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Daily Internet Use and Its Association with Drug Behaviour in Adolescence

DOI: https://doi.org/10.34135/mlar-24-01-09

ABSTRACT

The paper deals with the most widespread electronic medium among adolescents – the Internet. The main aim was to discover how young people spend their leisure time in the online world, with a particular focus on the relationships and differences between Internet use, particular activities, and legal drug use. The chosen quantitative research methodology was applied through a Leisure Time Activity Questionnaire and selected questions from the SMF questionnaires on a sample of 180 respondents attending secondary school, aged 15 to 19. We found that almost 90% of the respondents spend more than 2 – 3 hours a day on the Internet, of which 20% spend up to 6 hours or more. Despite expectations, we found significant negative relationships between the amount of time spent online and rates of legal drug use. Additional analysis showed significant differences between groups of adolescents in online activities such as gaming, listening to music, killing boredom, watching pornography and arranging activities. These results point to a possible protective effect of selected types of activities that young people engage in while online in relation to engaging in drug use behaviours.

KEY WORDS

Adolescence. Electronic Medium. Internet Use. Legal Drug Use.

1 Introduction

Today, more than ever before, a large part of adolescents' lives takes place in the online space. It has become very much a natural part without which they cannot imagine functioning effectively. In addition to many advantages, such as easy access to information, a variety of leisure alternatives, access to culture and a space for socialising and maintaining social support more easily (Wu et al., 2016), the Internet also tends to be risky. We have identified three main groups of risks associated with Internet use that are particularly dangerous during adolescence, as follows:

- risky behaviours taking place in the online space (e.g. cybersex, cyberbullying, sharing personal information, communicating with strangers, accessing inappropriate info) (Paluckaité & Žerdeckaité-Matulaitiené, 2016);
- problematic use of the internet, such as using the internet in a way that significantly and negatively interferes with everyday life (Caplan, 2010; Kopuničová & Baumgartner, 2016);
- internet use as a factor in the emergence or development of other types of risky behaviour (Toozandehjani et al., 2021).

The interest of this paper is exactly the third component, specifically the verification of the link between internet use and the use of legal drugs among adolescents. There is experimentation and regular use of legal drugs on the one hand, which have for a long time been recognised as the most widespread forms of risky behaviour among young people. Representative examples can be seen in the results of the international ESPAD survey (European Monitoring Centre for Drugs and Drug Addiction, 2020), which involved almost 100,000 adolescents from more than 35 countries in Europe. Analysis of the data showed that, on average, 18% of students smoked cigarettes and 33% drank alcohol before the age of 13. Separate results for Slovakia are even higher, with 26% for smoking and 39% for drinking alcohol before the age of 13. Nociar (2018) in the report of the nationwide TAD (tobacco-alcohol-drugs) survey, claims that over 24 years of repeated surveys, smoking has doubled among high school students in Slovakia, and drinking alcohol, although slightly decreasing in frequency, is increasing in problematic drinking. Similar findings have been reported in other studies from the region (Bieliková et al., 2019; Čerešník, 2015; Sklopal et al., 2014). On the other hand, we can see a widening problem in the amount and the way the Internet is being used. Based on the quantum of leisure time spent in the online space, it can be considered problematic when a young person spends more than 39 hours per week in the online space (Orosová et al., 2012) or also more than 3.5 hours per day (Balhara et al., 2020). Current domestic empirical studies document the fact that almost half of adolescents spend more than 3 – 4 hours per day of leisure time using the internet (Rojková & Mydlová, 2019; Reznická & Sejčová, 2019), with a noticeable increasing trend in other countries (Schmidt et al., 2020; Nagata et al., 2022).

We believe that it is relevant to observe the concurrent development of the two distinctive forms of risk behaviour mentioned above, which are particularly significant in adolescence, as one possible perspective on the issue. Researchers from different countries have also repeatedly confirmed the relationship between internet use and risky behaviours in young people. In a large meta-analysis of 27 studies, Vannucci et al. (2020) found that the more time adolescents spent on social networking sites, the higher the likelihood of engaging in drug use and risky sexual behaviours.

Kelleghan et al. (2020) performed a detailed analysis of the content of time spent online in relation to tobacco and marijuana smoking, resulting in 6 sub-categories of digital media use. These included posting on social media, reading articles, playing games, writing to friends, and shopping, listening to music, and checking in on social networking sites. An association between checking in social networking sites and a higher risk of cigarette smoking and marijuana use has been observed. Also, interesting results came from a study conducted on a representative

sample of US students (Kaur et al., 2020), where the researchers categorised their online activity by time and type, such as watching videos, playing games, and using social networking sites. The results showed a significant relationship between drinking alcohol and binge drinking, especially if they spent more than 3 hours per day on these activities. Similar findings are also presented in research carried out on a sample of adolescents from Slovakia (Vavrová, 2019; Rojková & Mydlová, 2019). Young people are increasingly exposed to drug-related content through digital media. Whether it is targeted advertisements, promotion through influencers or friends' posts depicting risky behaviour, it can subsequently influence their actions. Also, de Brujin et al. (2016) examined online alcohol marketing and found that high levels of ad exposure were associated with an increased likelihood of drinking among young Europeans.

Thus, the available evidence suggests an influence of Internet use on young people's risk behaviours. Not only the content but also the amount of time spent online plays an important role.

Based on the theoretical and empirical findings presented, the aim of this study is to:

- describe how much free time adolescents devote to the Internet and to what specific activities;
- verify the association between the amount of time spent on the Internet and the use of legal drugs;
- investigate the relationship between specific online activities and adolescents' drug use behaviour.

The research questions asked were:

RQ1: How many hours a day of their free time do they use the internet and what are their specific activities?

RQ2: What is the relationship between the amount of time spent online and adolescents' use of legal drugs?

RQ3: Is there a difference in drug use behaviour depending on the number of hours per day spent on the Internet?

2 Methodology

We were conducting research on a population of adolescents attending high school. Research participants were informed accurately about the purpose and use of the collected anonymised data, their participation was voluntary, and they could withdraw at any time during the measurement without giving a reason. For underage respondents, an electronic form of informed consent from their legal guardian was provided.

The main criterion for inclusion in the sample was the age of the respondent, which ranged from 15 to 19 years. The total number of participants was 180, attending different types of schools. The representation of females is 63.3% (N =114) and males 36.7% (N = 66). The average age of the respondents was 17 years.

2.1 Research Tools

To determine the extent of legal drug use over a 30-day period, we selected questions from two questionnaires, the Situational-motivational factors of alcohol behaviour Questionnaire (Rojková & Vavrová, 2017) and the Situational-motivational factors of smoking Questionnaire (Vavrová & Gálová, 2017) which were also validated for their satisfactory psychometric qualities.

We used the authors' questionnaire to inquire about the activities that young people do in their free time. The original instrument was created in the framework of a project aimed at developing and standardizing a different methodology at the University of Saints Cyril and

Methodius in Trnava (Vavrová & Rojková, 2020). For a more detailed description of online leisure activities, we further ask "How often during the day do you use the Internet?", to which the respondent answers by indicating the amount of time (from 0 to 6 or more hours) to the selected activity.

2.2 Operationalisation of Variables

Legal Drug Use

The intensity of alcohol use and intensity of cigarette smoking variables are created by multiplying the responses to the items measuring the frequency and amount of alcohol consumed in the last 30 days.

The legal drug use variable is created by summing the intensity of alcohol use and intensity of cigarette smoking variables.

Internet Use

The daily internet use variable is referred to by the question "How many hours a day in your free time do you surf the internet, play games or use social networks?", where participants were given a choice of 5 options ranging from "0 hours" to "6 or more". We then divided the answers into three groups – max. 1 h, 2 – 3 h and 4 or more hours. We examined specific activities by asking individual questions with the same response scale.

3 Results

In response to the first research question (Figure 1), we found that 2.8% (N = 5) of respondents do not use the Internet in their free time for even one hour a day, and 11.1% (N = 20) devote at most 1 hour to it. The most frequent time spent on the Internet is 2 – 3 hours, with 39.4% (N = 71) of respondents, followed by 26.7% (N = 48) indicating the option of 4 – 5 hours, and 20% (N = 18) of young people indicating 6 hours or more.

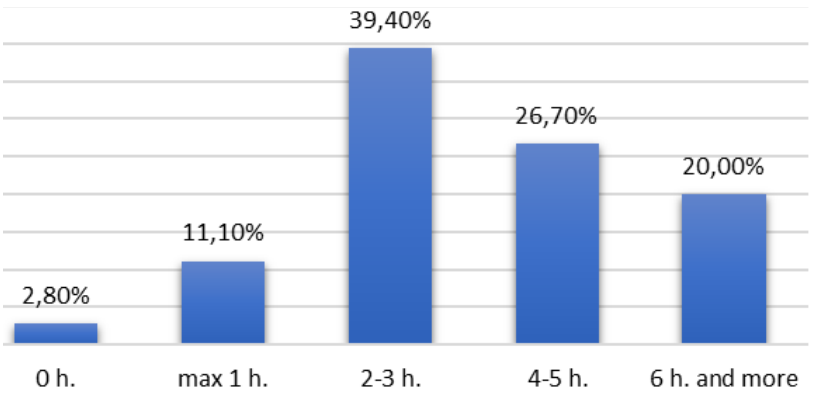

FIGURE 1: *Daily internet use*

Source: own processing, 2024

In the next figure (2), we report the average and most frequently entered values for items related to specific activities that respondents perform on the Internet during the day. The items "playing games" with an average of 1.92; "arranging for activities that accompany alcohol use" with an average of 1.51; "arranging for activities that accompany cigarette smoking" with an average score of 1.27, as well as the item "arranging for activities that an adult should know

nothing about" with an average score of 1.73 and also "searching adult sites (pornography)" with an average score of 1.43 consistently had 1 (0 hours) as the most frequently measured value, i.e. the participants hardly use the Internet at all for these activities. A maximum of 1 hour per day, which corresponds to a value of 2 as the most frequently reported score, was observed for the questions: "online shopping" with a mean value of 1.97; "revealing problems" with a mean of 2.18; "expanding knowledge" with a mean of 2.49; "expressing my opinion" with a mean measured score of 2.03; and also for the question "communicating about schoolwork with my classmates" with a mean of 2.47. The highest mean values and the value of Modus 3, which means 2 – 3 hours per day devoted to a given activity, are recorded for the items "chatting with friends" with a mean of 2.97; "watching movies and series" with a mean of 2.94; "killing boredom" with a mean of 2.89 and for the item "listening to and downloading music" with a mean of 2.97.

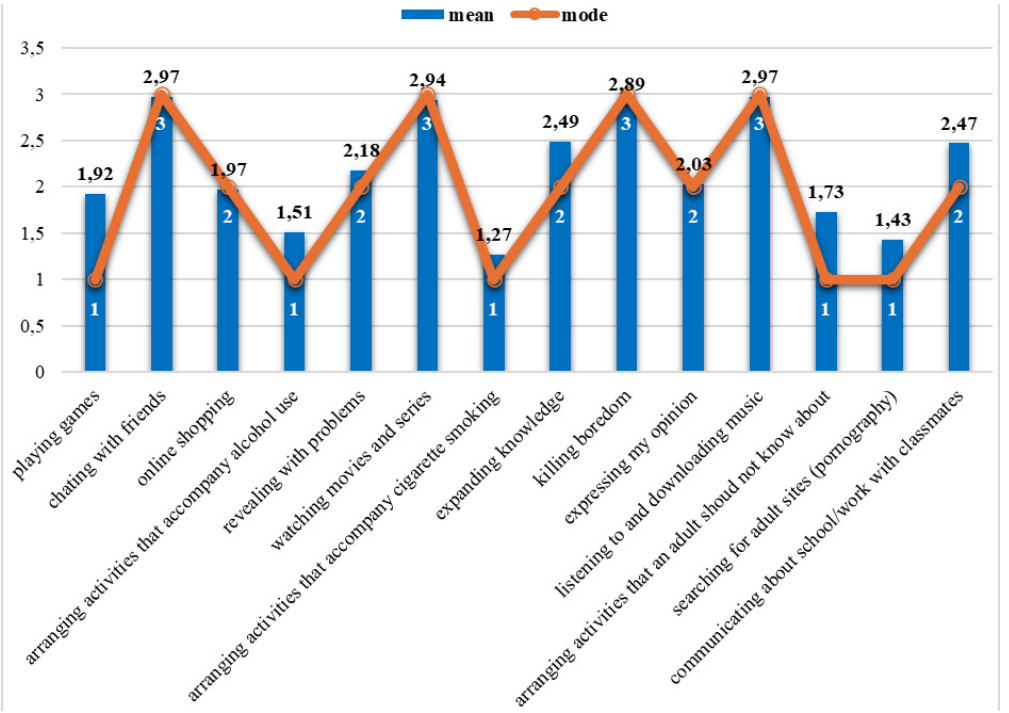

FIGURE 2: *Descriptions of the average and most frequently indicated values of online activities*

Source: own processing, 2024

The results of the analysis concerning the verification of the association between the length of time spent on the Internet and drug behaviour showed that the intensity of cigarette smoking (p = 0.209*), the intensity of alcohol consumption (p = 0.150*) and the actual use of legal drugs (p = 0.145*) were significantly negatively, and weakly correlated with the extent of the time spent surfing the Internet.

		Intensity of cigarette smoking	Intensity of alcohol use	Legal drug use
Daily internet use	Spearman's p	**-0.212****	**-0.154***	**-0.153***
	Sig.	0.04	0.039	0.041

*significance level p<0.05, **significance level p<0.01

TABLE 1: *Correlation coefficient between drug use behaviour and extend of daily internet use*

Source: own processing, 2024

The last research question was validated with the nonparametric Kruskal Wallis test. Based on the results, we interpret the differences in mean rankings between groups in all three variables as statistically significant. We observe that the highest scores in both intensity of cigarette smoking and intensity of alcohol use were obtained by participants from the group that spent less than 1 hour per day on the Internet, while the lowest scores were obtained by the group with 4 or more hours per day. In the Legal Drug Use variable, the highest scores were achieved by the group spending no more than 1 hour per day on the Internet and the lowest by respondents with 2 – 3 hours of daily Internet use.

Daily internet use		N	Average ranking Chi-square	Kruskal Wallis Test	
				Sig.	
Intensity of cigarette smoking	1 (max 1h)	25	113.80	10,287	**.006****
	2 (2-3h)	71	91.17		
	3 (more than 4h)	84	83.00		
Intensity of alcohol use	1 (max 1h)	25	121.50	11,023	**.004****
	2 (2 – 3h)	71	86.32		
	3 (more than 4h)	84	84.80		
Legal drug use	1 (max 1h)	25	123.56	12,322	**.002****
	2 (2 – 3h)	71	84.61		
	3 (more than 4h)	84	85.64		

**significance level p<0.01

TABLE 2: *Differences in drug behaviour depending on the daily amount of internet use*

Source: own processing, 2024

Given the unexpected results, we decided to add a descriptive and comparative analysis of the categories of spending leisure time on the Internet depending on the amount of time of daily use. This was because we were interested in whether those participants who spend less time on the Internet, and at the same time, according to the above results, drink/smoke more heavily, engage significantly more in other Internet activities and vice versa.

Daily internet use		N	Average ranking	Kruskal Wallis Test	
				Chi-square	Sig.
arranging activities that an adult should not know about	1 (max 1h)	25	68.72	8,848	**0.013***
	2 (2 – 3h)	71	87.56		
	3 (more than 4h)	84	99.46		
listening to and downloading music	1 (max 1h)	25	76.70	10,015	**0.007****
	2 (2 – 3h)	71	81		
	3 (more than 4h)	84	102.64		
“killing” boredom	1 (max 1h)	25	45.06	54,876	**0.000*****
	2 (2 – 3h)	71	73.54		
	3 (more than 4h)	84	118.36		
playing games	1 (max 1h)	25	72.98	19,976	**0.000*****
	2 (2 – 3h)	71	76.51		
	3 (more than 4h)	84	107.54		

searching adult sites (pornography)	1 (max 1h)	25	86.62	10,882	**0.004****
	2 (2 – 3h)	71	79.35		
	3 (more than 4h)	84	101.08		

*significance level p<0.05, **significance level p<0.01, ***significance level p<0.001

TABLE 3: *Selected results of the analysis of differences in online activities between groups*

Source: own processing, 2024

We found statistically significant differences between the groups in 5 specific activities performed on the Internet, namely: arranging activities that an adult should not know about; watching movies and series; "killing" boredom; playing games and searching adult sites. In each case, we observed the highest average ranking for Group 3 (more than 4 hours per day) and the lowest for Group 1 (max 1 hour). The exception was the adult pornography/site search variable, where Group 2 had the lowest values (2 – 3 hours). Table (3) shows only the activities with statistically significant results.

4 Discussion

The main aim of the paper was to investigate how young people use the Internet in their leisure time and whether this is related to the intensity of legal drug use. We looked specifically at the amount of time spent online, which includes all activities associated with internet use in leisure time.

It was found that 39.4% of participants spend more than 2 – 3 hours per day online and 46.7% spend more than 4 hours per day, with 20% of them even spending more than 6 hours in a single day. In terms of specific uses of the online space, most of their time was spent chatting with friends, listening to music, watching movies and TV shows, "killing" boredom, expanding their knowledge, communicating with classmates about schoolwork, and discussing their problems. These results are consistent with previous research findings (Reznická & Sejčová, 2019; Kurilla et al., 2019), that point to an increasing trend of passive leisure (Bieliková et al., 2019; Nagata et al., 2022). These types of activities not only negatively affect cognitive functioning (Laidley & Conley, 2018), life satisfaction, higher levels of loneliness or obesity in adolescence (Sichling & Ploger, 2018; Oberle et al., 2020), but also contribute to a higher likelihood of engaging in risky activities (Vannucci et al., 2020). However, some authors argue that leisure time spent in this way is important for healthy development, self-expression and stress reduction (Caldwell & Faulk, 2013; Baďura, 2018).

We therefore see it as important to take a closer look at how young people spend their time online and how this relates to other aspects of their lives. We further tested the relationship between daily internet use and young people's use of legal highs. Contrary to expectations, we found a negative association between the amount of time adolescents spent on the Internet and rates of alcohol drinking and cigarette smoking. In further analysis, we aimed to identify differences in the intensity of legal drug use according to the amount of time spent online, drawing on theoretical insights to identify 3 groups. Internet use of more than 3 – 4 hours per day appears to be significant in relation to drug use (Kaur et al., 2020; Rojková & Mydlová, 2019). However, studies document the fact that as little as more than 2 hours per day of social network browsing can increase the risk of alcohol use (Sampasa-Kanyinga & Chaput, 2016). Also considering the limit of 3.5 hours per day as problematic (Singh et al., 2020), three groups were established. The first used the Internet for a max of 1 hour per day, the second group with a daily range of 2 – 3 hours, and the third was defined by 4 or more hours. Results showed statistically significant differences in legal drug use, smoking intensity, and drinking intensity in all three groups, with those who spent the most time on the Internet scoring the lowest.

However, we expected the opposite effect, given theoretical and empirical studies indicating a positive relationship between the amount of time online and risky behaviours in adolescents (below). In further analysing the data, we focused on differences in the specific activities that young people performed online. We found significant differences between groups in some online activities, namely – arranging activities that an adult should not know about; watching movies and TV shows; "killing" boredom; playing games and searching adult sites (pornography). In all these activities, the highest scoring group was the group that spent more than 4 hours a day on the internet. Therefore, we can think similarly to the authors Lichner and Šlosár (2017), who define a phenomenon favourable to risk-taking as a protective factor. Thus, if in the analysis we observe negative associations between a given phenomenon and a type of risky behaviour, respectively, by strengthening such factors, it is possible to reduce its level. Specifically, previous empirical studies have also shown a negative association between playing video games and cigarette smoking or alcohol consumption (Chan et al., 2022). Other research has presented a significant relationship between higher rates of less socially oriented online activities such as gaming, news reading and lower rates of adolescent drinking (Svensson & Johnson, 2020). These outcomes may indicate that the more leisure time young people devote to playing games, watching movies and TV shows, reading the news, and randomly searching, activities with lower socialization potential, the less opportunity they have to use legal drugs. Pape et al. (2018) report that modern technology offers access to a range of leisure-filling activities that adolescents may find more enjoyable than, for example, drinking alcohol. Thus, it has been argued that digital media reduces interaction with peers/friends in real life and thus reduces socialisation, which is usually the context in which drug use occurs. On the other hand, in the online environment there is also exposure to content promoting risky behaviour, whether from friends or marketing. So, we must have in mind, that only if the needs of the individual are sufficiently saturated and healthy patterns of behaviour are reinforced, risk factors may, in other circumstances, be considered protective. Overall, our results point to the importance of examining adolescents' leisure time in the online space, not only in terms of time but also specifically in terms of the activities and content they engage in. This may ultimately yield valuable information for future prevention.

We are therefore inclined to the opinion of specialists who claim in their work (Kurrila et al., 2018) that it is also essential to focus on qualitative aspects, not just quantitative, when examining behaviour associated with Internet use. It is important to know the type and content of PC and Internet activities and, with what motivation and with what consequences people carry out these activities.

5 Conclusion

In conclusion, in line with the theoretical findings and the results of the empirical part of the paper, we can conclude that the tendency towards passive leisure persists. Almost 90% of adolescents spend more than 2 – 3 hours a day in their leisure time on the Internet, of which a fifth spend up to more than 6 hours. This fact alone points to a tendency towards excessive or problematic internet use. A noteworthy finding of the study is the negative relationship between the amount of time spent on the Internet and the use of legal substances. Upon further investigation, we found that reinforcing selected activities on the Internet reduced the intensity of smoking and drinking alcohol, and substance use in general. Thus, this suggests, despite previous research findings, that the Internet may also have acted protectively. Further detailed investigation of the issue is of course needed, as well as consideration of other factors that may participate in the whole process.

Acknowledgement: The study was created as a part of the national project supported by Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences (VEGA) No. 1/0203/20:"Development and standardization of screening methods on identification of occurrence and risk of problematic legal drug use among adolescents".

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