Excessive Use of the Internet and Playing Computer Games in Socially Excluded Slovak Communities

ALMAŠIOVÁ, A.[1], ŠAVRNOCHOVÁ, M.[2], BARTÁK, M.[3], ALMÁŠI, M.[4], HOLDOŠ, J.[5], VASKA, L.[6], HUDECOVÁ, A.[7]

1 | Catholic University in Ružomberok, Faculty of Education, Department of Social Work, Slovak Republic
2 | Matej Bel University, Faculty of Education, Department of Social Work, Banská Bystrica, Slovak Republic
3 | Charles University, First Faculty of Medicine, and General University Hospital in Prague, Department of Addictology, Czech Republic
4 | Matej Bel University, Faculty of Education, Department of Social Work, Banská Bystrica, Slovak Republic
5 | Catholic University in Ružomberok, Faculty of Arts, Department of Psychology, Slovak Republic
6 | Matej Bel University, Faculty of Education, Department of Social Work, Banská Bystrica, Slovak Republic; Jan Evangelista Purkyně University, Faculty of Social and Economic Studies, Department of Social Work, Ústí nad Labem, Czech Republic
7 | Catholic University in Ružomberok, Faculty of Education, Department of Pedagogy and Special Pedagogy, Slovak Republic

Citation | Almašiová, A., Šavrnochová, M., Barták, M., Almáši, M., Holdoš, J., Vaska, L., Hudecová, A. (2019). Excessive Use of the Internet and Playing Computer Games in Socially Excluded Slovak Communities. *Adiktologie, 19*(4), 169–177; doi 10.35198/01-2019-004-0001.

BACKGROUND: Technological addictions involve human-machine interaction and relate in particular to internet addiction. The question is what the status of technological addictions in socially excluded communities is. **AIMS:** The study aimed to identify the differences in excessive use of the internet and playing computer games among respondents from the majority population and respondents from socially excluded communities. **METHODS:** The empirical research had an exploratory and descriptive design, with an application potential. A quantitative strategy using the research technique of an authentic questionnaire was selected. **SAMPLE:** The research group consisted of 365 respondents from the Banská Bystrica Self-Governing Region of the Slovak Republic. **RESULTS:** The respondents from socially excluded communities are no less at risk of technological addiction than respondents from the majority population. **CONCLUSIONS:** Paradoxically, social exclusion appears to be a buffer against the risk of technological addictions, yet, in addition to substance abuse and gambling, it gradually penetrates into socially excluded communities.

Keywords | Excessive Use of the Internet – Excessive Gaming – Social Exclusion – Social Prevention – Slovak Republic

Submitted | 16 June 2020 **Accepted |** 9 July 2020

Grant affiliation | The study is part of the implementation of the VEGA project No. 1/0692/18 entitled "Internet addiction among school children in the Slovak Republic and the Czech Republic".

Corresponding author | Michaela Šavrnochová, PhD, Matej Bel University in Banská Bystrica, Faculty of Education, Department of Social Work, Ružová 13, 974 11 Banská Bystrica, Slovak Republic **michaela.savrnochova@umb.sk**

1 INTRODUCTION

Today, one can hardly imagine life without digital technologies. They help us on a daily basis in various areas of life, and they are also used by people living in socially excluded communities.

One of the most significant negative impacts is the excessive use of the internet, leading to addiction. The negative effects of growing internet addiction include, in particular, the deterioration of academic success (Marker et al., 2018), physical health, and manifestations of mental health problems (Griffiths et al., 2018; Kuss & Pontes, 2018).

On the other hand, modern achievements should be available to everyone. The question, however, is what the situation is if part of the population does not have adequate access to society's resources and the availability of technology becomes another sign of social exclusion. It is generally assumed that the social gradient is a predictor of poorer health and the risk of addiction. Continuous scientific attention is paid to the social gradient – the influence of socio-economic characteristics in the area of the harmful use of technologies (the internet). One of the characteristics of life in the context of social exclusion is the question of the family and family ties, which are often problematic. A review article by Wartberg et al. (2015) indicates that a functioning family background is a protective factor with regard to the pathological use of the internet in adolescents. On the contrary, a single-parent family represents a risk factor for excessive use of the internet and playing PC games (for more, see Šavrnochová et al., 2020). Urbanová et al. (2019) analysed data from the Slovak version of the HBSC study and found that "adolescents with lower socio-economic status are more likely to become excessive internet users and that one of the factors influencing this probability is satisfaction with one's own life." In the latest research, Petruželka et al. (2020) analysed the impact of the socio-economic characteristics of high school students on risky behaviour on the internet and gambling. Research has shown that the father's education has a significant impact on the risk of addictive behaviour on the internet and gambling, with the risk being higher in the case of both lower and higher status compared to the average status (Petruželka et al., 2020). In further research, Filakovska Bobakova et al. (2018) analysed young Slovaks with a subculture affiliation in relation to excessive use of the internet. They found that young people with a subculture affiliation reported more frequent excessive use of the internet than young people without such an affiliation.

The aim of this article is to analyse the occurrence of technological addictions in selected socially excluded localities in Slovakia and to supplement the existing knowledge of the factors of the development of technological addictions in the context of social exclusion.

1.1 Socially excluded community (at risk of social exclusion)

Social differences have been present among the population for ages, and yet – as mentioned above – today the difference between rich and poor (or socially excluded) is increasing. For the purposes of this study, an excluded community is a resident community in a spatially segregated locality with the presence of concentrated and generationally reproduced poverty. These communities (e.g. Roma urban ghettos and ghettos of homeless people, marginalised Roma communities) have limited access to material and financial resources, are socially and locally separated or spatially distant from the majority, and, because of these constraints, a low level of education, and specific cultural features and the resulting potential stereotypes or prejudices, they have, from one generation to the next generation, limited access to participation in social and political life. They present a socially disadvantaged environment for children or pupils since they include: material deprivation or poverty; various barriers to entry into the labour market; low levels of education; sub-standard housing and hygiene conditions; limited access to goods and services, and a relatively high tolerance for socio-pathological phenomena. All of the above examples fail to stimulate sufficiently the development of the mental, volitive, and emotional characteristics of a child, do not provide sufficient appropriate stimuli for the development of a child's personality, do not support the favourable socialization of a child, and, ultimately, deny a child or pupil access to society (the definition was operatively processed according to the Ministry of Labor, Social Affairs, and the Family of the Slovak Republic, n.d.; the 2008 Social Services Act; the 2008 Education Act (School Act); Kovalčíková & Džuka, 2014; Kajanová, 2017; State Pedagogical Institute, 2017; similarly also Svoboda, Morvayová, et al., 2010). Clearly, in socially excluded communities the basic social conditions for life are limited. Therefore, it is questionable to what extent and whether at all digital technologies are used in these communities.

1.2 The concept of technological addictions

Technological addictions are classified as non-substance or behavioural addictions. According to Alter (2018), they emerge when a person is unable to resist behaviour that, despite the short-term satisfaction of an intense psychological need, causes serious damage in the long run. According to Addiction.com (2019), technological addictions relate mainly to internet addiction, and yet at the same time they present an inability to control the use of technologies such as smartphones, tablets, social networks, video games, cybersex, and online gambling. Spitzer (2016) calls them "cyber addiction", which includes: (1) addiction to PC games/ video games/ online PC games; (2) internet addiction; (3) addiction to Facebook, and (4) addiction to a smartphone.

The diagnosis of internet addiction itself is not included in the MKCH-10 (WHO, 1992) and with a very high probability it will not be in the forthcoming MKCH-11 (WHO, 2018) as

a separate issue. Likewise, it is not present in the DSM-5, but within Section 3 of the DSM-5 Diagnostic Manual, its subtype is classified as a disorder resulting from Internet Gaming Disorder (APA, 2013). Despite the decision not to include internet addiction among psychiatric diagnoses, the term itself often appears in the literature. The diversity of the concepts of internet addiction also reflects inconsistencies in the terminology of the concept itself. While some authors speak of internet addiction (Shaw & Black, 2008), others use the terms 'pathological' (King et al., 2013), 'problematic' (Spada, 2014, in Blinka, 2015), or 'excessive' (Škařupová et al., 2015) internet use. Uncertainties regarding the very nature of internet addiction, conceptualization, and the theoretical background, as well as clinical experience, are also reflected in the diagnostic tools used to diagnose and measure prevalence in the population. For the same reason, prevalence research mapping problematic patterns of internet use is yielding different results. Young (1999) and Griffiths (2005) are the most frequently cited authors in determining diagnostic criteria in measuring instruments.

Our study is based on Griffiths' typology (2005), which defines internet addiction using six basic components: significance – the use of the internet becomes a dominant topic in the thinking, experience, and behaviour of the individual; *mood swings* – experiences related to the use of the internet, which the individual uses as a coping strategy in addressing subjectively undesirable emotional states; *withdrawal symptoms* – psychological and physiological; *tolerance* – the need for increasingly frequent activity on the internet in order to achieve the desired effect; *relapse* – unsuccessful attempts to stop or restrict activities on the internet, or a rapid return to original behaviour after prolonged abstinence; *conflict* – interpersonal or intrapsychic, a conflict between the original way of life and the threat posed by the activity performed on the internet.

Technology/internet addiction also has a potential link to gambling disorder. Škařupová, Vlach, and Mravčík (2020) state in their study that because of the growing range of online lotteries and betting, it is necessary to solve the emerging problem as soon as possible. In this case technological addiction may be perceived as one of the other risk factors for game addiction.

1.3 Current state of the issue in socially excluded communities

With respect to the absence of research studies focused on technological addictions (or internet addiction| among the socially excluded population in the Slovak Republic,[1] the authors present at least the findings related to digital technologies and digital literacy. According to Eurostat (2017; 2018b), there are households in the Slovak Republic that suffer from deprivation of digital technologies (for more see Eurostat, 2017; 2018). Socially excluded (Roma) households with a lower income that are less integrated into the majority population have a significantly smaller number of digital technologies (Filadelfiová & Gerbery, 2012). The data on the low incidence of digital technologies is indirectly documented by the resistance to modern technology in the lowest-income households, among the unemployed, and among those with low levels of education (Velšic, 2018). According to the authors, these are indicators of the socially excluded population that were largely found among socially excluded Roma households, where a low incidence of digital technologies was identified, as well as according to the level of income and integration into the majority population (Filadelfiová & Gerbery, 2012). It can therefore be assumed that the absence of digital technologies in socially excluded households can lead to a reduction of the risk of technological addiction.

In the field of substance or behavioural addictions, data from the National Centre for Health Information (2018) indirectly suggests the prevalence of drug abuse by socially excluded populations in the form of stimulants (excluding cocaine) – predominantly among men, and opiates – predominantly among women. In this context, the authors emphasize homeless people, of whom 16.5% were treated for drugs in 2017 (for more see the National Centre for Health Information, 2018). Inhalation is considered the main undesirable phenomenon in socially excluded Roma communities. It has been identified mainly among men, young adults, children, and adolescents (for more see Važan, 2010; Popper, Szeghy, Poduška, & Kollárik, 2011; Popper & Szeghy, 2011). The occurrence of hard drugs is not the rule (Bobarčík, Gecková, Orosová, van Dijk, & Reijneveld, 2010; Važan, 2010), while the use of cigarettes, alcohol, and marijuana and the occurrence of gambling are common routines (Važan, 2010; Popper et al., 2011). The analysis of the current state of the issue shows that in our conditions there is no research focusing on technological addictions (or internet addiction) in the socially excluded Slovak population and that the only confirmed behavioural addiction is gambling.

To state at least the general prevalence of technological addictions in the Slovak Republic, the authors chose the prevalence of internet addiction among adolescents as a threatening addiction. The EU Kids Online IV research study (for more see Izrael, Holdoš, Ďurka, & Hasák, 2020) states that 1.3% of the respondents reported four out of five criteria on the Excessive Internet Use scale (more in the "Methods of data collection and analysis" section), but in the research there were no respondents with excessive use of the internet (average age 13.2 years). Kurilla, Kamendy, and Selepová (2019) identified 0.5% of respondents with pathological internet use and 5% with problematic internet use (average age 15.1 years). Roľková and Hamarová (2017) identified 24% of respondents with excessive internet use and 5.1% with internet addiction and in the research conducted by Šavrnochová et al. 6.3% of the respondents used the internet and play PC games

1 | In the Slovak Republic, the Roma population or socially excluded Roma communities can be included among those that are most at risk of poverty and social exclusion or among the poor and socially excluded according to various sources (e.g. Mušinka, Hurrle, Matlovičová, & Kling, 2014; Rusnáková & Rochovská, 2016).

moderately and highly excessively (13-17 years; for more see Izrael et al., 2020; Kurila, Kamendy, & Selepová, 2019; Roľková & Hamarová, 2017; Šavrnochová et al., 2020). As one may observe, in general, more individuals are identified with problematic or excessive use of the internet or facing this risk in the Slovak Republic.

The literature suggests that children and young people from socially excluded communities are at risk of substance abuse and the development of gambling (Važan, 2010; Popper et al., 2011). If a similar mechanism of gambling and excessive use of the internet (the first definitions of excessive use were based on gambling) (Young et al., 1999) is taken into account, which, among other things, includes the problem of impulse control, the question is whether part of the population from socially excluded communities is not – as is the case with other addictions – at greater risk of excessive use of the internet. On the other hand, the lower distribution of digital technologies in socially excluded communities and lower penetration of the internet in these communities could appear to be a protective factor against the emergence of excessive use of the internet. However, this factor is only temporary and apparent, as the gradual expansion and reduction of the cost of digital technologies, as well as access to the internet, are likely to make socially excluded communities use the internet even more frequently. Therefore, it seems important to investigate the hitherto unexplored occurrence of excessive use of the internet and playing PC games in socially excluded Slovak communities. Knowing the real situation with possible intervening variables will allow us to establish specific preventive measures more effectively.

1.4 Research problem

The authors determined the research problem on the basis of a study of the literature and the analysis of research as follows: the situation regarding internet use and playing PC games in the majority population and in socially excluded communities in the Slovak Republic.[2] The study was aimed at identifying the differences in excessive use of the internet and playing PC games among respondents from the majority population and respondents from socially excluded communities and at determining the specifics of such behaviour within these communities.

The authors set two research questions:

RQ_1: *What is the difference between respondents from the majority population and respondents from socially excluded communities in the following aspects:* (a) leisure; (b) internet and mobile internet access; (c) parental control over internet activities; (d) the frequency of engagement in digital technology activities; (e) the number of hours spent on the internet or playing PC games; (f) spending time online or playing PC games after 10:00 pm; and (g) the degree of excessive use of the internet and PC gaming?

RQ_2: What is the difference in: (a) leisure; (b) internet and mobile internet access; (c) parental control over internet activities; (d) the frequency of engagement in digital technology activities; (e) the number of hours spent on the internet or playing PC games; (f) spending time online or playing PC games after 10:00 pm *based on the level of excessive use of the internet and playing PC games by respondents from socially excluded communities?*

2 MATERIAL AND METHODOLOGY

The research is part of the scientific project VEGA no. 1/0692/18, *Internet addiction among primary school pupils in the conditions of the Slovak Republic and the Czech Republic*, which was approved by the Scientific Grant Agency of the Ministry of Education, Science, Research, and Sport of the Slovak Republic and the Slovak Academy of Sciences. The empirical research had an exploratory and descriptive design with an application potential. A quantitative strategy using the research technique of an authentic questionnaire was selected. Prior to the distribution of the questionnaire, school principals were contacted and introduced to the objectives of the research, the method for the filling in of the questionnaire, and the method for the processing of the questionnaires. The questionnaire was distributed to the respondents by their teachers, prevention coordinators, community social workers, and the researchers themselves. The research was voluntary and anonymous and the respondents agreed with the implementation of the research by filling in the questionnaire. Throughout the research, the emphasis was placed on adherence to ethical standards. The questionnaires are archived at the Faculty of Education of Matej Bel University in Banská Bystrica.

2.1 Research group

The research group was created intentionally. It consisted of 365 respondents aged 12 to 19 years (average age 15.4 years; ± 1.24). 48.9% were boys and 51.1% girls; one respondent did not indicate their gender. The sixth grade was attended by 13.8% of the respondents, the seventh grade by 21.5%, the eighth grade by 33.1%, the ninth grade by 31.6%, and 11 respondents did not answer. The respondents came from the Banská Bystrica Self-Governing Region of the Slovak Republic. 27.4% of the respondents came from socially excluded communities (47% boys; 53% girls; average age 15.2 years; ± 1.70) and 72.6% came from the majority population (49.6% boys; 50.4 % girls, average age 15.5 years; ± 1.10).

2.2 Methods of data collection and analysis

Data was collected using an authentic questionnaire consisting of areas related to: (1) the demographic characteristics of the respondents (age, sex, class attended, residence) and

2 | In order to compare and identify the specifics, the authors used the phrase "majority population" in the study to identify respondents from non-socially excluded communities as opposed to socially excluded communities.

their parents (education, employment); (2) leisure – the variable included 12 items (e.g. I play sports alone or with friends, I participate in organized sports activities, I go to shopping malls with friends, etc.) (five-point scale: 1 = never, 2 = a few times a year, 3 = once or twice a month, 4 = at least once a week, 5 = almost daily); (3) internet access (at home and mobile internet); (4) the number of hours spent on the internet or playing PC games (4-point scale: 1 = less than one hour; 2 = 2 to 3 hours; 3 = 4 to 5 hours; and 4 = 6 hours or more); (5) using the internet or playing PC games after 10 pm; (6) the number of days (0 to 7) during which the respondents participated in activities related to digital technologies, during the last seven days; (7) parental control over internet activity (4-point scale: 1 = never; 2 = exceptionally; 3 = often; and 4 = very often), and (8) our adapted Excessive Internet Use (EIU) scale to include PC gaming.

The modified EIU scale was developed using addiction components (Griffiths, 2005; inspired by Škařupová, Ólafsson, & Blinka, 2015) and covered five components, with the respondents answering on a four-point scale (1 = never, 2 = exceptionally, 3 = often, and 4 = very often). The scale contained the following items: **1. prominence**: *Do you sometimes neglect your needs (e.g. food or sleep) because of the internet or playing games?;* **2. withdrawal syndrome**: *Do you feel restless, annoyed, or irritated when you can't use the internet or play games?*; **3. tolerance**: *Do you find yourself browsing the internet or playing a game, even if you don't like it any more?*; **4. relapse**: *Have you ever tried unsuccessfully to limit the time you spend online or playing a game?*; and **5. conflict**: *Do you neglect your family, friends, work, or hobbies because of the time you spend playing or surfing the internet?* The scale was evaluated by calculating an average score from all of the above items, with an individual's overall average above 2.6 indicating that he/she is using the internet and playing PC games excessively. This score doubles the likelihood of behavioural problems, school problems, online risks, and various psychological difficulties – symptoms of depression or anxiety (inspired by Škařupová, Ólafsson, & Blinka, 2015). The Cronbach's α EIU scale adjusted by the authors was 0.631. The data was processed in IBM SPSS 22.0 using descriptive and inferential statistics, with the application of statistical operations – factor analysis, statistical tests – Student's t-test, Mann-Whitney U-test, and chi-square test. All tests were performed at a significance level α=0.05.

3 RESULTS

This section presents the test results in the context of the research questions that are presented in the Research Problem section.

The main goal of this study was to determine the differences in excessive use of the internet and playing PC games between the respondents from the majority population and the respondents from socially excluded communities. *Table 1* shows that there is no statistically significant difference between the two groups, with the average score being almost the same. As for the excluded communities themselves, there was a significant difference in the overall score, with the overall score of regular users being lower than the total score of excessive users.

MP M	SD	SEC M	SD	t	p
1.548	0.50	1.549	0.68	0.06	0.995
RU (SEC) M	**SD**	**EU (SEC) M**	**SD**	**t**	**p**
1.36	0.45	3.08	0.32	-11.50	0.000

Table 1 | Excessive use of the internet and playing PC games
MP – majority population, SEC – socially excluded community, RU – regular users, EU – excessive users

The next part of the research focused on ways of spending free time. Since the questionnaire contained 12 leisure-related items, factor analysis – specifically, the principal components method and Varimax rotation – was used to reduce their number (more on the items and scale in the "Methods of data collection and analysis") and for further analysis. Prior to implementation, the Kaiser Meyer Olkin (KMO) test and the Barlett's Sphericity test were used to confirm the validity of the factor analysis. The result of the KMO test of the "free time" variable was 0.741 and the result of the Barlett's Sphericity test was statistically significant ($\chi 2 = 677.631$, $p < 0.000$), which confirms the validity of the implementation of this statistical operation. Factor analysis identified two relevant factors: Factor 1: **passive leisure** and Factor 2: **active leisure**. Together, both factors explain

	MP M	SD	SEC M	SD	t	p
active leisure	2.68	0.73	2.22	0.89	-4.53	0.000
passive leisure	3.34	0.79	3.06	1.27	-2.05	0.42
	MP M	**SD**	**EU M**	**SD**	**t**	**p**
active leisure	2.68	0.73	2.52	0.92	-1.03	0.358
passive leisure	3.04	1.21	3.55	1.34	-1.25	0.278

Table 2 | Results of the comparison of leisure activities in the majority population and the socially excluded community and in the socially excluded community with regard to the risk group
MP – majority population, SEC – socially excluded community, RU – regular users, EU – excessive users

37.47% of the total variance. When comparing active leisure, a t-test showed a statistically significant difference between the respondents from the majority population and the socially excluded community – the respondents from the majority population spend their leisure in a more active way. In the case of passive leisure, no statistically significant difference was demonstrated. In the environment of excluded communities, there was no difference in leisure with regard to whether the respondent is a regular or excessive internet user – *Table 2*.

The respondents were also asked about their internet access. The chi-square test showed that there is a relationship between belonging to the environment from which the respondent comes and what kind of internet connection he/she has at home, *χ2 (2) = 130.508; p = 0.000. The individual response frequencies are shown in Table 3*. In the case of mobile internet, the chi-square test also showed a relationship between the ownership and the respondent's environment: χ2 (2) = 5.891; p = 0.050.

Internet connection	MP		SEC	
	N	%	N	%
I have no internet access	2	0.8	32	32.0
In a shared room	33	12.5	37	37.0
In my room	230	86.8	31	31.0
Mobile internet				
Yes, I do	217	82.5	77	77.8
I don't have it, but I want to	31	11.8	20	20.2
I don't have it and I don't want to	15	5.7	2	2.0
Internet connection	**MP**		**EU**	
	N	**%**	**N**	**%**
I have no internet access	28	32.9	3	30.0
In a shared room	32	37.6	3	30.0
In my room	25	29.4	4	40.0
Mobile internet				
Yes, I do	63	75.0	10	100
No, but I would like mobile internet	19	22.6	0	0
I don't have it and I don't want to	2	2.4	0	0

Table 3 | Comparison of internet connection in the majority population and excluded communities and in excluded communities with respect to the group of internet users
MP – majority population, SEC – socially excluded community,
RU – regular users, EU – excessive users

In the case of parental control, the Mann-Whitney U test did not show statistically significant differences even with regard to the environment from which the respondent came. The difference with regard to the level of internet use (*Table 4*) was not demonstrated even in a socially excluded environment.

parental control	environment (MP and SEC)	threat of internet use (RU and EU)
Mann-Whitney U	11859.5	332.0
Z	-1.619	-1.184
Asymp. Sig (2-tailed)	0.105	0.236

Table 4 | Comparison of parental control over internet use
MP – majority population, SEC – socially excluded community,
RU – regular users, EU – excessive users

When comparing the activities performed on the internet with respect to the environment, significant differences were found in almost all activities – with the exception of Facebook, purchases and sales on the internet, and downloading music (*Table 5*). In socially excluded communities, when comparing regular and excessive users, there was no significant difference in any case.

environment	Mann_Whitney U	Z	Asymp. Sig (2-tailed)
Searching for information	7581.0	-5.828	**0.000**
Facebook	10579.0	-1.859	0.063
Instagram	6095.00	-8.009	**0.000**
Other social networks	9034.0	-4.439	**0.000**
Video recording	10584.5	-3.076	**0.002**
YouTube	7224.0	-5.974	**0.000**
Watching streaming sessions	8900.5	-5.242	**0.000**
Playing online PC games	10019.5	-3.349	**0.001**
Playing offline PC games	11992.0	-1.374	0.169
Purchases and sales	10998.0	-2.622	**0.009**
Educational pages	8325.0	-5.535	**0.000**

Table 5 | Results of the comparison of selected activities on the internet with respect to the environment from which the respondent comes

The last area to be analysed was the number of hours spent online during the week on weekdays and at weekends. The results of the t-test in *Table 6* show that there are statistically significant differences in the number of hours spent online on working days among the respondents from the majority population and the respondents from socially excluded communities, with the respondents from the majority population spending more time in this way. In excluded communities, there is a significant difference between regular and excessive users, with excessive users spending more time online on weekdays.

Similar results for weekend days are shown in *Table 7*. The respondents from the majority population spend more time online over the weekend compared to the respondents from

Hours per week MP M	SD	Hours per week SEC M	SD	t	p
3.94	1.18	3.21	1.44	-4.536	0.000
Hours per week RU (SEC) M	**SD**	**Hours per week EU (SEC) M**	**SD**	**t**	**p**
3.90	1.128	5.08	1.382	-3.613	0.000

Table 6 | Results of the comparison of leisure activities on the internet during working days
MP – majority population, SEC – socially excluded community, RU – regular users, EU – excessive users

Hours per weekend MP M	SD	Hours per weekend SEC M	SD	t	p
4.35	1.34	2.94	1.80	-7.125	0.000
Hours per weekend RU (SEC) M	**SD**	**Hours per weekend EU (SEC) M**	**SD**	**t**	**p**
4.33	1.23	5.62	0.65	-6.493	0.000

Table 7 | Results of the comparison of leisure activities on the internet during a weekend
MP – majority population, SEC – socially excluded community, RU – regular users, EU – excessive users

excluded communities. In the case of the respondents from excluded communities, there are significant differences between regular users and excessive internet users, with excessive users using the internet more over the weekend.

4 DISCUSSION

The ever-increasing spread of the internet and digital technologies, even in socially excluded communities, raises new questions and potential problems in relation to excessive internet use leading to addiction. The research focuses on this area for several reasons. On the evidence of previous empirical findings, socially excluded communities are a risk group for addiction, both substance and behavioural, especially gambling. Children and adolescents are the group that is most vulnerable to excessive internet use, with socially excluded communities having a higher proportion of children and young people than the majority population, which may be a risk factor for lower parental digital literacy. Furthermore, the negative impact in this age group includes the deterioration of academic success, as well as physical and mental health. Another reason is the complete absence of research conducted with regard to this issue in Slovakia.

The research results answered the research questions of the study (RQ_1 and RQ_2). Below, the authors describe the differences between the respondents from the majority population and the respondents from socially excluded communities in terms of excessive internet use and PC gaming, as well as differences between excessive internet users and PC game players from socially excluded communities and respondents from these communities without excessive behaviour.

Young individuals from socially excluded communities are at risk of technological addictions, as are young individuals from the majority population. In comparison to the respondents from the majority population, the respondents from socially excluded communities: (1) spend significantly less free time passively or actively; (2) have significantly less internet access at home and mobile internet access; (3) are online significantly less or play PC games less all week. On the adjusted EIU scale, the respondents from socially excluded communities had an average score of 1.549 (similarly to the respondents from the majority population), which is roughly the European average. The study conducted by Škařupová, Ólafsson, and Blinka (2015) found an average score of 1.49 on the EIU scale for respondents (11–16 years old) from 25 European countries.

Despite a certain absence of digital technologies in our socially excluded communities, there are individuals who show excessive behaviour in connection with such technologies. Among the socially excluded respondents, 10% of individuals were identified with excessive use of the internet and playing PC games. Blinka et al. (2015b) identified a 5.8% prevalence of excessive internet use (medium and high) among European children (average age 13.5 years; (for more see Blinka et al., 2015b)), which was about 50 % less than in the present case among socially excluded respondents (approximately 1% more than in the majority population). The difference may be due to the fact that the authors included playing PC games in the EIU scale. As may be observed, in addition to drug use (e.g. stimulants other than cocaine and opiates), inhalation, cigarette smoking, alcohol, and gambling, technological addictions are also penetrating into socially excluded communities.

The young individuals from socially excluded communities in whom the authors identified excessive behaviour in relation to digital technologies (internet and PC games) appear more at risk for almost all the crucial variables than those individuals who use digital technologies in the usual way. Socially excluded respondents who use the internet and play PC games excessively compared to those who use the internet and play PC games in the usual way in socially excluded communities: (1) spend their free time passively and actively more often, yet the difference is not statistically significant; (2) mostly have internet access in their room; (3) usually have internet access on their mobile phone (everyone has it); and (4) spend more time online or playing PC games throughout the week and at weekends.

One limitation of the research is the research group itself, which is not sufficiently representative in the basic group because of the real indicators. Another limitation of the research is the possible distortion of the results caused by the potentially poorer understanding of the questions in the questionnaire, given the young age of the respondents. Despite these limitations, the results of the study are considered to be important not only in the research on excessive internet use and playing PC games in socially excluded communities (given the complete absence of prevalence research in the Slovak Republic in this area), but also in creating and implementing effective preventive interventions aimed at individuals from socially excluded communities.

5 CONCLUSIONS

In comparison with the respondents from the majority population, in our research the young people and adolescents from socially excluded communities: (1) spend significantly less free time passively or actively; (2) have significantly less internet access at home and mobile internet access; (3) are online significantly less or play PC games less all week. Among the socially excluded respondents, 10% of individuals were identified with excessive use of the internet and playing PC games. Young individuals from socially excluded communities in whom the authors identified excessive behaviour in relation to digital technologies (the internet and PC games) appear more at risk of almost all the crucial variables than those individuals who use digital technologies in the usual way. On the basis of the above and also because of the predominance of preventive activities in the field of substance addiction, the authors propose the strengthening of preventive strategies in the field of excessive use of the internet in the school and out-of-school environments. Preventive strategies should be seen as an integral part of the educational process, taking into account the specific features of the target groups and, in the context of the results of this research, with a special focus on children and young people from socially excluded localities.

REFERENCES

Addiction.com. (n. d.). *Technology Addiction.* Available from: https://bit.ly/2huVYwU

Alter, A. 2018. *Neodolatelné: Vzestup návykových technologií a byznys se závislostí.* Brno: Host.

American Psychiatric Association. (2013). *Internet Gaming Disorder.* Available from: https://bit.ly/2J96Kq3

Blinka, L. et al. (2015). *Online závislosti: jednáni ako droga?* Prague: Grada.

Blinka, L., Škařupová, K., Ševčíková, A., Wölfling, K., Müller, K. W., & Dreier, M. (2015b). Excessive Internet Use in European Adolescents: What Determines Differences in Severity? *International Journal of Public Health*, 60(2), 249–256. doi: doi.org/10.1007/s00038-014-0635-x

Filakovska Bobakova, D., Holubcikova, J., Madarasova Geckova, A., & Dankulincova Veselska, Z. (2018). What Protects Adolescents with Youth Subculture Affiliation from Excessive Internet Use? *International Journal of Environmental Research and Public Health, 15(11), 2451.* doi:10.3390/ijerph15112451

Eurostat (2017). *Persons who cannot afford Internet connection for personal use at home by age, sex and income group.* Available from: https://bit.ly/36mByzM

Eurostat. (2018). *EU statistics on income and living conditions (EU-SILC) methodology – durables.* Available from: https://bit.ly/36gYalg

Filadelfiová, J., & Gerbery, D. (2012). *Správa o životných podmienkach rómskych domácností na Slovensku 2010.* Bratislava: Regional Centre for the United Nations Development Programme for Europe and the Commonwealth of Independent States in Bratislava. Available from: https://bit.ly/2QHa2Xd

Griffiths, M. (2005). A "Components" Model of Addiction Within a Biopsychosocial Framework. *Journal of Substance Use,* 10(4), 191–197. doi.org/10.1080/14659890500114359

Griffiths, M., Lopez-Fernandez, O., Throuvala, M., Pontes, H. M., & Kuss, D. J. (2018). Excessive and problematic use of social media in adolescence: A brief overview *International Gaming Research Unit,* Nottingham Trent University, 1, 8.

Izrael, P., Holdoš, J., Ďurka, R., & Hasák, M. (2020). *Správa z výskumu EU Kids Online IV na Slovensku – Slovenské deti a dospievajúci na internete.* Ružomberok: Catholic University in Ruzomberok. Available from: https://bit.ly/2vlssAB

Kajanová, A. (2017). *Proč selhává sociální práce se sociálně exkludovanými.* Prague: Lidové noviny.

King, D. L., Haagsma, M. C., Delfabbro, P. H., Gradisar, M., & Griffiths, M. D. (2013). Toward a consensus definition of pathological video-gaming: A systematic review of psychometric assessment tools. *Clinical Psychology Review.* 33(3), 331–342.

Kolarčík, P, Gecková, A. M., Orosová, O., van Dijk, J. P., & Reijneveld S. A. (2010). Predictors of health-endangering behaviour among Roma and non-Roma adolescents in Slovakia by gender. *Journal of Epidemiology & Community Health.* 64(2), 1043–1048. doi: dx.doi.org/10.1136/jech.2009.092098

Kovalčíková, I., & Džuka, J. (2014). Konceptualizácia pojmu sociálne znevýhodňujúce prostredie. *Pedagogika.sk.* 5*(1),* 5–27. Available from: https://bit.ly/2FfG9Ib

Kurilla, A., Kamendy, Z., & Selepová, S. (2019). Problémové a patologické používanie internetu adolescentmi. *Alkoholizmus a drogové závislosti.* 54*(3),* 113–126.

Kuss, D. J., & Pontes, H. M. (2018). Internet addiction (Vol. 41). Hogrefe Verlag. doi:10.1027/00501-000

Marker, C., Gnambs, T., & Appel, M. (2018). Active on Facebook and Failing at School? Meta-Analytic Findings on the Relationship Between Online Social Networking Activities and Academic Achievement. *Educational Psychology Review.* 30, 651–677 (2018). https://doi.org/10.1007/s10648-017-9430-6

Ministry of Labour, Social Affairs, and Family of the Slovak Republic. *Sociálne vylúčené spoločenstvá* [online]. Bratislava: Employment.gov.sk [10. 03. 2020]. Available from: https://bit.ly/2JVsklH

Mušinka, A., Hurrle, J., Matlovičová, K., & Kling, J. (2014). *Atlas rómskych komunít na Slovensku 2013.* Bratislava: Regional Centre for the United Nations Development Programme for Europe and the Commonwealth of Independent States in Bratislava. Available from: https://bit.ly/39yFKOY

National Centre for Health Information (2018). *Drogová závislosť. – liečba užívateľa drog v SR 2017.* Bratislava: National Centre for Health Information. Available from: https://bit.ly/2vOv8g2

Petruzelka, B., Vacek, J., Gavurova, B., Kubak, M., Gabrhelik, R., Rohalewicz, V., & Bartak, M. (2020). Interaction of Socioeconomic Status with Risky Internet Use, Gambling and Substance Use in Adolescents from a Structurally Disadvantaged Region in Central Europe. *International Journal of Environmental Research and Public Health,* 17(13), 4803. doi.org/10.3390/ijerph17134803

Popper, M., Szeghy, P., Poduška, O., & Kollárik, R. (2011). *Iná realita: chudoba, sociálna deprivácia a užívanie inhalantov v rómskych osídleniach na východnom Slovensku.* Bratislava: Open Society Foundation. Available from: https://bit.ly/35kNy3A

Popper, M., & Szeghy, P. (2011). Zneužívanie inhalantov v rómskych osídleniach na východnom Slovensku. In Šucha, M., Charvát, M., & Řehan, V. (Eds.) *Kvalitativní přístup a metody ve vědách o člověku X: Vybrané aspekty teoreie a praxe* (51–58). Olomouc: Palacky University in Olomouc. Available from: https://bit.ly/2ZShNh9

Rusnáková, J., & Rochovská, A. (2016). Sociálne vylúčenie, segregácia a životné stratégie obyvateľov rómskych komunít z pohľadu teórie zdrojov. *Geographical Journal.* 68*(3),* 245–260. Available from: https://bit.ly/2MTcE3f

Roľková, H., & Hamarová, Ľ. (2017). Závislosť od Internetu adolescentov a jej vzťah k vybraným dimenziám osobnosti. *Školský psychológ / Školní psycholog, 18(1),* 102–107. Available from: https://bit.ly/2QFXI9M

Shaw, M., & Black, D. W. (2008). Internet Addiction: Definition, Assessment, Epidemiology and Clinical Management. *CNS drugs,* 22(5), 353–365.

Spitzer, M. (2016). *Kybernemoc!: Jak nám digitalizovaný život ničí zdravie.* Brno: Host.

Svoboda, Z., Morvayova, P., et al. (2010). Schola Excludus. Ústí nad Labem: Faculty of Education, Jan Evangelista Purkyně University in Ústí nad Labem.

Šavrnochová, M., Almašiová, A., Almáši, M., Vaska, L., Barták, M., Gabrhelík, R., Petruželka, B., & Vacek, J. (2020). Identifikácia rizikových skupín žiakov a žiačok základných škôl na Slovensku a v Česku pre účely tvorby efektívnych preventívnych opatrení v oblasti technologických závislostí. *Sociální práce/ Sociálna práca,* 20(2), 31–49.

Škařupová, K., Ólafsson, K., & Blinka, L. (2015). Excessive Internet Use and its association with negative experiences: Quasi-validation of a short scale in 25 European countries. *Computer in Human Behavior*, 53 (December 2015), 118-123. doi: doi.org/10.1016/j.chb.2015.06.047

Škařupová, K., Vlach, T., & Mravčík, V. (2020). Early intervention and identification of gambling disorder: a systematic literature review of strategies implemented by gambling operators. *Central European Journal of Public Health*, *28*(1), 18–23. doi: 10.21101/cejph.a5849.

State Pedagogical Institute. (2017). *Žiak zo sociálne znevýhodneného prostredia.* Available from: https://bit.ly/2wcLJq6

Urbanova, L. B., Holubcikova, J., Madarasova Geckova, A., Reijneveld, S. A., & van Dijk, J. P. (2019). Does Life Satisfaction Mediate the Association between Socioeconomic Status and Excessive Internet Use? *International Journal of Environmental Research and Public Health, 16(20), 3914.* doi:10.3390/ijerph16203914

Važan, P. (2010). *Linking substance abuse among Roma youth in Slovakia and the Czech Republic to discrimination and marginalization.* Washington, DC: Irex, 2010. Available from: https://bit.ly/2sHS4vK

Velšic, M. (2018). *Digitálna gramotnosť na Slovensku 2018: zaostrené na robotiku.* Bratislava: Institute of Public Affairs. Available from: https://bit.ly/2QltVUX

Wartberg, L., Kriston, L., Kammerl, R., Petersen, K. U., & Thomasius, R. (2015). Prevalence of pathological Internet use in a representative German sample of Adolescents: Results of a latent profile analysis. *Psychopathology,* 48(1), Available from: https://dx.doi.org/10.1159/000365095.

World Health Organization. 1992. *The ICD-10 classification of mental and behavioral disorders: Clinical descriptions and diagnostic guidelines.* Geneva: World Health Organization.

World Health Organization. (2018). *Gaming Disorder.* Available from: https://bit.ly/2CDUqM1

Young, K. S., Pistner, M., O'Mara, J., & Buchanan J. (1999). Cyber-Disorders: The Mental Health Concern for the New Millennium. *CyberPsychology & Behavior*, 2*(5),* 475–479. doi: 10.1089/cpb.1999.2.475

2008 Social Services Act and the Amendment to the 1991 Trade Licensing Act, as amended.

Education Act (School Act) and Amendments to Certain Acts of 2008.

Acknowledgment: The authors would like to thank Mr. Jaroslav Vacek for consulting the questionnaire tool as part of the investigation.

Authors' contributions: Angela Almašiová participated in the design of the study and in the development of the manuscript, proposed the method for the data collection and analysis, and processed the statistical data. Michaela Šavrnochová collected data and participated in the study design, literature review, data interpretation, application design, and the preparation of the manuscript. Miroslav Barták initiated the original research and participated in the literature review, data interpretation, and application design. Matej Almáši collected data, designed the study, created a review of the literature, interpreted the data, designed applications, and participated in the development of the manuscript. Juraj Holdoš participated in the study design, literature review, data interpretation, application design, and manuscript preparation. Ladislav Vaska collected data and participated in data interpretation and manuscript preparation. Anna Hudecová collected data and participated in data interpretation and manuscript preparation. All authors contributed to the creation of the article and approved the final version of the manuscript.

Declaration of interest: No conflict of interests.