THE RISK OF ADDICTIVE INTERNET USE AMONG SECONDARY SCHOOL PUPILS IN SLOVAKIA

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Abstract

The main objective of the research was to map levels of addictive Internet use among secondary school youth. The Internet Addiction Measurement (IAT) questionnaire was used to collect data. The available sample was used to select pupils for the research population. We conducted the research in secondary schools in all regions of Slovakia (January–February 2022). The research sample comprised 776 respondents, of which 207 were male and 569 were female, with an average age of 17. The research results showed that four pupils suffer from strong Internet addiction, 79 pupils suffer from a moderate level of Internet addiction, 272 pupils suffer from a mild level of Internet addiction, and 421 pupils are habitual Internet users. The paper is an intermediate output of the KEGA project No. 024UMB-4/2022 Prevention of Online Risk Behaviour.

Keywords

Internet addiction, secondary school pupils, addictive use of the Internet, adolescents, prevention

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INTRODUCTION

The Internet is an essential tool of everyday life that has transformed our society, revolutionising communication and enabling instant access to information (Kim et al., 2006). The Internet is a moderate that can be found on various devices such as mobile phones, tablets or computers or activities that can be performed through the Internet – such as compulsive shopping, compulsive sexual behaviour or compulsive gambling (Eanes, 2017).
Internet use encompasses a range of activities such as accessing social networking sites, online gaming and shopping, searching for work-related information, sending emails, blogging, browsing, downloading or viewing websites offering TV series, news

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or pornography. Online interaction can foster social relationships and generate benefits in terms of socialisation and self-esteem (Mei et al., 2016). However, research suggests that maladaptive and excessive Internet use can lead to addiction, which in turn could lead to psychosocial health problems (Spada, 2014).

In 2017, 48.7 % of global Internet users were in Asia, 17 % in Europe and 10.9 % in Africa. As a result of the development and proliferation of cheaper and more user-friendly computing and software (e.g. laptops, Microsoft Word), Internet use has increased dramatically. Internet penetration has increased from 0.5 % of the population in 2000 to 34.1 % in 2017 (Internet World Stats, 2018).

Some individuals cannot control their Internet use, while others can consciously limit it. Internet-connected electronic media are a common part of individuals' daily lives in a digital society. Time spent on the Internet is not always a problem of Internet use or addiction, but it does impact 'life balance'. In cases where repeated compulsive and uncontrolled Internet use is associated with negative consequences, one can speak of Internet addiction symptoms (Šmahel, 2012). However, this statement remains controversial among many researchers. Authors still use different terms, e.g., Internet addiction, pathological Internet use, netholism, compulsive Internet use, webholism, addictive behaviour concerning electronic media and the Internet, and excessive use of electronic media (Blinka, 2014).

Internet addiction

Internet addiction is a broad term that covers a range of problem behaviours and impulse control. There are as yet no officially accepted criteria for diagnosing Internet addiction. However, there are five types of Internet addiction: cybersex addiction, compulsive Internet use, cyber (online) relationship addiction, compulsive information seeking, and computer or gaming addiction (Hoeg, 2021).

Internet addiction (IA) is a relevant topic in recent diagnostic research, although it has not been officially recognised as a nosological category in the DSM-5 (Diagnostic and statistical manual of mental disorders (DSM-5), 2013; Kardefelt-Winther et al., 2017). The average global prevalence of IA is estimated to be approximately 6 % (Cheng and Li, 2014), with the prevalence of IA among adolescents ranging between 5 % and 15.2 % in Europe and between 2.5 % and 26.8 % in Asian countries (Kuss et al., 2014; Wang, Wu and Lau, 2016). The prevalence of Internet addiction is particularly concerning for adolescent males across cultures (Tsitsika et al., 2014).

Internet addiction (IA) is a rapidly growing global phenomenon among adolescents and young adults (Saville et al., 2010). The term "Internet addiction" does not refer to a clinical diagnosis but to a pathological pattern of behaviour that involves:

• Excessive interest in the Internet,
• disinterest in other activities,
• increasing tolerance,
• loss of control over the level of Internet use,

- withdrawal state,
- continuing to engage in Internet activities regardless of the negative consequences,
- motivation to use the Internet for mood modification or escape from reality,
- lying about Internet use,
- impairment of work performance and interpersonal relationships.

Pathological behaviour must involve a minimum of five criteria, cause severe impairment in the individual's functioning and last for at least 12 months (Matzová, Surovcová and Trebatická, 2017).

Internet use has become one of the most popular leisure activities among adolescents in Western countries and Slovakia, which is also confirmed by research by Niklová, Ševčík and Šimšíková (2022). The study aimed to map the extent of Internet use and the level of media engagement among second-stage primary school pupils. The research sample comprised 1,357 respondents aged 10–16 (AM=12.64). The research results show that the higher the media engagement level among pupils, the higher the Internet dependence level (p=0.001).

For many adolescents during the COVID-19 pandemic, the Internet was the only option for access to education, communication with peers and self-development. Therefore, researchers from IRTIS, Šmahel, Dědková and Vokál conducted a comparison of Internet usage data before and during the Covid-19 pandemic. They compared data from 2018 and 2020 and found that adolescents spent almost twice as much time on the Internet during the pandemic than before, an increase from 12 % to 23 %. (Vokál, Šmahel and Dědková, 2021)

Today's adolescents are among the first cohorts of young people who grew up using mobile devices and social media. Ubiquitous access to digital technology allows them to constantly contact their peers and engage in various social activities, such as gaming and knowledge sharing. Ambrose (2020, p. 51) states, " ...one of the fundamental tasks of adolescence is to come to terms with one's own identity". In the 21st century, an adolescent's search for identity is strongly linked to virtual space and its acceptance or rejection by a community of digital friends. According to Vondráčková (in Blinka et al., 2015), the Internet is an environment that allows experimentation with an adolescent's own identity. Partly due to the social embeddedness of digital activities, heavy use can also lead to compulsive and addictive patterns of behaviour that affect both general and school mental health. Thus, adolescents' socio-digital participation can have light and dark sides (Hakkarainen et al., 2015).

Research studies show that excessive Internet use and Internet addiction do exist and cause many negative consequences in different areas of an individual's life. Internet addiction and excessive Internet use have very similar, to overlapping, meanings. Both concepts (addiction and excessiveness) contain the same features, although not all of them may be fulfilled in the case of excessiveness. With excessive use of the Internet, it is assumed that after some time, it will develop into Internet dependence (Šavrnochová, Holdoš and Almášiová, 2020).

METHODS

Research methodology

Research object and research problem
The research subject monitored the prevalence of addictive Internet use among secondary school pupils in Slovakia. We set the following research problem: What is the prevalence rate of addictive Internet use among secondary school pupils in Slovakia?

Research objective
The research aimed to determine the prevalence and level of addictive Internet use among secondary school pupils in Slovakia. The following research tasks were derived from the above objective:
• To find out the number of pupils who are normal Internet users,
• to find out the number of pupils who suffer from mild Internet addiction,
• to find out the prevalence of excessive Internet use among pupils,
• to find out the prevalence of severe Internet addiction among pupils,
• to find out the impact of accommodation type on addictive Internet use,
• to find out the effect of gender on addictive Internet use.

Research hypotheses
H 1: We hypothesise that there is a statistically significant difference in addictive Internet use between boys and girls.
H 2: We hypothesise that there is a statistically significant difference between addictive Internet use and accommodation type.
To collect empirical data, we used a research method of a scaled self-administered questionnaire. The questionnaire comprised two sections.
The first section comprised demographic items related to basic statistics about the research sample (region, type of secondary school, gender, age, type of accommodation, and year group).
The second section comprised 20 scaled items that measured the extent of Internet use. We were inspired by the IAT, a research instrument Kimberly Young developed to monitor Internet addiction (1998). Young (1998) developed the IAT to measure the presence and severity of Internet addiction. The IAT measures compulsive Internet use and assesses symptoms of Internet addiction. The test comprises 20 items, each rated on a 5-point Likert scale ranging from 0 to 5, with a maximum score of 100. The IAT has the following score ranges:
1. A total score of 0–30 points indicates habitual Internet use.
2. A total score of 31–49 indicates a mild level of Internet addiction.
3. A total score of 50–79 indicates a moderate level of Internet addiction.
4. A total score of 80–100 indicates a strong level of Internet addiction.
To ascertain the reliability of the research instrument, we used a Cronbach's alpha value of 0.879 on a questionnaire designed to measure the presence and severity of Internet addiction (IAT).

We investigated the prevalence and level of addictive Internet use among secondary school pupils, the statistically significant difference between accommodation type and levels of addictive Internet use, and the statistically significant difference between gender and levels of addictive Internet use. We used the Mann-Whitney U and Kruskal-Wallis tests and Spearman's correlation coefficient in SPSS 23.0 to detect statistically significant differences. Non-parametric tests were chosen based on the analysis of the skewness and steepness coefficients of the data and the result of the Shapiro-Wilk normality test. Statistical significance of differences and relationships were verified at 0.05 level of significance.

Characteristics of the research sample and research site
We used the available sample to select the pupils for the research sample. We conducted the research in secondary schools in all the regions of Slovakia (January–February 2022). We administered the questionnaire to respondents in an online form. The total number of respondents involved in the research was 786. After selecting respondents due to incorrectly completed questionnaires, we finally worked with a research set of 776 respondents.

Tab. 1 Distribution of the research sample by region

The region where they attend secondary school	n	%
Banská Bystrica	67	8.6
Bratislava	210	27.1
Košice	63	8.1
Nitra	88	11.3
Prešov	65	8.4
Trenčín	163	21.0
Trnava	43	5.5
Žilina	77	9.9
Total	776	100.0

Tab.1 shows that most of the secondary school pupils involved in the research were from the Bratislava region (27.1 %; n=210), from the Trenčín region (21.0 %; n=163), from the Nitra region (11.3 %; n=88), from the Žilina region (9.9 %; n=77).
The least represented pupils were from the Banská Bystrica region (8.6 %; n=67), from the Prešov region (8.4 %; n=65), from the Košice region (8.1 %; n=63) and the Trnava region (5.5 %; n=43).

Tab. 2 Breakdown of the research sample in terms of gender, type of secondary school attended and type of accommodation while at school

Gender	n	%
Female	569	73.3
Male	207	26.7
Total	776	100.0
Type of secondary school attended	n	%
Vocational secondary school	408	52.6
Conservatory	23	3.0
Grammar school	345	44.5
Total	776	100.0
Type of accommodation while studying	n	%
At home	675	86.6
Dormitory	96	12.4
Rent/private	5	1.0
Total	776	100.0

Based on the data presented in Tab. 2, it is evident that (73.3 %; n=569) were female and (26.7 %; n=207) were male. It is further noticeable that secondary vocational school pupils (52.6 %; n=408) dominated the research sample, followed by grammar school pupils (44.5 %; n=345), and third were conservatory pupils (3.0 %; n=23).

Tab. 2 also shows that they lived at home (86.6 %; n=675), followed by pupils who lived at boarding school while at school (12.4 %; n=96). In third position are pupils who lived in private accommodation while at school (1 %; n=5).

Tab. 3 Distribution of the research sample by age

Age	n	%
14	8	1.0
15	135	17.4
16	213	27.4
17	178	22.9
18	131	16.9
19	68	8.8
20	36	4.6
21	7	0.9
Total	776	100.0

Tab. 3 shows that pupils aged 16 (27.4 %; n=213) were in the research sample, followed by pupils aged 17 (22.9 %; n=178). Pupils aged 15 (17.4 %; n=135) came third.
Next in the ranking are pupils aged 18 (16.9 %; n=131). Pupils aged 19 were fifth (8.8 %; n=68), followed by pupils aged 20 (4.6 %; n=36). The penultimate were pupils aged 14 (1.0 %; n=8), and the last were pupils aged 21 (0.9 %; n=7). The average age of the respondents is 17.

RESEARCH FINDINGS

Tab. 4 Distribution of the research sample by IAT questionnaire groups

IAT groups	n	%
Strong level of Internet addiction	4	0.5
Moderate level of Internet addiction	79	10.1
Mild level of Internet addiction	272	35.1
Ordinary Internet users	421	54.3
Total	776	100.0

Based on the data presented in Tab. 4, it is evident that the largest number of respondents (54.3 %; n=421) are in the habitual Internet users group, followed by the mild Internet addiction group (35.1 %; n=272), the moderate Internet addiction group (10.1 %; n=79), and the least number of respondents are in the heavy Internet addiction group (0.5 %; n=4).

Tab. 5 Intergroup differences between addictive Internet use (mild, moderate, strong levels of addiction) and accommodation type (n=355)

Type of accommodation while at school	AM	n	SD	Me	p-value
At home	42.74	306	9.11	40.00	
Rent/private	47.00	5	14.51	48.00	0.57
Dormitory	42.23	44	11.54	39.00	

Based on the results from Tab. 5, it is evident that there is no statistically significant difference (p=0.57) between addictive Internet use and accommodation type.

Tab. 6 Intergroup differences between addictive Internet use (mild, moderate, strong levels of addiction) and gender (n=355)

Gender	AM	n	SD	Me	Mann-Whitney U test	p-value
Male	42.62	93	8.89	40.00	11755.50	0.85
Female	42.78	262	9.73	40.00		

Based on the research results shown in Tab. 6, it is evident that there is no statistically significant difference (p=0.85) between the addictive use of the Internet and the gender of the pupils studied.

DISCUSSION

Anand et al. (2018) conducted a study to examine Internet use behaviour and Internet addiction (IA) in the context of psychological distress to depression. Two thousand seven hundred seventy-six students aged 18–21 at a well-respected university in southern India participated in the study. Socio-educational data were collected through a worksheet recording demographic data and Internet use behaviour; the Internet Addiction Test (IAT) was used to assess Internet addiction, and psychological distress, primarily depressive symptoms, was assessed using the Self-Report Questionnaire-20. Out of a total of n=2,776, 1,477 students who demonstrated Internet addiction remained. 29.9 % (n=831) of students met the IAT criteria for mild Internet addiction, 16.4 % (n=455) for moderate Internet addiction, and 0.5 % (n=13) for severe Internet addiction. **Internet addiction was higher among men who lived in rented or private accommodation and accessed the Internet several times daily.** These students spent more than 3 hours a day on the Internet and had psychological difficulties. Thus, we can conclude that **male gender, time of use, frequency of Internet use,** and psychological difficulties

(depressive symptoms) **predicted Internet addiction.**

Kumar et al. (2019) conducted a cross-sectional study on 426 higher secondary school students from Kendriya Vidyalaya and was administered by the Department of Psychiatry from November 1, 2016, to March 31, 2017. The students were assessed with Young's Internet Addiction Test (IAT) and Strengths and Weaknesses Questionnaire (SDQ). Among the 426 students, the mean total Internet addiction score was 36.63 %, indicating a mild level of Internet addiction. 1.41 % (six students) were diagnosed with a strong level of Internet addiction, while 30.28 % and 23.94 % were classified with mild and moderate levels of Internet addiction. The prevalence of Internet addiction among genders was 58.22 % in males and 41.78 % in females. While students reported both positives and negatives (hyperactivity, emotional problems, and others) of Internet use, excessive Internet use had a negative impact on students' lives compared to a statistically significant positive impact (p<0.0001).

In a study by Goel, Subramanyam and Kamath (2013) (using Young's original criteria), 74.5 % of Internet users were mildly addicted, 24.8 % were moderately addicted, and 0.7 % were addicted. In Sharma et al.'s (2014) study (IAT scores), 57.3 % were normal users, 35.0 % were mild users, 7.4 % were moderate users, and 0.3 % were severely addicted to the Internet, with low levels of Internet addiction expected due to the still limited access to the Internet by most Indian students compared to Western countries and differences in cultural and social traditions in India. The study sample was 58.22 % male and 41.78 % female; the mean IAT score for males was 40.43 (SD=20.2), and the mean IAT score for females was 31.33 (SD=20.46). The p-value was <0.001, which was statistically significant, indicating a difference in IAT scores between the two genders. Several Indian studies also suggested that males were more prone to excessive Internet use than females. Grover, Chakraborty and Basu (2010) and Goel, Subramanyam and Kamath (2013) reported that **men were significantly more likely to be addicted compared to women** (χ^2=10.2, p=0.006), suggesting that men tend to be more exposed to excessive Internet use which may be due to the greater availability of Internet-related facilities, time and money for men compared to women in Indian society.

Niklová, Dulovics and Stehlíková (2022) focused on identifying excessive and dependent Internet users in a research sample of second-stage elementary school pupils through the Internet Addiction Test (IAT). They identified 67 (9.59 %) excessive users and 13 (1.86 %) pupils who showed signs of dependence based on the test (IAT) in the research sample of pupils. Subsequently, they focused on finding a statistically significant difference in the case of pupils' vulnerability to excessive Internet use in terms of gender. Based on the Mann-Whitney U test, a statistically significant difference (0.004≤0.05) was confirmed for gender in the case of excessive Internet use. Based on the mean values of the scores, it can be concluded that **girls (AM=26.68) are significantly more at risk of excessive Internet use than boys (AM=23.45).**

Compared to our study, out of a total of n=776, 355 students aged 15–21 who demonstrated a degree of Internet addiction remained in the study. 35.1 % (n=272) of high school students met the IAT criteria for mild Internet addiction, 10.1 % (n=79) for moderate Internet addiction, and 0.5 % (n=4) for severe Internet addiction. In our research

sample, neither gender (p=0.85) nor type of accommodation (p=0.57) affected Internet addiction. **H1 and H2 were not confirmed.** In our study, the prevalence of Internet addiction between genders was 73.8 % for females and 26.2 % for males.

RESEARCH LIMITATIONS AND RECOMMENDATIONS FOR PRACTICE

In this section, we consider it essential to point out the limitations of our research, which lie primarily in selecting the research sample and, consequently, in the possibilities of generalising the results. The research sample was selected from secondary schools across the country. However, the research sample consisted of more than two-thirds females. For this reason, we do not guarantee the representativeness of the sample and, therefore, the full generalisability of the results. It would be ideal to reach more males, which may incentivise further research. We can also consider the chosen method for data collection as another threat to the internal validity of the research. Questionnaire-based data collection, in which respondents have the opportunity to rate themselves, may cause various biases. In questionnaire data collection, a person's attitude may be influenced, for example, by the nature of the question or how the question is asked. In our research, we did not use lie questions, which we consider another limitation of our research.

Below, we present practice recommendations for secondary school pupils, their guardians, teachers, and social pedagogues. The recommendations are as follows:

- Increase the level of awareness among secondary school pupils about safe use of the Internet;
- Ensure that teachers are better informed about the causes of addictive Internet use, especially in secondary schools;
- Focus prevention by social pedagogues on addictive use of the Internet; prevention programmes should be designed to be more interactive and involve pupils in discussions;
- There is also a need to improve parental awareness of the causes of addictive Internet use in the family environment, whether in cooperation with the school or other actors; parents must know the causes and provide a home for the child where the child will feel safe, listened to, supported and not afraid to confide in parents about any problem.

Excessive Internet use has led to addictive behaviours that negatively affect users. Early diagnosis of risk factors related to excessive Internet use provides education on responsible use and supervision of pupils by family members.

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