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A description of drug use among adolescents in Slovakia in different age and gender groups

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Abstract. The paper describes the drug-using behaviour among young people (12-19 y.) within two age groups in Slovakia. The study aims to describe the prevalence of two different forms of drug-use (experimentation and use within the last 30 days) of legal and illegal substances: alcohol, nicotine (cigarettes), marijuana, and other illegal drugs. A descriptive analysis was applied to two age and gender groups. The research sample was made up of 2489 pupils in primary and secondary schools (various types) from different regions within Slovakia. One set was made up of 39.1% (N = 974) boys and 61.3% (N = 1515) girls aged 12-19 years which was divided into two age groups: group “14” (14 to 15 years, N = 923) and group “16” (16 and older, N = 1566). The SAHA method was used for data collection (Social and Health Assessment, Weissberg et al., 1991; a Slovak version by Rojková, 2017). Gender differences were tested statistically, and some differences were identified. The results are discussed in the context of European and national surveys that are available and a decrease in experimentation with marijuana and smoking was found.

Keywords. Drug use, adolescence, prevalence, alcohol, smoking, marijuana, illegal drugs.

1 Introduction

“Drug-using behaviour” is defined as the person coming under the influence of addictive substances. A “drug” is any chemical substance that causes a physiological change and affects the perception due to the involvement of multiple neurotransmitter systems (1).

Substance-related disorders encompass 10 separate classes of drugs: alcohol; opioids; cannabinoids; sedatives hypnotics; cocaine; other substances including caffeine; hallucinogens; tobacco and volatile solvents (inhalants). Our study deals with those substances that are most commonly used in Slovakia. Alcohol and tobacco are the two most commonly used drugs among adolescents (2; 3; 4). The most popular illegal drugs (according to ESPAD, 2015 in Nociar, (5) among students at Slovak secondary schools are marijuana (39.8%), inhalants (6.7%), and mushrooms (5%).

The origins of Slovak “drug-using behaviour” can be classified in various ways. From a medico-legal point of view – substance use classified in three categories depending upon the drug’s acceptable medical use of a drug and its potential for abuse or dependency potential

(6): “substance use”, when a medicine is taken in the way it is meant to be used; “substance misuse/abuse”, when a medicine is taken for reasons or in ways or amounts that were not prescribed by a doctor, or taken by someone other than the person for whom they were prescribed; “substance abuse/dependence” is the habitual use of drugs for other than therapeutic purposes. The individual begins to lose control over their substance use and regularly use more of the drug than they intended. As tolerance to the drug increases, the abuser feels the need to take more and more to provide the desired effect. The term drug abuse may be seen as the use of a drug in a socially unacceptable way.

Edlin & Golanty (7) discuss the topic of substance abuse as it refers to the physical consequences, the effect on social skills and normal social behaviour. Kolibáš & Novotný (8) suggest that there are four different levels of drug use. In order to deal with drug-related issues, we need to understand why and how people use drugs.

- Experimental use: seeking new experiences and taking risks; the use of these drugs can become habitual.
- Recreational drug use: drugs are taken occasionally to enhance social events (in order to have fun).
- Symptomatic drug use: prescription drugs used for medical reasons; some medications have psychoactive properties and may be abused.
- Compulsive drug use: characterized by compulsively seeking drugs; it is typically portrayed as a defining quality of addictive behaviour.

Komárik (9) distinguishes “abusus“ which negatively affects work and social integration and “dependence” which is defined as the inability to stop using a substance (to imagine a life without drugs). There are various levels or stages of drug use/abuse and there are also lots of different ideas and opinions about dependence.

In some ways adolescence lasts for a long time and is viewed as a process of the transition from a dependent child to an independent adult who needs to take responsibility for themselves. Adolescents are faced with multiple stressors and challenges and they can learn to manage stress that comes from multiple factors, to cope with the stressors in their lives, including peer pressure and relationships and issues with parents (10). Some adolescents cope with these stressors in a negative way that, includes the use of substances that help to reduce these negative feelings. If they don’t learn how to respond to stress and to manage their stress in a healthy and productive manner, these issues may follow them into their adult lives (11) It is difficult to decide exactly when adolescence begins and ends, but key developmental milestones (physical and psychological) can indicate when a particular stage of development has begun or concluded, various sources limit the period of adolescence from approximately 13 to 21 years (12; 13). Adolescence is a vulnerable period of development defined by characteristic behaviours that include high levels of risk-taking and problematic behaviour (for example 14; 15). Problematic behaviour is often related to health issues (people addicted to drugs frequently engage in unhealthy behaviour) and it has harmful consequences for society (12). Drug abuse can be damaging to the health of the individual and to society (passive smoking). Drug abuse is often accompanied by a devastating social impact, apart from the fact that using illegal drugs leads to risk-taking behaviour (criminal behaviour (16) high risk sexual activity (17), extreme sports, etc.). It is important to note that experimental and recreational drug use can be driven by a motivation to carve out an individual identity. Trying drugs may fulfil all these normal developmental drives and most of them do not escalate from trying drugs to developing an addiction (for most adolescents, substance use later reduces or stops). But for others, substance use can be part of a pattern of high risk behaviour and it is an important predictor of the later development of a substance abuse

problem. The likelihood of developing a substance abuse problem is greatest for those who develop a pattern of repeated (regular) use at this age, tobacco and alcohol are widely consumed legal drugs in Slovakia. During adolescence, several regularly repeated surveys on drug-using behaviour are relevant. They include the Slovak national TAD Survey of Primary School Pupils, Secondary School Students and Their Teachers in 2014 (18), the European ESPAD Report (19), and the Slovak ESPAD 2015 report by Nociar (5). In the TAD 2014 survey two age cohorts were examined: 11-14 years (grades 5-9 in primary schools) and 15-19 years (secondary school students) and the survey found that after two decades the situation in drug use among young people is considered to have stabilized, there is no longer growth in the use of either marijuana or other illegal drugs between 2010 and 2014 (according to 18). The European ESPAD Report 2015 published finding that were primarily about substance experimentation and use during the last 30 days for the age group 15-16, separately for many countries and, secondarily, also provided the results of a gender comparison in some patterns of use. For Slovak adolescents, the only significant difference between boys and girls on the last occasion they drank was the amount of alcohol consumed. Also there was no difference between girls and boys, according to the European ESPAD Report 2015, for example, in the frequency of drinking (in the last month), of using marijuana, inhalants, or the number of cigarettes in the last 30 days (ESPAD group, 2016), etc. The Slovak ESPAD 2015 report (5) presents results about the drug-use situation in Slovakia for the population of secondary school students (16-19 years). More recent representative surveys for the Slovak adolescent population are not available. In Table 1 the relevant results about the forms of use of illegal drugs, alcohol, marijuana, smoking, and binge drinking from the reference surveys mentioned are summarized.

Table 1 Relevant results from reference surveys TAD 2014 (18) and ESPAD 2015 (5; 19)

AGE	Lifetime drug experimentation				Drug use in the last 30 days		
	TAD 2014		ESPAD 2015		TAD 2014	ESPAD 2015	
	11-14	15-19	15-16	16-19	15-19	15-16	16-19
Marijuana	2%	27%	26%	39%	-	9%	12%
Extasy	-	2%	3%	4%	-	-	-
Pervitin/Amphetamine.	-	2%	3%	4%	-	-	-
Cocaine/crack	-	1%	3%	2%	-	-	-
Heroin	-	0.6%	3%	1%	-	-	-
LSD	-	2%	1%	4%	-	-	-
Others	-	3%	2%	7%	-	3%	-
Inhalants	-	3%	8%	7%	-	1%	1%
Mushrooms	-	-	-	5%	-	-	-
Illegal drugs average	-	2%	-	7%	-	-	-
Alcohol	52%	-	91%	95%	-	49%	65%
Binge drinking	-	-	-	-	-	42%	54%
Smoking	33%	62%	62%	71%	38%	31%	39%
Daily smoking	-	-	-	-	24%	18%	27%

Objective 1: To describe the prevalence of alcohol consumption, binge drinking, smoking, marijuana use, and experimentation with other drugs and their use (within the last 30 days for

legal drugs and marijuana; within 1 year for illegal substances) in two age groups of adolescents and according to sex.

Objective 2: To examine the differences between men and women in the prevalence of alcohol consumption, smoking, marijuana use, and experimentation with illegal drugs and their use (within the last 30 days for legal drugs and marijuana; within 1 year for illegal substances).

2 Methods

2.1 Research sample

The research sample was made up of 2489 adolescents aged 14-19. Respondents were pupils and students from primary and secondary schools (secondary grammar schools, secondary vocational schools, training schools, secondary medical schools) from different regions of Slovakia, 39.1% (N = 974) men and 61.3% (N = 1515) women. The sample was divided into two age groups: group "14" (14 to 15 years) which consisted of N = 923 and group "16" (16 and more years) made up of N = 1566 individuals. The completion of questionnaires was allowed with the approval of the school leadership to realize the research and with informed consent it was transformed into the respondent's voluntary participation in the research. The database was revised according to the value of the veracity of answers which is judged through the last item of the questionnaire and according to the result of a visual check of the data to find visibly incorrect answers.

2.2 Methodology

An appropriate tool for the complex monitoring of a subject is the SAHA method (Social and Health Assessment), which was created for an international project. SAHA is a thematically broad-based questionnaire-based survey, which deals with risks and protective factors in the social development and health of school age youths. The SAHA questionnaire was developed by Weissberg et al. (20) and adapted by Schwab-Stone et al. (21), workers at the Yale Child Study Centre to monitor risky behaviour (antisocial behaviour, substance use, sexual risk behaviour) along with a wide range of psychosocial factors that may be associated with risky behaviour; either as its antecedents or consequences. The high risk behaviour of adolescents is therefore not only described in terms of the frequency of occurrence but can also be observed in a psychological and psychiatric context.

The SAHA study was previously conducted in the US, Belgium, Russia, Korea, and Suriname. The survey was conducted in the Czech Republic between 2003 and 2004 by the Institute of Psychology, ASCR in Brno, in cooperation with the Clinic of Paediatric Psychiatry at the 2nd Faculty of Medicine, Charles University, Prague. Specifically, SAHA has provided information on the prevalence of forms of high-risk behaviour and influencing factors (23; 24; 25; 26; 27). We have taken the Czech version of the tool with the permission of prof. Blatný and according to his advice, we have adjusted some parts of the instrument to match the conditions coming from the social environment and cultural specificities in Slovakia (28). The final Slovak version of SAHA consists of 70 structured questions of which 35 are multicomponent (include 3 to 44 items). Studies that used the Slovak version of SAHA have also been published (29; 30; 31; 32)

2.3 Operationalization of variables

Alcohol, smoking, marijuana and experimentation with illegal drugs (excluding marijuana): dichotomous variable. Experimentation is assigned if the respondent states that they had used the substance at least once in their lives.

Use of alcoholic beverages: ordinal variables. The respondent states how many times they have drunk a full glass of beer, wine or liquor (separate items) in the last 30 days (4-level scale: from 0x up to 6x or more). The variable: Alcohol use frequency, is the sum of the stated use of these 3-separate beverage items.

Binge drinking: ordinal variable. The respondent states how many times they have drunk 5 and more glasses of alcohol in a row during the last 30 days (5-level scale: from 0x up to 6x or more).

Smoking: measured through 2 items. In the first, the respondent states on how many days he smoked cigarettes in the last 30 (4-level scale: from none up to every day). In the second the respondent reports the number of cigarettes smoked per day during the last 30 days. The variable Intensity of smoking is a multiple of the 2 items.

Marijuana use: The respondent reports, how many times (if ever) they have used marijuana in the last 30 days (4-level scale: from 0x up to 6x or more).

The use of illegal drugs: separate items for 7 types of illegal drugs. The respondent reports for each item how many times they have used the substance on the 5-level scale: not at all, 1-2 times a year... every day. The variable Illegal drug use is the sum of these 7 separate ordinal items.

3 Results

Our first step was a descriptive frequency analysis to achieve Objective 1. Figure 1 shows the prevalence of experimentation with alcohol, tobacco, marijuana, and other illegal drugs. Within the “14” group 44.6% of respondents had smoked cigarettes, 74.6% had drunk alcohol, 14.2% experimented with marihuana and 13.7% had used other illegal drugs. In the “16” group 67.4% individuals had at once during their life smoked cigarettes, 90.3% had drunk alcohol, 33.7% had experimented with marijuana and 13.9% had used other illegal drug(s). The gender differences in drug experimentation prevalence are shown in Table 2. Significant gender differences were found in experimentation with marijuana in both groups and illegal drug experimentation in the “16” group.

Table 2 Percentages of lifelong experimentation with smoking, alcohol, marijuana and other illegal drugs in men and women within two age groups and the p-value of a Chi-square comparison test

	Smoking		Alcohol		Marijuana		Other illegal drugs	
	14	16	14	16	14	16	14	16
M	41.8	69.3	77.1	90.5	17.7	38.8	12.3	18.9
F	46.2	65.9	74	90.6	11.4	30.7	14.7	10.9
p-value	0.197	0.167	0.288	0.977	0.007	0.001	0.310	0.000

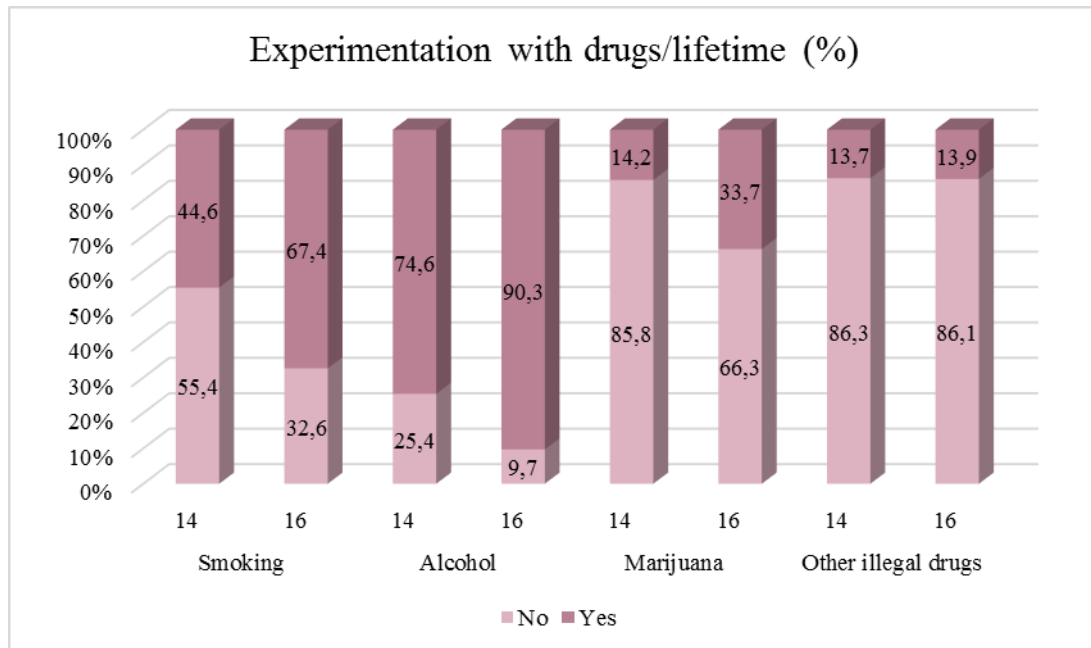


Figure 1 Percentages of experimentation with smoking, alcohol, marijuana and other illegal drugs in two age groups

In Figure 2, the frequency of drinking “a full glass” of 3 sorts of alcoholic beverages during the last 30 days and the frequency of binge drinking during the last 30 days are illustrated. At first sight, we can see a large increase in the use of alcohol among the groups “14” and “16”. In the “14” group we found more than 67% of young people who did not drink any alcoholic beverage or binge during the last month. Approximately 19.2% of respondents had drunk a glass of alcohol (or each sort of beverage) once or twice in the last 30 days, 6.8% had drunk a minimal amount of alcohol 3-5 times and 5.7% 6 times. In the older age group (“16”) on average 49.5% had not drunk alcohol beverages during the last 30 days, approx. ¼ had drunk at least 1 glass of alcohol, 11.5% 3 and 12.9% had drunk 6 and more alcohol drinks during the last 30 days. Binge-drinking during the last month in the age group “16” was reported by more than half of the respondents and 11.1% more than 5 times. Within the “14” age group the occurrence of binge drinking in the last 30 days was 28.7% of respondents and in 3.8% more than 5 times. The results for male and female respondents are shown in Table 3.

Table 3 Percentages of alcohol beverage use and binge drinking frequency in the last 30 days in male and female respondents in two age groups

		Beer		Wine		Liquor		Binge drinking	
		14	16	14	16	14	16	14	16
Not once	M	63.9	40.7	68.3	54	65.8	41	68.3	44
	F	73.1	64.2	68.5	44.7	68.5	48.3	73.7	52.5
1-2x	M	20.3	24.3	19.7	26.5	17.5	21.6	12.5	28.9
	F	18.6	21	20.9	33.4	17.7	27.4	18.2	30.7
3-5x	M	7.5	12.6	5.3	9.2	6.1	12	4.7	12.5
	F	6.3	8.9	6.8	13.1	7.9	12.8	5.2	8.3

≥ 6x	M	8.3	22.4	6.7	10.3	10.6	25.4	5.3	14.5
	F	2	6	3.8	8.8	5.9	11.5	2.9	8.6

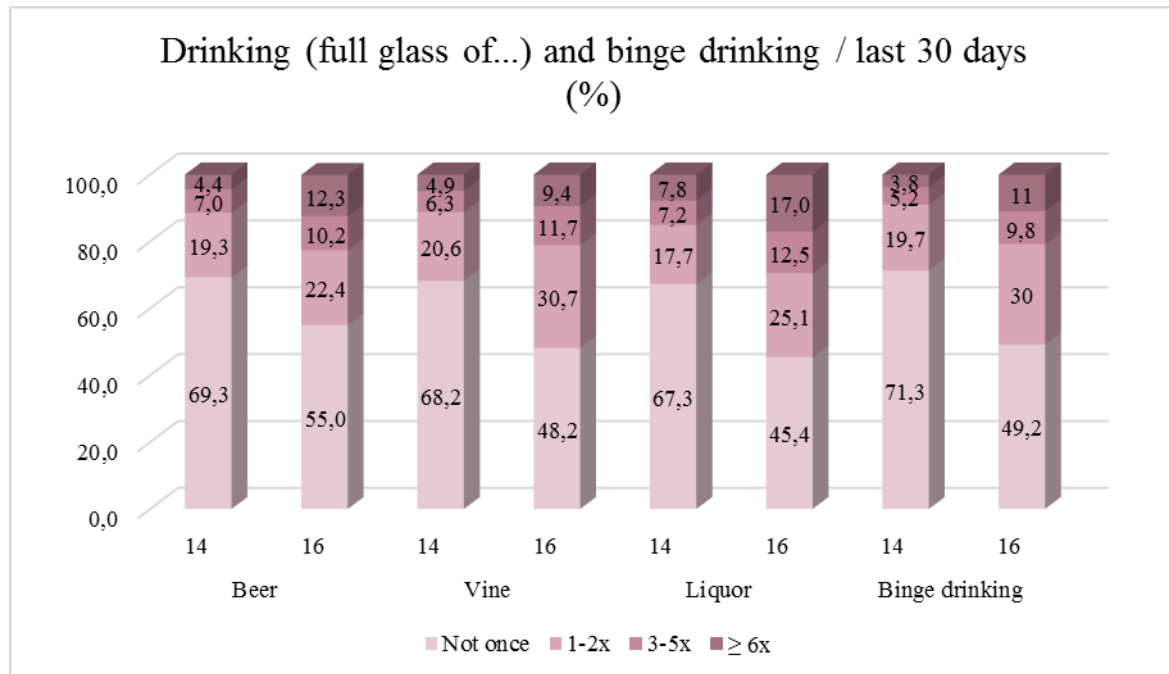


Figure 2 Percentages of alcohol beverages use and binge drinking frequency in the last 30 days in two age groups

In Table 4, a combined frequency analysis of two variables – lifelong marijuana use, and marijuana use in the last month in males, females and the age groups can be seen. In the younger age group (“14”), 18.0% of those, who have only experimented once with marijuana (6.4% of age group), did it in the past month. Approx. 2/3 of those adolescents (“14”) that reported using marijuana “many times” (2.8% of age group), used it 3 or more times in the past month. In the older age group (“16”) we registered 11.2% who had only used marijuana once in their lives, and 20.2% of them, that had used it during the past month. Most of those who have used marijuana many times throughout their lives (9.3% of age group), also used it during the last 30 days (20.0% 1-2 times; 59.3% 3 or more times).

Table 4 The percentages of the frequency of marijuana use in the last 30 days within the categories of lifetime marijuana use in the total sample, male and, female respondents and within the two age groups

Group	Lifetime Experimentation		Marijuana use in the last 30 days			
			0x	1-2x	3-5x	≥ 6
14	Just once (6.4%)	M (n = 28)	82.1	17.9		
		F (n = 31)	80.6	19.4		
		Total (n = 59)	82.0	18.0		
	Several times (4.7%)	M (n = 23)	30.4	52.2	17.4	
		F (n = 20)	55.0	30.0	10.0	5.0
		Total (n = 43)	40.9	43.2	13.6	2.3
	Many times	M (n = 13)	15.4	23.1	30.8	30.8

	(2.8%)	F (n = 13)	15.4	7.7	30.8	46.2
		Total (n = 26)	18.5	14.8	29.6	37.0
16	Just once	M (n = 75)	78.7	21.3		
	(11.8%)	F (n = 110)	80.0	20.0		
		Total (n = 185)	79.8	20.2		
Several times	M (n = 77)	50.6	33.8	15.6		
	(12.3%)	F (n = 116)	59.5	31.0	8.6	0.9
		Total (n = 193)	55.4	32.8	11.3	0.5
Many times	M (n = 80)	23.8	18.8	20.0	37.5	
	(9.3%)	F (n = 65)	16.9	21.5	18.5	43.1
		Total (n = 145)	20.7	20.0	19.3	40.0

Table 5 shows the responses relating to smoking cigarettes during the last 30 days – the frequency and amount per day. In the group “14” 16.6% of respondents smoked cigarettes during the last month. 8.1% of respondents reported “Several days”, 3.6% reported “Most days” and 4.9% of respondents reported “Daily” (during the last 30 days). Within the group “16” we found that 63.7% reported that they had not smoked during the past month, 14.9% who had smoked on “Several days”, mostly 1-5 cigarettes per day; 5.8% of respondents reported smoking “Most days” (mostly 2-5 cig./day). The prevalence of “Daily” smoking among respondents in the age group 16-19 is 15.6% and almost all of them reported smoking 2 or more cigarettes per day. In Table 4 the frequency for female and male respondents are also shown.

Table 5 The percentages of cigarettes smoked per day (in the last month) within the categories of smoking frequency over the last 30 days in the total sample, the male and female respondents and within the two age groups

Group	Smoking in the last 30 days		Cigarettes smoked per day (in the last month)		
			1 cig.	2-5 cig.	6 ≤ cig.
14	Several days (8.1%)	M (n = 21)	57.1	33.3	9.5
		F (n = 54)	76.0	20.4	3.7
		Total (n = 75)	68.8	26.0	5.2
	Most days (3.6%)	M (n = 14)	21.4	64.3	14.3
		F (n = 19)	15.8	78.9	5.3
		Total (n = 33)	9.1	72.7	9.1
	Daily (4.9%)	M (n = 15)		40	60
		F (n = 30)	20.0	23.3	56.7
		Total (n = 45)	8.5	27.7	59.6
16	Several days (14.9%)	M (n = 82)	54.9	35.4	9.8
		F (n = 151)	54.9	44.4	0.7
		Total (n = 233)	45.3	40.9	3.8
	Most days (5.8%)	M (n = 35)	11.4	77.1	11.4
		F (n = 56)	17.9	69.6	12.5
		Total (n = 91)	13.2	72.5	12.1
	Daily (15.6%)	M (n = 104)	1.0	27.9	71.2
		F (n = 141)	2.8	39	58.2

		Total (n = 245)	2.0	34.3	63.7
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The percentage use of other illegal drugs (excluding marijuana) using the categories and results for male and female respondents are shown in Table 6. In the younger age group (“14”) 9.8% reported Huffing during the last year, this is the most common form of illegal substance use. The rates of use of other illegal drugs is: Ecstasy/Speed 3.9%; Mushrooms 3.7%; LSD/PCP 2.9%; Cocaine/Crack 2.3%; Heroin 2.0%; Pervitin/Amphetamine 1.9%. In the older group (“16”) the respondents most often reported experience with Extasy/Speed, 7.7%, followed by Huffing, 5.8%; Mushrooms, 5.6% and others: LSD/PCP 4.6%; Cocaine/Crack 3.6%; Pervitin/Amphetamine 3.5%; Heroin 2.2%.

Table 6 The percentages of the frequency of illegal drugs (except marijuana) use in the last year for male and female respondents and within two age groups

		14				Total	16				Total
		1-2x /year	1-2x /month	1-2x /week	Daily		1-2x /year	1-2x /month	1-2x /week	Daily	
Huffing	M	3.4	1.4	1.4	0.3	6.5	3.5	1.7	1.3	0.3	6.8
	F	9.1	1.4	0.7	0.7	11.9	3.8	0.6	0.4	0.3	5.1
	Total	6.9	1.4	1	0.5	9.8	3.7	1	0.8	0.3	5.8
Extasy/ Speed	M	3.1	0.8	0.6	0	4.5	6.2	3.4	1.5	0.2	11.3
	F	2.3	0.7	0	0.4	3.4	3.6	1.7	0.1	0.2	5.6
	Total	2.6	0.8	0.3	0.2	3.9	4.6	2.3	0.6	0.2	7.7
LSD/PCP	M	2.5	1.4	0.6	0.3	4.8	3.9	2.2	1.0	0.3	7.4
	F	0.7	0.9	0.2	0	1.8	1.5	1.2	0	0.2	2.9
	Total	1.4	1.1	0.3	0.1	2.9	2.4	1.5	0.4	0.3	4.6
Cocaine/ Crack	M	2.3	0.8	0.3	0.6	4	3.0	1.3	1.0	0.3	5.6
	F	0.5	0.4	0.4	0	1.3	1.8	0.4	0.1	0	2.3
	Total	1.3	0.5	0.3	0.2	3.3	2.3	0.8	0.4	0.1	3.6
Heroin	M	1.1	1.1	0.8	0.6	3.6	1.0	1.0	1.0	0.8	3.8
	F	1.1	0.2	0	0	1.3	1.1	0.3	0.1	0	1.5
	Total	1.2	0.5	0.3	0.2	2.2	1	0.6	0.4	0.3	2.3
Pervitin/ Amphetamines	M	0.6	2.3	0.6	0	3.5	2	1.3	1.2	0.7	5.2
	F	0.2	0.5	0.2	0	0.9	1.4	0.7	0.2	0	2.3
	Total	0.4	1.2	0.3	0	1.9	1.6	1	0.6	0.3	3.5
Mushrooms	M	2.3	0.8	0.8	1.1	5	3.5	4	1.3	0.7	9.5
	F	1.8	0.2	0.7	0	2.7	1.5	1.2	0.4	0.3	3.4
	Total	2.1	0.4	0.8	0.4	3.7	2.2	2.2	0.8	0.4	5.6

Table 7 sows the results of tests on statistical gender differences. The ordinal drug-using variables were used as the input to the test. The nonparametric Mann-Whitney’s Mean Rank comparison test was used. We interpret the results to show statistically significant differences ($p < 0.05$) in Alcohol use frequency within both the younger and older age groups (“14”, “16”). And significant differences in illegal drug use (except marijuana), Marijuana use, and Binge drinking in the older age group were found. All the differences we discovered had a higher frequency or intensity of use in male than female respondents.

Table 7 The results of statistical testing of the differences in forms of drug use (ordinal variables) between male and female respondents and within two age groups

	Gender	“14”		“16”	
		Mean Rank	p-value	Mean Rank	p-value
Intensity of smoking (last 30 days)	M	453.33		785.45	
	F	465.95	0.297	770.07	0.454
	Total				
Alcohol use frequency (last 30 days)	M	478.27		847.83	
	F	444.97	0.045	725.87	0.000
	Total				
Use of other illegal drugs (last year)	M	453.48		811.88	
	F	460.89	0.490	746.2	0.000
	Total				
Marijuana use (last 30 days)	M	467.85		806.25	
	F	456.58	0.180	753.73	0.000
	Total				
Binge drinking (last 30 days)	M	472.43		830.44	
	F	448.64	0.094	734.16	0.000
	Total				

4 Discussion

We have presented several results that correspond to our research objectives. Next, we interpret them substantively, summarize, and comment with respect to the background. Within the first objective, we had to describe the actual prevalence of alcohol use, binge drinking, smoking cigarettes, using marijuana, and other illegal drugs. Following the organisation of studies of the American and Czech SAHA project, we also worked with 2 age groups (“14” and “16”). In general, we can say that experimentation and drug use is more strongly represented in the older age group (“16”).

The results relating to experimentation (with drugs) demonstrate that almost $\frac{3}{4}$ of adolescents under the age of 15 have already tasted alcohol, a bit less than half (44.6%) have tried smoking, but only 14.2% have experience with marijuana. and similarly, with other illegal drugs (huffing, mushrooms, pervitin, etc., except marijuana) 13.7% respondents from the “14” age group.

Among adolescents aged 16 and over, however, over 90% are found to have tried alcohol, approx. $\frac{2}{3}$ have tried cigarettes, but when looking at experimentation with marijuana we found a greater than 2-fold increase (in comparison to the younger group, 33.7%). Reported experimentation or use of other types of illegal drugs (except marijuana) was also significantly higher (13.9%) than in the younger group. The comparison is possible using the Slovak national study TAD as reference, this used data from a study in 2014 (18), which focused on alcohol use, smoking cigarettes and marijuana use. In the sample of 14-year-olds, experimentation with alcohol occurred in approx. 50% of respondents, smoking cigarettes in 33%, and marijuana use in 2% of respondents. Our sample also included 15-years-olds and an alarmingly higher prevalence of experimentation with alcohol (difference + 25% with regard to the inclusion of 1 year older respondents) and marijuana use was reported.

In addition, we could anticipate that there could be slight decrease in experimentation with cigarettes (a similar incidence in the population of 14-years-olds and the population including 15-years-olds). In the group of older adolescents (15-19 years) the TAD (18) survey investigated the prevalence of experimentation with marijuana, 29.3%, smoking cigarettes, 62.1%, and illegal drug use, 2% of the population. Considering the smaller age range of our sample we found slightly higher values of lifetime smoking and marijuana use. Here we must point to higher values of experimentation with illegal drugs (even for the use of separate substances) and see a slightly higher incidence of experience with marijuana and smoking cigarettes between our results and the TAD (18) study, although our sample included also 19-year-old adolescents, therefore the results are not entirely comparable. Although the available surveys do not show the incidence of lifetime use of illegal drugs in the population under 15 years of age, we draw attention to the high value found in our survey (13.7%). This higher prevalence is mainly caused by huffing and after careful analysis, we found that primary school pupils in a single town in the north-eastern part of Slovakia reported a high prevalence and it appears to be a regionally specific drug behaviour, which is especially prevalent in the socially disadvantaged.

The Slovak ESPAD 2015 survey report (5) presented a prevalence of 38.8% of experimentation with marijuana by high school students (16-19 years), and here we could agree that a slight decline in incidence has occurred. Experimentation with illegal drugs (except marijuana) observed in our study is approx. 2 time greater than was observed in Slovak ESPAD 2015 survey (5) (7.1% of secondary school students), but this is due to different methodology used in counting the frequency of use as the ESPAD 2015 values represent an average frequency of the lifetime use of separate substances (including marijuana) whilst in our study we use the sum of all substances use. The separate values for the prevalence of each substance are fairly consistent across both studies.

It is notable, that in the TAD (18) national survey there are neither results about alcohol lifetime experimentation nor about 30-day alcohol use in the group of secondary school students. Our results report that over 90% of adolescents between the ages of 16 and 19 experiment with alcohol, this agrees with the Slovak ESPAD 2015 (5) findings (91%). The European ESPAD 2015 (19) also reported that 49% of 15-16 years had used alcohol in the last 30 days, but 64.8% of secondary school students. In our sample that includes 16-19 years it is 75% (adolescents who had drunk a glass of beer, liquor or wine during the last 30 days).

As to experimentation with drugs, as well as a review of the prevalence of alcohol use and binge drinking during the last 30 days notable differences were found between the age groups. Those respondents aged 16 and older had drunk (in the last month) about one third more often, but the prevalence of binge drinking only differs by one fifth. The prevalence of binge drinking found in the ESPAD 2015 (5) study for the population of secondary school students was 54% (during the last 30 days), in our sample of 16-19 years, it was 51%.

Through an analysis of the incidence of experimentation with marijuana, a marked increase in the extent of experimentation during the time at secondary school could be seen. One-third of adolescents had experimented with marijuana at the age of 16 or older and over the previous month approx. 36% of them reported use. For the complete "16" group the incidence was 2.3% (in the last 30 days) for first time use.

Smoking cigarettes during the last 30 days was reported by 16.5% of respondents in the younger age group (14-15 years). Of those who had smoked per last 30 days 60.1% of individuals reported smoking 2 or more cigarettes on several days, most days or daily. In the older group (16 and more years), 36.3% of individuals reported that they had smoked during the last month. Of those 74% reported smoking more than one cigarette per several or most

days (during the last 30 days). No data on last month smoking for the younger adolescents (under 15) is available. The ESPAD 2015 survey reported that 27% of the secondary school population were daily users (within the last month) and the TAD survey (2014) reported that 23.8% of adolescents were regular (daily) smokers. In our research, we found that “only” 15.6% of the “16” group were daily smokers which may be an indication that the number of regular smokers is decreasing among secondary school students.

5 Conclusions

As mentioned above, the long term trend we have found in the prevalence of drug use among adolescents could be considered both particularly positive and particularly negative.

In contrast to the only comparable data, we found significantly higher values for experimentation with alcohol, marijuana, and smoking in adolescents aged 14-15 years.

But there is no compelling data to demonstrate an increase in experimentation with marijuana, alcohol, and cigarette smoking in the older age group (16-19 years). However, the finding that the prevalence of experimentation markedly increases from the age of 16 while studying at secondary school is important for the timing of any intervention.

There are some positive trends in the prevalence of alcohol use during the last 30 days, in that there is no observed increase. In both comparisons, we detected a decrease in the frequency of smoking (daily and regular use).

Our results show no differences between boys and girls in terms of experimenting with alcohol and smoking, although boys have a higher occurrence of experimentation with marijuana in both age groups and higher occurrence of experimentation with illegal drugs in the older group (“16”). The boys show a significantly higher frequency of drinking alcohol (during the last month) in both age groups and also a higher frequency of marijuana use, binge drinking (during the last month) and illegal drug use (in the last year) than girls in the age group 16 and over. This is new information that did not come out of the European ESPAD Report 2015 (19) where no gender differences in form of drug-use were discovered.

It is meaningful that we found that the prevalence of binge drinking during the last month in both groups (approx. 29% “14” and 50% “16”) is in line with the findings of the Slovak ESPAD 2015 report (5) (54%), in our study the prevalence is slightly lower, but still at an exceptionally high level. We conclude this is precisely why binge drinking should be the focus of efforts by experts, especially during early adolescence when drinking adolescents first begin to use alcohol.

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References

- [1] T. PARRAN: Substance use. In S. Loue, & M. Sajatovic, *Encyclopedia of Women's Health*. (p. 627-633). New York: Kluwer Academic / Plenum Publishers. 2004.
- [2] Z. ROJKOVÁ: *Situačno-motivačné faktory alkoholového správania. Koncept – meranie – overovanie*. Trnava, UCM. 2016.
- [3] Z. ROJKOVÁ, M. VAVROVÁ: *Situačno-motivačné faktory alkoholového správania. Metodológia merania a aplikácia v praxi*. Trnava: UCM. 2017.
- [4] Z. ROJKOVÁ, K. GÁLOVÁ: *Situačno-motivačné faktory experimentovania s*

- fajčením. In Baranovská, A., Doktorová, D., Mičková, Z. (Eds.), *Kondášove dni 2015: zborník príspevkov* (p. 128-139). Trnava: Filozofická fakultak UCM. 2016.
- [5] A. NOCIAR: *Európsky školský prieskum o alkohole a iných drogách (ESPAD) v SR za rok 2015. Záverečná správa*. Bratislava: VÚDPaP. 2015.
- [6] F. NOVOMESKÝ: *Drogy. História – Medicína – Právo*. Martin: Advent Orion. 1996.
- [7] G. EDLIN, E. GOLANTY: *Health & Wellness*. Boston: Jones and Bartlett, Inc. 1985.
- [8] E. KOLIBÁŠ, V. NOVOTNÝ: *Alkoholizmus a drogové závislosti*. Bratislava: UK. 1996.
- [9] E. KOMÁRIK: *Pedagogika emocionálne a sociálne narušených*. Bratislava: UK. 1998.
- [10] M. TYRLÍK: *Zátěž v adolescenci*. Brno: Masarykova univerzita. 2012.
- [11] M. NEWCOMB, E. MADDAHIAN, P. M. BENTLER: Risk factors for drug use among adolescents: Concurrent and Longitudinal Analyses. *American Journal of Public Health*, 76(5), 525-531. doi:ajph.aphapublications.org/doi/pdfplus/10.2105/AJPH.76.5.525. 1986.
- [12] P. MACEK: *Adolescence*. Praha: Portál. 1999.
- [13] P. HARTL, H. HARTLOVÁ: *Velký psychologický slovník*. Praha: Portál. 2010.
- [14] A. PERCY: Moderate adolescent drug use and the development of substance use self-regulation. *International Journal of Behavioral Development*, 32(5), 451-458. 2008.
- [15] G. F. KOOB, M. L. MOAL: *Drug Abuse: Hedonic homeostatic Dysregulation*. *Science*, 278(52), 52-58. 1997.
- [16] S. DÉMUTHOVÁ: *Biologické koncepcie kriminality*. Trnava: UCM. 2012.
- [17] K. MYDLOVÁ, M. VAVROVÁ: *Analýza rizikových faktorov nárazového pitia a intímnych vzťahov adolescentov s dôrazom na ich rizikové sexuálne správanie*. In Baranovská, A. (Ed.), *Kondášove dni 2018: zborník vedeckých recenzovaných príspevkov z konferencie* (p. 138-147). Trnava: Katedra psychológie FF UCM. 2019.
- [18] A. NOCIAR: *Záverečná správa z prieskumu TAD u žiakov ZŠ, študentov*. Bratislava: VÚDPaP. 2014.
- [19] ESPAD GROUP: *ESPAD Report. Results from the European School Survey Project on Alcohol and Other Drugs*. Luxemburg: Publication Office of the European Union. 2016.
- [20] R. P. WEISSBERG, C. K. VOYCE, W. J. KASPROW, M. W. ARTHUR, T. P. SHRIVER: *The Social and Health Assessment*. Chicago. 1991.
- [21] M. E. SCHWAB-STONE, T., S. AYERS, W. KASPROW, C. VOICE, CH. BARONE, T. SHRIVER, R. P. WEISSBERG: No Safe Haven: A Study of Violence Exposure in an Urban Community. *Journal of the American Academy of Child and Adolescent psychiatry*, 34, 1343-1352. 1995.
- [22] M. BLATNÝ, M. HRDLIČKA, P. KVĚTON, D. VOBOŘIL, M. JELÍNEK: *Výsledky české části mezinárodního projektu SAHA I: deskriptivní analýza rizikového chování a rizikových a protektivních faktorů vývoje mladistvých z městských oblastí*. *Zprávy Psychologický ústav Brno*, 10(1). 2004a.
- [23] M. BLATNÝ, M. HRDLIČKA, P. KVĚTON, D. VOBOŘIL, M. JELÍNEK: *Výsledky české části mezinárodního projektu SAHA II: deskriptivní analýza rizikového chování a rizikových a protektivních faktorů vývoje mladistvých z městských oblastí z hlediska vekových kohort*. *Zprávy. Psychologický ústav Brno*, 10(2). 2004b.
- [24] M. BLATNÝ, M. HRDLIČKA, P. KVĚTON, D. VOBOŘIL, M. JELÍNEK: *Výsledky české části mezinárodního projektu SAHA III: deskriptivní analýza rizikového chování a rizikových a protektivních faktorů vývoje mladistvých z městských oblastí z hlediska velikosti sídla*. *Zprávy. Psychologický ústav Brno*, 10(3). 2004c.

- [25] M. BLATNÝ, M. HRDLIČKA, V. SOBOTKOVÁ, M. JELÍNEK, P. KVĚTOŇ, D. VOBOŘIL: Prevalence antisociálního chování českých adolescentů z městských oblastí. *Československá psychologie*, 1(4), 297-310. 2006.
- [26] M. JELÍNEK, P. KVĚTON, D. VOBOŘIL, M. BLATNÝ, M. HRDLIČKA: Vrstevnická konformita jako faktor rizikového chování mladistvých: struktura, zdroje, dopady. *Československá psychologie*, 50(5), 393-404. 2006.
- [27] V. SOBOTKOVÁ, M. BLATNÝ, M. HRDLIČKA: Antisociální chování dospívajících a vztahy s vrstevníky: Rád se s tebou podělím o ukradené cedéčko. *Annales Psychologici. Studia minora facultatis philosophicae universitatis brunensis* (vol. 55, pp. 65-71). Brno: MUNI. 2007.
- [28] Z. ROJKOVÁ: Slovenská verzia dotazníka SAHA a jej pilotné overovanie. In Mlčák, Z. (Ed.), *Psychologické aspekty pománání 2016: sborník příspěvků z mezinárodní konference* (p. 87-93). Ostrava: FF OSU. 2017.
- [29] Z. MIČKOVÁ, M. BLATNÝ, M. HRDLIČKA: The relationship between family factors and somatic problems in adolescence. *AD ALTA: Journal of Interdisciplinary Research*, 8(2), 172-178. 2018.
- [30] Z. MIČKOVÁ: Gender Differences in Somatic Symptomatology in the Context of Family Factors in Adolescents. In Mlčák, Z. (Ed.). *Psychologické aspekty pomáhání* (p. 49-57) Ostrava: OSU. 2019.
- [31] I. VACLAVIKOVÁ, L. SELECKÁ, M. BLATNÝ, M. HRDLIČKA: Očekávání od budoucnosti: rozdíly mezi adolescentmi bez problémových projevů a skupinami adolescentů vykazujícími různé závažné formy antisociálního správání. In Maierová, E. et al. (Eds). *PhD existence 2018: "nekonečno v psychologii": československá psychologická konference (nejen) pro doktorandy a o doktorandech* (pp. 170-176). Olomouc: Univerzita Palackého v Olomouci. 2018.
- [32] Z. ROJKOVÁ, K. MYDLOVÁ: Extent of Spending Leisure Time through the Electronic Media and Drug Behaviour of Youth. *Communication Today*, 10(2), in press. 2019.