

Zuzana Rojková, Dominika Kurajda

Leisure, Internet Use and Alcohol Behavior in Adolescence

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ABSTRACT

The paper aims to describe regular leisure activities in the sample and identify the connections between alcohol use (binge, regular use) and leisure activities (categories). In the research, we verify the association between specific types of leisure activities and alcohol use among adolescents. The research sample consists of 533 adolescents (295 girls and 258 boys). The participants' ages range from 14 to 20 years. The questionnaire battery consisted of two questionnaires, namely a questionnaire on situation-motivational alcohol behavior factors and a questionnaire of leisure time and peer relationships. We identified a prevalence of regular drinking, which is 78.8%, and the prevalence of binge drinking in the sample of adolescents is 34.0%. We also identified that the most frequent category of leisure activities in the sample is the combined category of friends and Internet (35.4%). Furthermore, there are statistically significant differences in the incidence of regular and binge drinking between groups of adolescents concerning the form of regular leisure time. Understanding the connection between alcohol consumption and leisure activities is vital to prevention and risk-reduction efforts.

KEY WORDS

Adolescents. Alcohol Behavior. Internet Use. Leisure Activities.

1 Introduction

Alcohol use is a standard part of adolescent life and adolescent college experience. Most young people start with alcohol between the ages of 12 and 16, as it is at this age that they gain more independence and spend more and more time away from home.¹ According to Rojková and Vavrová, over 90% of adolescents aged 16 and over have tried alcohol.² Experimenting with alcohol may manifest as binge drinking or later as regular drinking, which poses a risk of developing alcohol behavior.³ Individuals who try alcohol before the age of 15 are more likely to have alcohol problems in a few years.⁴ Mičková and Rojková also found out that the intensity of current alcohol consumption was more pronounced in university students whose alcohol behavior was higher in adolescence.⁵ Binge drinking can be characterized by consuming a large amount of alcohol during a short period, followed by a period of abstinence, occurring at least once a month. Binge drinking typically means consuming five or more alcoholic drinks on one occasion for a boy and four or more alcoholic drinks on one occasion for a girl.⁶ This type of alcohol behavior is associated with life during studies at high school or university. It is an accompanying phenomenon of leisure activities, which aim to have fun, achieve pleasant experiences. For regular drinking, it is typical to drink alcoholic drinks at least once a week.⁷ Johnston et al. found that more than 40% of students reported consuming five or more drinks in a row, which can be defined as heavy drinking characteristic for regular drinking. The research found that nearly one-third of the students were classified as binge drinkers.⁸

1.1 Prevalence of Alcohol Consumption

In Slovakia, the prevalence of alcohol use among adolescents is relatively high, as confirmed by recent research. According to a national survey, adolescents' age of first alcohol experience was on the rise, from 10.8 in 2014 to 11.2 years in 2018.⁹ Rojková and Vavrová researched that the prevalence of alcohol experimentation for the group of secondary school respondents

¹ VIENO, A. et al.: Introduction. In INCHLEY, J. et al. (eds.): *Adolescent Alcohol-Related Behaviours: Trends and Inequalities in the WHO European Region, 2002-2014*. Copenhagen : WHO Regional Office for Europe, p. 2. [online]. [2022-03-17]. Available at: <<https://www.who.int/europe/publications/i/item/9789289053495>>.

² ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use Among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 354.

³ MIČKOVÁ, Z., ROJKOVÁ, Z.: Osobnostné, rodinné a situačno-motivačné faktory pravidelného pitia u vysokoškolákov. In MILLOVÁ, K. et al. (eds.): *Sociální procesy a osobnost*. Brno : Masarykova univerzita, 2016, p. 254.

⁴ See: ONDRUŠKOVÁ, E. et al.: *Rodina, voľný čas, psychoaktívne látky a delikvencia*. Bratislava : Univerzita Komenského v Bratislave, 2016.

⁵ ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use Among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 353.

⁶ ROJKOVÁ, Z., VAVROVÁ, M.: Descriptive Analysis of Alcohol Behaviour and Acting Situation-Motivational Factors Among Adolescents. In MLČÁK, Z. (ed.): *Psychologické aspekty pomáhání 2018*. Ostrava : Ostravská univerzita, 2019, p. 89.

⁷ ROJKOVÁ, Z.: Nárazové pitie u adolescentov: protektívne a rizikové faktory (SAHA). In PITEROVÁ, I., VÝROST, J. (eds.): *Sociální procesy a osobnost 2018*. Košice: CSPV SAV, 2018, p. 303. See also: ROJKOVÁ, Z., VAVROVÁ, M.: Descriptive Analysis of Alcohol Behaviour and Acting Situation-Motivational Factors Among Adolescents. In MLČÁK, Z. (ed.): *Psychologické aspekty pomáhání 2018*. Ostrava : Ostravská univerzita, 2019, p. 89.; JOHNSTON, L. et al.: *Monitoring the Future: National Survey Results on Drug Use, 1975-2007. Volume II: College Students and Adults Ages 19-45*. Bethesda, MD : National Institute on Drug Abuse, 2010.

⁸ LUKÁCS, A. et al.: Students in Danger: Binge Drinking Behaviour and Associated Factors in Hungary. In *Slovenian Journal of Public Health*, 2021, Vol. 60, No. 4, p. 249.

⁹ See: NOCIAR, A.: *Záverečná správa z prieskumu TAD u žiakov ZŠ, študentov SŠ a ich učiteľov v roku 2018*. Bratislava : VÚDPaP, 2018. [online]. [2022-03-17]. Available at: <https://vudpap.sk/wp-content/uploads/2019/06/Zav_Sprava_TAD2018_def.pdf>.

(15-17 years old) is 94.9% of adolescents, about 39.3% of adolescents used alcohol at least once during the last 30 days, and only 9.9% indicated they had drunk 4 or more times within the previous month. Regular drinking was attributed to 19.8% of boys and 19.3% of girls. On the other hand, binge drinking was attributed to 27.7% of boys and 28.3% of girls.¹⁰ In this context, we must notice the national survey, where about 67.5% of 16 years old secondary school students claimed they had already experienced being tipsy, and 38.9% of 16 years old secondary school students had already drunk so much they had had a blackout.¹¹ Given the high prevalence of adolescents' alcohol consumption, it is essential to assess the risk factors and the protective factors. Protective or risk factors for alcohol consumption can be types of leisure activities, which we analyze in the research. Much foreign research report similar findings. For example, in South America, more than 50% of adolescents had their first drink between the ages of 13 and 15 years.¹² Another research claims that more than 40% of students (aged 17) have consumed alcohol regularly and more than 20% have experienced binge drinking at least once during the previous 30 days.¹³ The gender difference between alcohol users was also confirmed in several studies, where men consumed significantly more drinks than women, but the authors of these studies state that this requires further research.¹⁴

1.2 The Connection Between Structured or Unstructured Leisure Activities and Alcohol Consumption

One of the key elements in reducing the use of alcohol or other addictive substances is an effective way of managing leisure time, because leisure has a significant impact on the development of adolescents. It is an opportunity for free and meaningful decisions, during which adolescents must learn to train their life skills in order to achieve optimal development. Research has shown that there are two types of leisure activities. Firstly, there are structured leisure activities that require a long-term commitment. These structured leisure activities included doing sports, leading a cultural life, or creating expressive art, which have a protective effect against adolescent disruptive behavior such as substance abuse. Hryhorczuk et al. found that a specific leisure activity such as reading books was protective against alcohol use, as compared to the response from those who never read books for leisure for both boys and girls. It was also found that adolescents who prefer structured leisure activities, such as drawing, playing an instrument, reading books or singing were more likely to abstain from alcohol.¹⁵

On the other hand, there are unstructured leisure activities, such as watching TV, browsing the Internet, playing video games, hanging out with friends, or spending time in malls. These leisure activities have been considered a risk factor for substance abuse. A student's choice of leisure

¹⁰ ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use Among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 354.

¹¹ See: NOCIAR, A.: *Európsky školský prieskum o alkohole a iných drogách (ESPAD) v SR za rok 2015*. Bratislava: VÚDPaP, 2015. [online]. [2022-03-17]. Available at: <https://www.vzbb.sk/sk/projekty/ESPAD_Zav_Sprava.pdf>.

¹² PRIETO-DAMM, B. et al.: Leisure Activities and Alcohol Consumption Among Adolescents from Peru and El Salvador. In *Drug and Alcohol Dependence*, 2019, Vol. 199, p. 33.

¹³ See: KANN, L. et al.: Youth Risk Behavior Surveillance – United States 2017. In *Surveillance Summaries*, 2018, Vol. 67, No. 8, no paging. [online]. [2022-03-17]. Available at: <<https://doi.org/10.15585/mmwr.ss6708a1>>.

¹⁴ FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 258.; HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports*, 2019, Vol. 10, p. 4.; SAMPASA-KANYINGA, H., CHAPUT, J. P.: Use of Social Networking Sites and Alcohol Consumption Among Adolescents. In *Public Health*, 2016, Vol. 139, p. 93.

¹⁵ HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports*, 2019, Vol. 10, p. 4.

activity between the structured or unstructured ones is important to adolescent development and the adolescent's alcohol behavior, because research found an interaction effect between structured and unstructured leisure activities and alcohol consumption.¹⁶ Among adolescents, structured leisure activities are associated with lower alcohol use, whereas unstructured leisure activities are linked to greater alcohol use. Therefore, we can say that an unstructured leisure activity such as Internet browsing is associated with higher alcohol consumption and heavy drinking.¹⁷ In the Czech Republic, a study on the health behaviour in school-aged children also found that among adolescents, unstructured activities, such as hanging out with friends or going to malls for fun were associated with risk behaviors.¹⁸ There are also other leisure activities associated with alcohol use, such as spiritual activities, volunteering, or socializing.¹⁹ Socializing is definitely related to hanging out with friends, including visiting entertainment establishments, such as discos or bars, where there is a greater risk of alcohol use for the socializing ones compared to those who never visit such places. For females the risk of ever having used alcohol was higher than for males.²⁰ These results were also confirmed by Patrick et al. who found that if students attended alcohol-free university-sponsored activities, they consumed fewer drinks than they did when they went out to bars, parties, sporting events, or other entertainment or campus events.²¹ Similar results can be observed in another research, where the decline in the frequency of going out with friends explained a major part of the decline in alcohol use.²² It means that the complexity of the relationship between face-to-face peer contacts or intensive electronic media communication are related to adolescent alcohol consumption. There is also a research which found that no type of leisure activity predicted alcohol use, but community and access to alcohol (accessibility) are predictive, so the macro-social context increases the risk of leisure alcohol use.²³

1.3 Internet Use and Alcohol Consumption

In today's electronic age, problematic use of the Internet has become a rapidly evolving phenomenon among adolescents.²⁴ Many students spent most time in casual leisure activities, including socializing within social media²⁵ and, according to Rojková and Mydlová, the daily extent of Internet usage among adolescents is increasing.²⁶ The use of the Internet in leisure activities thus affects adolescents' psyche and their social interaction with the environment,

¹⁶ KOHÚTOVÁ, K., ALMÁŠIOVÁ, A.: Voľný čas ako prediktor užívania legálnych návykových látok u žiakov základných a stredných škôl. In *Psychológia a patopsychológia dieťaťa*, 2016, Vol. 52, No. 2, p. 159.

¹⁷ FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 257.

¹⁸ BADURA, P. et al.: Can Organized Leisure-Time Activities Buffer the Negative Outcomes of Unstructured Activities for Adolescents' Health? In *International Journal of Public Health*, 2018, Vol. 63, No. 6, p. 748.

¹⁹ FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 253.

²⁰ HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports*, 2019, Vol. 10, p. 5.

²¹ PATRICK, M. E. et al.: Late Night Penn State Alcohol-Free Programming: Students Drink Less on Days They Participate. In *Prevention Science*, 2010, Vol. 11, No. 2, p. 160.

²² CHOMYNOVÁ, P., KÁŽMÉR, L.: Leisure-Time Socializing with Peers as a Mediator of Recent Decline in Alcohol Use in Czech Adolescents. In *Journal of Substance Use*, 2019, Vol. 24, No. 6, p. 635.

²³ CHEN, C. Y. et al.: Leisure Activity Participation in Relation to Alcohol Purchasing and Consumption in Adolescence. In *Addictive Behaviors*, 2019, Vol. 90, p. 299.

²⁴ VAVROVÁ, M.: The Link Between Bullying and Drug Use in Older School Age. In SABOVÁ, L. (ed.): *Psychologica L*. Bratislava : Stimul, 2020, p. 126.

²⁵ BIELIKOVÁ, M. et al.: *Prežívanie voľného času v online priestore a konzumácia legálnych a nelegálnych drog u žiakov základných a stredných škôl*. Bratislava : CVTI SR, 2019, p. 14.

²⁶ ROJKOVÁ, Z., MYDLOVÁ, K.: Extent of Spending Leisure Time Through the Electronic Media and Drug Behaviour of Youth. In *Communication Today*, 2019, Vol. 10, No. 2, p. 143.

but, above all, it has an impact on binge drinking and regular drinking.²⁷ The use of social media was significantly associated with an increased risk of ever using alcohol in the past 12 months and using alcohol in the past 30 days among both boys and girls.²⁸ Another research found in a sample of university students a significant correlation between the time spent on the Internet and the frequency of all forms of drug behavior except alcohol consumption, cigarettes, marijuana, or illicit drug use.²⁹ Besides that, there is an association between Internet activities and drinking, and there are differences depending on what young people do online.³⁰ Self-presentation, online sociality, or online social network chatting are positively associated with drinking, especially with binge drinking.³¹ Moreno et al. found that adolescents share alcohol experience statuses on social media, but these may not be true, adolescents do it to be “cool”.³² Adolescents who perceive the content of the status consider it to be real, which in fact can affect the peer alcohol behavior. In this regard, Nesi et al. found that alcohol content on social networks increased the chances of both drinking and binge drinking.³³ On the other hand, according to Finlay et al., students tended to consume fewer drinks when they spent more time using media.³⁴

In this research, we verify the connection between alcohol consumption and different leisure activities, including Internet use or hanging out with friends. This study aims to describe the prevalence of binge drinking and regular drinking in the total sample and gender groups. It also aims to describe which leisure activities are regular in the sample and in the boys' and girls' groups. We also explore the relation between alcohol use (binge, regular use) and leisure activities (categories) and whether there are any gender differences. Studies mentioned above have shown that some leisure activities, such as Internet use or hanging out with friends increase the risk of drinking. Based on these studies, we have formulated three research questions:

RQ1: What is the prevalence of binge drinking and regular drinking in the total sample and gender groups?

RQ2: Which leisure activities are regular in the total sample and groups of boys and girls?

RQ3: What is the association between alcohol use (binge, regular use) and leisure activities (categories), and are there any gender differences?

²⁷ SAMPASA-KANYINGA, H., CHAPUT, J. P.: Use of Social Networking Sites and Alcohol Consumption Among Adolescents. In *Public Health*, 2016, Vol. 139, p. 94; LANTHIER-LABONTÉ, S. et al.: Is Problematic Internet Use Associated with Alcohol and Cannabis Use Among Youth? A Systematic Review. In *Addictive Behaviors*, 2020, Vol. 106, no paging. [online]. [2022-03-17]. Available at: <<https://doi.org/10.1016/j.addbeh.2020.106333>>.

²⁸ HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports*, 2019, Vol. 10, p. 3.

²⁹ See: RUCKER, J. et al.: Problematic Internet Use Is Associated with Substance Use in Young Adolescents. In *Acta Paediatrica*, 2015, Vol. 104, No. 5, p. 506.; GUTIERREZ, K. M., COOPER, T. V.: The Use of Social Networking Sites: A Risk Factor for Using Alcohol, Marijuana, and Synthetic Cannabinoids? In *Drug and Alcohol Dependence*, 2016, Vol. 163, p. 249.

³⁰ SVENSON, R., JOHNSON, B.: Internet Use and Adolescent Drinking: Does It Matter What Young People Do Online? In *Drug and Alcohol Dependence*, 2020, Vol. 213, p. 2136.

³¹ See: LARM, P. et al.: The Role of Online Social Network Chatting for Alcohol Use in Adolescence: Testing Three Peer-Related Pathways in a Swedish Population-Based Sample. In *Computers in Human Behavior*, 2017, Vol. 71, p. 290.; GEUSENS, F., BEULLENS, K.: The Reciprocal Associations Between Sharing Alcohol References on Social Networking Sites and Binge Drinking: A Longitudinal Study Among Late Adolescents. In *Computers in Human Behavior*, 2017, Vol. 73, p. 505.

³² MORENO, M. A. et al.: Real Use or “Real Cool”: Adolescents Speak Out About Displayed Alcohol References on Social Networking Websites. In *Journal of Adolescent Health*, 2009, Vol. 45, No. 4, p. 421.

³³ NESI, J. et al.: Friends' Alcohol-Related Social Networking Site Activity Predicts Escalations in Adolescent Drinking: Mediation by Peer Norms. In *Journal of Adolescent Health*, 2017, Vol. 60, No. 6, p. 645.

³⁴ FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 257.

2 Methods

The research sample consisted of 533 adolescents aged 14–20 years, of which 295 (53.3%) were girls and 258 (46.7%) were boys. The respondents were high school students of various types across the regions of Slovakia. Data collection took place in 2019 and 2020 (before the Covid period) through a questionnaire method and was part of a larger research project (*Development and Standardization of Screening Methods on the Identification of Occurrence and Risk of Problematic Legal Drug Use Among Adolescents*). Therefore, the questionnaire battery consisted of several tools. For the current study, the section of questionnaire on situation-motivational alcohol behavior factors³⁵ was used, containing items for determining the form of alcohol use (regular, binge drinking, but also drinking intensity), and the original questionnaire of leisure time and peer relationships (authors, unpubl.).

2.1 Variables Operationalisation

Regular drinking: in the item, the respondents had to indicate the age period in which they initiated regular drinking (defined as “at least once a week”); the answers also offered the option: “I have not used alcohol regularly (at least once a week)”. An adolescent was assigned a regular drinking value if indicated any period and unassigned if indicated the above-mentioned option.

Binge drinking: in the item, the respondents selected the number of standard glasses (0.5l beer; 2dcl wine, 0.5dcl spirits/hard liquor) they usually drink on the day with a drinking occasion. The binge drinking was assigned when girls referred 4 and more, and boys referred 5 and more glasses.

Leisure activities: in the questionnaire of leisure time and peer relationships, the items were focused on various leisure activities, e.g., sport (and hiking), going out or meeting/talking with friends, using the Internet (games and social networks), going to the cinema or theatre, going to café or pubs, helping in the family (with siblings, etc.), reading books or education, musical or another art activity. For each kind of activity, an individual stated whether they do not perform it at all, they perform it irregularly or regularly in their leisure time. The primary leisure variables (dichotomous variables) were derived from the responses to the above items, and the criteria for assigning the value of the occurrence of regular leisure activity (category) are figured in the table. Next, we created the secondary leisure variables:

- Friends/Internet: a dichotomous variable including only the group of adolescents with sole regular Internet and the group of those with sole Friends as assigned leisure categories.
- Regular leisure activity (category): a multinominal variable created from the above mentioned variable Friends/Internet, completed by the category of Internet+Friends and Others.

	Primary leisure variables			
	Internet (Y/N)	Friends (Y/N)	Internet + Friends (Y/N)	Other
F, ...using the Internet, games, social networks	X	(x)	X	-
D, ...by visiting bars, cafés, having fun, going to a disco, etc.	(x)	X	X	-
E, ...going just out/to the city, meeting friends, talking	(x)			
...other (sport, art, education, family)	(x)	(x)	(x)	X

(x) possible occurrence together with the main X (regularly performance referred)

TABLE 1: *The operationalization of primary leisure variables*

Source: own processing, 2023

³⁵ See: ROJKOVÁ, Z., VAVROVÁ, M.: *Situačno-motivačné faktory alkoholového správania. Metodológia merania a aplikácia v praxi*. Trnava : UCM, 2017. See also: ROJKOVÁ, Z.: *Situačno-motivačné faktory alkoholového správania: koncept - meranie - overovanie*. Trnava : UCM, 2016.

The description of the demographic and other variables relevant for the investigation is visible in Table 2.

		Total sample N = 533		Girls N = 295		Boys N = 258	
Age	(AM/Range)	16,3/ (14, 20)		16,4/ (14, 20)		16,1/ (14, 18)	
		N	%	N	%	N	%
Sex	Girls	295	53.3				
	Boys	258	46.7				
Regular leisure activities (categories)	Internet	139	25.1	54	18.3	85	32.9
	Friends + Internet	196	35.4	108	36.6	88	34.1
	Friends	116	21.0	75	25.4	41	15.9
	Others (education, family, art, sport...)	102	18.4	58	19.7	44	17.1
Internet (Y/N)	Yes	335	60.6	162	54.9	173	67.1
	No	218	39.4	133	45.1	85	32.9
Friends (Y/N)	Yes	312	56.4	183	62.0	129	50.0
	No	241	43.6	112	38.0	129	50.0
Regular drinking	Yes	436	78.8	234	79.3	202	78.3
	No	117	21.2	61	20.7	56	21.7
Binge drinking	Yes	188	34.0	99	33.6	89	34.5
	No	365	66.0	196	66.4	169	65.5

TABLE 2: Description of variables in the total sample, in groups of girls and boys

Source: own processing, 2023

2.2 Data Analysis

Statistical description and statistical inference procedures were used to answer the research questions. The Chi-square test with risk estimation (OR for a table 2x2) was used for statistical comparison of the incidence of alcohol use form in the two groups compared. In the case of comparison of the three groups, Chi-square was also used, and the OR of the individual groups for the occurrence of the form of alcohol behavior was calculated by the binary logistic regression analysis.

3 Results

Within the RQ1, the prevalence of binge and regular drinking in the groups of boys and girls was examined. As shown in Figure 1, the proportion of Regular and Binge drinking is similar for girls and boys, and overall it is 78.8% for regular drinking and 34.0% for binge drinking.

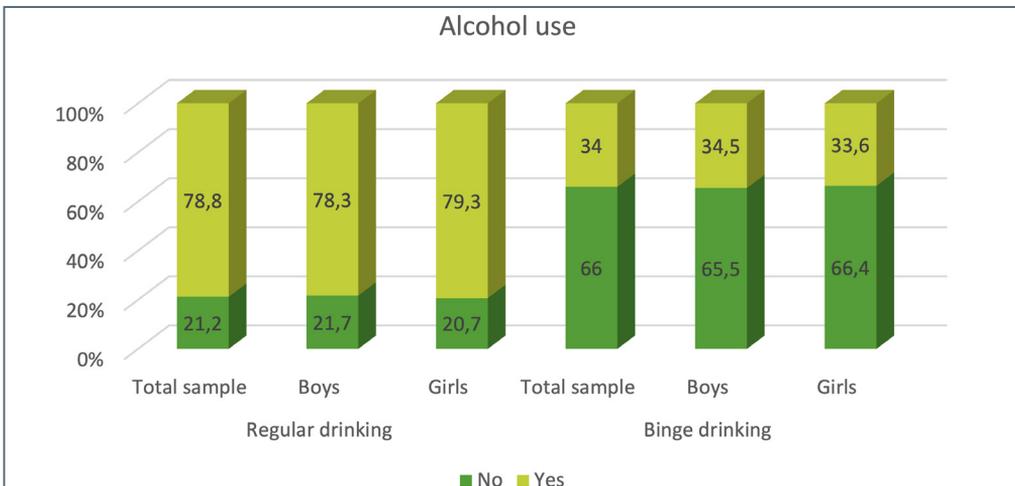


FIGURE 1: Frequencies of alcohol use forms in the total sample, in groups of girls and boys

Source: own processing, 2023

Figure 2 shows the percentages of leisure activities which adolescents do regularly (RQ2). The most frequent is the combined category of Friends and Internet (observed together, 35.4%), the next is Internet (25.1%), followed by Friends (21.0%) and Other (18.4%). When we look at the Boys' group and the Girls' group, there is a difference in the 2nd and 3rd order, when in boys a sole regular (in leisure time) Internet use occurs in 32.9% and meeting Friends in 15.9% unlike with the girls, where meeting Friends as a separate regular leisure activity is observed in 25.4% and regular Internet use in 18.3%.

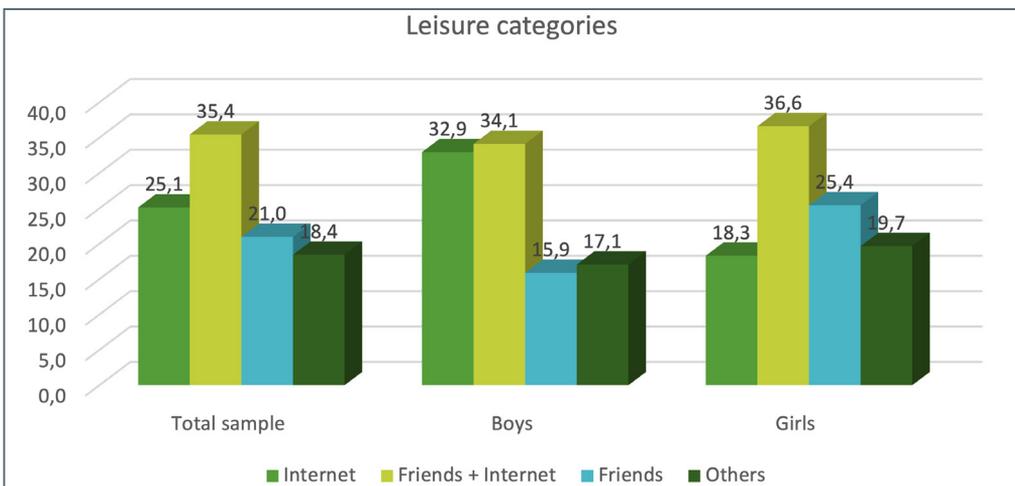


FIGURE 2: Frequencies of leisure categories in the total sample, in groups of girls and boys

Source: own processing, 2023

In the study, dichotomous leisure categories are included, as well. These categories may also appear simultaneously in some cases of the sample. In the total sample, regular meeting Friends is observed in 57.0%, regular Internet use in 60.6%. For boys, the regular Internet use in leisure time occurs in 66.9%, for girls in 55.1%. Regular meeting Friends as a leisure category is found in 50.8% of boys and 62.4% of girls.

Within the RQ3, the differences in the occurrence of regular and binge drinking between groups of adolescents concerning the form of regular leisure-time were examined. The Chi-square test of independence was used for the statistical comparison. Based on the results in Table 3, we interpret significantly more frequent binge drinking in adolescents with Friends (Y/N) as a regular leisure activity (Total sample OR 2.753, Boys OR = 2.945, Girls OR = 2.692; $p < 0.01$), whereas regular use of the Internet (Y/N) in leisure time for binge drinking is not significant ($p > 0.05$). Similarly, the occurrence of regular drinking is significantly different with respect to the regular meetings with Friends at leisure (Y/N) (Total sample OR = 4.205, Girls OR = 3.644, Boys OR = 5.257; $p < 0.05$), but the difference is insignificant in the case of regarding Internet use (Y/N) as a regular leisure activity. When comparing groups according to the Internet or Friends criterion (as separate categories), a significantly higher frequency of binge drinking was found in the group with Friends as the sole regular leisure category (Total sample OR = 2.931, Girls, 2.478, Boys OR = 3.545; $p < 0.01$) compared to a group with the separate Internet use as a regular activity in leisure time. With regular drinking, we also record a significantly higher occurrence in the group with regular leisure activity Friends (Total sample OR = 3.739, Girls OR = 2.737, Boys OR = 6.560; $p < 0.05$) than is observed in the group with the sole regular use of the Internet.

		Binge drinking			Regular drinking		
		No	Yes	χ^2 /OR ^a	No	Yes	χ^2 /OR ^a
Internet							
Total	No	143 (65.6%)	75 (34.4%)	0,013	50 (22.9%)	168 (77.1%)	0,712
	Yes	222 (66.3%)	113 (33.7%)	/0,979	67 (20.0%)	268 (80.0%)	/1,195
Girls	No	89 (67.4)	43 (32.6%)	0,129	32 (24.2%)	100 (75.8%)	1,779
	Yes	107 (65.4%)	56 (34.6%)	/1,093	29 (17.8%)	134 (82.2%)	/1,468
Boys	No	54 (62.8%)	32 (37.2%)	0,382	18 (20.9%)	68 (79.1%)	0,028
	Yes	115 (66.9%)	57 (33.1%)	/0,844	38 (22.1%)	134 (77.9%)	/0,947
Friends							
Total	No	186 (78.2%)	52 (21.8%)	28,229**	82 (34.5%)	156 (65.5%)	44,283**
	Yes	178 (56.5%)	137 (43.5%)	/2,753	35 (11.1%)	280 (88.9%)	/4,205
Girls	No	88 (79.3%)	23 (20.7%)	12,156**	38 (34.2%)	73 (65.8%)	19,939**
	Yes	108 (58.7%)	76 (41.3%)	/2,692	23 (12.5%)	161 (87.5%)	/3,644
Boys	No	100 (77.5%)	29 (22.5%)	15,986**	44 (34.6%)	83 (65.4%)	24,645**
	Yes	69 (53.4%)	60 (46.6%)	/2,945	12 (9.2%)	119 (90.8%)	/5,257
Internet/Friends							
Total	Internet	108 (77.7%)	31 (22.3%)	15,657**	45 (32.4%)	94 (67.6%)	16,123**
	Friends	63 (54.3%)	53 (45.7%)	/2,931	13 (11.2%)	103 (88.8%)	/3,793
Girls	Internet	41 (75.9%)	13 (24.1%)	5,433*	16 (29.6%)	38 (70.4%)	5,181*
	Friends	42 (56.0%)	33 (44.0%)	/2,478	10 (29.6%)	65 (86.7%)	/2,737
Boys	Internet	67 (78.8%)	18 (21.2%)	10,006*	29 (23.4%)	56 (65.9%)	10,485*
	Friends	21 (51.2%)	20 (48.8%)	/3,545	3 (7.3%)	38 (92.7%)	/6,560

a – OR by Risk Estimate Statistic for 2x2, the interpreted category is “Yes” for the second listed group
 ** $p < 0,01$; * $p < 0,05$

TABLE 3: Results of testing the difference in binge drinking, regular drinking between dichotomous leisure category groups – Chi-Square Test

Source: own processing, 2023

In order to examine the effect of separate and joint occurrence of the Internet and Friends as regular leisure activities to the binge and regular drinking more closely, in Table 4 the results of comparisons between the three leisure-category groups: sole Internet, Internet + Friends, and sole Friends, with the relevant OR (according to the binary logistic regression) are presented. We can see a significant difference regarding the mentioned three leisure categories in the occurrence of binge drinking in the Total sample ($p < 0.01$) and in Boys ($p < 0.01$), while in the Girls' group, the difference is insignificant ($p > 0.05$). With regular drinking, we record significant differences concerning the 3 leisure categories in the Total sample ($p < 0.01$), in groups of Girls ($p < 0.05$) and Boys ($p < 0.01$). However, we emphasize Odds Ratio, which is $OR = 3,077$ in the Girls group for the Internet + Friends category, and $OR = 2.737$ for the sole Friends category, unlike the results for the group of Boys, where $OR = 4.603$ for the Internet & Friends category and $OR = 6,560$ for the sole Friends category are found (an increased chance of regular drinking for a leisure category compared to the Internet reference category).

		Binge drinking			Regular drinking		
		No	Yes	χ^2 /Exp(B) ^a	No	Yes	χ^2 /Exp(B) ^a
3 Leisure Categories							
Total	Internet	108 (62.4%)	31 (22.3%)	18,876**	45 (32.4%)	94 (67.6%)	29,676**
	Internet + Friends	113 (57.7%)	83 (42.3%)	/2,537	22 (11.2%)	175 (88.8%)	/3,808
	Friends	63 (54.3%)	53 (45.7%)	/2,931	13 (11.2%)	103 (88.8%)	/3,793
Girls	Internet	41 (75.9%)	13 (24.1%)	5,748	16 (29.6%)	38 (70.4%)	8,883*
	Internet + Friends	65 (60.2%)	43 (39.8%)	/2,086	13 (12.0%)	95 (88.0%)	/3,077
	Friends	42 (56.0%)	33 (44.0%)	/2,478	10 (13.3%)	65 (86.7%)	/2,737
Boys	Internet	67 (78.8%)	18 (21.2%)	14,049**	29 (34.1%)	56 (65.9%)	20,768**
	Internet + Friends	48 (54.5%)	40 (45.5%)	/3,039	9 (10.1%)	80 (89.9%)	/4,603
	Friends	21 (51.2%)	20 (48.8%)	/3,545	3 (7.3%)	38 (92.7%)	/6,560

a - Exp(B) by Binary Logistic Regression, reference leisure category = Internet
 ** $p < 0,01$; * $p < 0,05$

TABLE 4: Results of testing the difference in binge drinking, regular drinking between 3 leisure categories groups – Pearson's Chi-Square, Exp(B) by Binary Logistic Regression

Source: own processing, 2023

4 Discussion

In the study, we focused on identifying the connections between binge drinking, regular drinking, and leisure activities. In the first research question, we explored the prevalence of alcohol consumption among adolescents, especially among gender groups. While the prevalence of alcohol consumption and the consumption of other addictive substances has slightly decreased after several years of increasing use, the use of alcohol by adolescents remains a serious health problem in Slovakia. As can be seen from the presented results, 34.0% of adolescents reported a consumption of a large amount of alcohol during a short period, which is typical for binge drinking. On the other side, 78.8% of adolescents reported that they had drunk alcoholic drinks at least once a week (in the last month), which is typical for regular drinking. The results are hardly comparable, because of the larger age range. Our former study, carried out on data from 2017-2018, found that at least one glass of alcohol in the last 30 days was consumed in 75% of adolescents aged 16-19 (however, it was not "drinking at least once a week") and binge drinking was found in 51%.³⁶

³⁶ ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 352.

Comparable findings were also made by Bieliková et al., where occasional and frequent drinking occur in approximately 65% of adolescents aged 14-18 years and binge drinking in 30%.³⁷ In our research, binge drinking was defined as the usual drinking of an excessive number of cups, not the occurrence of binge drinking in the last month, which explains the difference. The rationale is also supported by the results of the *Europe-wide ESPAD 2019* survey, where, on the one hand, binge drinking (last 30 days) occurred in 46% of 16-year-old adolescents and, on the other hand, the average number of drinking opportunities per month was 6 with an average number of cups of 4.7, which corresponds to regular (usual) excessive drinking, as understood in our methodology.³⁸ In our research group, we found a 34% prevalence of binge drinking, which we consider to be positive information in view of the surveys mentioned above. It is possible that the percentage of prevalence is “reduced” by 14- and 15-year-old respondents in our sample and is not increased by older ones. Alcohol consumption is strongly socially determined (eg., alcohol availability to young people, tolerance, etc.), so intercultural comparisons are difficult, although there are many studies with findings on the prevalence of adolescent drinking.³⁹ Regarding gender differences, a similar proportion of regular and binge drinking for girls and boys can be interpreted, which is consistent with other foreign and Slovak findings⁴⁰ and in contrast with others that interpret a higher prevalence of heavy drinking in the group of men.⁴¹

Leisure time forms a substantial part of an adolescent's life with leisure activities accounting for more than 40 hours per week of students' time. In the second research question, we focused on regular leisure activities in the total sample, but also in the groups of boys and girls. Several studies have confirmed that adolescents are increasingly spending their free time on social media.⁴² However, our results emphasize the continued representation of meeting friends at leisure. The combined category of Friends and Internet reached a higher representation (35.4%), followed by the single category of the Internet (25.1%), then the single category of Friends (21.0%). Regular meetings with friends and Regular spending of time on the Internet (also in co-occurrence) are similarly represented (57% and 60%) in the entire sample, while for girls, Regular meetings with friends in leisure and for boys, using the Internet are slightly exceeding. The results are in line with previous findings, where socializing with friends and family or media use were found as the most popular leisure activities, while cultural leisure activities (reading, drawing, playing a musical instrument) were the least popular. As mentioned, some gender differences were found, which has also support in some researchers who referred that girls

³⁷ BIELIKOVÁ, M. et al.: *Prežívanie voľného času v online priestore a konzumácia legálnych a nelegálnych drog u žiakov základných a stredných škôl*. Bratislava : CVTI SR, 2019, p. 53.

³⁸ See: MOLINARO, S. et al.: *ESPAD Report 2019: Results from the European School Survey Project on Alcohol and Other Drugs*. Luxembourg : Publications Office of the European Union, 2020. [online]. [2022-03-17]. Available at: <<http://www.espad.org/espad-report-2019#downloadReport>>.

³⁹ See: KANN, L. et al.: Youth Risk Behavior Surveillance – United States 2017. In *Surveillance Summaries*, 2018, Vol. 67, No. 8, no paging. [online]. [2022-03-17]. Available at: <<https://doi.org/10.15585/mmwr.ss6708a1>>. See also: LUKÁCS, A. et al.: Students in Danger: Binge Drinking Behaviour and Associated Factors in Hungary. In *Slovenian Journal of Public Health*, 2021, Vol. 60, No. 4, p. 249.

⁴⁰ ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use Among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 352.; MOURE-RODRÍGUEZ, L., CAAMANO-ISORNA, F.: We Need to Delay the Age of Onset of Alcohol Consumption. In *International Journal of Environmental Research of Public Health*, 2020, Vol. 17, No. 8, no paging. [online]. [2022-03-17]. Available at: <<https://doi.org/10.3390/ijerph17082739>>.

⁴¹ See: VEREŠOVÁ, M.: *Rizikové správanie dospievajúcich v systéme vyššieho sekundárneho vzdelávania*. Nitra : PF UKF, 2020. See also: FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 258.

⁴² HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports*, 2019, Vol. 10, p. 4.; ROJKOVÁ, Z., MYDLOVÁ, K.: Extent of Spending Leisure Time Through the Electronic Media and Drug Behaviour of Youth. In *Communication Today*, 2019, Vol. 10, No. 2, p. 143.

spent more time away from home with friends, socializing, attending events than men did, and men spent more time using media and doing sports.⁴³

In the last research question, we examined the association between regular drinking, binge drinking, and regular leisure activities. We used three ways to categorize regular leisure activities that entered testing. All the results point to the insignificance of regular use of the Internet in leisure time for both regular and binge drinking. On the other hand, regular meetings with friends in leisure time are found to be a significant risk factor for both forms of alcohol behavior, but with a higher risk of regular drinking (than binge drinking) and a higher risk for boys than for girls.

However, the findings of the comparative analysis and risk estimation are important as long as we include the group with a joined form of regular Internet use and Meeting friends. We found that this form increases the risk of binge drinking, compared to the sole use of the Internet, in boys only, approximately 3 times, while with the sole category of Meeting friends, the chance is even higher (3.5 times). In regular drinking, the risk is higher with the joined Internet plus Friends leisure form in both boys and girls. Girls are at 3 times higher risk of regular drinking within the combined category of Internet + Friends than the girls who regularly use only the Internet, while with the girls who only regularly Meet friends in their free time the chance is 2.7 times higher. (compared to spending their free time only on the Internet). We can therefore interpret roughly the same risk, which lies in spending time with peers, and using the Internet slightly increases it. For boys, the interpretation is different, the chance of regular drinking is 4.6 times higher if they regularly spend time on the Internet and also Meet friends, compared to those who only use the Internet. However, for the boys who only regularly spend their free time with friends, the chances are up to 6.6 times higher. Thus, we can interpret that regular use of the Internet as a leisure activity appears to be a protective factor that reduces the risk of regular and binge drinking in boys who spend time with friends, while in girls this moderating effect has not been found.

An association between some leisure activities and alcohol was examined in several studies, especially in the last decades.⁴⁴ In our former study, results showed a relation between the time spent with electronic media, especially on the Internet, and all forms of drug behavior.⁴⁵ Hypothetically, this means that a regular leisure activity such as spending time on the Internet is associated with drug use, but other leisure forms were not included. On the other hand, the findings of Kohútová and Almášiová, who explored a predictive potential of all leisure forms to legal drug use, brought knowledge about insignificant Internet use as a leisure activity for this drug use form.⁴⁶ According to the findings, it is obvious that mainly unstructured leisure activities are associated with higher regular drinking or binge drinking. Unstructured activity can be considered both aimless browsing the Internet, playing video games (like banishing boredom), watching online content, and also meeting friends without a specific goal or interest. In our research, the function of leisure activity was not investigated, which may be the reason that regular use of the Internet has not proven to be risky for alcohol use, compared to regular meeting friends in leisure time. Research on specific activities on the Internet considers spending

⁴³ ROCKAFELLOW, B. D., SAULES, K. K.: Substance Use by College Students: The Role of Intrinsic Versus Extrinsic Motivation for Athletic Involvement. In *Psychology of Addictive Behaviors*, 2006, Vol. 20, No. 3, p. 285.; FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 253.

⁴⁴ See: TIBBITS, M. K. et al.: The Relation Between Profiles of Leisure Activity Participation and Substance Use Among South African Youth. In *World Leisure Journal*, 2009, Vol. 51, No. 3, p. 158.; MU, K. J. et al.: Internet Use and Adolescent Binge Drinking: Findings from the Monitoring the Future Study. In *Addictive Behaviors Reports*, 2015, Vol. 2, p. 65.

⁴⁵ ROJKOVÁ, Z., MYDLOVÁ, K.: Extent of Spending Leisure Time Through the Electronic Media and Drug Behaviour of Youth. In *Communication Today*, 2019, Vol. 10, No. 2, p. 144.

⁴⁶ KOHÚTOVÁ, K., ALMAŠIOVÁ, A.: Voľný čas ako prediktor užívania legálnych návykových látok u žiakov základných a stredných škôl. In *Psychológia a patopsychológia dieťaťa*, 2016, Vol. 52, No. 2, p. 158.

time on social networks,⁴⁷ sharing statuses on alcohol experiences,⁴⁸ exposure to alcohol content,⁴⁹ general self-presentation,⁵⁰ chatting⁵¹ to be particularly risky for alcohol use. These activities are part of the construct of problematic use of the Internet, which is a clearer risk factor not only for the use of legal or illegal drugs,⁵² but also other risky behavior of adolescents, linked to using alcohol secondly (cyberbullying, risky sexual behavior⁵³). When comparing girls and boys, as mentioned above, for boys, regular use of the Internet seems to be a factor reducing the chances of alcohol consumption compared to spending free time with friends, but for girls, this effect is not visible. It may be explained through a higher socializing function of using the Internet in girls (e.g. for chatting), which is consistent with findings of Larm et al., who observed the relation between social context pathway in alcohol use among girls with a high level of online chatting on social networks.⁵⁴

5 Conclusion

The study provided findings on the relation between the two most preferred leisure activities in adolescence and regular or binge drinking. We have found that meeting friends regularly poses a greater risk to adolescents than using the Internet, and even for boys, using the Internet can be a protective factor. The study points out the importance of a multi-component investigation of risk factors, and we recommend including the function (intention, structuring) of leisure activities in further research. It also supports the distinction between regular and binge drinking as two forms of behavior with different determinants and the justification for gender comparison. Despite the presented results, it is necessary to longitudinally examine the connection between alcohol and problematic internet use.

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⁴⁷ GUTIERREZ, K. M., COOPER, T. V.: The Use of Social Networking Sites: A Risk Factor for Using Alcohol, Marijuana, and Synthetic Cannabinoids? In *Drug and Alcohol Dependence*, 2016, Vol. 163, p. 249.

⁴⁸ GEUSENS, F., BEULLENS, K.: The Reciprocal Associations Between Sharing Alcohol References on Social Networking Sites and Binge Drinking: A Longitudinal Study among Late Adolescents. In *Computers in Human Behavior*, 2017, Vol. 73, p. 504.

⁴⁹ NESI, J. et al.: Friends' Alcohol-Related Social Networking Site Activity Predicts Escalations in Adolescent Drinking: Mediation by Peer Norms. In *Journal of Adolescent Health*, 2017, Vol. 60, No. 6, p. 646.

⁵⁰ SVENSON, R., JOHNSON, B.: Internet Use and Adolescent Drinking: Does It Matter What Young People Do Online? In *Drug and Alcohol Dependence*, 2020, Vol. 213, p. 2135.

⁵¹ LARM, P. et al.: The Role of Online Social Network Chatting for Alcohol Use in Adolescence: Testing Three Peer-Related Pathways in a Swedish Population-Based Sample. In *Computers in Human Behavior*, 2017, Vol. 71, p. 288.

⁵² VAVROVÁ, M.: Connection Between Internet Use and Drug Behaviour of Adolescence. In DÉMUTHOVÁ, S., BARANOVSKÁ, A. (eds.): *Kondášove dni 2019*. Trnava : UCM, 2019, p. 136.

⁵³ VAVROVÁ, M.: The Link Between Bullying and Drug Use in Older School Age. In SABOVÁ, L. (ed.): *Psychologica L*. Bratislava : Stimul, 2020, p. 129; VÁCLAVIKOVÁ, I.: How Adolescents Spend Their Free Time? Relationship Between Leisure Time Activities and Conduct Problems. In LIPOWSKI, J. et al. (eds.): *MMK 2019*. Hradec Králové : Magnanimitas, 2019, p. 832.

⁵⁴ LARM, P. et al.: The Role of Online Social Network Chatting for Alcohol Use in Adolescence: Testing Three Peer-Related Pathways in a Swedish Population-Based Sample. In *Computers in Human Behavior*, 2017, Vol. 71, p. 289.

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Authors



Mgr. et. Bc. Zuzana Rojková, PhD.

Department of Psychology
Faculty of Arts, University of Ss. Cyril and Methodius in Trnava
Námestie Jozefa Herdu 2
917 01 Trnava
Slovak Republic
zuzana.rojkova@ucm.sk
ORCID ID: <https://orcid.org/0000-0003-1333-4598>

Zuzana Rojková holds a PhD. in Pedagogical Counselling and School Psychology obtained at the Constantine the Philosopher University in Nitra. Since 2012, she has been an Assistant Professor at the Department of Psychology (Faculty of Arts, UCM in Trnava). Her pedagogical profile includes methodological and statistical courses. As a scholar, she is interested in the fields of drug behaviour research (especially in relation to adolescents), music psychology, and the exploration of media influence. She is the author or co-author of two scientific monographs on the concept of situation-motivational alcohol behaviour factors and methodology for their measurement.

Mgr. Dominika Kurajda

Department of Psychology
Faculty of Arts, University of Ss. Cyril and Methodius in Trnava
Námestie Jozefa Herdu 2
917 01 Trnava
Slovak Republic
kochanova3@ucm.sk
ORCID ID: <https://orcid.org/0000-0002-9002-3163>



Dominika Kurajda is a postgraduate student (PhD.) at the Department of Psychology, Faculty of Arts, UCM in Trnava, in the General and Experimental Psychology study programme. She has a Master's degree in General Psychology. She was a member of several student organizations, such as the UCM Psychological Club or the Slovak Association of Psychology Students and Graduates (SAŠAP). In her research, she focuses on academic procrastination, problematic internet use and social media addiction among youth.