

Research article

Student Behavior and Its Association with Multi-Device Addiction and Back Pain in Western Romania

Brigitte Osser ^{1,2}, Csongor Toth ^{1,2}, Gyongyi Osser ^{2,*}, Carmen Delia Nistor-Cseppento ^{1,3}, Victor Niculescu ⁴ and Laura Ioana Bondar ^{1,5}

- 1 Doctoral School of Biomedical Sciences, University of Oradea, 410087 Oradea, Romania;
- 2 Faculty of Physical Education and Sport, "Aurel Vlaicu" University of Arad, 310130 Arad, Romania;
- 3 Department of Psycho-Neuroscience and Recovery, Faculty of Medicine and Pharmacy, University of Oradea, 410073 Oradea, Romania
- 4 Doctoral School University of Medicine and Pharmacy "Carol Davila" Bucuresti; București, Romania;
- 5 Department of Biology and Life Sciences, "Vasile Goldiș" Western University of Arad, Arad, Romania

* Correspondence: gyongyi.oss@uav.ro (G.O.);

Citation: Osser B., Toth C., Osser G., Nistor-Cseppento C.D., Niculescu V., Bondar L.I. - Student Behavior and Its Association to Multi-Device Addicti-on and Back Pain in Western Romania
Balneo and PRM Research Journal 2025, 16(1): 790

Academic Editor(s):
Constantin Munteanu

Reviewer Officer:
Viorela Bembea

Production Officer:
Camil Filimon

Received: 16.02.2025
Published: 31.03.2025

Reviewers:
Mihai Hoteteu
Ruxandra Luciana Postoiu

Publisher's Note: Balneo and PRM Research Journal stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2025 by the authors. Submitted for open-access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Abstract: The rapid development of modern technologies has brought enormous benefits to today's society in all areas of life. On the one hand, they have a positive effect on people's relationships, learning and development. On the other hand, the incorrect use of electronic devices can cause health damage and serious problems. In recent years, the use of digital devices has increased among students, highlighting the problem of digital addiction. The aim of this study was to observe the problems of spinal pain associated with the use of mobile phones by students in schools and to find constructive solutions to turn mobile phones into an effective learning tool to be used only in the classroom. The method used in this study was to apply questionnaires to a sample of 506 students from Arad County. The results of this study showed that students in the study group are addicted to the internet and social networks, and also confirmed that some of them cannot experience all this without sacrificing their physical and mental health. In conclusion, educational and policy measures to combat digital addiction are urgently needed worldwide. Schools should implement comprehensive digital literacy programs to educate students about the risks of excessive use of digital devices and promote healthy online behaviors.

Keywords: digital addiction, digital technology, health impact, mobile devices, spinal deformities

1. Introduction

Research indicates that children have better internet navigation skills than adults, but often lack the critical awareness to distinguish between useful information and potentially harmful content [1,2]. This deficiency can make them more vulnerable to dangers in the digital realm, which may have severe consequences. Digital addiction, defined as the problematic or compulsive use of digital devices, is an increasing problem, especially in relation to developmental issues in children [3,4,5].

A major problem resulting from widespread digital use is "communicative overabundance", a phenomenon that causes children to lose track of time becoming immersed in applications, games and social media without any clear boundaries. This usage pattern not only affects the learning experience, but also poses various health risks [6,7,8].

Digital tools have specific purposes, but their effectiveness depends on adherence to security and behavioral guidelines. Failure to follow these guidelines can lead to a variety of obstacles, including health problems [9,10]. Misuse of these tools can

be likened to the effects of drugs, which can be beneficial if used correctly, but harmful if abused [11,12].

In the 21st century, it is important to educate students about the responsible use of mobile phones and other digital devices. Banning these technologies may exacerbate existing problems. Instead, comprehensive education about the dangers of digital addiction and effective time management is essential [13,14]. The rise in smartphone ownership, reaching 5.3 billion users worldwide in 2021, highlights the urgency of this issue [14,15].

The COVID-19 pandemic has further intensified concerns about excessive technology use among children and adolescents. Inappropriate usage patterns can lead to developmental problems like: musculoskeletal problems, physical inactivity, obesity, poor sleep quality, low life quality and academic performance [16,17,18].

Despite the debate about whether digital addiction is a real addiction or simply a control issue, parallels have been noted between mobile phone addiction and gaming addiction [17,18]. Both exhibit similar patterns of behavior, such as loss of control, compulsive engagement, and negative consequences when not indulged. Research shows that teenagers are more likely to own smartphones and use the internet daily, highlighting the need for early intervention and prevention strategies [19,20,21,22]. While a study in Romania has investigated symptoms of gaming addiction, there remains a lack of tools specifically designed to detect digital addiction in children.

The aim of this study is to investigate the association between the duration of digital device use and the occurrence of spinal pain, with a focus on gender differences [23,24]. By identifying children at risk of digital addiction, we hope to contribute to the development of effective prevention strategies to address the challenges posed by excessive technology use [25,26,27].

2. Results

2.1. Baseline characteristics

The main characteristics of the patients included in the study are shown in Table 1. The mean age at the cohort level was 10.79 ± 2.51 years. Most of the children reported spending 1-3 hours/day on the Internet (67.58%). Approximately 2% of the children spent more than 8 h per day on the Internet.

Table 1. Baseline characteristic.

Parameter	Group total
Age, M, SD	10.79 ± 2.51
Weight, N (%)	37.710 ± 11.510
Single parent family N (%)	191 (37.75)
1-3 hours/day (internet), N (%)	342 (67.58)
4-5 hours/day (internet), N (%)	123 (24.30)
6-8 hours/day (internet), N (%)	31 (6.12)
Over 8 hours/day (internet), N (%)	10 (1.97)

2.2. Characteristics of the study groups

The two groups are relatively similar in terms of the number of children in each group, their school level (primary/secondary), the amount of time spent on the Internet, and type of device used (Table 2). However, data analysis shows significant differences in terms of age ($p=0.012$) and family background (<0.0001). In particular, about 64% of the girls reported spending more than 8 hours online, which is significantly higher than the percentage of boys. Furthermore, there was also a significant difference in TV viewing time ($p=0.032$), with girls spending more time watching TV than boys.

Table 2. Characteristics of the study groups

Parameter	Group F	Group M	p-value
Age, M, SD (N)	10.516±2.495 (254)	11.075±2.515 (252)	0.012*
Weight, M (N)	36.710 ± 11.790 (254)	38.717 ± 11.155 (252)	0.05
Normal weight, N (%)	93 (36.61)	135 (53.57)	<0.0001
Underweight, N (%)	143 (56.30)	108 (42.85)	<0.0001
Overweight	12 (4.72)	8 (3.17)	<0.0001
First grade obesity	6 (2.36)	1 (0.39)	<0.0001
Single parent family, N (%)	66 (25.98)	135 (53.57)	<0.0001
Primary school-yes-	113 (44.49)	95 (37.70)	0.210
High school-no-	141 (55.52)	157 (62.30)	0.350
Cervico-dorso-lumbar pains N (%)	51 (20.07)	49 (19.45)	0.858
Tik-tok-T	84 (33.07)	72 (28.57)	0.273
Messenger-M	84 (33.07)	72 (28.57)	0.273
Games-G	190 (74.80)	189 (75.00)	0.959
TV	90 (35.43)	67 (26.58)	0.032
Devices used-smartphone	238 (93.70)	232 (92.06)	0.474
Devices used-laptop	122 (48.03)	108 (42.85)	0.242
Devices used- smartphone /Laptop/TV	31 (12.20)	28 (11.11)	0.696
Devices used- smartphone /Laptop	16 (6.30)	41 (16.30)	0.0009
Devices used-Laptop/TV	0 (00.00)	12 (4.77)	-

In terms of frequency, in the girls' group, about 20% of the participants in this study were 13 years old, which corresponds to the level of the whole group, while in the boys' group, the highest frequency of respondents was found to be 14 years old (Table 3).

Table 3. Distribution according to the age of the respondents.

Group	Age	N	Percent (%)	Group	Age	N	Percent (%)	Group	Age	N	Percent (%)
Group F	6	23	9.055	Group M	6	15	5.952	Group Total	6	38	7.51
	7	22	8.661		7	20	7.937		7	42	8.30
	8	14	5.512		8	12	4.762		8	26	5.13
	9	23	9.055		9	18	7.143		9	41	8.10
	10	37	14.567		10	30	11.905		10	67	13.24
	11	29	11.417		11	30	11.905		11	59	11.66
	12	32	12.598		12	33	13.095		12	65	12.85
	13	49	19.291		13	39	15.476		13	88	17.40
	14	25	9.843		14	55	21.825		14	80	15.81

2.3. Distribution of time spent on the Internet according to the type of device used

At the cohort level, 37.35% of the children (189 individuals), use TikTok, while about 23% spend their time playing games online (Figure 1). The majority of these children (46.8%) spend 4-5 hours playing online games every day. Around 35% use the TikTok app for 1-2 hours every day. Furthermore, about 46% of the children surveyed use 2-3 different devices every day, typically spending 4-5 hours on each.

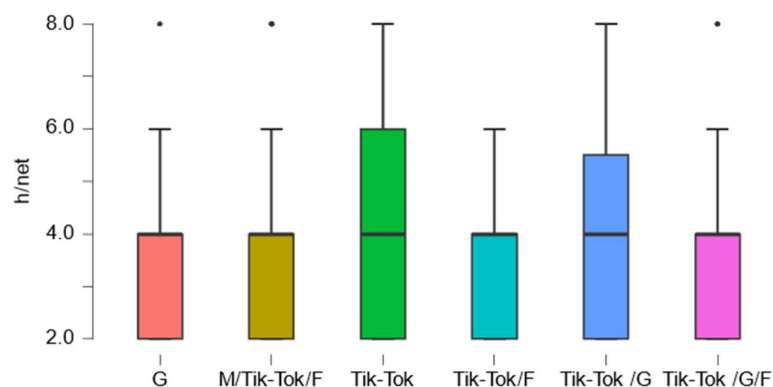


Figure 1. Distribution according to the number of hours spent on the Internet related to the type of device used

* M-Messenger; G-Games, F-Facebook, Tik-Tok

* G/ M/Tik-Tok/F - Time 2-4 hours

* Tik-Tok students - 6-8 hours

* Tik-Tok vs. G - 6-8 hours, or more

* Tik-Tok vs. G vs. F - 4 ore

2.4. Distribution according to age and devices used

Statistical analysis of the data in Table 4 shows that while games are played by children aged 10, 13 and 14, the Tik-Tok application is used more frequently (more than 50%) by children aged 12 to 14. The combined use of Facebook, Tik-Tok and Messenger applications mainly belongs to the same age group.

Table 4. Distribution according to age and the applications used

Age	Types	N	Percent (%)	Types	N	Percent (%)	Types	N	Percent (%)	Types	N	Percent (%)	Types	N	Percent (%)
6	G	7	6.087	M/T/F	5	10.000	T	11	5.820	T/F	5	10.000	T/F/G	5	9.615
7		15	13.043		5	10.000		7	3.704		5	10.000		5	9.615
8		2	1.739		2	4.000		16	8.466		2	4.000		2	3.846
9		5	4.348		5	10.000		17	8.995		4	8.000		5	9.615
10		19	16.522		7	14.000		21	11.111		7	14.000		6	11.538
11		10	8.696		6	12.000		22	11.640		7	14.000		8	15.385
12		14	12.174		6	12.000		27	14.286		6	12.000		6	11.538
13		19	16.522		8	16.000		37	19.577		8	16.000		8	15.385
14		24	20.870		6	12.000		31	16.402		6	12.000		7	13.462

* G-games, M-Messenger, T-Tik-Tok, F-Facebook.

The combined use of Facebook, Tik-Tok and Messenger applications is mainly seen in the 12-14 age group, which accounts for 49.15% of the total respondents.

Figure 2 shows that the frequency of device use is high among children aged 11-14 years.

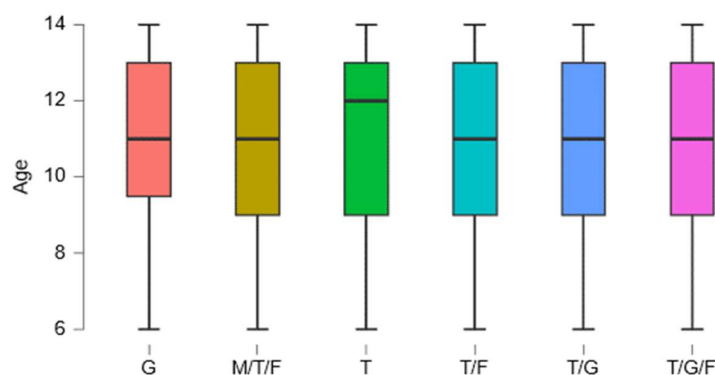


Figure 2. Distribution of the use of devices according to age

* G-Games, M-Messenger, T-Tik-Tok, F-Facebook.

* G/ M/T/F – student aged 12-14 years

* T - student aged 12 years

* T/F - student aged 10-12 years

* T/G/F - student aged between 10-12 years.

This study shows a greater dependence of students on Tik-Tok compared to other websites and social media platforms, having a stronger impact on them.

2.5. Distribution according to the devices used

Table 5 shows that there is no significant difference between the two groups in terms of the use of laptops ($p=0.242$) and smartphones ($p=0.474$), but there is a difference in television viewing ($p=0.032$).

Table 5. Distribution according to the devices used

Parameter	Group F	Group M	p-value
Laptop	122	108	0.242
Smartphone	238	232	0.474
TV	90	67	0.032

2.6. Distribution according to the presence of dorso-lumbar pain

Table 6 shows information about the frequency of dorso-lumbar pain. Of all the children who participated in the study, 19.76% had experienced back or hip pain at some point, especially after being in the same position for a long time. There were approximately 20% pain complaints in both study groups, but no significant differences were found.

Table 6. Distribution according to the presence of dorso-lumbar pain.

Parametru	Group Total	Group F	Group M	P value
Dorso-lumbar pain N (%)	100 (19.76)	51 (20.07)	49 (19.45)	0.858

2.7. Distribution according to The Smartphone Addiction Scale

Table 7 compares smartphone addiction levels between girls and boys across three categories:

- Normal addiction: the p -value < 0.0001 indicates that there is statistically significant difference between girls (1.98%) and boys (9.88%) in this proportion. Boys show a higher percentage of normal addiction compared to girls.

- Moderate addiction: a p-value = 0.0052 suggests that there is a statistically significant difference between girls (18.18%) and boys (11.27). Girls show a higher percentage of moderate addiction compared to boys, suggesting that girls may be more susceptible to moderate levels of smartphone addiction.
- Severe addiction: this significant result ($p=0.0062$) indicates a statistically significant difference between girls (33.99%) and boys (24.70%). Again, girls exhibit a higher rate of severe addiction than boys, meaning that severe smartphone addiction is more common in girls in this study.

Table 7. Comparison of smartphone addiction levels between girls and boys using The Smartphone Addiction Scale

Parameter	Group F	Group M	p-value
Normal addiction	10(1.98)	50(9.88)	< 0.0001
Moderate addiction	92(18.18)	57(11.27)	0.0052
Sever addiction	172(33.99)	125(24.70)	0.0062

2.8. Distribution according to The Visual Analogue Scale (VAS Scale)

Table 8 compares the pain intensity between girls and boys across in categories:

- Mild pain: boys (10.08%) are more likely to experience mild pain related to smartphone addiction, and the difference is statistically significant ($p=0.0352$).
- Moderate pain: there is no significant difference between girls (12.45%) and boys (13.24%), indicating that moderate pain is experienced similarly by both genders.
- Severe pain: girls (32.81%) report significantly higher levels of severe pain than boys (25.30), suggesting that smartphone addiction may lead to more intense negative effects.

Table 8. Comparison of pain levels between girls and boys using The Visual Analogue Scale (VAS Scale)

Parameter	Group F	Group M	p-value
Mild pain	31(6.12)	51(10.08)	0.0352
Moderate pain	63(12.45)	67(13.24)	0.7926
Severe pain	166(32.81)	128(25.30)	0.0308

3. Discussion

The current study has provided evidence based on students' statements that they are spending significant time on different devices and social media sites at the expense of other group activities.

The results of our research show us that they are taken over by the internet and social networks that some have confirmed that they can only live on.

Even if it seems trivial, the mobile phone is the most used by young people from the age of 6. If until a few years ago, it was only useful for long-distance conversations, the evolution of the phone has given them other possibilities. Thus, thanks to the Internet, they can always be in contact with friends, through various applications. It can even be said that it is no longer used for its original purpose, that of having a conversation, but more to spend time on various social networks, for games.

If until a few years ago, the computer was the main attraction for teenagers, they are now much more interested in owning a laptop. Most of them want it to be state-of-the-art, possibly also gaming, to play with friends. Most of the time, young people opt for this type of device, as it is mobile and does not represent an impediment in organizing real gaming competitions.

On the other hand, some young people prefer the laptop because of the convenience it offers. They no longer have to sit uncomfortably at their desk, but can easily watch a movie from the comfort of their own bed. While digital devices offer numerous advantages, improper use can lead to significant health challenges, especially among younger people [29].

This study is a powerful reminder of the far-reaching impacts that our dependency on devices has on spinal health. The implications of the appearance of resistance to current antimicrobial agents would be the following: morbidity, mortality, and high health care costs both in hospitals and in the population. Understanding these connections can enable educators and health professionals to work together to promote better posture and ensure student wellness in the digital age [30].

The concern that prolonged use of apps like TikTok may have a negative impact on social communication skills is supported by various studies. A study published in *Pediatrics* highlighted that excessive social media use, especially on platforms such as TikTok, may lead to reduced face-to-face interactions and impaired social communication skills in adolescents.

A study in *The Lancet Child & Adolescent Health* has shown that increased screen time is associated with several cognitive and behavioral problems, including shorter attention spans, lower academic achievement, and increased risk of Attention Deficit/Hyperactivity Disorder (ADHD) symptoms. Additionally, a study in *JAMA Pediatrics* has shown that the type of device used (e.g., smartphones vs. gaming consoles) may have different effects on cognitive development, with certain devices having more severe negative effects depending on the content and type of use. These results support the idea that the duration and type of device use are important factors that need to be considered when discussing the impact on children's development.

Students reported spending most of their time online watching videos and movies, playing online games, doing homework, and using social media and messaging apps. Daily internet usage varies widely, from 1-2 hours to more than 8 hours. Many students in the study group reported experiencing back pain multiple times.

The students' back pain was not necessarily directly related to the amount of time they spent using the Internet or their mobile phones. It was often related to poor posture, such as: leaning the neck forward, which causes increased flexion of the spine, leading to muscle tension and stress. These poor postures are often caused by excessive use of equipment.

The study conducted in Vinga, Romania, reflects global trends where children and adolescents are increasingly showing symptoms of digital addiction, such as preoccupation with online activities, tolerance and withdrawal symptoms.

Long periods of time in front of a screen without adequate breaks and with an incorrect posture can lead to the development of spinal disorders such as scoliosis, lordosis and kyphosis. These conditions are exacerbated by the prolonged bending over posture that characterizes the use of smartphones and tablets. Prolonged use of electronic devices without correct posture and adequate breaks can lead to musculoskeletal problems. Studies have shown a direct association between the time spent in front of a screen and the occurrence of back pain and other spinal disorders in the study group of young people.

This study highlights significant gender differences in smartphone addiction and associated pain experience. According to The Smartphone Addiction Scale, while boys show a higher proportion of normal addiction (9.88%) compared to girls (1.98%), girls exhibit greater rates of moderate (18.18% vs. 11.27%) and severe addiction (33.99% vs. 24.70%). This suggests that girls may be more susceptible to the negative effects of smartphone use. In terms of pain, boys report mild pain more frequently (10.08%) than girls (6.12%), while girls experience significantly more severe pain (32.81% vs. 25.30%).

In addition, policymakers should consider regulations that limit children's screen time and encourage the development of educational technologies that support, rather than hinder, learning.

Most studies have focused on the impact on mental health, consistently observing associations between smartphone addiction and various mental health issues.

However, positive relationships with smartphone usage have also been identified [27].

According to a Common-Sense Media survey, three-quarters of adolescents own a smartphone, and 24% report being constantly online. The Center for Addiction and Mental Health surveyed 11,438 Canadian students from grades 7 to 12 and found that:

- 20% used social media for more than 5 hours per day (16% in 2015, 11% in 2013)
- 23% played video games daily or almost daily
- 9% played video games for more than 5 hours daily
- 30% spent five or more hours per day on digital devices for recreational purposes
- 5% reported symptoms indicative of significant problematic technology use [4,12].

The strong association between COVID-19 and increased device usage was significant, emphasizing both the challenges of excessive screen time and the positive application of technology to facilitate learning during the pandemic. Despite the social isolation, the use of devices has allowed for continued interaction and online learning [31].

To our knowledge, this is the first Romanian study to evaluate the number of hours spent online, the type of device used, and the analysis of back pain in a large group of respondents. However, this study has some limitations.

Although pain intensity was assessed, factors that may influence students' behavior, such as parental income or education, were not recorded. Additionally, the study did not take into account other potential factors that may affect back pain, such as backpack weight or class duration, which could impact back pain. The study sample was limited to children from the western region of Romania, restricting the generalizability of the findings to other population groups.

Furthermore, the study only included students without psychiatric diagnoses, which may further limit the applicability of the results. Reliance on self-report data may introduce bias as participants may underestimate or exaggerate their online activities and pain experiences. However, this potential bias was minimized through the application of the Smartphone Addiction Scale and the Visual Analogue Scale, which provide more objective measures of smartphone use and pain intensity.

4. Materials and Methods

4.1. Study Group

The descriptive cross-sectional study was conducted among 906 students aged 6 to 14 years old from Vinga Technical High School, which consists of Vinga Municipal High School and Manastur High School in Arad County. Participants were randomly selected between October 2023 and October 2024.

4.2. Inclusion/Exclusion Criteria

The inclusion criteria were:

- Age (6-14 years; this range typically includes primary, middle, and high school students who are likely to use devices frequently)
- Device usage (smartphone, tablet, laptop, etc.)
- At least 1 hour of device use per day
- Participants under 18 years of age: students with written consent from a parent or legal guardian

The exclusion criteria (approximately 400 students from the entire study group did not meet the requirements) were:

- No consent: no parental or student consent to participate. Ethical standards require voluntary participation

- Incomplete data: students who are unable or unwilling to complete required assessments, surveys, or follow-up sessions. Complete data is required for accurate analysis.

After applying the inclusion and exclusion criteria, 506 students remained in the study and were divided into two study groups (Figure 3):

- Group F – consisted of 254 girls
- Group M – consisted of 252 boys

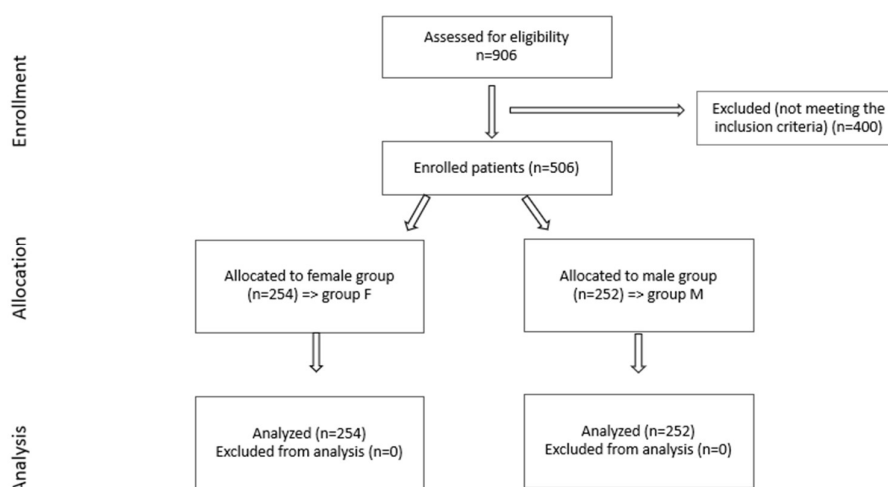


Figure 3. The distribution of students according to the applied criteria

4.3. Study tools

Using a questionnaire given to students in the sample schools, participants were recruited according to gender (girls or boys), school level (primary or secondary school), family structure (two biological parents or single parent families), most frequently used device (smartphone, computer, or tablet), most of the time spent on the Internet (watching videos or movies, playing online games, doing homework, using social networks or messaging applications), daily internet use (1-2 h, 4-5 h, 6-8h and more than 8 h).

All participating students were asked to complete questionnaires. To get a better overview, The Smartphone Addiction Scale and The Visual Analogue Scale were also applied.

The Smartphone Addiction Scale is a validated tool to assess the level of smartphone addiction among users. The scale is designed to identify different aspects of smartphone behavior, such as excessive use, dependence, impact on daily life, and withdrawal symptoms. The total score usually ranges from 10 to 60:

- Normal addiction < 40
- Moderate addiction 40-43
- Sever addiction > 43 [4].

The Visual Analogue Scale (VAS) for pain is a widely used tool designed to help individuals communicate the intensity of their pain in a simple and effective way. The scale for pain typically consists of a straight line, usually 10 centimeters long, with the following endpoints:

- Left Endpoint (0): Represents "No pain."
- Right Endpoint (10): Represents "Worst pain imaginable."

Patients are asked to place a mark on the line that corresponds to their current level of pain. The distance from the left endpoint (0) to the mark is measured in centimeters, providing a score. Scores can range from 0 to 10:

- Mild pain – 0,5 – 4,4 cm
- Moderate pain – 4,5 – 7,4 cm

- Severe pain – 7,5 – 10 cm [28].

Table 1. The questions applied to the students included in the study

Parameter	yes	No
School		
Primary school		
High school		
Used devices		
Laptop		
smartphone		
TV		
No internet hours/day		
1-3 h		
4-5		
6-8		
>8		
Applications		
F		
T		
M		
G		
Single parent family		

¹ L-laptop; G-games; S-smartphone; Tv-television; F-facebook; T-tik-tok; M-messenger.

4.4. Ethical approval.

This article was conducted with the approval of the Vinga Technical High School Committee, Arad County (1436/2/16 October 2023). The study was conducted in accordance with the principles of the Declaration of Helsinki. Participation in the study was voluntary. Written informed consent was obtained from all participants.

4.5. The statistical study

Statistical analysis and interpretation of the results of the questionnaires filled out by the study group were performed using a statistical program. Data processing was performed using JASP version 0.18.1.0. Means, frequency ranges, standard deviations of parameters, and statistical significance tests by Student's t-test were used for comparison. Mean and statistical significance levels were 0.05. If a uniform distribution was not observed between the two groups and the variances were significantly different, correlation tests were used to compare the two groups. For comparison of other distributions between different age groups and different means, the graph matching method was used. Multiple linear regression models were used to identify factors that influence the quality of life of students who use or are dependent on electronic devices.

5. Conclusions

The findings of this study align with numerous other studies in the literature that underscore a clear addiction of young children on the internet and smartphones. This re-search shows that even 6-year-old primary school children spend a lot of time online for entertainment, often at the expense of maintaining proper posture. Girls predominantly use social media more, while boys prefer more complex, multiplayer games.

Results of student questionnaire also show smartphone addiction and highlights concerning effects on spine posture. These include reports of pain and early spinal deviations, which are especially concerning at such a young age.

This study contributes to understanding digital addiction in students by providing evidence from a specific region in Romania and comparing it with global trends. The consistent results in various studies underscore the need for continued research and targeted interventions to address this pervasive problem. By leveraging the insights gained from this and other studies, educators, parents and policymakers can work together to create a healthier digital environment for children and adolescents.

Author Contributions: Conceptualization, B.O. and C.T.; methodology, B.O. and C.T.; software, V.N. and C.T.; validation, V.N., and L.I.B.; formal analysis; G.O. and C.T.; investigation, V.N. and B.O.; resources, C.D.N.-C. and G.O.; data curation, B.O. and G.O.; writing—original draft preparation, B.O. and V.N.; writing—review and editing, L.I.B.; visualization, C.D.N.-C.; supervision, C.D.N.-C. and L.I.B.; project administration, C.D.N.-C.; L.I.B. and G.O.; and All authors have read and agreed to the published version of the manuscript.

Funding: The APC was funded by the University of Oradea, Romania.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by Ethics Committee of the Vinga County, Romania (no. 1436/2/16 October 2023).

Informed Consent Statement: Informed consent was obtained from the parents or legal guardians of all subjects involved in the study. Written informed consent has been obtained from the parents or legal guardians to publish this paper.

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors on request.

Acknowledgments: The authors would like to thank the University of Oradea, Oradea, Romania, for supporting the APC.

Conflicts of Interest: The authors declare no conflict of interest

References

1. Dilci, T. A study on the validity and reliability of the Digital Dependency Scale for 19 years or older. *Univers. J. Educ. Res.* 2019, 7(1), 32–39.
2. Frahasini, F.; Astuti, T.; Atmaja, H.T. The Impact of The Use of Gadgets in School of School Age Towards Children's Social Behavior in Semata Village 2018, 7(2), 161–168.
3. Hawi, N. S.; Samaha, M.; ve Griffiths, M.D. The Digital Dependency Scale for Children: Development and Validation. *Cyber Behavior and Social Media* 2019, 22(12), 771–778.
4. Nawaz, S.; Bhowmik, J.; Linden, T.; Mitchell, M. Validation of a modified problematic use of mobile phones scale to examine problematic smartphone use and dependence. *Heliyon*. 2024, 10(2), e24832.
5. Ding, K.; Shen, Y.; Liu, Q.; Li, H. The Effects of Digital Addiction on Brain Function and Structure of Children and Adolescents: A Scoping Review. *Healthcare* 2024, 12(1), 15.
6. Rashid, S.M.M.; Mawah, J.; Banik, E.; Akter, Y.; Deen, J.I.; Jahan, A.; Khan, N.M.; Rahman, M.M.; Lipi, N.; Akter, F.; Paul, A.; Mannan, A. Prevalence and impact of the use of electronic gadgets on the health of children in secondary schools in Bangladesh: A cross-sectional study. *Health Sci Rep.* 2021, 4(4), e388.
7. Muppalla, S.K.; Vuppapapati, S.; Reddy Pulliahgaru, A.; Sreenivasulu, H. Effects of Excessive Screen Time on Child Development: An Updated Review and Strategies for Management. *Cureus*. 2023, 15(6), e40608.
8. Stefanut, M.N.; Dobrescu, M.; Cata, A.; Fitigau, F.I.; Osser, G.; Lile, I.E.; Bondar, L.I.; Ienascu, I.M.C. HPLC-DAD method for detection of some pesticide residues in soil and crops cultivated in Banat County. *J Sci Arts* 2021, 1, 307–314.
9. Zain, Z.M.; Jasmani, F.N.N.; Haris, N.H.; Nurudin, S.M. Gadgets and Their Impact on Child Development. *Proceedings* 2022, 82, 6.
10. Montag, C.; Yang, H.; Elhai, J.D. On the Psychology of TikTok Use: A First Glimpse From Empirical Findings. *Front Public Health* 2021, 9, 641673.
11. Margraf, J.; Brailovskaia, J. Relationship Between Depression Symptoms, Physical Activity, and Addictive Social Media Use. *Cyberpsychol Behav Soc Netw* 2020, 23(12), 818–822.
12. Çimke, S.; Gürkan, D.Y.; Sirgancı, G. Determination of the psychometric properties of the digital addiction scale for children. *J Pediatr Nurs.* 2023, 71, 1–5.

13. Sahu, M.; Gandhi, S.; Sharma, M.K. Mobile Phone Addiction Among Children and Adolescents: A Systematic Review. *J Addict Nurs.* 2019, 30(4), 261-268.
14. Kesici, A.; Fidan Tunç, N. Development of the Digital Dependency Scale for Students: Reliability and Validity Study. *Univers. J. Educ. Res.* 2018, 6 (1), 91–98.
15. Adamczewska-Chmiel, K.; Dudzic, K.; Chmiela, T.; Gorzkowska, A. Smartphones, the Epidemic of the 21st Century: A Possible Source of Addictions and Neuropsychiatric Consequences. *Int J Environ Res Public Health.* 2022, 19(9), 5152.
16. Dong, H.; Yang, F.; Lu, X.; Hao, W. Internet addiction and associated psychological factors among children and adolescents in China during the coronavirus disease 2019 (COVID-19) epidemic. *Front. psychiatry* 2020, 11 (00751), 00751.
17. Menéndez-García, A.; Jiménez-Arroyo, A.; Rodrigo-Yanguas, M.; Marin-Vila, M.; Sánchez-Sánchez, F.; Roman-Riechmann, E.; Blasco-Fontecilla, H. Internet, video game and mobile phone addiction in children and adolescents diagnosed with ADHD: A case-control study. *Adicciones.* 2022, 34(3), 208-217.
18. Bondar, L.I.; Osseer, B.; Miuța, C.C.; Petran, D.; Baltean, A.I.; Butari, D.B.; Mariș, M.A.; Piroș, L.E.; Almășan, R.; Gavrilă-Ardelean, M.; et al. Gender-specific insights into depression in patients with ischemic heart disease: findings from a pilot study using a self-developed questionnaire. *Diseases* 2024, 12, 320.
19. Domoff, S. E.; Harrison, K.; Gearhardt, A. N.; Gentile, D. A.; Lumeng, J. C.; Miller, A. L. Development and validation of problematic measure of media use: A measure of parental reporting of screen media "addiction" in children. *Psychol. Pop. Media Cult.* 2019, 8(1), 2-11.
20. Elhai, J. D.; Yang, H.; Dempsey, A. E.; Montag, C. Ruminations and negative expectations of smartphone use are associated with higher levels of problematic smartphone use: A latent class analysis. *Psychiatr. Res.* 2020, 285, 112845.
21. Ong, R.H.S.; Sim, H.S.; Bergman, M.M.; How, C.H.; Png, C.A.L.; Lim, C.S.; Peh, L.H.; Oh, H.C. Prevalence and associations of problematic smartphone use with smartphone activities, psychological well-being, and sleep quality in a household survey of Singapore adults. *PLoS One.* 2024, 19(12), e0315364.
22. Nakshine, V.S.; Thute, P.; Khatib, M.N.; Sarkar, B. Increased Screen Time as a Cause of Declining Physical, Psychological Health, and Sleep Patterns: A Literary Review. *Cureus.* 2022, 14(10), e30051.
23. Theopilus, Y.; Al Mahmud, A.; Davis, H.; Octavia, J.R. Preventive Interventions for Internet Addiction in Young Children: Systematic Review. *JMIR Ment Health.* 2024, 11, e56896.
24. Azadvari, M.; Sarzaeim, M.; Rajabi, S.; Yahyae, A.; Razavi, S.Z.E.; Haghparsat, A.; Biderafsh, A.; Nakhostin-Ansari, A.; Hosseini, M.; Ghahvechi, M. Associations between exposure to common technology devices and reported neck pain among Iranian school-age adolescents: a cross sectional study. *BMC Musculoskelet Disord.* 2023, 24(1), 883.
25. Straker, L.M.; Coleman, J.; Skoss, R.; Maslen, B.A.; Burgess-Limerick, R.; Pollock, C.M. A comparison of posture and muscle activity during tablet computer, desktop computer and paper use by young children. *Ergonomics* 2008, 51(4), 540-55.
26. Colder Carras, M.; Aljuboori, D.; Shi, J.; Date, M.; Karkoub, F.; García Ortiz, K.; Abreha, F.M.; Thrul, J. Prevention and Health Promotion Interventions for Young People in the Context of Digital Well-Being: Rapid Systematic Review. *J Med Internet Res.* 2024, 26, e59968.
27. Ratan, Z.A.; Parrish, A.M.; Zaman, S.B.; Alotaibi, M.S.; Hosseinzadeh H. Smartphone Addiction and Associated Health Outcomes in Adult Populations: A Systematic Review. *Int J Environ Res Public Health* 2021, 18(22), 12257.
28. Bahreini, M.; Safaie, A.; Mirfazaelian, H.; Jalili, M. How much change in pain score does really matter to patients? *Am J Emerg Med.* 2020, 38(8), 1641-1646.
29. Clemente-Suárez, V. J.; Beltrán-Velasco, A.I.; Herrero-Roldán, S.; Rodríguez-Besteiro, S.; Martínez-Guardado, I.; Martín-Rodríguez, A.; Tornero-Aguilera, J. F. Digital Device Usage and Childhood Cognitive Development: Exploring Effects on Cognitive Abilities. *Children* 2024, 11(11), 1299.
30. Salam, M.A.; Al-Amin, M.Y.; Salam, M.T.; Pawar, J.S.; Akhter, N.; Rabaan, A.A.; Alqumber, M.A.A. Antimicrobial Resistance: A Growing Serious Threat for Global Public Health. *Healthcare (Basel).* 2023, 11(13), 1946.
31. Grzych, G.; Schraen-Maschke, S. Interactive pedagogical tools could be helpful for medical education continuity during COVID-19 outbreak. *Ann Biol Clin (Paris)* 2020, 78(4), 446-448.