

ORIGINAL ARTICLE

The Relationship Between the Internet Usage Features, Internet Use Under Parental Supervision, and Depressive Symptoms in Children

Çocuklarda İnternet Kullanım Özellikleri, Ebeveyn Denetiminde İnternet Kullanımı ile Depresif Belirtiler Arasındaki İlişki

¹Betül Orhan Kılıç , ²Eylem Gül Ateş 

¹Baskent University Faculty of Medicine, Department of Pediatrics, Ankara, TÜRKİYE
²Middle East Technical University, Institutional Big Data Management Coordination Office, Ankara, TÜRKİYE

Correspondence

Betül Orhan Kılıç, Baskent University Faculty of Medicine Yukarı Bahçelievler, Maresal Fevzi Çakmak cad. No:45, 06490 Cankaya, Ankara, TÜRKİYE

E-Mail: betulorhandr@hotmail.com

How to cite ?

Orhan Kılıç B. , Gül Ateş E. The Relationship Between the Internet Usage Features, Internet Use Under Parental Supervision, and Depressive Symptoms in Children. Genel Tıp Dergisi. 2023; 33(5): 476-480.

ABSTRACT

Aims: Internet usage has become popular among children in the last decade. Little is known about how children should use the digital world. The present study aimed to investigate the relationship between Internet use, frequency of Internet use under parental supervision, and depressive symptoms in children.

Material and Methods: The prospective cross-sectional study was conducted on 79 children aged 7-18 years old and their families who applied to the pediatric clinics between March 2021 and June 2021. The participants completed an online questionnaire, including sociodemographic data, children's Internet use, and the Children's Depression Inventory (CDI). Children's Internet use was asked with a questionnaire created by ourselves for this study.

Results: The present study found no significant relationship between Internet usage time and depressive symptoms in children. Nevertheless, we showed that children who used the Internet more frequently under parental supervision and used the Internet for study purposes had lower depressive symptoms ($p=0.026$, $p<0.001$).

Conclusion: Internet use under parental supervision might protect children against the harmful effects of the digital world.

Keywords: Child, depression, Internet, Parental supervision.

ÖZ

Amaç: Son on yılda İnternet kullanımı çocuklar arasında popüler hale gelmiştir. Çocukların dijital dünyayı nasıl kullanmaları gerektiği konusunda hala çok az şey bilinmektedir. Bu çalışmada çocuklarda İnternet kullanımı, ebeveyn gözetiminde İnternet kullanım sıklığı ve depresif belirtiler arasındaki ilişkinin değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntemler: Prospektif kesitsel çalışma, Mart 2021-Haziran 2021 tarihleri arasında pediatri kliniklerine başvuran 7-18 yaş arası 79 çocuk ve aile çiftinde yapılmıştır. Katılımcılar, sosyodemografik veriler, çocukların İnternet kullanımı ve Çocukların Depresyon Envanteri'ni içeren çevrimiçi bir anket doldürmüştür. Çocukların İnternet kullanımı bu araştırmaya için tarafımızca hazırlanan bir anket ile sorulmuştur.

Bulgular: Bu çalışmada çocuklarda İnternet kullanım süresi ile depresif belirtiler arasında istatistiksel anlamlı bir ilişki bulunmamıştır. Bununla birlikte, İnterneti ebeveyn gözetiminde daha sık kullanan ve İnterneti ders çalışmak için kullanan çocukların depresif belirtilerinin daha düşük olduğunu gösterdik ($p=0.026$, $p<0.001$).

Sonuç: Ebeveyn gözetiminde İnternet kullanımı, çocukları dijital dünyanın zararlı etkilerinden koruyabilir.

Anahtar Sözcükler: Çocuk, depresyon, İnternet, ebeveyn denetimi.

Introduction

Internet supports children positively in terms of both continuity in education and communication. Children's online time has increased with technological advances. Internet access is available, and the EU Kids Online Report 2020 found that children's estimated time online ranges from 134 minutes to 219 minutes (1). According to the 2021 data from the Turkish Statistical Institute, it has been shown that 86.2% of children use the Internet for online education (2). Children could also stay in touch with their family and friends via the Internet (3). Inappropriate use of the Internet has brought with it new definitions. Some other meanings like "Internet Addiction Disorder," "Pathological Internet Use," "Problematic Internet Use," and "Excessive Internet Use" have all been used

in the literature to describe similar concepts relating to Internet addiction (4). Although it is still a polemic whether Internet addiction constitutes a behavioral addiction since it was not accepted explicitly in The Diagnostic and Statistical Manual of Mental Disorders-5 or the International Classification of Disease-11, investigations of Internet addiction have increased in recent decades. Multiple reports highlight the potential negative consequences of Internet addiction and its psychological comorbidities (5). Some researchers have found a negative relationship between the duration of Internet use and psychological states (6). Also, some Internet activities were associated with depression and loneliness in students (7). For the mentioned reasons, it can be thought that inappropriate Internet use in

children may be related to psychological conditions. On the other hand, some researchers reported that total Internet use was not associated with depressive symptoms (8). They have reported that depression mediates the relationship between low expressiveness and high conflicts in the family and online time. The present study researched which factor related to media use in children is associated with depressive symptoms. We aimed to examine the relationship between children's Internet usage time, Internet use purposes, Internet usage frequency under parenteral supervision, and depressive symptom levels.

Methods

We planned the prospective cross-sectional study including children between the ages of 7-18 and their families who applied to the pediatric clinics of our hospital between March 01, 2021, and June 01, 2021. During this study, 450 patients applied to our pediatric clinics. Our study included children seven years and older because the validity and reliability of the "Children's Depression Inventory" have been made including children seven years and older. We calculated the target sample size to be at least "71" (9). There were 182 children at the age of seven years and older; 48 were excluded from the study because they had a chronic disease, and 55 did not agree to complete the questionnaire.

Seventy-nine children at the age of seven years and over and their families who agreed to fill out an online questionnaire were included in the study. We send this questionnaire to families via e-mail. The online questionnaire consists of the families' sociodemographic characteristics, the children's Internet usage features, the Internet usage frequency of the children under parental supervision, and the "Children's Depression Inventory." Children's Internet use was asked with a questionnaire created by ourselves for this study. The families who agreed to participate in the study filled out the online questionnaire with their children. The "Children's Depression Inventory" was filled out by the children, and the families and their children completed the rest.

Exclusion criteria: The families who did not agree to fill out the questionnaire, children younger than seven years old, and children with chronic illnesses (liver disease, kidney disease, psychological disease) were not included in the study.

Sociodemographic Characteristics

Parents' age, education level, monthly income, employment status, and whether they had chronic diseases were recorded. The age, gender, and health status of the children were recorded. Children with chronic diseases were omitted.

Children's Internet Usage Features

Children's Internet use was asked with a questionnaire created by ourselves for this study. Children's Internet usage time was scored as 1 point: None, 2 points: less than 1 hour, 3 points: 1-2 hours, 4 points 2-3 hours, 5:

3-4 hours, 6 points: more than 4 hours. The frequencies of Internet use by children under parental supervision were grouped as never, sometimes (less than once a week), often (1-3 times a week), and very often/always (4 or more times a week). Children's Internet usage purposes were asked as playing games, watching something (video, movie, etc.), studying, researching, and other reasons.

Children's Depression Inventory (CDI)

The Children's Depression Inventory (CDI) was developed by Kovacs (1985) to determine the levels of children's depression. CDI consists of 27 items (10). The CDI minimum score is 0; the maximum score is 54. Getting more CDI scores indicates a higher level of depression. The cut-off point of the scale was determined as 19 points. If the participants get less than 19 points from the scale, they indicate the absence of depression, and scores of 19 and above indicate the presence of depression (9). The Turkish adaptation, validity, and reliability study of the CDI study were performed by Oy (11). In our study, the cut-off point of the scale was determined as 19 points. The Children's Depression Inventory Scores < 19 points were called Group I, and ≥ 19 points were called Group II. Statistical analyses were done according to this grouping.

Hypothesis

H1: Children who use the Internet under parental supervision have lower depression levels.

H2: Children using the Internet for study have lower depression levels than those using it for other purposes.

Statistical analysis

The conformity of numerical variables to normal distribution was examined with the Shapiro-Wilk test of normality and given as descriptive statistics, taking into account the median (minimum-maximum) for numerical variables, frequency (n), and percentage (%) for categorical variables. Pearson Chi-square test was used to evaluate categorical data, and the Generalized Fisher (Fisher-Freeman-Halton) Exact test was used when the Pearson Chi-square test was unsuitable. The Kruskal-Wallis test was used to determine whether there was a statistical difference between the response groups regarding the distribution of numerical variables. Type I error probability was determined as $\alpha=0.05$ in all statistical analyses, and all analyses were performed using the IBM SPSS v25 program.

Results

Sociodemographic data

Seventy-nine children-family pairs were included in our study. The mean ages of the mothers and the fathers were 39.7 ± 4.8 (31-51) and 42.5 ± 4.8 (31-56), respectively. The sociodemographic characteristics of the parents were examined. The majority of them were married (87.6%), 80.4% of the fathers and 78.4% of the mothers had a master's degree, 83.5% of the families had a monthly income of more than twice the minimum wage, and it was determined that 29.9% of

mothers and only 4.1% of fathers were not working. We observed that 28.1% of the mothers and 11.5 % of the fathers had a concomitant chronic disease. The mean age of the children was 9.1 ± 2.0 (6-15) years, 54.6% of the children were girls, and 45.4% were boys.

Children's Internet Usage Features

The children's daily Internet usage time and the Internet usage frequencies of parental supervision are shown in Table 1. When the daily Internet usage times of the children were examined, it was found that 51.1% of the children used the Internet for 3 hours or more per day, and all children used the Internet daily. In this respect, in statistical evaluations, Internet access times were categorized as less than 1 hour, 1-2 hours, 2-3 hours, 3-4 hours, and >4 hours. We found that only 5.2 % of children never used the Internet with their parents.

The Internet usage purposes of the children were examined; before the COVID-19 pandemic, 59.4% of children used it for watching something, 27.1% for playing games, 9.4% for studying and doing research, and 4.2% for other reasons; after the COVID-19 pandemic, it has been observed that 44.3 % of children used the Internet to study and research, 27.8 % to watch something, 24.0 % to play games and 3.1% used the Internet for other purposes. Statistically, it was determined that the use of the Internet by children for study purposes increased during the pandemic ($p < 0.001$).

Depressive Symptoms

In our study, the cut-off point of the scale was determined as 19 points. The CDI Scores < 19 points were Group I (no depression), and ≥ 19 were Group II. Statistical analyses were done according to this grouping.

The Relationship Between Children's Internet Use Characteristics and Depressive Symptoms

The relationship between the children's Internet usage purposes, Internet usage time, children's Internet usage frequency under parental supervision, and depressive symptom levels are demonstrated in Table 2.

The CDI scores of the children were examined according to their Internet usage time. We found no statistically significant relationship between the level of depressive symptoms and the children's daily Internet usage time ($p = 0.555$). On the other hand, a statistically significant relationship was determined between the frequency of the children's Internet use under parental supervision and the level of depressive symptoms ($p < 0.001$). While 40% of children who never used the Internet under parental supervision were in Group I, 96% of children who used the Internet very often/always under parental supervision were in Group I. We also found a statistically significant relationship between the groups according to Internet usage purposes and depressive symptom levels ($p = 0.026$). While 97.1% of the children who used the Internet for study purposes were in Group I, it was observed that

78.9% of the children who used the Internet to play games were in Group II.

Table 1. Children's Internet Usage Time and Internet Usage Frequency Under Parental Supervision

Children's Internet Usage Time	Frequency	
	n	%
Never	---
<1 hour/day	12	%15.5
1-2 hours/day	16	%19.8
2-3 hours/day	11	%13.8
3-4 hours/day	11	%13.8
>4 hours/day	29	%37.1
Frequency of the Children's Screen Use Under Parenteral Supervision		
Never/Rarely	4	%5.2
Sometimes (<1 time/week)	27	%34.0
Often (1-3 times/week)	28	%35.1
Very often/always (≥ 4 times/week)	20	%25.7

n: number.

Table 2. Relationship Between Children's Internet Usage Purposes, Internet Usage Time, Children's Internet Usage Frequency under Parental Supervision, and Depressive Symptom Levels During the Pandemic

The Children's Internet Use Aim	Child Depression Inventory		
	Grup I* n (%)	Grup II* n (%)	p
Play game	15 (78.9)	4 (%21.1)	0.026
Watching something (video, movie, etc.)	20 (90.0)	2 (%10)	
Study lessons and research	34 (97.1)	1 (%2.9)	
Others	2 (66.3)	1 (33.7)	
Children's Internet Usage Time			
<1 hour/day	6 (86.7)	1 (%13.3)	0.555
1-2 hours/day	16 (100)	---	
2-3 hours/day	12 (92.3)	1 (7.7)	
3-4 hours/day	12 (85.7)	2 (14.3)	
>4 hours/day	25 (86.1)	4 (13.9)	
Frequency of Children's Internet Use Under Parental Supervision			
Never/Rarely	2 (40.0)	3 (60.0)	<0.001
Sometimes (<1 time/week)	18 (81.8)	4 (18.2)	
Often (1-3 times/week)	27 (100)	---	
Very often/always (≥ 4 times/week)	24 (96.0)	1 (4.0)	

$p < 0.005$ statistically significant.

n: number. *: Row percentage.

Discussion

Internet usage is increasing among children worldwide. According to 2021 Turkish Statistical Institute data, it has been shown that 90.1% of children use the Internet almost every day (1). The European Children Online (2) report in 2020; indicates that children are on the Internet for 2-3 hours per day although variations are observed between countries (1). As a result of increased children's digital use, some researchers focused on how the Internet affected them. The Internet can give opportunities for information, communication, and self-presentation. Children learn and develop social networks through computers, smartphones, gaming

consoles, and televisions. When used in the right way, the Internet has the potential to develop, learn and communicate.

Nevertheless, serious risks occur with these opportunities. Children's inappropriate and excessive media use can cause many problems, such as delays in children's cognitive, language, and social development and physical and physiological problems (12). The present study evaluated the relationship between parenteral supervision of Internet use, Internet usage time, and depressive symptoms in children.

Some studies showed the relationship between inappropriate and excessive Internet use and children's psychological status. We did not find any relation between Internet usage time and depressive symptoms in children. Asam et al. (2019) showed that problematic Internet use in children and adolescents is associated with behavioral problems, hyperactivity, and depressive symptoms (13). Unlike our study, some studies found a significant relationship between online duration and depression in adolescents (14). Some studies conducted during the pandemic show the relationship between children's problematic Internet use and depression (15).

On the other hand, the current psychological state of children may also be a risk factor for Internet addiction. A study conducted in Southern Taiwan showed that students with depression had a higher risk of Internet addiction (16). Unlike the literature described above, we found no statistically significant difference between the children's daily Internet usage time and the level of depressive symptoms.

Internet usage aims have altered over the years. The present study confirmed that 43.4% of children used the Internet to study and research. We found that all children use the Internet daily, and more than half spend an average of 3 hours or more online, excluding study purposes. According to the 2021 data from the Turkish Statistical Institute, it has been shown that 83.6% of children use the Internet to attend online education and do homework (1). We also found that the children who used it for the study had lower depressive symptoms. This finding might contribute to the literature. It is critical to children's Internet aim.

The present study confirmed a significant relationship between the children's Internet use frequencies under parenteral supervision and depressive symptoms. We found that children who use the Internet more frequently under parental supervision have lower depressive symptoms. The internet offers unlimited opportunities to children who grow up online. It was shown that children exposed to violent content in the media might be more likely to behave in aggressive or harmful ways toward others. One of the most significant adverse effects of the media is that children may be exposed to cyberbullying and online abuse in the digital world (17). Because of the mentioned causes, the importance of using the Internet under parental supervision is understood. Livingstone et al. (2008) determined that, although parental mediation

sometimes reduces the risk, additional strategies are needed to protect children from online risks posed by the Internet environment (18). Sometimes, parental attitudes and family situations are related to parents' mediation of children's Internet use (19,20). Chandrima et al. (2020) mentioned that family mediation might be a protective factor for adolescents regarding problematic Internet use (21). Again, some studies have shown that an adverse family environment is associated with problematic Internet use in children (22). In this respect, the importance of understanding parent mediation and revising it in line with the changing technology is understood. A study conducted in the United States showed that 75% of parents controlled the sites their children visited (23). It has been determined that parents limit the screen usage time of their children. Although the importance of parental mediation is understood, it is unclear how it is. In our study, when the children's Internet usage frequencies under parental supervision were examined, we found that only 5.0 % of the children had never used the Internet. Children who use the Internet with their families may be more careful in the digital world. This may protect the child from the adverse effects of the Internet.

Children need to use the screen and digital media appropriately. In this respect, although a clear parent mediation strategy is not mentioned, children can be protected from the dangers of the digital world with parent-controlled Internet use. In this respect, there is a need for more comprehensive research on parental mediation and Internet use in children in a world that has changed regarding the technological use of children after the COVID-19 pandemic.

Summary

Children's Internet usage and use with parents may be as important as how long they use it. The importance of parenteral mediation for children's Internet use has already been known. Our study was one of the limited studies that demonstrated parenteral mediation and children's depression. We found that 7-18-year-old children who more frequently used the Internet under parental supervision had lower depression symptoms. We also demonstrated that almost all children who used the Internet for study and homework had no depressive symptoms.

Limitations

We asked families and children about the data before the COVID-19 pandemic with an online questionnaire. They may not have exactly remembered the questions (purpose of internet use, duration, etc.) about the pre-pandemic period. More comprehensive research can be needed to examine children's family problems and additional problems about the COVID-19 pandemic.

Statements and Declarations

Competing Interests

The author declares no potential conflicts of interest concerning this article's research, authorship, or publication.

Funding

There is no funder.

Abbreviations

CDI: Children's Depression Inventory

COVID-19: Coronavirus infection

Data Availability

The data sets generated during or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics Declarations

Ethical Approval

This study was approved by Baskent University Medical and Health Sciences Research Committee (Project number: KA23/264).

Authors' Contributions

Betül Orhan Kılıç: Collection data, conceptualized and designed the study, analyzed and interpreted data, drafted the initial manuscript, and revised and approved the final manuscript as submitted.

Eylem Gül: Analysed and interpreted data, revised the manuscript, and approved the final manuscript as submitted.

References

- Smahel D, Machackova H, Mascheroni G, Dedkova L, Staksrud E, Ólafsson K, Hasebrink U. EU Kids Online (2020). Survey results from 19 countries.
- Turkish Statistical Institute, 2021. Erişim tarihi: 20/06/2022. Available from: <https://data.tuik.gov.tr/Bulten/Index?p=Cocuklarda-Bilisim-Teknolojileri-Kullanim-Arastirmasi-2021-41132>.
- Goldschmidt K. The COVID-19 Pandemic: Technology Used to Support the Well-being of Children. *Journal of pediatric nursing* 2020; 53: 88–90. <https://doi.org/10.1016/j.pedn.2020.04.013>
- Widyanto L, Griffiths M. 'Internet addiction': a critical review. *International Journal of mental health and Addiction*, 4, 31–51. Shaw M, Black DW. Internet Addiction. *CNS Drugs* 2008; 22: 353–365.
- Bisen SS, Deshpande YM. (2018). Understanding Internet addiction: a comprehensive review. *Mental Health Review Journal* 2018; 23(3): 165-184.
- Lin LY, Sidani JE, Shensa A, Rodovic A, Miller E, Colditz JB, et al. Association between Social Media Use and Depression among U.S. Young Adults. *Depress Anxiety* 2016; 33:323-3318.
- Tian Y, Zhang S, Wu R, Wang P, Gao F, Chen Y. Association Between Specific Internet Activities and Life Satisfaction: The Mediating Effects of Loneliness and Depression. *Front Psychol*. 2018; 9:1181. Published 2018 Jul 11. doi:10.3389/fpsy.2018.01181
- Sela Y, Zach M, Amichay-Hamburger Y, Mishali M, Omer H. Family environment and problematic Internet use among adolescents: The mediating roles of depression and fear of missing out. *Computers in Human Behavior* 2020; 106, 106226.
- Alpar R. Uygulamalı İstatistik Ve Geçerlilik-Güvenirlik. (6. Baskı). Detay yayıncılık. Ankara, 2020.
- Kovacs M. The Children's Depression Inventory. *Psychopharmacology Bulletin* 1985; 21: 995–998.
- Öy B. Çocuklar İçin Depresyon Ölçeği: Geçerlik ve Güvenirlik Çalışması. *Türk Psikiyatri Dergisi* 1991; 2: 132-136.

12.Reid Chassiakos YI, Radesky J, Christakis D, Moreno Ma, Cross C. Council On Communications And Media. Children And Adolescents And Digital Media. *Pediatrics*. 2016 ; 138: e20162593. Doi: 10.1542/Peds.2016-2593. Paid: 27940795.

13.Asam AL, Samara M, Terry P. Problematic Internet use and mental health among British children and adolescents. *Addictive Behaviors* 2019; 90: 428–436.

14.Sela Y, Zach M, Amichay-Hamburger Y, Mishali M, Omer H. Family environment and problematic Internet use among adolescents: The mediating roles of depression and Fear of Missing Out. *Computers in Human Behavior* 2020; 106: 106226.

15.Julija GS, Ausra S, Aiste P, Vilma L, Inga GB, Dovile S, Rima N, Linas DL, Gintare C, Julius B. Impulsivity Mediates Associations Between Problematic Internet Use, Anxiety, and Depressive Symptoms in Students: A Cross-Sectional COVID-19 Study. *Frontiers in Psychiatry* 2021:12. <https://doi.org/10.3389/fpsy.2021.634464>

16.Yang SY, Fu SH, Chen KL, Hsieh PL, Lin PH. Relationships between depression, health-related behaviors, and Internet addiction in female junior college students. *PLoS ONE* 2019; 14: e0220784. <https://doi.org/10.1371/journal.pone.0220784>.

17.Reid Chassiakos YI, Radesky J, Christakis D, Moreno Ma, Cross C. Council On Communications And Media. Children And Adolescents And Digital Media. *Pediatrics* 2016; 138: e20162593. Doi: 10.1542/Peds.2016-2593. Paid: 27940795.

18.Livingstone S, Helsper EJ. Parental Mediation of Children's Internet Use. *Journal of Broadcasting & Electronic Media* 2008; 52: 581-599, DOI: 10.1080/08838150802437396

19.Nikken P, Jansz J, Schouwstra S. Parents' Interest in Videogame Ratings and Content Descriptors in Relation to Game Mediation. *European Journal of Communication* 2007; 22 : 315–336.

20.Lee S, Chae Y. Children's Internet Use in a Family Context: Influence on Family Relationships and Parental Mediation. *CyberPsychology & Behavior* 2007; 10: 640–644.

21.Chandrima RM, Kircaburun K, Kabir H, Riaz BK, Kuss DJ, Griffiths MD, Mamun MA. Adolescent problematic Internet use and parental mediation: A Bangladeshi structured interview study. *Addictive Behaviors Reports* 2020, Volume 12, 2020,100288. ISSN 2352-8532,<https://doi.org/10.1016/j.abrep.2020.100288>.

22.Sela Y, Zach M, Amichay-Hamburger Y, Mishali M, Omer H. Family environment and problematic Internet use among adolescents: The mediating roles of depression and Fear of Missing Out. *Computers in Human Behavior* 2020;106,106226

23.Johnson J, (2020). Share of parents in the United States who limit when or how their child aged 5 to 11 uses smartphones and the Internet as of March 2020. Erişim tarihi: 20/10/222. <https://www.statista.com/statistics/439801/us-parent-interest-child-online-activities/>. Access of Date 21/02/2022