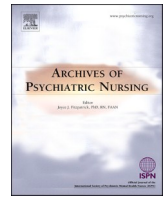




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Problematic media use and psychological adaptation in children in the COVID-19 pandemic: A descriptive cross-sectional study

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ABSTRACT

Purpose: This study was conducted to determine the problematic media use and psychological adaptation levels of children.

Design and methods: Parents of 685 children living in Turkey participated in the descriptive cross-sectional design study. Descriptive Characteristics Form, Problematic Media Use Measure and Hacettepe Psychological Adaptation Scale were used to collect research data.

Results: Problematic media use of the children is moderate. The COVID-19 pandemic increased the time spent in front of the screen in the majority of children. Psychological adaptation problem was determined in approximately one-third of children. Male gender and screen time spent affect problematic media use and psychological adaptation levels of children.

Conclusions: The COVID-19 pandemic increased the problematic media use and psychological adaptation problems of children.

Practice implications: It is recommended that nurses guide parents to limit children's screen time and to plan interventions to solve their psychological adaptation problems.

Introduction

Today, children are exposed to multiple screens using increasingly diverse and frequent digital media tools such as televisions, computers, smartphones, and tablets (Lissak, 2018; Paudel et al., 2017). Especially with the emergence of the COVID-19 infection, various measures to control the pandemic further increased the use of digital media tools (Derin et al., 2020; Göker & Turan, 2020). The widespread use of digital media tools for education, communication, and entertainment purposes as a result of measures such as the transition of schools to online education, home quarantine, the implementation of curfews under the age of 20, and social distance measures, increased the screen time of children (Alisinanoğlu et al., 2020; Derin et al., 2020; Göker & Turan, 2020). While children spent approximately 3 h of their time in front of the screen before the pandemic, this period doubled with the pandemic (Parents Together, 2020; Wiederhold, 2020). With the transition to distance education as a result of the COVID-19 pandemic, the time a child spends on the screen for educational activities using the internet was approximately 6–7 h (Balci et al., 2021). Increased screen time in children and adolescents causes obesity (Robinson et al., 2017; Nagata

et al., 2020), sleep problems (Vijakhana et al., 2015), depression symptoms, attention deficit, and developmental delays (Lissak, 2018; Madigan et al., 2019). The majority of parents in another study conducted in Turkey expressed that children's screen time increased during the COVID-19 pandemic (Öztürk Eyimaya & Yalçın Irmak, 2021). Problematic media use has been preferred because children are exposed to screens by using more than one technological device such as computer, tablet, smartphone and television. Increased screen time can cause problematic media use in children who use digital media tools or switch between these tools extensively during the day. Problematic media use also creates some physical, psychological, and behavioral effects on children (Furuncu & Öztürk, 2020; Lissak, 2018).

The children's balance and harmony with themselves and their environment indicate that they are mentally healthy (Yörükoğlu, 2016). When the negative effects of the environment are added to the natural difficulties brought by the developmental periods, children can experience psychological adaptation problems as a reaction to these negativities (Yavuzer, 1999). Nowadays, the changes in children's daily routines affect their mental, social and cognitive development and some mental problems related to COVID-19 (Ercan et al., 2020). It was

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reported that children are more vulnerable to environmental risks compared to adults and some unpredictable situations such as pandemics, and they may have short and long-term negative psychosocial effects (Akoğlu & Karaaslan, 2020). In studies conducted in China, it was determined that the COVID-19 pandemic causes problems such as anger, stress, depression, anxiety, and distraction in children and adolescents (Jiao et al., 2020; Racine et al., 2020; Xie et al., 2020; Zhou et al., 2020). In another study, it was found out that the closure of schools due to the COVID-19 pandemic and the separation of children from their friends can cause stress and anxiety in children (Imran et al., 2020). Additionally, studies conducted in Turkey reported that the pandemic leads to reactions and behaviors in children such as anger, anxiety, fear, unexplained crying, combative behavior, aggressive behavior, excessive mobility, and dependence on parents (Alışınanoğlu et al., 2020; Tarcoçin et al., 2020).

The sudden pandemic of COVID-19 and the events in the pandemic process affect everyone, especially children. However, no previous research was accessed on the effects of the pandemic on problematic media use, psychological adaptation level, and the relationship between these variables. Therefore, this study aims to determine the level of problematic media use and psychological adaptation of children aged 6–11 years in the pandemic and evaluate the relationship and affecting factors. In order to achieve this aim, answers to the following questions are sought.

-What are children's problematic media use, psychological adaptation levels and their relationship with each other in the COVID-19 pandemic?

-Do problematic media use and psychological adaptation levels differ according to the sociodemographic and screen usage characteristics of the children?

Materials and methods

Design

This study was conducted as a descriptive cross-sectional study to determine the level of problematic media use and psychological adaptation and evaluate the relationship between them in children aged 6–11 years.

Sampling and participants

The population of the research consisted of the parents of the students who attended primary school in the public schools affiliated to the Sivas Provincial Directorate of National Education in Turkey in the 2020–2021 academic year. 7 primary schools were determined by simple random sampling method. There are 3419 students in the determined primary schools. Parents of 685 children who attended school through online education between February 15 and March 5, 2021 and agreed to participate in the study participated in the study. As a result of post-hoc analysis with G*Power (3.1.9.7 version), the power of the study was found to be 99 % at 95 % confidence interval.

Measurements

Descriptive characteristics form

The form includes questions about children's descriptive characteristics (6 questions) and media/screen use (4 questions). There are questions regarding the age, gender, grade, educational status of parents, and the number of siblings in the first part. The second part of the form includes questions about the availability of the internet at home, the availability of digital devices such as smartphones, tablets, and computers, the screen time of the child, and how the COVID-19 pandemic affects the screen time.

Problematic Media Use Measure (PMUM-SF)

The adaptation of the Problematic Media Use Measure developed by Domoff et al. (2019) to Turkish and the validity and reliability of the scale were carried out by Furuncu and Öztürk (2020). The scale filled by parents to determine problematic media use in children aged 4–11 generally tries to identify problematic use of visual media tools (such as television, computer, tablet, and smartphone). The scale has two forms: the long form with 27 items and the short form with 9 items. In this study, a 9-item short form was used for assuming convenience and higher likelihood of completion of the scale. The total score taken from the five-point Likert-type scale (1-Never ... 5-Always) is obtained by averaging the scores from all items. High scores from the scale indicate problematic use. In the Turkish validity and reliability study of the scale, the Cronbach α value of the short form was found to be 0.93 (Furuncu & Öztürk, 2020). In the current study, Cronbach's α coefficient of the scale was calculated as 0.92.

Hacettepe Psychological Adaptation Scale (HPAS)

The scale developed by Gökler and Öktem (1985) consists of 32 items. In the scale filled in by parents or teachers, the first 24 items were evaluated based on the options of "None," "A little," "A lot." In comparison, the following 7 items questioning stutter, tics, nail-biting, finger sucking, fecal incontinence, bedwetting, or school failure are answered as "Yes" and "No." The total scale score is obtained by adding the first 24 item scores. A total scale score of 12 or above is considered a psychological adaptation problem in the child. The Cronbach's α was found as 0.87 in this study.

Statistical analysis

The data collected in the study were analyzed using the SPSS 22.0 software. Number, percentage, and average criteria were used in the evaluation of the data. The normality of the data was evaluated with the Kolmogorov-Smirnov test. It means that standard deviations, and frequencies have been calculated for sample characteristics, and differences have been tested by using the Mann-Whitney U test and the Kruskal Wallis test. Spearman correlation coefficient was used to identify the relationship between variables. Statistical significance was identified if the p -value was lower than 0.05 ($p < 0.05$).

Ethical approval

Before starting the research, permission from the ethics committee (Decision No: 2021-01/46) from the Non-Interventional Clinical Research Ethics Committee of a university and institutional permission from the Provincial Directorate of National Education of Turkey was obtained. Consent was taken from the parents via the online form.

Data collection

The researchers prepared an online form on Google and created a link to this form. This link was sent to the children's families through a messaging application through the teachers after meeting with the school administrators. Those with more than one child were asked to fill out the form for only one of their children. Besides, information about the form was given in the explanation section, and it was explained that they were required to evaluate the child's activities other than online lessons and homework with regards to the use of digital media tools.

Results

Of the parents who answered the research questionnaire, 83.2 % are mothers. The mean age of the participant children ($n = 685$) is 8.18 ± 1.43 (Min = 6, Max = 11), while 51.5 % are male and 26 % are in the first grade. While 88 % of the participants have siblings, fathers of 36.1 % and mothers of 28.8 % are high school graduates. 91.7 % of the

participant children have the internet at home. It was determined that 23.2 % of the participant children spent 2 h other than online lessons in front of a television, computer, tablet, smartphone, or game console during a day (Table 1). In Fig. 1, children have smartphones, computers, tablets, or game consoles in their homes, and their percentages are 85.8 %, 51.4 %, 50.9 %, and 3.9 %, respectively (Fig. 1). It was determined that 23.2 % of the participant children spent 2 h other than online lessons in front of a television, computer, tablet, smartphone, or game console during a day. Moreover, it was found that the COVID-19 pandemic increased the screen time of 80.7 % of the children on digital media tools such as television, computer, tablet, smartphones, or game console (Fig. 2).

The mean PMUM-SF score of the participant children is 2.20 ± 0.97 , and the mean HPAS score is 10.19 ± 7.24 (Table 2). There are 36.5 % of children with a mean HPAS score of 12 and above, and it can be suggested that these children have a psychological adaptation problem. Additionally, it was identified that the most common problem among other problems within the scope of HPAS was nail-biting with a frequency of 19.4 %.

When the descriptive characteristics of the children in this study were compared with the mean PMUM-SF and HPAS scores, it was found that there was a statistically significant difference only between some variables. The mean PMUM-SF and HPAS scores in boys were higher than those of girls, and the difference between them was statistically significant ($p < 0.05$). The mean HPAS score of the children whose fathers are primary school graduates is higher than the other levels of graduates, and the difference between them is statistically significant ($p < 0.05$). The mean PMUM-SF scores of children who have a tablet and a computer as a digital tool at home are higher than those with other digital tools, and the difference between them is statistically significant ($p < 0.05$). The mean PMUM-SF score of the children who have the internet at home is higher than the children who do not have the internet at home, and the difference between them is statistically significant ($p < 0.05$). It was determined that the average of PMUM-SF and HPAS scores of the children who spent 4 h or more other than the online lessons in front of a television, computer, tablet, phone, or game console during a

Table 1
Descriptive characteristics of children and parents (n = 685).

	n (%)
Age x: 8.18 ± 1.43 (Min = 6, Max = 11)	
Gender	
Female	332 (48.5)
Male	353(51.5)
Having sibling	
Yes	603 (88.0)
No	82(12.0)
Father's educational status	
Illiterate	6(0.9)
Literate with no formal degree	11(1.6)
Primary-secondary school	213 (31.1)
High school	247 (36.1)
University	208 (30.4)
Mother's educational status	
Illiterate	6(0.9)
Literate with no formal degree	6(0.9)
Primary-secondary school	308(45.0)
High school	197(28.8)
University	168 (24.5)
Having internet at home	
Yes	628(91.7)
No	57(8.3)
The total time spent outside the classroom in front of the television, computer, tablet, phone or game console during a day	
30 min and below	58 (8.4)
30–60 min	67(9.8)
1 h	134 (19.6)
2 h	159 (23.2)
3 h	128 (18.7)
4 h and above	139 (20.3)

day is higher than the other children, and the difference between them is statistically significant ($p < 0.001$). Besides, the COVID-19 pandemic increases the time children spend in digital media. The mean PMUM-SF and HPAS scores of the children who spend more time in front of digital media devices are higher than the other children, and the difference between them is statistically significant ($p < 0.001$) (Table 3).

A statistically significant, positive, and moderate correlation was found between the PMUM-SF and HPAS total score averages of the participant children in the study. It was also concluded determined that as the problematic media use levels of children increase, their psychological adaptation problems increase (Table 4).

Discussion

The precautions and lifestyle changes due to the COVID-19 pandemic significantly affected children, a group that is more vulnerable and sensitive to such crises. It is thought that the changes that children experience in their daily lives due to pandemics such as quarantine measures and transition to online education lead to an increase in screen time and psychological effects. Therefore, the effects of the COVID-19 pandemic on children's problematic media use and psychological adaptation levels were examined in this study.

In this study, it was determined that the mean problematic media use scores were higher in boys. The fact that boys are more interested and curious about digital media tools and their contents may be effective in such results. Similarly, in the literature, it was concluded that the screen time spent in various digital media tools is higher in boys (Öztürk Eyimaya & Yalçın Irmak, 2021; Furuncu & Öztürk, 2020; Taş & Güneş, 2019; Gürarslan Baş & Karatay, 2020).

Digital media tools are generally used with internet connections. Especially with the COVID-19 pandemic, the importance of internet use for many purposes such as education, communication, and shopping has considerably increased and become almost a necessity. According to Household Information and Communication Technology Usage Survey in Turkey Household Information Technologies (2020), the rate of access to the internet at home is 90.7 %. 91.7 % of the participant parents stated that they have internet access at their home. However, in the study, it was determined that the mean problematic media use scores were higher in children living in homes with internet access. Along with internet access, the digital media device that the child has also affects screen time. According to 2013 data in Turkey, 24.4 % of children aged 06–15 have their computer, 13.1 % have a mobile phone, and 2.9 % have a game console (Turkish Statistical Institute, 2013). With the emergence of the COVID-19 pandemic, the number and variety of screens children are exposed to due to online lessons increased since they participate in online lessons on television, computer, or tablet. The study shows that problematic media use is higher in children with a tablet or computer. Past studies also suggested that children's digital media tools affected their digital addiction (Toran et al., 2016; Öztürk Eyimaya et al., 2020).

In addition to lessons and homework, children use digital media tools for games and entertainment. The study concluded that as the screen time spent by children in digital media other than the online lessons increased, their mean scores of problematic media use increased significantly. While it was recommended that children should not be exposed to any screen before the age of 2, and to limit the screen time in later ages, there were significant increases in the screen time of children after the pandemic (Council on Communications and Media, 2013; Wiederhold, 2020). In support of this, parents in this study noted that the COVID-19 pandemic increased their children's time on digital media tools. In a study conducted by Öztürk Eyimaya and Yalçın Irmak (2021), the majority of parents stated that their children's screen time increased during the COVID-19 pandemic. Additionally, it was found out in our study that the average problematic media use score increased significantly as children increased screen time due to the pandemic.

The increase in screen time affects the physical and psychological

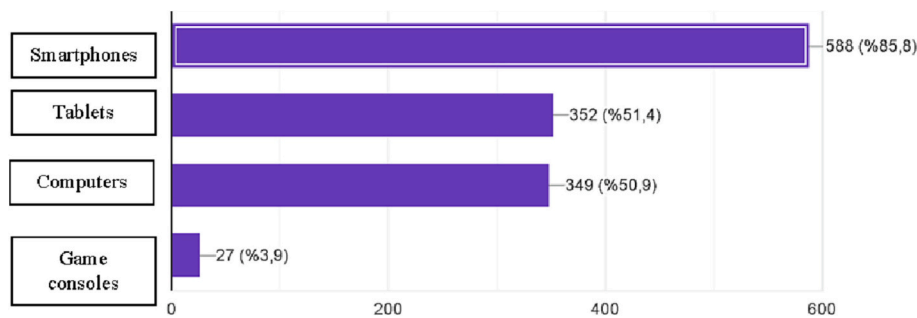


Fig. 1. Digital media tools available at home.

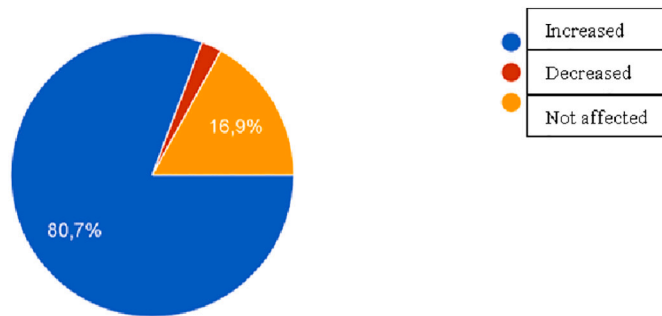


Fig. 2. How COVID-19 pandemic effects the child's screen time on digital media tools such as television, computer, tablet, smartphone, or game console.

Table 2
Mean scores of PMUM-SF and HPAS (n = 685).

Scales	M ± SD	Min	Max
PMUM-SF	2.20 ± 0.97	1	5
HPAS	10.19 ± 7.24	0	48

Abbreviations: PMUM-SF, Problematic Media Use Measure; HPAS, Hacettepe Psychological Adaptation Scale.

well-being of children and young people. While the increase in screen time of children had some negative effects before the pandemic, these risks further increased with the pandemic (UNICEF, 2021; Wiederhold, 2020). The fact that children are constantly in front of the screen at home due to the pandemic, the deterioration of their daily routines, and their separation from school and friends caused their state of mind to be affected (Lee, 2020; Tarkoçin et al., 2020). It is also asserted that the COVID-19 pandemic may trigger many psychological illnesses by causing anxiety and depression in children and adolescents who experience changes in their daily lives (Wagner, 2020). In another study, it was determined that children and adolescents in quarantine experience more psychological problems such as anxiety, fear, and despair (Saurabh & Ranjan, 2020). Similarly, in the literature, it was indicated that approximately one-third of the children participating in our study had a psychological adaptation problem. However, the rate of children in our study experiencing psychological adaptation problems is higher than similar studies in the literature (Doğan et al., 2008; Pehlivan, 2019). Hence, this result may be related to the sample group's characteristics and the fact that the study was conducted one year after the emergence of the COVID-19 pandemic.

In this study, it was identified that psychological adaptation problems are more common in boys than girls. In some studies, similar to our study, it was found that boys' psychological adaptation problems are greater than the girls' (Doğan et al., 2008; Polat Uluocak, 2009). This result could be related to the family's different approaches when raising their boys and girls. To this end, while girls are expected to be calm, well-behaved, and polite, boys are supposed to be strong, brave, and

sociable (Yörükoğlu, 2016). This situation can lead to some difficulties in controlling boys' behavior and some behavioral and adaptation problems. In addition to the gender of the child, the educational status and profession of the parents can be a factor in the emergence of problem behaviors in the child (Özbey, 2010). This study found that the education level of the fathers of the children significantly affected their psychological adaptation scores. The increase in the parents' education level plays an essential role in the child-rearing attitudes and awareness of the psychological problems that can be seen in the child.

This research concluded that as children's screen time increases due to the use of digital media devices, their psychological adaptation problems increase. Other studies asserted that the increase in screen time in children and adolescents was associated with low self-control, distraction, difficulty making friends, decreased emotional balance, difficulty completing tasks, and decreased psychological well-being (Babic et al., 2017; Twenge & Campbell, 2018). Additionally, it was reported that increased screen time is associated with hyperactivity, emotional symptoms, and behavioral problems in children (Allen & Vella, 2015) and may be a risk factor or indicator for anxiety and depression (Maras et al., 2015).

Problematic media use in children is moderate. Similar results were obtained in the studies conducted (Furuncu & Öztürk, 2020; Domoff et al., 2019). It is vital that why the level of problematic media use is moderate, the variables that affect this level, the precautions that can be taken, and the effects on children are determined. Accordingly, in our study, it was determined that as the problematic media use levels of children increased, their psychological adaptation problems increased. Similarly, a significant relationship was found between children's problematic media use and emotional and behavioral problems (Furuncu & Öztürk, 2020). A study conducted during the COVID-19 pandemic process deduced that children react some psychological adaptation problems such as tantrums, unexplained crying, aggressiveness, and yelling (Alisinanoğlu et al., 2020). However, children may be concerned about getting sick, dying, or losing their loved ones due to the COVID-19 pandemic (Küçük Biçer & İlhan, 2020). It is thought that these negativities brought about by the pandemic process may cause long-term problems in the psychological health of the children of today and the individuals to be responsible for the building of the future.

Limitations

Data on problematic media use and psychological adaptation are based on parental reports. Study results can only be generalized to the sample group.

Conclusion and recommendations

This study identified that the mean problematic media use scores of the children are moderate, and they have psychological adaptation problems. Problematic media use and psychological adaptation problems were found to be more common in boys. The increase in screen time

Table 3
Scale mean scores based on the descriptive characteristics of the children (n = 685).

Descriptive characteristics	Scales			
	PMUM-SF		HPAS	
	M ± SD	Test/p	M ± SD	Test/p
Gender				
Male	2.41 ± 1.01	Z = -5.954 p = 0.001	10.79 ± 6.95	Z = -3.121 p = 0.002
Female	1.97 ± 0.88		9.54 ± 7.50	
Father educational status				
Literate	2.26 ± 0.92	KW = 3.353 p = 0.501	10.23 ± 5.64	K-W = 16.439 p = 0.002
Primary school graduate	2.31 ± 1.10		14.29 ± 10.56	
Secondary school graduate	2.20 ± 0.91		10.33 ± 6.51	
High school graduate	2.10 ± 1.00		9.54 ± 6.29	
University graduate	2.20 ± 0.97		9.12 ± 6.63	
Availability of digital devices at home				
Smartphone	Yes	Z = -0.810 p = 0.418	10.14 ± 7.15	Z = -0.126 p = 0.900
	No		2.21 ± 0.98	
Tablet	Yes	Z = -2.505 p = 0.012	10.51 ± 7.59	Z = -0.869 p = 0.385
	No		2.29 ± 1.00	
Computer	Yes	Z = -2.441 p = 0.015	10.20 ± 7.63	Z = -0.598 p = 0.550
	No		2.29 ± 0.99	
Game console	Yes	Z = -1.310 p = 0.190	11.32 ± 8.22	Z = -0.661 p = 0.509
	No		2.51 ± 1.19	
Availability of the internet at home				
Yes	2.22 ± 0.96	Z = -2.676 p = 0.007	10.11 ± 7.18	Z = -0.766 p = 0.443
No	1.96 ± 1.08		11.03 ± 7.95	
Children who spent in front of a television, computer, tablet, phone, or game console during a day				
0–30 min	1.46 ± 0.48	K-W = 171.899 p = 0.001	6.34 ± 5.14	K-W = 61.811 p = 0.001
	1.67 ± 0.67		7.17 ± 4.77	
1 h	1.75 ± 0.72		9.51 ± 6.86	
2 h	2.22 ± 0.86		10.13 ± 7.43	
3 h	2.40 ± 0.91		10.61 ± 7.03	
4 h and above	2.98 ± 1.03		13.58 ± 7.84	
COVID-19 pandemic affecting the child's time spent on digital media devices such as television, computer, tablet, phone or game console				
Increased	2.39 ± 0.96	K-W = 147.961 p = 0.001	11.08 ± 7.41	K-W = 51.421 p = 0.001
Decreased	1.77 ± 0.59		7.18 ± 4.54	
Not affected	1.34 ± 0.48		6.34 ± 5.10	

Abbreviations: PMUM-SF, Problematic Media Use Measure; Z, Mann Whitney U; K-W, Kruskal-Wallis; HPAS, Hacettepe Psychological Adaptation Scale.

Table 4
Correlations of PMUM-SF and HPAS total scores of children (n = 685).

	PMUM-SF	
	r	p
HPAS	0.557	0.000**

Abbreviations: PMUM-SF, Problematic Media Use Measure; HPAS, Hacettepe Psychological Adaptation Scale.

r, Spearman's correlation analysis.

** p < 0.001.

due to children's internet access, digital tools, and extracurricular activities affects their problematic media use. Most of the parents suggest that the COVID-19 pandemic increases the screen time of their children. The children whose fathers are primary school graduates is higher psychological adaptation problems than the other levels of graduates. Besides, it was determined that children's screen time affects their psychological adaptation levels, and psychological adaptation problems increase as problematic media use increases. In line with these results, it may be suggested to limit children's screen time and plan interventions for solving psychological adaptation problems.

Implications for nursing practice

Nurses have important roles in the protection and development of the health of the individual, family and society. The general duties, authorities and responsibilities of nurses in Turkey are community mental health and school mental health nurses are responsible for providing preventive mental health education services in primary and secondary schools, providing health counseling in cooperation with students, teachers and their families who have problems (Official Gazette of the Republic of Turkey, 2011). However, nurses are not assigned in every school in our country. It is important that nurses cooperate with parents and schools and inform the society about problematic media use and psychological adjustment problems in children within the scope of preventive health services.

The COVID-19 pandemic has affected children in different dimensions as it has affected everyone. Screen time, which increased before the pandemic and created some negative effects on children, reached more serious dimensions with the pandemic. For this reason, it can be recommended that nurses evaluate screen time and use of media tools wherever they meet with parents and children and guide them in this regard. At the same time, by determining the psychological effects of the pandemic on children, nurses can play an active role in the development of support, counseling and future policies for the help of problems.

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CRedit authorship contribution statement

İY and FTY designed the study. İY and FTY were responsible for data management and data analysis. All authors drafted and revised the manuscript.

Declaration of competing interest

No conflict of interest has been declared by the authors.

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