

Original Research / Orijinal Araştırma

The Effect of the Internet on Adolescents: A Mixed- Method Study

İnternetin Ergenler Üzerindeki Etkisi: Bir Karma Yöntem Çalışması

Nurcan Akgül Gündoğdu¹, Alime Selçuk Tosun², İlknur Yıldız³, Zeynep Temel Mert⁴

Abstract

Introduction: Internet addiction has developed into a major public health issue as a result of technological improvements. The aim of this study is to determine their views on the effects of the internet on adolescents with problematic internet use and to examine the level of internet addiction of adolescents. **Methods:** This is a mixed-method- study. The total sample size was 349 secondary school students. The study interview group consisted of 60 students. Data were collected through the focus group method. Descriptive statistics and chi-square analysis were used in the quantitative data analysis while thematic analysis was used in the qualitative data analysis. **Results:** The mean total score of internet addiction for all students was 35.63 (4.44). The students with a mean internet score of <30 had a mean score of 19.03 (5.66), and the students with a mean internet score of ≥30 had a mean score of 22.17 (8.49). Three main themes were identified, which were 'path to problematic internet use', 'impacts of internet', and 'safe internet'. **Conclusions:** From the perspective of the children regarding the three themes in this study, the internet was found to be beneficial for accessing information. However, the results also showed that children were exposed to risks on the internet. Within the context of the study results, nurses can determine the factors causing uncontrolled access to the internet among children. Moreover, interventions can be planned in accordance with the needs.

Key words: Adolescent, internet, focus group, nursing

Özet

Giriş: İnternet bağımlılığı, teknolojik gelişmelerin bir sonucu olarak önemli bir halk sağlığı sorunudur. Bu çalışmanın amacı, problemli internet kullanımı olan ergenlerde internetin etkilerini belirlemektir. **Yöntem:** Bu çalışmada karma yöntem kullanılmıştır. Toplam örneklem büyüklüğü 349 ortaokul öğrencisidir. Araştırma görüşme grubu 60 öğrenciden oluşmaktadır. Veriler odak grup yöntemiyle toplanmıştır. Nicel verilerin analizinde tanımlayıcı istatistikler ve ki-kare analizi, nitel verilerin analizinde tematik analiz kullanılmıştır. **Bulgular:** Tüm öğrencilerin toplam internet bağımlılığı skor ortalaması 35,63(4,44)'tür. İnternet skor ortalaması <30 olan öğrencilerin puan ortalaması 19.03(5.66), internet skor ortalaması ≥30 olan öğrenciler için puan ortalaması 22.17(8.49) 'dir. Üç ana tema belirlenmiştir. Bunlar 'sorunlu internet kullanımına giden yol', 'internetin etkileri' ve 'güvenli internet'tir. **Sonuç:** Bu çalışmada üç temaya ilişkin olarak çocukların bakış açısından internetin bilgiye erişim açısından faydalı olduğu görülmüştür. Ancak sonuçlar, çocukların internette risklere maruz kaldığını da göstermiştir. Araştırma sonuçları kapsamında hemşireler çocukların internete kontrolsüz erişimlerine neden olan faktörleri belirleyebilir. Ayrıca gereksinimler doğrultusunda müdahaleler planlanabilir.

Anahtar kelimeler: Ergen, internet, odak grup, hemşirelik

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¹Bandırma Onyediy Eylül Üniversitesi / Türkiye

²Selçuk Üniversitesi / Türkiye

³Sivas Cumhuriyet Üniversitesi / Türkiye

⁴Sivas Cumhuriyet Üniversitesi / Türkiye

Address for Correspondence / Yazışma Adresi: Alime Selçuk Tosun, Selçuk Üniversitesi, Türkiye
alimeselcuk_32@hotmail.com

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Introduction

With the advancements in technology, the internet has become a significant source of learning commonly utilized in schools. Therefore, the use and popularity of the internet have gained significant momentum among children and adolescents.¹ However, this usage may be both beneficial and harmful.² Smartphones, with their ease of access to the internet, facilitate the use of the internet regardless of time and physical location.³ These factors that facilitate accessing the internet may cause children and adolescents to spend most of their time inefficiently.² Accordingly, internet addiction is 'the distortion in people's lives, impulses and attitudes owing to excessive use or misuse of internet'.⁴

According to the We Are Social⁵ report, 66.6% of the global population uses the internet for approximately seven hours a day. In Türkiye, it is stated that 80.5% of all individuals in the 16-74 age group use the internet regularly (almost every day or at least once a week) during the first three months of 2021.⁶ Accordingly, as the use of the internet (the duration of time spent on the internet) increases, the risk of internet addiction increases at the same rate.⁷ Studies on internet addiction indicate that 7.02%⁸ and 15.3%¹ of children and adolescents are under the risk of internet addiction. The factors causing this rate among children and adolescents include the education of parents, inconsistent attitudes of parents⁷, or the presence of the internet, computer, or tablet at home.⁹ This unhealthy virtual network paves the way for the unhealthy use of the internet among children and adolescents and constitutes a great risk for internet addiction. However, a longitudinal study in the literature indicated that consistent, suitable parental attitudes and positive child-parent relationships that reduce uncontrolled internet usage may facilitate the management of internet addiction.¹⁰ Internet addiction appears with symptoms such as the inability to limit the use of the internet, the continuation of use despite its social or academic damages⁷, feelings of anxiety when access to the internet is limited¹¹, lower academic success, malnutrition, and insomnia.¹² In a study, adolescents indicated that they felt better while interacting with their friends face-to-face. On the other hand, the same adolescents indicated that they were more alone since their social interactions in online interaction in internet environment were more limited.¹³ In another study, it was reported that there is a significant relationship between internet addiction of adolescents, insomnia and violence tendency.¹⁴ Therefore, it is important to take appropriate measures to ensure the safety of the internet, especially when considering internet addicted children and adolescents.¹⁵ Accordingly, training specific to age groups are provided within the 'Turkish Program of Fighting Against Addiction' in Türkiye conducted by the cooperation of the Green Crescent and the Ministry of National Education.¹⁶ The intervention-based studies on internet addiction indicate that interviews that are conducted with children based on cognitive-behavioral¹⁷ and focus-based approaches¹⁸ are effective and that children's academic success as well as their relationships with their families and friends improve following the aforementioned interviews. It is important to determine the factors that lead people to addiction and cause them to repetitively display addiction-based attitudes. According to the qualitative study results regarding internet addiction (focus group) in both Turkish¹⁷ and external literature²⁰⁻²², internet addiction adversely affects the daily lives of children and adolescents. Addiction-related risky behaviors should be determined and prevented through appropriate attitudes in the early phases of addiction so that school-age children in late childhood and adolescence periods can become healthy adults in the future. Accordingly, nurses should plan nursing interventions in cooperation with the parent-teacher association and medical staff.²³ Accordingly, the aim of this study is to qualitatively determine the effects of the internet on adolescents with problematic internet use and to examine the level of internet addiction of adolescents.

Method

Study Type

This is a mixed- method study. In this study, quantitative and qualitative data were obtained independently of each other. These data were used in a way to reinforce each other.²⁵

Setting and Participants

This study was conducted at a secondary school within a province in the XXX Region of XXX selected using convenience sampling. There are 349 students in the fifth, sixth, and seventh grades in the selected secondary school. Young's Internet Addiction Scale was applied to all students prior to interviews. A total of 92 students were found to have problematic internet use. 60 students who volunteered and received permission from their families were included (Fig. 1). A purposive sampling method was used to select the students. The interview inclusion criteria were studying in the fifth, sixth or seventh grade (Young's Internet Addiction Scale score 30

points and above), ability to speak Turkish, and volunteering to participate. Since 9-13 age group was taken as the study group in the original scale, this age group was included in the sample in this study. The eighth grade students were not included in the study as they were preparing for the transition test from primary to secondary education (TEOG) conducted in Turkey.

Fig 1. Sample of the Study

N=349 students	
n=257 (internet score <30)	n=92 (internet score ≥30)
n=257 (internet score <30)	n=32 (internet score ≥30) Number of students who did not want to participate in focus group discussions.
N= 317	
n=257 (internet score <30)	n=60 (internet score ≥30) The number of students who wanted to participate in focus group discussions.

Data Collection

'The Personal Information Form' with students' descriptive characteristics and 'Young's Internet Addiction Scale' were used as data collection tools. The semi-structured interview form with open-ended questions was used to determine the opinions of children with internet addiction.

Data Collection Tools

Personal Information Form: The form had seven items questioning students' age, grade, perception of academic success, perception of economic status, and presence of chronic disease. **Young's Internet Addiction Scale:** This scale was used to determine the students who constituted the focus group interviews. Developed by Young and transformed into a short form by Pawlikowski et al.²⁶, the scale was adapted to Turkish by Kutlu et al.²⁷ Cronbach's alpha coefficient was 0.86 among adolescents and 0.91 among university students. The scale had 12 items and a five-point Likert type form (1=Never, 5=Often). Accordingly, the lowest score obtained from the scale was 12, while the highest was 60. Reverse scoring was not performed for any items. Higher scores indicated higher internet addiction levels.²⁶ The cut-off point was set at 30 in the original scale.²⁶

Semi-structured Interview Form: This form that was developed by the authors in line with the relevant literature^{20,22} has five open-ended items questioning the problems and coping skills of the children with problematic internet use. The interview questions were as follows: Could you explain how you spend your daily life? What is the average time you spend on the Internet? What are the activities (games, social media....) that you spend most of your time on the internet? What is the most important reason that triggers your internet use? What are your typical symptoms/characteristics of using the internet frequently? Can you explain the most characteristic features of the world outside the internet and the most characteristic features of the internet world? What are the negative consequences (physical, mental, and social) that you experience as a result of the desire to use the internet frequently?

Data Collection Methods

The quantitative data were collected in the classroom setting between September 15 and October 15, 2019. The focus group interviews were conducted by two authors in a suitable classroom (in terms of noise level, temperature, lighting, and privacy) and at an appropriate time with the students who agreed to participate between November 02 and January 04, 2019. The focus group interview method was selected as the interaction between the students in the study group might cause diversification of answers and emergence of new ideas. The focus group interview is a structured, specific group interview method used to determine the detailed knowledge and opinions of a group selected within a specific scope. Questioning and summarization methods are used to receive people's opinions, and thematic analysis is performed through the data obtained.

With these interviews, it becomes possible to gain information about the deliberate or unconscious practices of people in a group through their psychological and socio-cultural characteristics and to learn the reasons behind their attitudes.²⁸ The focus group interview is a method used within groups of 4-10 students where semi-structured items are directed to people in the scope of the discussion topic, helping learn the opinions of group members in regard to that topic.²⁹ The students were equally divided into six groups. The interviews were performed in two sessions that lasted 35-45 minutes.

Focus Group Process

A printed copy of the informative document was delivered to the participants in the first session, giving them the opportunity to ask more questions. All questions were directed to each student within the sessions. At the end of the session, the group briefly provided the answers to the questions. Then, the students were permitted to revise their answers if they needed and the sessions were completed. Each focus group interview was conducted with notes and voice recordings with semi-structured items until the data collection phase reached a stage of obtaining extra data, which ensured confirming data saturation.²⁸⁻³⁰

Validity, Reliability/Rigor

It is emphasized that the principles of validity and reliability are important in collecting data in qualitative studies.²⁴ In this study, the consolidated criteria for reporting qualitative research (COREQ) guidelines were followed.³⁰ The reliability of the data was ensured.²⁵ The interviews were analyzed by two researchers. The themes created were reviewed by an independent researcher. During the data collection process, focus group meetings were held and while one author was interviewing, the other author recorded the interviews. Evaluations regarding the research protocol, research design and application methods were made by an independent researcher who is an expert in the field.

Data Analysis Methods

Thematic analysis and NVIVO package software (version 11) by QSR International were used to analyze the data. Moreover, the six-step guide suggested by Braun & Clarke³⁰ was also used. The six steps are: 1) familiarization with the data, 2) generate initial codes, 3) search for themes, 4) review themes, 5) define and name the themes, and lastly 6) produce the report. The records and notes were consistently and independently assessed by AST and NAG at the end of the meetings in the first session. Then, the temporary themes were formed. The initial codes were repeated by the students in the second session. The second meeting lasted approximately for 30 minutes. In the second session, temporary themes were explained to the focus group and the themes were verified.

Ethical Approval

Ethics committee approval was received for this study from Non-interventional Clinical Research Ethics Committee (Ethic Decision No: 2019-05/28). Written consent form was obtained from the children and parents in line with the Declaration of Helsinki principles.

Results

Sociodemographic characteristics

47.3% of the total sample of students, 50.2% of those with an internet score less than 30 (internet score<30), 35.0% of those with an internet score greater than and equal to 30 (internet score≥30) were female. The mean total score of internet addiction for all students was 35.63 (4.44). The students with a mean internet score of <30 had a mean score of 19.03 (5.66), and the students with a mean internet score of ≥30 had a mean score of 22.17 (8.49) ($p<0.05$) (Table 1).

Table 1. Students' Characteristics

Characteristics		Total(N=317) n(%)	<30*(n=257) n(%)	≥30(n=60) n(%)	p*
Age	10-11 years old	155 (49.4)	137(53.3)	18(30.0)	0.000
	12-15 years old	162 (50.6)	120(46.7)	42(70.0)	
Gender	Female	150 (47.3)	129(50.2)	21(35.0)	0.034
	Male	167 (52.7)	128(49.8)	39(65.0)	
Grade	Fifth grade	101(31.8)	83(32.2)	18(30.0)	0.001
	Sixth grade	107(33.5)	86(33.4)	21(35.0)	
	Seventh grade	109(34.7)	88(34.4)	21(35.0)	
Perception of academic success	Good	193 (60.9)	161(62.6)	32(53.3)	0.067
	Moderate	104 (32.8)	81(31.5)	23(38.3)	
	Low	20 (6.3)	15 (5.8)	5(8.4)	
Maternal educational status	Primary School	151 (47.9)	123(48.9)	28(46.7)	0.013
	Secondary School	82 (25.6)	65(25.3)	17(28.4)	
	High School	63 (19.9)	50(19.5)	13(21.7)	
	University	21 (6.6)	19 (6.3)	2 (3.2)	
Paternal educational status	Primary School	97 (30.9)	79(30.7)	18(30.0)	0.685
	Secondary School	90 (28.4)	74 (28.8)	16(26.7)	
	High School	80 (25.2)	62 (24.1)	18(30.0)	
	University	50 (15.5)	42 (14.4)	8 (13.3)	
Young's Internet Addiction Scale Mean Score		22.17 (8.49) [‡]	19.03(5.66) [‡]	35.63(4.44) [‡]	
Min-Max**		(12-55)	(12-29)	(30-55)	

[‡]Standard deviation, *Chi-square (χ^2), comparisons were made between those with internet score <30 and internet score ≥30.

**internet score min-max,

Themes

In Table 2, three main themes and nine sub-themes were formed through the focus group interviews and provided quotations at the same time.

Theme 1: The Path to Problematic Internet Use

The focus group interviews performed with the children resulted in the theme 'the path to problematic internet use' with sub-themes of 'impairment of social interaction', 'amusement/gaming', and 'making friends'.

Table 2. Internet-related perceptions of adolescents with internet addiction and meaning of internet for adolescents

Main Theme	Sub-theme	Quotations
The Path to Problematic Internet Use	Impairment in Social Interaction	<p>...I keep a diary on the computer; that is why it is irreplaceable for me. It is like a buddy to me. I check the internet occasionally and I often stay in front of the computer for a long period of time. Everything becomes ordinary when I stop using the computer. (Participant 6, female, 1st focus group).</p> <p>I do not have many friends. When I am bored or all colors become gray, the internet makes me feel good. I lose track of time. It feels good. I find peace... (Participant 27, female, 3rd focus group).</p> <p>...After coming home from school, I use the internet for longer than seven hours a day. My computer is like a second brain to me. It makes me update myself. I spend my time free from all pressures, lessons, and rules... (Participant 1, male, 1st focus group).</p>
	Amusement / Gaming	<p>...I watch amusing videos thanks to the internet. I laugh and enjoy like I have never done before. I can also listen to music for free. What else to say... (Participant 18, male, 2nd focus group).</p> <p>I watch YouTube videos. I play games. I can spend my free time enjoying the internet. My family thinks that I get negatively affected by these videos. But I do not. Believe me, I enjoy it very much. I can immediately find any videos that I want. My biggest dream is to be a YouTuber. But, a lot of money is needed for that as I am told... (Participant 2, male, 1st focus group).</p> <p>I challenge others when I play games on the internet; I make extensive efforts to defeat my rivals. The games I play give me pleasure (Participant 51, female, 6th focus group).</p>
	Making Friends	<p>...New games are launched every day. I learn new games that I do not know. As I learn new games, I get more topics to talk about with my friends. I feel better among them (Participant 12, male, 2nd focus group).</p> <p>I may come across people that I do not know. This is exciting for me! I make friends' (Participant 14, female, 2nd focus group).</p> <p>...It is extremely exciting. I can visit the sites that I do not know on the internet. I actually do not use the computer just for visiting those web sites. But I see ads and news when I visit a site. Then, I become curious. I say to myself that I can take a look and then exit the site. I may click on many pages that I do not know. Like getting lost in the streets (Participant 24, female, 3rd focus group).</p> <p>I can use the internet to celebrate my friends' birthdays. It feels cooler. You can send smiling or heart emoji; it is amusing... (Participant 32, male, 4th focus group).</p> <p>The internet makes me feel good. The number of my friends increases. I become happy as more people like my pictures or videos. My followers increase day by day. This is so important for me....(Participant 45, male, 5th focus group).</p>

Subtheme 1.1. Impairment of Social Interaction

This sub-theme included concepts such as spending time with friends, and getting away from the environment. Some of the students stated that the internet made them feel good, that it was a way to get away from the pressure placed on them by the external environment, and that the internet/computer was an essential aspect of their lives.

Subtheme 1.2. Amusement-Gaming

This theme included concepts such as freedom, relaxation, fun, having a good time, and playing games. Some students stated that the internet allowed them to access enjoyable video content, that they viewed it as a leisure activity, that the internet was essential even when they were at odds with their family, and that playing games was a means to challenge or prove themselves to others.

Subtheme 1.3. Making Friends

This theme included concepts such as making friends, meeting new friends, communication, and followers. Some of the students reported that discovering new games on the internet was a way of expressing themselves among friends, and that meeting people on the internet was exciting and made them feel good.

Theme 2: Impacts of Internet

The focus group interviews conducted with the children resulted in the theme 'impacts of the internet' and subthemes of 'physical impacts', 'social impacts' and 'psychological impacts'.

Table 2. (Continue)

Main Theme	Sub-theme	Quotations
	Physical Impacts	<p>... I eat too much junk food in front of my computer. I check my plate and realize that I ate everything. I eat in an uncontrolled way. The result does not change even if I eat a meal earlier. Chips or nuts, all go well in front of my computer... (Participant 13, male, 2nd focus group).</p> <p>...I lose the track of time on the internet. Sometimes my eyes ache; I think I look at the screen for too long in the dark as I hide from my family and use the computer. I therefore cannot turn the lights on. I also believe I look at the screen excessively close. My eyes get watery...(Participant 46, male, 5th focus group).</p> <p>I become sleepless when I spend time on the internet. I sit before the computer almost until the morning. I go to bed when the sun rises. Then, I have difficulty waking up in the morning (Participant 57, female, 6th focus group).</p> <p>I cannot wake up in the morning as I usually don't go to sleep until the early morning. I also cannot have breakfast. Under these conditions, going to school becomes difficult for me.... (Participant 35, female, 4th focus group).</p> <p>My neck and back hurt as I stand before my computer for hours. Then, I wake up tired the following day. My pain continues after I wake up. But, I still use the internet. I cannot stop doing that... (Participant 23, male, 3rd focus group).</p>
Impacts of Internet	Social Impacts	<p>...I cannot complete my homework on time. I sometimes have problems in my lessons. My grades are not high either. But, I have many friends other than my classmates. This is superb... (Participant 10, female, 1st focus group).</p> <p>Some of my friends may swear at one another when we spend time on the internet or play games. This feels cool though. Like the heroes in games and videos... (Participant 31, male, 4th focus group).</p> <p>...Then often make me angry. Such times come while playing games that I sometimes fight with one of my best friends on the internet. I mean discussions and conflicts happen more often on the internet owing to games. (Participant 19, male, 2nd focus group).</p> <p>The computer and the internet take most of my time. I do not spend much time with my family. I cannot talk to them. I sometimes miss talking to them. But, messages keep coming on my computer. I cannot stop myself... (Participant 21, male, 3rd focus group).</p>
	Psychological Impacts	<p>...I realize my addiction when the internet is mentioned. I cannot stop using it. I am addicted, too. This is my style. I actually do not want to stop. I want to check more stuff and play more games. Five more minutes, I say... (Participant 3, male, 1st focus group).</p> <p>I have difficulty understanding the lessons and I cannot concentrate. My mind is often busy with different stuff. I mean, I often think about the games I play or videos I watch. I plan pranking my friends. I amuse myself... (Participant 23, male, 3rd focus group).</p> <p>My mom says I become angrier or short-tempered after I watch videos on the internet. She says it also happens after I play games. But I do not realize this. Nevertheless, I really get mad when my game gets interrupted. I cannot tolerate this... (Participant 19, male, 2nd focus group).</p>

Sub-theme 2.1. Physical Impacts

This theme included concepts such as insomnia, neck and back pain, eye burning, and binge eating in front of a screen (eating junk food). Some students reported that their internet use had an impact on their eating habits, that they had difficulty waking up in the morning, that they had to look at the computer screen in an unsuitable light (dark) environment to avoid conflict with their family, and that they suffered from back and neck pain.

Subtheme 2.2. Social Impacts

This theme included ideas like spending time with friends, missing family, and being unable to control oneself. Some students stated that their school achievements were impacted, but being on the internet made them feel good; they were pleased with the conflicts they encountered while playing games on the internet; they could not spare time for their families because they were on the internet; and they could not stop themselves from being on the internet.

Subtheme 2.3. Psychological Impacts

This theme included concepts such as inability to control oneself, distraction, inability to understand lessons, anger, and irritability. Some of the children admitted that they were aware that they were addicted to playing online games, but they could not stop themselves; their minds were largely occupied with the games they were playing, and their anger increased after spending time on the Internet, as their parents had told them.

Theme 3: Safe Internet

The focus group interviews conducted with the children resulted in the theme 'safe internet' and subthemes of 'observant use', 'exposure to risks' and 'learning / getting information'.

Table 2. (Continue)

Main Theme	Sub-theme	Quotations
	Observant Use	<p>...It is important not to use the sites with viruses. But I cannot understand whether there is a virus beforehand! I may try to open stuff on the internet if I am curious, I cannot lie... (Participant 54, male, 6th focus group).</p> <p>...In fact, one should not visit the malevolent sites and watch harmful videos. I do not install the programs and games that I do not know as they may have viruses. (Participant 19, male, 2nd focus group).</p> <p>...The internet... a password should be required for browsing the internet. In fact, the internet is quite beneficial if we observe the rules. For instance, I do not turn my camera on without asking my mother and father. (Participant 15, female, 2nd focus group).</p> <p>We should keep our private details confidential and should not share our phone numbers with anybody. We should also not open the e-mails from the senders that we do not know... (Participant 40, female, 5th focus group).</p>
Safe Internet	Exposure to Risks	<p>...I may come across people that I do not know. Sometimes I chat with people, and I play games. When I dive deep into a game, it does not differ with whom I am playing with. I just get drawn to the game!... (Participant 32, male, 4th focus group).</p> <p>...Some people on social media sites ask where I live. This may not be that dangerous because I also ask the same question from time to time... (Participant 8, female, 1st focus group).</p> <p>...Once, some of the people that I did not know wanted to learn my personal details. I became worried and was afraid. I gave no information to them. I did not even tell this to my mother. She might have banned me from using the internet... (Participant 27, female, 3rd focus group).</p> <p>Downloading free games may damage the computer. They may contain viruses. My computer shut off once due to this. But I still want to play them as they are free. Sometimes weird pages may pop up and I cannot open what I want to see... (Participant 43, male, 5th focus group).</p> <p>I sometimes want to visit the forbidden websites. I become curious. I managed to do so once. But, meanwhile, my mom came in to my room. When I went to school, my mom checked the sites I visited. She locked many pages with a password, which was bad for me (Participant 19, male, 2nd focus group).</p>
	Learning / Getting Information	<p>I scan the internet. My teacher assigns homework, telling us to read and research... (Participant 54, 6th focus group).</p> <p>I check the website of the school. I read the school newspaper. There are brilliant jokes and amusing questions... (Participant 37, female, 4th focus group).</p> <p>...I research the things that I do not know on the internet, so it is necessary. My father bought the computer so that I could do my homework. (Participant 17, 2nd focus group).</p>

Sub-theme 3.1. Observant Use

This theme contained concepts such as virus, passwords, private information, harmful videos, and parental approval. Some of the students stated that they were aware of the need to not visit infected websites, not enter harmful websites, and keep personal information private and not share it.

Sub-theme 3.2. Exposure to risks

Strangers, chat, personal information, virus, curiosity, password, and inappropriate websites are all concepts included in this theme. Some students reported that while immersed in the game on the internet, they were unaware of whom they were playing with, that people they did not know wanted to access their personal information, that infected websites damaged their computer, and that they visited inappropriate websites out of curiosity.

Subtheme 3.3. Learning / Getting Information

School, homework, information, and research are all included in this theme. Some students mentioned that they used the internet to check the school website, complete research homework, and look up knowing that they were unfamiliar with.

Discussion

In this study, the level of internet addiction of adolescents and the views of adolescents with problematic internet use on the effects of the internet were examined in detail. In this study, it was found that adolescents had a moderate mean score of the Young's Internet Addiction Test. The data obtained from this research were collected under three main themes: 'path to problematic internet use', 'impacts of internet', and 'safe internet'. The discussion addressed three main themes and nine sub-themes created in line with this study.

Theme 1: The Path to Problematic Internet Use

There are a number of factors that lead to problematic internet use. One of them is online games that hide behind the innocence of the word 'game' and are played on the internet. One study found that internet gaming disorder can result from a person's characteristics, mood, decision-making, family history, and social incompetence.²⁹ The literature showed that the risk factors for internet addiction included being male, low academic achievement, lack of social support and communication skills, and a father's level of education.³² These factors cause children to spend more time on the internet thus increasing the risk of addiction. A qualitative study found that children who were severely addicted to gaming displayed problematic behaviors including communication and behavioral problems in the school setting and preferred staying at home and playing video games rather than participating in school events.³³ The present study found that the fun/game sub-theme of the path to addiction main theme was similar to children's statements about games having an important meaning in their world and their consideration of the internet as a source of fun in their spare time. This shows that children can involuntarily be exposed to harmful effects of the internet environment.

A cross-sectional study found that male adolescents who were asocial and played video games were more likely to have social anxiety compared to female adolescents who played video games. The same study, on the other hand, found that female adolescents who played video games were more likely to feel less lonely but had lower self-esteem.³⁴ These results are similar to the results of the present study, in which children stated that they spent a lot of time on their computers and surfing the internet, thus making the internet an indispensable part of their lives. These statements emphasize the loneliness sub-theme. At this point, the feeling of loneliness can set children on different paths. These paths can leave children vulnerable to risks that may cause addictive behaviors. Children stated on the social networking sub-theme that they used social networking sites due to feelings of being accepted, being well-liked, proving themselves, etc. These virtual platforms direct users to communicate with strangers on the internet with whom they do not communicate in their daily lives. These platforms allow them to create delusive user profiles in a delusive interaction zone.³⁵ A qualitative study regarding the adolescents' processes of social media use found that the symbiotic relationship with peers, peer comparison and ego validation, and functionality were the facilitation of communication function themes which can explain the social networking sub-theme in the present study.²²

Theme 2: Impacts of the Internet

Excessive use of social networking sites can have negative effects such as a negative mood, loss of concentration, and spending less time with friends and family. A qualitative study found that excessive use of the internet can often result in sleep deprivation, academic failure, lack of exercise, not participating in face-to-face social activities, negatively affective states, and decreased concentration levels.²¹ Another study found that internet addiction had a strong impact on mental health (stress, depression, and anxiety).³⁶ One study on the physical effects of internet addiction found that internet addiction was related to poor eating habits, sleep problems, and symptoms of fatigue.³⁷ These results are similar to the physical effects, social effects, and

psychological effects sub-themes of the effects of the internet's main theme in the present study. The negative effects of internet addiction can also negatively affect children's development in preparing for life and on public health.

Theme 3: Safe Internet

The adverse impacts of the internet can be prevented through the safe use of the internet. However, the data of the present study indicated that some children used the internet for appropriate purposes while some were under the risk of exposure to the harmful effects of the internet. The children who participated in the focus group interviews stated they were aware that they should not share their personal information on the internet and that they used the internet to study and collect information. They also mentioned that they got into certain situations where they had to talk with strangers after curiously visiting inappropriate websites, that they had been extensively afraid, and that they even had difficulties sleeping in the following days. A relevant study indicated that internet addiction had a direct impact on cyberbullying.³⁸ Another study in this field reported that the risk of internet addiction increased during weekends as online internet use on mobile phones as well as visits to internet cafés, use of chat pages, and participation in cyberbullying increased. The same study also found that the daily duration of internet usage on mobile phones was related to internet addiction and cyberbullying.³⁹ The current study showed that the daily duration of internet use was approximately four hours during weekdays and seven hours during the weekend, which may increase children's risk of exposure to cyberbullying. In another qualitative study, children mentioned that they found the internet unsafe in terms of the accuracy and limits of the information they accessed²⁰, which resembles the sub-theme 'exposure to risks' in the current study. These results increase the importance of using the internet safely.

Limitations

Sampling is one of the limitation of the study. This study's data can only provide an idea about the study group and thus cannot be generalized to other places or people. Furthermore, just one of the researchers conducted the face-to-face interviews, which could have resulted in an unexpected social bias. It is suggested that other studies include more aspects of adolescent family and school life.

Conclusion

This study revealed in detail adolescents' views on the effects of the internet on adolescents with problematic internet use. Adolescents indicated the factors causing problematic internet use as the impairment of social interaction, internet gaming, amusement, and making friends on the internet. Accordingly, they stated that the internet was getting rid of the pressure of the external environment was a way to prove themselves and that meeting people on the internet was exciting. On the other hand, some students mentioned the physical effects of the internet, such as insomnia, neck pain, eye burning, and binge eating, and social effects such as spending time with friends on the internet, inability to spare time for their families, and failure to stop themselves from being on the internet. Furthermore, some students mentioned psychological effects such as inability to control oneself, distraction, inability to understand lessons, anger, and irritability. While some students were exposed to risks such as inappropriate websites, chatting with strangers, and viruses, some students indicated that they used the internet for homework and research purposes. In this regard, what can be done in terms of screening and early intervention before addiction develops should be considered. The data obtained from this study will be useful for intervention- based studies to be conducted for this group.

References

1. Chi X, Hong X, Chen X. Profiles and sociodemographic correlates of Internet addiction in early adolescents in southern China. *Addict Behav.* 2020;106:106385. doi:10.1016/j.addbeh.2020.106385
2. McDool E, Powell P, Roberts J, Taylor K. The internet and children's psychological wellbeing. *J Health Econ.* 2020;69:102274. doi:10.1016/j.jhealeco.2019.102274
3. Kuss DJ, Griffiths MD, Karila L, Billieux J. Internet addiction: a systematic review of epidemiological research for the last decade. *Curr Pharm Des.* 2014;20(25):4026-4052. doi:10.2174/13816128113199990617
4. Young KS, Yue XD, Ying L. Prevalence Estimates and Etiologic Models of Internet Addiction. In: *Internet addiction: A handbook and guide to evaluation and treatment.* Ed: Young KS, Nebuco de Abreu C Hoboken, NJ: John Wiley & Sons, Inc. 2011. p.3-19.
5. Digital 2021: The Latest Insights Into The 'State Of Digital' 2021. Accessed from:

- <https://wearesocial.com/uk/blog/2021/01/digital-2021-the-latest-insights-into-the-state-of-digital/> Accessed date: October 16, 2021.
6. Turkey Statistical Institute. Household Information Technologies (IT) Usage Survey, 2021. Accessed from: [https://data.tuik.gov.tr/Bulten/Index?p=Survey-on-Information-and-Communication-Technology-\(ICT\)-Usage-in-Households-and-by-Individuals-2021-37437](https://data.tuik.gov.tr/Bulten/Index?p=Survey-on-Information-and-Communication-Technology-(ICT)-Usage-in-Households-and-by-Individuals-2021-37437) Accessed date: October 16, 2021.
 7. Karaer Y, Akdemir D. Parenting styles, perceived social support and emotion regulation in adolescents with internet addiction. *Compr Psychiatry*. 2019;92:22-27. doi:10.1016/j.comppsy.2019.03.003
 8. Pan YC, Chiu YC, Lin YH. Systematic review and meta-analysis of epidemiology of internet addiction. *Neurosci Biobehav Rev*. 2020;118:612-622. doi:10.1016/j.neubiorev.2020.08.013
 9. Kaur N, Ahmad Y. The factor of availability facilities at home and compulsive internet use among primary school students. *Journal of Physics Conference Series*, 2020; 1529: 032075. doi:10.1088/1742-6596/1529/3/032075.
 10. Miltuze A, Sebre SB, Martinsone B. Consistent and appropriate parental restrictions mitigating against children's compulsive internet use: a one-year longitudinal study. *Tech Know Learn* 2021;26: 883-895. doi: 10.1007/s10758-020-09472-4.
 11. Spence SH, Zubrick SR, Lawrence D. A profile of social, separation and generalized anxiety disorders in an Australian nationally representative sample of children and adolescents: Prevalence, comorbidity and correlates. *Aust N Z J Psychiatry*. 2018;52(5):446-460. doi:10.1177/0004867417741981
 12. Otsuka Y, Kaneita Y, Itani O, Jike M, Osaki Y, Higuchi S, Kanda H, Kinjo A, Kuwabara Y, Yoshimoto H. Skipping breakfast, poor sleep quality, and Internet usage and their relation with unhappiness in Japanese adolescents. *PLoS One*. 2020;15(7):e0235252. doi: 10.1371/journal.pone.0235252.
 13. Achterhof, R., Kirtley, O. J., Schneider, M., Hagemann, N., Hermans, K. S., Hiekkaranta, A. P., et al. Adolescents' real-time social and affective experiences of online and face-to-face interactions. *Computers in Human Behavior*, 2022;129, 107159. doi.org/10.1016/j.chb. 2021.107159
 14. Evli, M, Şimşek N, Işıkgöz M, Öztürk Hİ. Internet addiction, insomnia, and violence tendency in adolescents. *International Journal of Social Psychiatry*. April 2022. doi:10.1177/00207640221090964.
 15. Zeichner O. The impact of safe internet intervention programs on pupils. *British Journal of Educational Technology* 2020;16(3):34-43. doi: 10.26634/jet. 16.3.16572.
 16. Dursun OB. Turkey Fighting Addiction Education Program (5th Edition), Durmus A., Durmuş H.I. (eds), Culture and Art Publishing House, İstanbul, Turkey, 2015; p. 4-6. (in Turkish).
 17. Erden S, Hatun O. The use of cognitive-behavioral therapy in coping with internet addiction: a case study. *Addicta: The Turkish Journal on Addictions*, 2015; 2(1), 53-83. doi: 10.15805/addicta.2015.2.1.015
 18. Zhang X, Shi X, Xu S, Qiu J, Turel O, He Q. The effect of solution-focused group counseling intervention on college students' internet addiction: a pilot study. *Int J Environ Res Public Health*. 2020;17(7):2519. doi:10.3390/ijerph17072519
 19. Şahin M, Sarı SV, Özer, Ö Er, SH. High school students' views about their cyber bully behaviours and self-exposition. *Süleyman Demirel University Faculty of Arts and Sciences Journal of Social Sciences*, 2010;21:257-270. (in Turkish).
 20. Hernán-García M, Botello-Díaz B, Marcos-Marcos J, Toro-Cárdenas S, Gil-García E. Understanding children: a qualitative study on health assets of the Internet in Spain. *Int J Public Health*. 2015;60(2):239-247. doi:10.1007/s00038-015-0648-0
 21. Li W, O'Brien JE, Snyder SM, Howard MO. Characteristics of internet addiction/pathological internet use in U.S. university students: a qualitative-method investigation. *PLoS One*. 2015;10(2):e0117372. Published 2015 Feb 3. doi:10.1371/journal.pone.0117372
 22. Throuvala, M.A., Griffiths, M.D., Rennoldson, M, Kuss, DJ. Motivational processes and dysfunctional mechanisms of social media use among adolescents: A qualitative focus group study. *Computers in Human Behavior*, 2019; 93: 164-175. doi: 10.1016/j.chb.2018.12.012.
 23. Peters A, El-Ghaziri M, Quinn B, Simons S, Taylor R. An exploratory study of bullying exposure among school nurses: prevalence and impact. *J Sch Nurs*. 2021;37(6):449-459. doi:10.1177/1059840519897308
 24. Creswell JW. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*, 4th ed. Sage Publication, California., 2014, p. 264-288.
 25. Creswell JW, Poth CN. *Qualitative Inquiry and Research Design: Choosing among Five Approaches*, 4th ed. SAGE, Thousand Oaks.,2018, p.253-287.
 26. Pawlikowski, M, Altstötter-Gleich C, Brand, M. Validation and psychometric properties of a short version of Young's Internet Addiction Test. *Computers in Human Behavior*, 2013; 29(3), 1212-1223. doi: 10.1016/j.chb.2012.10.014.
 27. Kutlu, M., Savcı, M., Demir, Y., Aysan, F. Turkish adaptation of Young's Internet Addiction Test-Short Form: a reliability and validity study on university students and adolescents. *Anatolian Journal of Psychiatry*, 2016; 17(1), 69-76. doi: 10.5455/apd.190501.
 28. Hennink MM, Kaiser BN, Weber MB. What influences saturation? estimating sample sizes in focus group research. *Qual Health Res*. 2019;29(10):1483-1496. doi:10.1177/1049732318821692
 29. Hancock ME, Amankwaa L, Revell MA, Mueller D. Focus group data saturation: a new approach to data analysis. *Qualitative Report*, 2016; 21 (11), 2124-2130.
 30. Braun V Clarke V. To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport, Exercise and Health*, 2019; 13 (2), 201-216. doi: 10.1080/2159676X.2019.1704846.
 31. Paulus FW, Ohmann S, von Gontard A, Popow C. Internet gaming disorder in children and adolescents: a systematic review. *Dev Med Child Neurol*. 2018;60(7):645-659. doi:10.1111/dmcn.13754

32. Kilic M, Avci D, Uzuncakmak T. Internet addiction in high school students in turkey and multivariate analyses of the underlying factors. *J Addict Nurs.* 2016;27(1):39-46. doi:10.1097/JAN.0000000000000110
33. Yilmaz E, Yel S, Griffiths MD. The impact of heavy (excessive) video gaming students on peers and teachers in the school environment: a qualitative study. *ADDICTA: The Turkish Journal on Addictions*, 2018; 5(2):147-161. doi: 10.15805/addicta.2018. 5.2.0035.
34. Colder Carras M, Van Rooij AJ, Van de Mheen D, Musci R, Xue QL, Mendelson T. Video gaming in a hyperconnected world: a cross-sectional study of heavy gaming, problematic gaming symptoms, and online socializing in adolescents. *Comput Human Behav.* 2017;68:472-479. doi:10.1016/j.chb.2016.11.060
35. Peris M, de la Barrera U, Schoeps K, Montoya-Castilla I. Psychological Risk Factors that Predict Social Networking and Internet Addiction in Adolescents. *Int J Environ Res Public Health.* 2020;17(12):4598. doi:10.3390/ijerph17124598
36. Saikia AM, Das J, Barman P, Bharali MD. Internet Addiction and its Relationships with Depression, Anxiety, and Stress in Urban Adolescents of Kamrup District, Assam. *J Family Community Med.* 2019;26(2):108-112. doi:10.4103/jfcm.JFCM_93_18
37. Bener A, Yildirim E, Torun P, Çatan F, Bolat E, Alıç S, et al. Internet addiction, fatigue, and sleep problems among adolescent students: a large-scale study. *International Journal of Mental Health and Addiction*, 2019; 17(4), 959-969. doi: 10.1007/s11469-018-9937-1.
38. Arpacı I, Abdeljawad T, Baloğlu M, Kesici Ş, Mahariq I. Mediating effect of internet addiction on the relationship between individualism and cyberbullying: cross-sectional questionnaire study. *J Med Internet Res.* 2020;22(5):e16210. doi:10.2196/16210
39. Tsimitsiou Z, Haidich AB, Drontsos A, Dantsi F, Sekeri Z, Drosos E, et al. Pathological Internet use, cyberbullying and mobile phone use in adolescence: a school-based study in Greece. *Int J Adolesc Med Health.* 2017;30(6):/j/ijamh.2018.30.issue-6/ijamh-2016-0115/ijamh-2016-0115.xml. doi: 10.1515/ijamh-2016-0115