

# THE PREVALENCE OF ALCOHOL CONSUMPTION BY ADOLESCENTS IN SERBIA AND ITS CORRELATION WITH SOCIODEMOGRAPHIC FACTORS – A NATIONAL SURVEY

Snezana Radovanovic<sup>1</sup>, Dragan Vasiljevic<sup>2</sup>, Sanja Kocic<sup>1</sup>, Svetlana Radevic<sup>3</sup>, Mirjana Milosavljevic<sup>4</sup> and Nataša Mihailovic<sup>4</sup>

<sup>1</sup> Department of Social Medicine, Faculty of Medical Sciences, University of Kragujevac and Institute of Public Health, Kragujevac, Serbia

<sup>2</sup> Department of Hygiene, Faculty of Medical Sciences, University of Kragujevac, Serbia and Institute of Public Health, Kragujevac, Serbia

<sup>3</sup> Department of Social Medicine, Faculty of Medical Sciences, University of Kragujevac, Serbia

<sup>4</sup> Institute of Public Health, Kragujevac, Serbia

## RASPROSTRANJENOST KONZUMIRANJA ALKOHOLA KOD ADOLESCENATA U SRBIJI I POVEZANOST SA SOCIODEMOGRAFSKIM FAKTORIMA- NACIONALNO ISTRAŽIVANJE

Snežana Radovanović<sup>1</sup>, Dragan Vasiljević<sup>2</sup>, Sanja Kocić<sup>1</sup>, Svetlana Radević<sup>3</sup>, Mirjana Milosavljević<sup>4</sup> i Nataša Mihailović<sup>4</sup>

<sup>1</sup> Katedra za socijalnu medicinu, Fakultet medicinskih nauka, Univerzitet u Kragujevcu i Institut za javno zdravlje, Kragujevac, Srbija

<sup>2</sup> Katedra za higijenu, Fakultet medicinskih nauka, Univerzitet u Kragujevcu i Institut za javno zdravlje, Kragujevac, Srbija

<sup>3</sup> Fakultet medicinskih nauka, Univerzitet u Kragujevcu, Srbija

<sup>4</sup> Institut za javno zdravlje, Kragujevac, Srbija

Received / Priljubljen: 04. 03. 2016.

Accepted / Prihvaćen: 17. 03. 2016.

### ABSTRACT

The aim of this study was to determine the prevalence of alcohol consumption among adolescents in Serbia and its association with sociodemographic characteristics. This paper is based on data from a national health survey of the population of Serbia in 2013 (no data for Kosovo and Metohija), conducted by the Ministry of Health of the Republic of Serbia. For the purposes of this study, data on households and individuals over 15 years of age were used; thus, the final sample for analysis included 858 patients (aged 15 to 19 years). Researchers used demographic characteristics (age, gender, type of home, region) and socio-economic characteristics (income per household member, the index of well-being, self-assessment of health, cigarette smoking, tendency towards psychological and physical violence) as the independent variables. A  $\chi^2$  test was applied to test the differences in the frequencies of categorical variables. The correlations between alcohol consumption, as the dependent variable, and the independent variables (mentioned above) were tested by logistic regression. All results less than or equal to 5% probability ( $p \leq 0.05$ ) were considered statistically significant. The prevalence of alcohol consumption among adolescents in Serbia is 51.6%. Alcohol consumption is significantly associated with sex, type of home and the index of well-being ( $p < 0.05$ ). The prevalence of alcohol consumption is higher in males (57.1%), in adolescents who come from urban areas (59.3%) and in adolescents who, according to the index of well-being, belong to the wealthiest financial category (23.9%).

**Keywords:** alcohol, prevalence, adolescents, Serbia

### SAŽETAK

Cilj rada je utvrđivanje prevalencije konzumiranja alkohola kod adolescenata u Srbiji i povezanost sa sociodemografskim karakteristikama. Rad je zasnovan na podacima nacionalnog istraživanja zdravlja stanovništva Srbije u 2013. godini (bez podataka za Kosovo i Metohiju), koje je sproveo Ministarstvo zdravlja Republike Srbije. Za potrebe ovog rada korišćeni su podaci o domaćinstvima i stanovništvu starosti 15 i više godina, tako da je u konačni uzorak za analizu ušlo 858 ispitanika (starosti 15 do 19 godina). Od nezavisnih varijabli u istraživanju su korišćena demografska obeležja (starost, pol, tip naselja, region) i socijalno-ekonomske odlike (prihodi po članu domaćinstva, indeks blagostanja, samoprocena zdravlja, konzumiranje cigareta, sklonost ka psihičkom i fizičkom nasilju). Za ispitivanje razlika u učestalosti kategorijskih varijabli primenjen je  $\chi^2$  test. Povezanost konzumiranja alkohola, kao zavisne varijable, i nezavisnih varijabli (gore pomenutih) ispitivana je logističkom regresijom. Statistički značajnim smatrali su se svi rezultati gde je verovatnoća jednaka ili manja od 5% ( $p \leq 0.05$ ). Prevalenca konzumiranja alkohola među adolescentima u Srbiji iznosi 51,6%. Konzumiranje alkohola značajno je povezano sa polom, tipom naselja i indeksom blagostanja ( $p < 0.05$ ). Prevalenca konzumiranja alkohola veća je kod muškaraca (57,1%), kod adolescenata koji potiču iz gradske sredine (59,3%) i kod adolescenata koji prema indeksu blagostanja pripadaju kategoriji najbogatijih (23,9%).

**Ključne reči:** alkohol, prevalenca, adolescenti, Srbija



## INTRODUCTION

Adolescence is defined as a period of transition from childhood to adulthood that is characterized by efforts to meet the expectations of one's culture, as well as the requirements of physical, mental, emotional and social development. This is a period of development that has its own characteristics in biological, psychological and social terms (1).

Insecurity, instability of mood, lack of spontaneity, egocentricity, rebelliousness, conflicts with authority, fear of failure, and a desire to be successful are features that characterize the personalities and behaviours of adolescents (2).

The period of adolescence is described as a time of experimentation with risky behaviours, which has an adaptive purpose as young people gain experience and skills (3). However, adolescents are immature and unprepared and are thus prone to engaging with all that their environments provide and more frequently resorting to various problematic behaviours, of which some do not always have positive and adaptive functions (4).

There are common initial motives for consuming alcohol in adolescent populations: the desire to satisfy curiosity; the need to belong to a group; and the desire to have new experiences, avoid boredom, escape from problems, and reduce social fears and uncertainty (5).

## THE AIM OF THE WORK

The aim of this work was to determine the prevalence of alcohol consumption among adolescents in Serbia and its association with sociodemographic characteristics.

## METHODS

### Data source and type of study

This paper is based on data from a national health survey of the population of Serbia in 2013 (no data for Kosovo and Metohija). This is the third national survey of health of the population, conducted by the Ministry of Health of the Republic of Serbia. The first such survey was conducted in 2000, and the second was conducted in 2006. The survey was conducted in accordance with the methodology and instruments of the European Health Survey - Second Wave (EHIS-wave 2). The health survey of the Serbian population was carried out through interviews, anthropometric measurements and blood pressure measurements. We used a nationally representative random sample: a stratified two-stage sample with a known probability of selection of sample units at every stage of sampling. The sample was selected to provide a statistically reliable estimate of the large number of indicators of the health of the population at the national level.

The mechanisms used to obtain a random sample of households and respondents represent a combination of two

sampling techniques: stratification and multi-stage sampling. For the purposes of this study, data on households and individuals over 15 years of age were used; thus, the final sample for analysis included 858 patients (aged 15 to 19 years).

### Variables

Researchers used demographic characteristics (age, gender, type of home, region) and socio-economic characteristics (income per household member, the index of well-being, self-assessment of health, cigarette smoking, tendency towards psychological and physical violence) as the independent variables.

### Statistical data analysis

All data of interest were analysed by adequate mathematical-statistical methods appropriate for the data type. A  $\chi^2$  test was applied to test the differences in the frequencies of categorical variables. The correlations between alcohol consumption, as the dependent variable, and the independent variables (mentioned above) were tested by logistic regression.

All results less than or equal to 5% probability ( $p \leq 0.05$ ) were considered statistically significant. Statistical analysis was performed using a commercial, standard software package SPSS, version 19.0 (The Statistical Package for Social Sciences software; SPSS Inc., version 19.0, Chicago, IL).

## RESULTS

The prevalence of alcohol consumption among adolescents in Serbia is 51.6%. One in ten adolescents (10.1%) claimed to consume alcoholic drinks once or twice a week, while 24% of adolescents said that they drink one to three times a month. When asked how many days they drink from Monday to Thursday, the highest percentage of adolescents claimed to drink alcohol one day out of four (16.9%), while one in three adolescents in our study (35.1%) claimed to drink one day from Friday to Sunday. The largest percentage of adolescents (14.6%) drinks six or more alcoholic drinks on one occasion once a month (e.g., at parties, with food, during evenings spent with friends, alone at home). In terms of the type of alcoholic beverage, commonly consumed beverages include liquor, beer and wine. Analysis of the influence of sociodemographic factors on the prevalence of alcohol consumption among adolescents in Serbia (shown in Table 1) showed that alcohol consumption is significantly associated with sex, type of home and the index of well-being ( $p < 0.05$ ). The prevalence of alcohol consumption was higher in males (57.1%), in adolescents who come from urban areas (59.3%) and in adolescents who, according to the index of well-being, belong to the wealthiest financial category (23.9%). It was also observed that adolescents who smoke cigarettes more often drink alcohol (75.1%) and that ado-



**Table 1.** The prevalence of alcohol consumption among adolescents in Serbia in relation to sociodemographic characteristics

Variables		Alcohol consumption n (%)	Not alcohol consumption n (%)	p*
Gender	Male	233 (57.1)	169 (44.2)	p<0.001
	Female	175 (42.9)	213 (55.8)	
Type of settlement	Urban	242 (59.3)	185 (48.4)	p<0.001
	Rural	166 (40.7)	197 (51.6)	
Region	Belgrade	84 (20.6)	69 (18.1)	p>0.05
	Vojvodina	114 (27.9)	88 (23.0)	
	Šumadija and Western Serbia	109 (26.7)	116 (30.4)	
	South-East Serbia	101 (24.8)	109 (28.5)	
Income per household	Do 9.000	110 (27.0)	136 (35.6)	p>0.05
	9.001 – 14.000	95 (23.3)	78 (20.4)	
	14.001 – 20.000	70 (17.2)	59 (15.4)	
	20.001 – 29.000	36 (8.8)	21 (5.5)	
	Preko 29.000	15 (3.7)	13 (3.4)	
	refuses to answer	82 (20.1)	75 (19.6)	
Well-being index	Poorest	60 (14.7)	80 (20.9)	p<0.05
	Poorer	73 (17.9)	81 (21.2)	
	Middle	81 (19.9)	82 (21.5)	
	Richer	97 (23.7)	78 (20.4)	
	Richest	98 (23.9)	61 (16.0)	
Self-assessed health	Very good	274 (67.2)	257 (67.3)	p>0.05
	Good	121 (29.7)	112 (29.3)	
	Fair	11 (2.7)	10 (2.6)	
	Bad	1 (0.2)	3 (0.8)	
	Very bad	1 (0.2)	0	
The tendency to psychological violence		50 (76.9)	15 (23.1)	p<0.001
The tendency to physical violence		46 (50.7)	11 (19.3)	p<0.001
The consumption of cigarettes		145 (75.1)	48 (24.9)	p<0.001

\*  $\chi^2$  (chi-squared)

lescents who consume alcohol are more likely to have experienced psychological (76.9%) and physical abuse (50.7%). These results are statistically significant ( $p < 0.05$ ).

To examine the impact of certain predictors on alcohol consumption, binary logistic regression was applied. A significant contribution to the model was made by three independent variables: gender, financial status and tobacco consumption. The strongest predictor was tobacco smoking, with a probability coefficient of 3.99. In fact, individuals who smoke were almost 4 times more likely to consume alcohol than non-smokers. Males were 1.74 times more likely to consume alcohol than females. Respondents who belong to the wealthiest financial category more often consume alcohol (OR = 1.18) (Table 2).

## DISCUSSION

Alcohol is a psychoactive substance that is commonly used and abused by adolescents worldwide (6). During adolescence, alcohol consumption is of great importance be-

cause of the frequency and extent of its use and its impact on the health of adolescents (7). Studies of alcohol consumption among European adolescents (ESPAD) indicate that the use of alcohol among young people in almost all European countries is on the rise (8), despite the fact that much research shows that high school students are well informed about the health risks arising from the consumption of alcohol (9). Our results show a lower incidence of alcohol consumption among adolescents in Serbia (51.6%) than among adolescents in many other European countries, such as Romania and Sweden (71-74%); Montenegro, Norway, Albania and Iceland (65-43%) (10); Italy (63.3%) (11); Germany (52.3%) (12); and the US (71%) (13). However, our results are higher than those recorded in the 2006 study of the health of the Serbian population (48.7%) (14). Alcohol consumption by young people is a national problem in many countries, primarily due to the harmful effects of alcohol consumption on the social, physical and neurological development of adolescents. Nearly two-thirds of Australian adolescents consume alcohol (15), as well as 50% of adolescents in Brazil



**Table 2.** Logistic regression analyses

Variables	B	Exp(B)	95% C.I.for EXP(B)		p
			Lower	Upper	
Sex (1)	0.55	1.730	1.278	2.341	0.000
Region	-0.07	.933	.809	1.076	0.339
settlement type	-0.11	.898	.614	1.313	0.578
financial situation	0,17	1,181	1.028	1.356	0.019
income	0,00	1.000	1,000	1,000	0.648
self-assessment of health	-0.03	,972	.746	1.267	0.836
Smoking	1.38	3.992	2.736	5.825	0.000
psychological abuse	0.00	1.000	1.000	1.000	0.669
physical abuse	0.00	1.000	1.000	1.000	0.797

(16). Alcohol consumption among young people is a major public health problem in the U.S. More than 27% of 12 to 20 year-olds drink alcohol throughout the year, averaging almost 5 drinks per session. Excess alcohol consumption increases the risk of acute and chronic alcohol-related problems, including risky sexual behaviour, injury and driving while intoxicated. Those who begin drinking alcohol as juveniles are more likely to develop symptoms of alcohol abuse and dependence as an adult than their peers who abstain from alcohol use (17). In our study, alcohol consumption in adolescents was significantly associated with sex, type of home and the well-being index, which corresponds to the results recorded in most other countries. It has been noted that young men consume alcohol more than women in Canada (18), Croatia (19), Italy (11), Iceland, Latvia and Sweden (10), and Germany (12), which corresponds to our results, while research in the United States (13) shows that women are more likely consume alcohol than men. Additionally, it was found that adolescents of higher socio-economic status (11) frequently consume alcoholic beverages, which is confirmed by our national survey. Other studies (Great Britain) have shown that the use of alcohol among adolescents is more frequent in households with higher incomes (20). There are predisposing factors to alcohol consumption in Spanish adolescents: frequently going out for fun in the evenings, high proportions of friends who drink or get drunk, early onset of alcohol use, low perceived risk of drinking, truancy, illegal drug use, and the amount of money spent on personal needs (21). Higher household income was associated with a greater risk of alcohol use (22). In our study, adolescents in urban areas more frequently consume alcohol; however, other studies have shown that young people from rural areas frequently consume alcohol. Apparently, in this case, adolescents with rural residences have fewer alternatives for inclusion in interesting leisure activities than adolescents who live in cities. This may be one reason for the more problematic patterns of consumption in this environment (23).

Adolescents who consume alcohol are more prone to other health risk behaviours, such as riding with a driver who has been drinking, engaging in risky sexual activity, cigarette smoking, and using illicit drugs, and are more likely to

become the victims of violence or suicide, which has been shown in the results of many studies (24,11,25). Our research also supports previous facts as we observed that adolescents who consume alcohol are more often smokers and are more susceptible to mental (psychological harassment, insults) and physical violence (fights). Even a single episode of heavy drinking in adolescence significantly increases the risk of morbidity and mortality caused by negligent driving, various incidents, accidents and risky sexual activity (26). The results of certain studies show that alcohol is a leading cause of murder, suicide and accidents resulting in death in adolescence; more adolescents lose their lives due to the consequences of alcohol than due to the use of all other psychoactive substances combined (27). A large number of adolescents (70% of boys and 53% of girls) who have used alcohol more than five times in their lives state that they have experienced at least one problem associated with the use of alcohol (e.g., problems with the law, health problems, absence from school or going to school under the influence of alcohol, etc.) (28).

Primary socialization and education occurs in families and is the most important influence on adolescent health behaviour; parents model social and health behaviour patterns. The attitudes of parents, who can directly approve or indirectly support the abuse of alcohol, have a direct relevance for the formation of attitudes of adolescents, especially if there is a case of alcoholism in the family (29). It is therefore necessary to focus prevention programs on creating a harmonious relationship in the family and on preventing marital conflicts and child abuse and neglect.

## CONCLUSION

The results of this research indicate that there is an increased prevalence of alcohol consumption among adolescents in Serbia. It is therefore very important to carry out preventive measures to prevent and control the risks of alcohol abuse by young people. These measures should include individuals, as well as families, schools, health institutions and society as a whole. Preventive activities should be conducted in an organized way, beginning in early childhood, at all levels of society.



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