

Typology of Adolescents in Terms of their Leisure-time Substance Use

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BACKGROUND: Substance abuse is considered one of the most serious society-wide problems. In our paper, we focus on leisure and the individual leisure activities which are either protective or risky in terms of substance abuse.

AIMS AND OBJECTIVES: To identify the typology of users of selected addictive substances in Slovak adolescents. Another objective is to determine the differences between the identified types of substance users in their leisure time, risk activities, demographic characteristics, and family environment. **METHOD:** The data set was obtained through our own questionnaire to determine the frequency of substance abuse, leisure activities, demographic characteristics, and family environment of the adolescents in the target group. **STATISTICAL ANALYSIS:** The data was analyzed using descriptive statistics and cluster analysis.

RESULTS: We identified three types of adolescents. Nearly

50% of them were non-users, approximately one third of them used all the addictive substances under study, mostly cigarettes, followed by alcohol and occasionally marijuana, and the last group was characterized by the occasional use of alcohol. Subsequently, we identified the differences between the groups in the ways they spend their leisure time. **CONCLUSIONS:** Occasional users of addictive substances go to discos/entertainment events, but also have temporary jobs, they use addictive substances while with their friends, and are involved in illegal activities significantly more frequently than the AS non-users. The AS non-users, in contrast, are more frequently engaged in activities such as reading books or playing board games with their parents, and they do not use addictive substances while with their friends and nor do they get involved in illegal/illicit activities.

Keywords | Adolescence – Addictive substances – Leisure time – Risk behavior – Cluster analysis

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● 1 BACKGROUND

Suitable leisure time activities help prevent risk behaviour (Miovský et al., 2010; Kolářiková & Němec, 2017). A number of research studies have been dedicated to the leisure activities of Czech and Slovak adolescents (e.g. Almašiová & Kohútová, 2015; Bieliková & Pétiová, 2007; Fulková, 2008; Gejdošová, 1997; Hradiská & Ritomský, 2008; Pétiová, 2012; Revay, 2008; Sak & Saková, 2004). The studies were mainly focused on identifying the leisure activities and their frequency. The above research suggests that adolescents are mostly engaged in listening to music, watching television, communicating on the Internet, doing sports, meeting their friends, and, less frequently, going to bars, cafes and discos. The research of substance abuse among young people is mostly focused on identifying the frequency of use (e.g. Bieliková & Pétiová, 2007; Kohútová & Almašiová, 2016; Nociar, 2014; Pétiová, 2011; Procházka, 2012). These studies indicate that alcohol, cigarettes, and marijuana are the most frequently abused substances. The above research studies were a source of inspiration to us when designing our research tool, which is described in greater detail in the “Variables” section.

In the theoretical analysis of the prevention of substance abuse among young people, meaningful leisure time activities are often cited as one of the forms of prevention. For example, Kristjansson et al. (2010) found that increased parental supervision and the involvement of adolescents in organized sports which were part of community-based prevention activities led to a reduction in alcohol use in an experimental group compared to a control group. Similarly, Badura et al. (2017) found that adolescents who spend their leisure time doing organized leisure activities exhibit a lower likelihood of regular smoking, repeated alcohol consumption, and truancy.

Adolescence can be seen as a sensitive period for the formation of stable interests and activities carried out in one's leisure time, as well as a period of risk behaviour because leisure activities are mainly associated with risk behaviour¹ (Biolcati, Mancini, & Trombini, 2018). Other authors (Tomšík et al., 2017) view risk behaviour as a sign of non-productive use of leisure time. As an episode in the period of adolescence, risk behaviour may serve not only as a means to explore and experiment with personal boundaries or as an expression of independence (Gavriel-Fried & Ronen, 2016). In the case of substance abuse, which is the focus of our investigation, it becomes a socially acceptable part of the lives of some adolescents (Kabiček, Csémy, & Hamanová, 2014).

Tomčíková et al. (2013) found that risk activities in leisure time increase the likelihood of alcohol consumption, and, vice versa, that parental supervision reduces this likelihood in the Slovak adolescent population (N 3694, AM 14.5 years,

49% boys). Risk activities included socializing with friends, membership of “sororities”, and daily (and/or a few times a week) attendance at sporting events. Parental control was also identified in the research conducted by Albertos et al. (2016) and Yu et al. (2016) as a protective factor against substance abuse. In terms of the correlation between leisure time and alcohol use, Koutra et al. (2011) also included coffee bars and billiard halls (research sample – 117 respondents from Crete) into the risk factors for leisure time. Spending time in bars, clubs, and cafes and at parties was also seen as a significant risk factor for substance abuse by Medrol (2015). Additionally, it was concluded that every other extracurricular activity performed by adolescents is in a certain way associated with the use of addictive substances. A possible explanation is that all these activities are carried out under peer pressure. Protective activities only included reading books and religious activities. Similarly, the research conducted by Grace et al. (2007) confirmed that the time spent with peers is a key risk factor for substance abuse, while leisure time spent with the family is a key protective factor. The importance of leisure time spent with the family was also confirmed in the research conducted by Kohútová and Almašiová (2015) on a research sample of 728 students aged 11-19 (59.4% female), in which it was found that this type of leisure time activity has a negative relation to the consumption of energy drinks, cigarettes, marijuana, and alcohol. This included activities such as trips with parents, board games with parents, talking to parents, and spending time with siblings.

Caldwell and Darling (1999) found that addictive substances are used to a greater extent by those who spend their leisure time in unstructured social meetings with peers who use addictive substances, and this process is moderated by going to discos (or parties). However, these authors also point out that leisure time spent with peers does not automatically lead to partying, and parties do not automatically mean substance abuse. It depends on the peer group, peer pressure in the group, and resilience of the individual.

Shinew and Parry (2005) point out that most research in the last decade was focused on the benefits of leisure time. However, there are other aspects of leisure time that have received less research attention, for example, drinking and drug use, which are the favourite leisure time activities of many students. Therefore, these authors focused on exploring two leisure activities among university students (N 740, 41.9% women) – drinking alcohol and illegal substance abuse. They found that university students spend much of their free time (two to three days a week) with friends who drink alcohol or use drugs. Social interaction and having fun are some of the reasons given for such activities. Hence the importance of friendships and social groups, which have an effect on student leisure time.

Seppo and Crowley (1991) compared the leisure time of substance users and non-users. They found that users of addictive substances are often bored in their free time, but on the other hand, more often than not they spend their leisure time on physical activities, trips, concerts, and social

1 | Risk behaviour is understood as a behaviour that puts adolescents and their environment at risk. For example, Jessor (1997) understands it as substance abuse, delinquency, and risk sexual behaviour.

activities. The authors explain this by the assumption that the personality predispositions of substance abusers are characterized by a search for excitement and thrills and a low tolerance for the same, meaning they apparently prefer an active lifestyle. However, if the leisure activities fail to satisfy their need for excitement, substance abuse can be an easy alternative to boring leisure time. The authors conclude that boredom could be the cause or effect (or both) of substance abuse. Brissett and Snow (in Biolcati, Mancini, and Trombini, 2018) suggest that boredom is a factor causing insufficient stimulation, a lack of excitement, and a lack of psychological engagement, which is associated with dissatisfaction, and the individuals trying to cope with boredom by searching for additional stimulation, which may take the form of one-off or repeated substance abuse. Similar results were achieved e.g. by Sharp et al. (2011), who point to boredom as the most consistent and strongest predictor of the use of alcohol, cigarettes, and marijuana.

On the basis of the above, we assumed that the empirical types which we created on the basis of their frequency of consumption of select habit-forming substances would vary systematically and in the expected direction in terms of the ways and frequency of spending leisure time and involvement in risk activities.

The aim of the present study is to identify the types (clusters) of consumers of selected addictive substances (alcohol, cigarettes, and marijuana) in 12-18-year-old Slovak adolescents. The study also aims to determine the differences in a) leisure activities, b) risk leisure time activities, and c) demographic characteristics and family environments among the identified types of drug and substance users.

● 2 DATA COLLECTION

The respondents were presented with the authors' questionnaire, which consisted of several parts. The first part was focused on identifying the demographic characteristics of the respondents and their family environment.

The second part focused on identifying the frequency of various leisure activities, with the variables provided on a six-point Likert scale (0 = never; 1 = once in six months, 2 = every month, 3 = once per week, 4 = more times per week, 5 = every day). The respondents reported the frequency of the following leisure activities: talking to parents, playing computer games, using the Internet, listening to music, watching TV, reading books, playing board games with parents, visiting places with parents, sports, going out with friends, spending time with siblings, being bored, taking a temporary job, attending interest clubs, preparing for school, taking care of pets, talking to friends, attending church, going to the shopping centre, doing nothing (resting, lying down), going to discos/entertainment events, chatting online.

The third part focused on the frequency of substance abuse, which was measured on an eight-point scale (0 = never, 1 = once in six months, 2 = once a month, 3 = several times

a month, 4 = once in two weeks, 5 = once a week, 6 = several times a week, 7 = every day). The respondents reported the frequency of use of the following addictive substances: alcohol, cigarettes, and marijuana.

Other questions focused on risk behaviour in leisure time, such as substance abuse in the peer group, irregular/illegal activities in the peer group, or slot machines.

The questionnaire was administered by the coordinators for the prevention of addictions and social pathologies, who did not have to be present in class during the administration process. Participation in the research was voluntary; the respondents expressed their consent by completing the questionnaire (paper or electronic), and they could cease to answer the questionnaire at any time. The respondents were informed about the research aim and method used for the presentation of the research results, and they were also instructed about confidentiality (the respondents only indicated their year of study). Throughout the research, an emphasis was placed on compliance with ethical standards.

2.1 Data set

The data for the analysis was obtained from a written and electronic questionnaire. The population set in our research included secondary school students from secondary vocational schools, grammar schools, and conservatories in the Slovak Republic. Our research was conducted during the months of May-June 2017, and the population set in the school year 2017/2018 was 206,570 students, according to the Centre for Scientific and Technical Information of the Slovak Republic. We used stratified random selection, and in each Self-Governing Region we chose as many secondary schools (secondary vocational schools, secondary grammar schools, and conservatories) as necessary, corresponding to the proportion in the population set. The respondents who participated in our research corresponded to 2.2% of the entire population set. The resulting sample set consisted of 4525 respondents aged 12 to 18 (12-year-olds: 15.2%, 13-year-olds: 14.7%, 14-year-olds: 15.5%, 15-year-olds: 14.3%, 16-year-olds: 15.0%, 17-year-olds: 14.3%, 18-year-olds: 11.0%). The mean age was 14.86 years, the standard deviation was 1.95 years, and the research questionnaire was completed by 2045 girls (45.3%) and 2474 boys (54.7%), with six respondents not identifying their gender. Altogether, 1991 (44.1%) of the respondents lived in urban areas and 2526 (55.8%) of the respondents in rural areas, and eight respondents did not state their residence. Altogether, 3394 (75.2%) of the respondents grew up in a complete family, 1121 (24.8%) of the respondents grew up in an incomplete family, and 10 respondents did not provide an answer to this question. We also investigated the education of the respondents' parents, with the following results: 215 fathers (4.8%) with basic education, 882 fathers (19.7%) with secondary education without the school-leaving exam, 2312 fathers (51.6%) with upper secondary education with the school-leaving exam, and 1069 fathers (23.9%) with college education. 47 respondents did not pro-

vide an answer. There were 225 mothers (5.0%) with basic education, 698 mothers (15.5%) with secondary education without the school-leaving exam, 2338 mothers (52.0%) with upper secondary education with the school-leaving exam, and 1236 mothers (27.5%) with college education. 28 respondents did not provide an answer.

2.2 Statistical methods

The data was analysed in SPSS (version 22), and cluster analysis was used because of its nature and structure. Cluster analysis is an exploratory data analysis method which seeks to identify homogeneous groups of cases. It uses methods and algorithms to attribute the data with similar characteristics into a single cluster. It tries to organize the collected data into meaningful structures to create a taxonomy. Cluster analysis classifies units into clusters in such a way that the similarity of two units belonging to the same group is the maximum, while their similarity with the units outside the cluster is the minimum (Kučera, undated.). We used a TwoStep cluster analysis because of its advantages, which include the ability to create clusters based on categorical (discrete) and continuous variables, automatic selection of clusters (as well as the option to define the desired number of clusters), and the ability to analyse large data sets effectively.

3 RESULTS

On the basis of the frequency of substance abuse (alcohol, cigarettes, marijuana) we created a typology of users. In the cluster analysis, we adjusted the search for the optimal number of clusters to the maximum value of 10 (i.e. 1–10) using the Schwarz Bayesian information criterion (BIC). Using the above procedure, the system identified three clusters as an appropriate number, which is a reasonable number in terms of interpretation. The contour coefficient value for the above three clusters was 0.60.

The first cluster consisted of the respondents who have never used any of the substances being studied, and it carries the name “**non-users of substances**” (hereinafter AS non-users). This cluster consisted of 2145 respondents (47.4%), nearly half of the sample set.

The second cluster was composed of the respondents who used alcohol, cigarettes, and marijuana. The respondents who consume alcohol more than once a month (20.0%) predominate, followed by the daily smokers (35.4%), and marijuana was not used by 63.4% of them (the remaining respondents used marijuana once in six months – 16.7%, more than once a month – 6.4%, every day – 4.1%, once a month – 3.5%, more times a week – 2.2%, once a week – 2.1%, and once in two weeks – 1.6%). This cluster consisted of 1358 respondents (30.0% of the sample set). This cluster was named “**occasional users of addictive substances**” (hereinafter occasional AS users) because this cluster is typified by the consumption of all of the substances that

were monitored, and the consumption is relatively high (compared to the other clusters).

The third cluster was made up of alcohol drinkers only, with the most common frequency being once in six months (55.1%) (several times a month – 21.2%, once a month – 13.4%, once in two weeks – 4.9%, and once a week – 5.4%). This cluster was called “**occasional alcohol drinkers**” because its members only consumed alcohol and they did so less frequently (compared to other clusters). The third cluster consisted of 1022 respondents (22.6% of the sample set).

Figure 1 shows the absolute count and the corresponding percentage of the subjects relative to the total number of respondents (row *Size*). The row *Label* designates the individual clusters and the row *Description* shows a description of each category.

Input (Predictor) Importance
 1.0 0.8 0.6 0.4 0.2 0.0

Cluster	1	2	3
Label	AS non-users	Occasional AS users	Occasional drinkers
Description	never drank alcohol, smoked or used marijuana	use all three AS – alcohol, cigarettes, marijuana	only drink alcohol
Size	47.4% (2145)	30.0% (1358)	22.6% (1022)
Inputs	alcohol never (100%) cigarettes never (100%) marijuana never (100%)	alcohol several times per month (20.0%) cigarettes every day (35.4%) marijuana never (63.4%)	alcohol once in half year (55.1%) cigarettes never (100%) marijuana never (100%)

Figure 1 | Results of cluster analysis – typology of adolescents in terms of selected addictive substances

3.1 Differences in leisure activities with respect to the identified typology of AS users

Within the clusters that had been identified, we determined the relative abundance of the variables relating to the different types of leisure activities. For this purpose, we used the SPSS feature in a two-step cluster analysis called “Evaluation Fields”, which was used to calculate the data for the individual clusters related to the use of leisure time. This resulted in the identification of the variables that most visibly discriminate between the clusters² and in displaying the relative counts.³ On the basis of the outcome of this procedure, we reach the following conclusions.

– **Discos/entertainment events** are the most discriminating activity among the identified clusters. The occasional AS users go to discos/entertainment events on a week-

2 | In the bullet list, we proceed from the strongest discriminant variable to the weakest.

3 | The procedure resulted in a graphic model, which is, however, very long given the scope of this study, so the results are described in the bullet list.

	AS non-users		Frequent AS users		Occasional alcohol drinkers	
	AM	SD	AM	SD	AM	SD
I go to discos/entertainment events	0.56	1.13	1.94	1.42	1.15	1.27
I have temporary jobs	0.57	1.21	1.58	1.70	1.00	1.40
I prepare for school	4.48	1.18	3.58	1.73	4.18	1.31
I play board games with my parents	1.92	1.48	1.24	1.36	1.57	1.31
I attend interest clubs	2.17	1.93	1.25	1.77	1.84	1.90
I go out with my friends	3.59	1.44	4.10	1.13	3.54	1.28
I chat online	3.32	1.99	3.93	1.68	3.84	1.72
I use the Internet	4.57	1.01	4.82	0.67	4.86	0.53
I listen to music	4.47	1.10	4.84	0.58	4.69	0.78
I read books	2.42	1.77	1.82	1.74	2.33	1.72

Table 1 | Mean differences in various leisure activities for each type of substance user

- ly basis in 30.8%⁴ of cases, while the occasional alcohol drinkers do not go to discos/entertainment events in 42.0% of cases and the non-consumers in 72.2% of cases.
- **Temporary jobs** were the second most important discriminating variable among the clusters. In the occasional AS users, the most frequent category was “not at all” (39.1%), and similarly, this was also the case even with the occasional alcohol drinkers, but with a higher percentage of 54.4%; the AS non-users do not have temporary jobs in 75.3% of cases.
 - **Preparation for school** is the third most important discriminating variable in each group. In 43.5% of cases, the AS users prepared for school every day, followed by the occasional alcohol drinkers with 58.3% and AS non-users with 75.0%.
 - **Board games with parents** were another important discriminating variable. The AS users did not pursue this activity in 41.0% of cases, the occasional alcohol drinkers pursued it semi-annually (30.1%), and the AS non-users several times a week (24.8%).
 - **Attending interest clubs** also differentiated between the groups: the AS users did not visit a club in 61.9% of cases, the occasional alcohol drinkers in 45.8% of cases, and the AS non-users in only 36.1% of cases.
 - **Going out with friends** was an important discriminating variable, with the AS users going out with their friends every day (47.6%), the occasional alcohol drinkers more times a week (36.1%), and the AS non-users every day in 33.5% of cases.
 - The above were followed by **online chatting**, with the AS users being the most frequent on a daily basis with 64.4%, followed by the occasional alcohol drinkers at 61.3%, and the AS non-users at 48.0%.
 - These were followed by the activities with a similar level of importance, namely Internet use, listening to music, and reading books. The AS users **use the Internet every day** in 90.6% of cases, followed by the occasional alcohol drinkers in 92.0% and the non-users in 78.3% of cases. The AS users **listen to music on a daily basis** in 90.3%

of cases, followed by the occasional alcohol drinkers in 81.8% and the non-users in 73.8% of cases. 34.1% of the AS users **do not read books**, while 19.9% of the occasional alcohol drinkers read books once in six months and 18.1% of the non-users read books once a week.⁵

To obtain a more comprehensive overview of the differences between the groups, we also present the mean differences in the various leisure activities (*Table 1*).

3.2 Differences in risk activities in leisure time with respect to the identified typology of AS users

The risk activities that discriminate between the identified clusters include the following:

- **Consumption of alcohol and cigarettes and going out with friends** are the activities that discriminate most between the identified clusters. The occasional AS users go out with friends and “have a drink” more than once a month in 37.4% of cases, while the occasional alcohol drinkers do not consume alcohol in this way in 67.8% of cases and the non-users in 98.1% of cases. With regard to cigarette smoking as an activity that the teens do with their friends, the occasional AS users smoke daily in 36.1% of cases, while the occasional alcohol drinkers are barely engaged in this activity at all (99.1%), and the situation is similar with AS non-users (97.8%);
- Another activity is **marijuana consumption and going out with friends**: the occasional AS users do not pursue this activity in 76.8% of cases, followed by the occasional alcohol drinkers and AS non-users with 99.7% of cases;

5 | The importance of other leisure activities within each cluster was low and they are not shown in the results. These included activities such as playing computer games, spending time with siblings, attending church meetings, going to the shopping centre, talking with parents, watching TV, doing nothing, taking care of pets, being bored, and talking with friends (the frequency of these activities was similar in the groups). These activities did not discriminate between the clusters, which means the individual groups perform them to a similar degree.

4 | We show the percentage distribution of the most represented category, i.e. the one that prevailed in the individual clusters.

	AS non-users		Frequent AS users		Occasional alcohol drinkers	
	AM	SD	AM	SD	AM	SD
Frequency of cigarette use with friends	0.03	0.31	1.91	1.74	0.01	0.17
Frequency of alcohol use with friends	0.03	0.28	1.21	1.09	0.34	0.59
Frequency of marijuana use with friends	0.01	0.20	0.41	0.94	0.01	0.13
Playing slot machines	1.28	0.84	1.78	1.40	1.39	0.97

Table 2 | Mean differences in various risk activities for each type of substance user

- Even **playing slot machines** was an activity that discriminated between the groups. The occasional AS users never played slot machines in 60.9% of cases, the occasional alcohol drinkers in 74.6% of cases, and the AS non-users in 82.0% of cases;
- **Spending time in the group** the respondent belongs to **in public places, such as parks, streets, and shopping centres**, shows differences among the identified groups. The AS users spend their time on this activity in 81.7% of cases, followed by the occasional alcohol drinkers with 71.9% and the AS non-users with 76.4% of cases.

For a more comprehensive overview of the groups, *Table 2* shows the average differences in the various leisure activities among the identified groups.

3.3 Description of the individual types of adolescents and their demographic characteristics

Among the demographic characteristics, the only significant discriminatory variable was age: the AS non-user group had a mean age of 13.92 years (SD 1.70), the AS user group had a mean age of 15.95 years (SD 1.67), and the alcohol user group had a mean age of 15.42 years (SD 1.83).

Other demographic characteristics were not considered to be significant predictors among the individual clusters. In terms of gender, the distribution of boys and girls was similar in each group (AS non-users – girls: 52.2%, occasional AS users – girls: 56.7%, occasional alcohol drinkers – girls: 57.2%).

In terms of residence, the distribution was similar (AS non-users – residing in a village 53.7%, occasional AS users – residing in a village 56.3%, occasional alcohol drinkers – residing in a village – 60%). The Catholic religion dominated in all the clusters (AS non-users: 72.1%, occasional AS users – 69.1%, occasional alcohol drinkers: 75.5%). Secondary education with a school-leaving exam prevailed among the respondents' fathers (AS non-users: 48.9%, occasional AS users – 51.4%, occasional alcohol drinkers: 53.9%) and mothers (AS non-users: 50.0%, occasional AS users – 51.1%, occasional alcohol drinkers: 55.4%). Family type was not a discriminatory variable either, with most of the respondents living in a complete family (AS non-users: 77.1%, occasional AS users – 66.7%, occasional alcohol drinkers: 79.8%).

● 4 DISCUSSION

On the evidence of the results of several studies which we presented in the introduction to our study, one can expect some differences in the leisure activities of the adolescents with respect to their rate of consumption of addictive substances (alcohol, cigarettes, and marijuana). In the present study, we designed a typology of adolescents according to the frequency of use of said substances and we observed the differences in how the different types of adolescents spend their leisure time.

In the cluster analysis, we identified three types of adolescents in terms of their rate of consumption of addictive substances. The group characterized by non-consumption of any of the substances that were mentioned was the largest, and it was dubbed "AS non-users". This cluster consisted of 2145 respondents, representing almost half of the sample set. The adolescents belonging to this group had never used any of the addictive substances being monitored. The other cluster that was identified accounted for nearly one third of the respondents (N 1358, 30%), by whom alcohol was consumed several times a month in 20% of cases, cigarettes were smoked each day by 35.4%, and 16.7% of them consumed marijuana once in six months. This cluster was named "occasional AS users". The last cluster consisted of the respondents who only drank alcohol, most frequently once in six months (55.1% of the respondents in this cluster). This cluster was called "occasional alcohol drinkers". The respondents in this group never smoked cigarettes or used marijuana.

Subsequently, we determined the differences in leisure activities, risk activities, and demographic characteristics in the individual clusters, which resulted in the following typology:

- **AS non-users** – this group accounts for nearly half of the adolescents, and is characterized by the non-use of alcohol, cigarettes, or marijuana. In their spare time, the respondents in this group use the Internet (78.3%), prepare for school (75.0%), listen to music (73.8%), chat (48.0%), and go out with friends (33.5%) **on a daily basis**. They read books (18.1%) once a week and play board games with their parents (24.8%) several times a week. The vast majority of them do not pursue activities such as temporary jobs (75.3%) and going to discos/entertainment events (72.2%). Over a third of them do not attend inter-

est clubs (36.4%), but 23.7% of them do so on a monthly basis and 21.5% of them several times a week.

In their spare time, they do not pursue any risk activities, such as consumption of alcohol, cigarettes, and marijuana with friends, playing slot machines (82.0%) or other illegal group activities (91.2%). Altogether, 76.4% of them spend their free time in public places (parks, streets, shopping centres, etc.). This is the youngest of the identified groups, with an average age of 13.92 years.

- **Occasional AS users** – this group accounts for nearly a third of the adolescents, and is characterized by occasional use of alcohol (20% of them use it more than once a month), cigarettes (more than a third of them smoke every day), and marijuana (16.7% of them use marijuana once in six months). In their spare time, they are engaged in activities on the Internet (90.6%), listen to music (90.3%), chat online (64.4%), go out with friends (47.6%), and prepare for school (43.5%) **on a daily basis**. They go to discos/entertainment events (30.8%) once a week. 39.1% of them do not have temporary jobs, but 21.1% of them do so once in six months and almost 13% of them more than once a week. They read books to a relatively limited extent (34.1% not at all, 18.2% once in six months). In their spare time, many of them do not attend an interest club (61.9%) or play board games with their parents (41.0%).

The predominant risk activities include the consumption of drugs “with friends” (37.4% of the respondents in this group drink alcohol more than once a month and 36.1% smoke cigarettes every day when out with friends). Marijuana is not consumed with friends by 76.8% of the respondents, but 14.5% of them consume it several times a month. A greater majority is involved in illegal activities with the group and 81.7% spend time in public places (parks, streets, shopping centres, etc.). Altogether, 60.9% of the respondents have never played slot machines, while others indicated that they did so once in their lifetime (26.7%) or once in half a year (7.9%). This is the oldest of the identified groups, with an average age of 15.95 years.

- **Occasional alcohol drinkers** – this group accounts for nearly 23% of the adolescents, and it is characterized by the occasional use of alcohol (once in six months – 55.1% of the respondents in this group), but cigarettes and marijuana are not used in this group at all. In their spare time, the respondents in this group are engaged in activities on the Internet (92.0%), listen to music (81.8%), chat online (61.3%), and prepare for school (58.3%) **on a daily basis**. They go out with friends (36.1%) several times a week. 30.1% of them play board games with their parents once in half a year and 19.9% of them read books with the same frequency. A majority do not have temporary jobs (54.4%). 42.0% of them do not go to discos/entertainment events, but 25.4% of them do so once in six months and 24.0% of them more than once a week. Most of them do not attend interest clubs (45.8%), but 21.2% of them do so several times a week.

In their spare time, they do not pursue any risk activities such as the consumption of cigarettes and marijuana with friends or drinking with friends in 67.8% of cases (but 26.2% of the respondents in this group drink alcohol with friends more than once a month). 80.7% are not engaged in illegal activities with friends, and 74.6% of them have never played slot machines. Altogether, 71.9% of them spend their free time in public places (parks, streets, shopping centres, etc.). The average age in this group of users is 15.42 years.

We conclude that the frequency and intensity of various leisure activities differs across the identified types. The members of the group which exhibits some elements of risk behaviour (frequent consumption of alcohol and cigarettes, experimenting with marijuana) spend their leisure time differently compared to the other groups. The respondents in this group spend more time on the Internet, listen to music, chat online, go out with friends, go to discos, and have temporary jobs. They spend time preparing for school and reading books to a lesser extent. They attend interest clubs and play board games with their parents to a much lesser extent. They engage in risk activities in their free time when meeting their friends (group of friends), such as drinking alcohol and smoking cigarettes (some experimenting with marijuana), and they engage in illegal activities and meet their friends in public places at a much higher rate (compared to the other two groups). Similar observations were made by Tomčíková et al. (2013), who found that when adolescents engage in risk activities in their free time, it increases their likelihood of consuming addictive substances. We have arrived at similar risk factors in leisure time to those proposed by Koutra et al. (2011) or Medrut (2015), such as going to discos/parties or going out with friends. It should be noted that going out with friends need not be considered a risk activity. It becomes a risk activity in terms of substance abuse when addictive substances are consumed in the group and/or the group is engaged in illegal activities. As pointed out by Caldwell and Darling (1999), unstructured social meetings with peers who use addictive substances, moderated by going to discos, lead to higher rates of substance abuse.

The protective factors (occurring mainly in the AS non-user group) include preparing for school, reading books, or playing board games with parents (these were the activities where the non-users differed from the occasional AS users). We believe that board games with parents have a protective function in the sense that it creates a space for quality time between the parents and children, fostering close relationships and meaningful communication even in adolescence. Leisure time spent with the family was also identified as a protective factor in the research presented by Grace et al. (2017) and Kohútová and Almašiová (2015). In the research study by Medrut (2015), reading books proved to be a protective factor, as did religious activities; however, the latter was not confirmed in our research (the item “go to church” did not discriminate among the identified clusters and its frequency was similar in each group).

The limits of the study include the questionnaire data collection method, which in itself always carries the risk of

subjective distortion and the fact that it depends on the ability of self-reflection of the respondents.

● 5 CONCLUSION

The consumption of addictive substances in adolescents is of interest not only to the professional but also to the general public. The findings of this study may be useful in preventive and clinical interventions and when working with children

and young people showing risk behaviour. The above typology can help professionals to create prevention and intervention programmes specifically for the individual types of users and modify their free time in a targeted way. The shaping of ways in which adolescents spend their leisure time is an important aspect of ensuring the meaningful and creative use of leisure time and preventing risk behaviour, which often stems from boredom and idleness. Our findings can also be used by future researchers to identify the risk and protective factors involved in risk behaviour, which includes substance abuse.

Authors' contribution: The authors – Angela Almašiová and Katarina Kohútová – initiated the research, proposed the design of the study, and performed the data collection and literature search. Katarina Kohútová performed the statistical analysis and participated in the interpretation of the data. Both authors contributed to this article and approved the final version of the manuscript.

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