistically significant differences at chi2 test between boys and girls ($p < 0.05$)

4 DISCUSSION

This study investigated the illicit drug use related behaviours among students from one big university town in Romania. It has two main strengths. The first one is the study sample, since it represents one segment of Romanian population which has not been included in national representative studies performed until now.

In Romania, the National agency against drugs was performing national representative surveys among the general population older than 15 years in 2004, 2007 and 2010, but they did not include information about subgroups, such as university students (13). Moreover, ESPAD- The European School Survey Project on alcohol and other drugs was also performed in Romania, allowing the comparison of Romanian school students with their

counterparts from other countries, but the data is limited to the age group 15-16 years (1, 21).

The second strength is that it gives an overview on the evolution of illicit drug use among Romanian university students from 1999 to 2011.

The main finding of the study is the increasing trend of illicit drug use from 1999 to 2011, especially cannabis and Ecstasy, which was observed in both genders. Moreover, the intention to use illicit drugs in the future increased both among students who used or did not try illicit drugs before. An increase in illicit drug use (mainly cannabis) was observed also by another study performed among younger Romanian adolescents aged 15-16 years (21), as well as by a national study performed among the general Romanian population older than 15 years (13). At European level, population survey data suggest that, on average, 31.6% of young European people aged 15-34 years have ever used cannabis, while 12.6% have used the drug in the last year and 6.9 % have used it in the last month. The countries with high prevalence of cannabis consumption in the last year included the Czech Republic, Italy and Spain. The countries with low prevalence of cannabis use in the last year (less than 5%) were Romania, Malta, Greece and Cyprus (14). When looking at trends regarding the last year prevalence of cannabis use among young adults aged 15 to 34 from Europe, of the 12 countries with repeated surveys during the period 2003-2008, the majority report a stable situation (Denmark, Germany, Spain, Hungary, Sweden, Finland, and the United Kingdom). Five countries report an increased cannabis use over this period, of at least two percentage points in Bulgaria, Estonia and Slovakia, and about eight percentage points in the Czech Republic and Italy (14). The ESPAD studies showed that the prevalence of lifetime cannabis use among 15-16 years old school students increased from 2007 to 2011 in several countries of Europe, such as Monaco, France, Poland, Latvia, Romania, Cyprus, Greece, while remaining stable or even decreasing in other countries (e.g. Ukraine, Malta) (21). Unfortunately, less data based on national representative samples are available with regard to illicit drug use among university students in Europe, but several studies performed among university students from different universities in Europe give information with respect to these issues. For instance, a study performed in 2005 in Poland indicates a prevalence of 38.3% of illicit drug use at least once during lifetime among university students from Krakow (19). A French study from 2009 shows a prevalence of illicit drug use of 44% among university students (16). A study performed in seven universities in England, Wales, and Northern Ireland show that 30% of the university students used illicit drugs at least once during lifetime (18). A study from one university in Italy presents that 50.4% of subjects have already tried an illegal drug (17).

Moreover, with respect to gender differences, our study showed that the lifetime use of illicit drugs was higher among boys than girls at each time point, but the ratio of males to females among students reporting the use of illicit drugs in their lifetime varied from 5:1 in 1999 to 2:1 in 2011. Other international studies also underline that illicit drug use is still more frequent among boys than girls in many countries, but differences among genders have started to diminish (4, 14, 15, 21). Similar trends are observed with respect to alcohol and tobacco consumption (21) and might be occurring due to changes in girls' social behaviour, desire for emancipation and social recognition, women's struggle for space in the job market, stress, excessive activity, anxiety, and difficulty coping with problems (22, 23).

The results of our study present friends' influences as playing an important role with respect to illicit drug experimentation, underlining the importance of including in the educational programs for young people issues connected with identification and resistance to peer pressure.

Moreover, among girls, depression and stress are factors associated with illicit drug use, which raise the challenge of developing services which would help university girls to deal with these problems in order to prevent illicit drug use.

Among boys, poor academic performance was associated with illicit drug use, which could be the consequences of the fact that these students are involved in several health risk behaviours, which might influence also their time management and focus for performing academic tasks, with short and long term consequences on their social development.

This study is subject to limitations. First, due to funding and logistical restrictions, the study involved only students from one big university town in Romania. This is inevitably a limit to the generalization of the findings of the study beyond its sample. Second, another common limitation with most studies on this topic is the reliance on students' self-reports. Although some respondents may not report truthfully, the likelihood of honest responses is maximized in this survey by conducting it anonymously. Thirdly, this study included limited data on factors which could be associated with the consumption of illicit drugs among Romanian young people. Hence, future studies should focus more on these issues, since an insight in the determinants of such behaviour might help develop evidence-based prevention actions. Fourthly, the association identified between illicit drug use and several other factors is based on cross-sectional data, so no conclusions could be derived with regard to causality.

5 CONCLUSIONS

The data resulting from our study call for comprehensive health promotion actions, needed in order to prevent the development of illicit drug use to a higher extent in the future in Romania. Hence, as studies from other European countries also suggest, several strategies and measures should be adopted and implemented both on a declaratory and on a practical level in order to prevent the increase of illicit drug use among Romanian young people (10, 21-24). It is recommended that the Romanian government takes an active role in enhancing illicit drug use prevention and health promotion. Suggested means are, for instance: the enforcement of legislative means for discouraging the access to illicit drugs for young people, the inclusion of illicit drug use prevention and health education in the curriculum of junior high school, senior high school and universities, funding the development and evaluation of prevention programmes as well as the dissemination of tested effective programmes at the national level, the promotion of community programmes, and the encouragement of exchanges of good practice, guidelines and quality standards at both national and international level. Long-term strategies must be implemented based on the cooperation between governmental institutions, academic areas, non-governmental organizations and mass media (10, 23, 24).

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

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ETHICAL APPROVAL

Not required.

REFERENCES

- Hibell B, Andersson B, Bjarnason T, Ahlström S, Balakireva O. The ESPAD report 2003: alcohol and other drug use among students in 35 European countries. Stockholm: The Swedish Council for Information on Alcohol and Other Drugs (CAN) and the Pompidou Group at the Council of Europe, 2004.
- Faggiano F, Vigna-Taglianti FD, Versino E, Zambon A, Borraccino A, Lemma P. School-based prevention for illicit drugs use: a systematic review. *Prev Med* 2008; 46: 385-96.
- Jacobsen KH, Fleming LC. Bullying among middle-school students in low and middle income countries. *Health Prom Int* 2010; 25: 73-84.
- Heyerdahl F, Hovda KE, Giraudon I, Yates C, Dines AM, Sedefov R. et al. Current European data collection on emergency department presentations with acute recreational drug toxicity: gaps and national variations. *Clin Toxicol* 2014; 52: 1005-12.
- Wilson FA, Stimpson JP, Pagán JA. Fatal crashes from drivers testing positive for drugs in the U.S., 1993-2010. *Public Health Rep* 2014; 129: 342-50.
- Hafner MB, Kolšek M, Rebek K. Alcohol drinking among students of the University of Ljubljana. *Zdrav Var* 2014; 53: 255-61.
- Lotrean, LM, Laza V. Opinions and practices of students from Cluj-Napoca regarding drug use. *Clujul Medical* 2002; 2: 187-92.
- Huang CM, Chien LY, Cheng CF, Guo JL. Integrating life skills into a theory-based drug-use prevention program: effectiveness among junior high students in Taiwan. *J School Health* 2012; 82: 328-35.
- World Health Organization. Health in the European Union: trends and analyses. Copenhagen: WHO office for Europe, 2009.
- Lotrean LM. Romanian adolescents: health risk behaviours and smoking prevention. Cluj-Napoca: Risoprint, 2009.
- Lotrean LM, Laza V. Knowledge, attitude and behaviour of students of a romanian university center concerning HIV/AIDS. *Centr Eur J Ocupat Environm Med* 2002; 7: 45-52.
- Abraham P. Prevalenta consumului de droguri in Romania, 2004. Bucharest: National Agency against Drugs, 2005.
- National agency against drugs. Raport national privind situatia drogurilor, Romania. Bucharest: National agency against Drugs, 2011.
- European Monitoring Centre for Drugs and Drug Addiction. The state of the drugs problem in Europe. Luxembourg: Publications Office of the European Union, 2010.
- UNODC. 2008 World drug report. Vienna: United Nations Office on Drugs and Crime, 2008.
- Morvan Y, Rouvier J, Olié JP, Léo H, Krebs MO. Student's use of illicit drugs: a survey in a preventive health service. *Encephale* 2009 ; 35(Suppl 6): 202-8.
- Kračmarová L, Klusoňová H, Petrelli F, Grappasonni I. Tobacco, alcohol and illegal substances: experiences and attitudes among Italian university students *Rev Assoc Med Bras* 2011; 57: 523-8.
- El Ansari W, Vallentin-Holbech L, Stock C. Predictors of illicit drug/s use among university students in Northern Ireland, Wales and England. *Glob J Health Sci* 2014; 7: 18-29.
- Pach J, Tobiasz-Adamczyk B, Jabłoński P, Brzyski P, Krawczyk E, Satora L. et al. Drug free universities--trends in illicit drugs use among Kraków university students. *Przegl Lek* 2005; 62: 342-50.
- Hynes M, Demarco M, Aranceda JC, Cumsille F. Prevalence of marijuana use among university students in Bolivia, Colombia, Ecuador, and Peru. *Int J Environ Res Public Health* 2015 ; 12: 5233-40.
- Hibell B, Gutormsson U, Ahlström S, Bjarnason T, Balakireva O, Kokkevi A. et al. ESPAD report 2011: alcohol and other drug use among students in 35 European countries. Stockholm: The Swedish Council for Information on Alcohol and Other Drugs (CAN) and the Pompidou Group at the Council of Europe, 2012.
- Malbergier A, Cardoso LR, do Amaral RA, Santos VC. Gender parity and drug use: are girls catching up with boys? *Rev Bras Psiquiatr* 2012; 34: 16-23
- Miniauskienė D, Jurgaitienė D, Strukčinskienė B. Self-reported cannabis products and other illicit drugs consumption in older school-age children in Northern Lithuania: a comparison between 2006 and 2012. *Medicina (Kaunas)* 2014.
- Kvaternik I, Rihter L. Analysis of drug policy in the Republic of Slovenia and in the EU context: a platform for prevention in schools. *Drugs Educ Prev Policy* 2012; 19: 120-28.