Determining Screen Time of Children Between 3-9 Years During COVID-19 Pandemic And Investigation of Factors Related To Screen Time

COVİD-19 Salgını Sürecinde 3-9 Yaş Arasındaki Çocukların Ekran Maruziyet Süresinin Belirlenmesi ve Ekran Maruziyetine Etki Eden Etmenlerin İncelenmesi

Senay TURE, Sevtap VELIPASAOGLU

Deparment of Pediatrics, Division of Social Pediatrics, Akdeniz University School of Medicine Antalya, Turkey

ABSTRACT

Objective: The first COVID-19 case in Turkey was detected on March 11, 2020, and measures were taken to prevent the epidemic's progression. As the schools were closed and curfew was imposed on children with periodically updated bans, children had to spend more time at home during the day. In the study, we aimed to determine how the COVID-19 pandemic has influenced the screen time of children aged 3-9 in Turkey and examine the factors affecting screen time.

Material and Methods: This descriptive cross-sectional study was conducted between May 3, 2020, and May 30, 2020. Throughout Turkey, mothers or fathers with at least one child between the ages of 3 and 9 were invited to the online survey via social media, telephone message groups, or e-mail. The parents who voluntarily answered the online questionnaire constituted the study participants.

Results: A total of 9483 parents with children between the ages of 3 and 9 participated in the study. It was determined that 82.9% of the children participating in the study had increased screen time compared to the pre-pandemic period. The mean increase in screen time was 151±96 minutes/day. The increase was more than one hour per day in 74.9% of the participants (n=5122). The average daily screen time of the children participating in the study on the dates specified during the pandemic period was 193±124, the average time spent for online education was 67±62 minutes/day, and for leisure activities with the screen was 133±121 minutes/day. Screen time was significantly higher in children whose parent did not have a plan for child's screen use (OR: 3.085, 95% CI, 2.723 to 3.494, p<.001) or children who did not use the screen under parental control (OR: 1.533, 95% CI, 1.352 to 1.73, p<.001).

Conclusion: During the pandemic, daily screen time increased in a significant number of children, and the time they spent in front of the screen was relatively high. The purpose and duration of screen use varied between preschoolers and school children. Parental attitudes and behaviors were related to children's screen time during the pandemic period.

Key Words: COVID-19, Child, Screen time, Pandemic

ÖZ

Amaç: Türkiye'de ilk COVİD-19 vakası 11 Mart 2020'de tespit edilmiş ve salgının ilerleyişini önlemek için hızlıca tedbirler alınmaya başlanmıştır. COVİD-19 pandemi süresi boyunca çocuklara getirilen sokağa çıkma yasağı, okulların kapatılması ve salgının seyrine göre periyodik olarak yasakların güncelleştirilmesi ile çocuklar gün içerisinde zorunlu olarak evlerde

0000-0001-6123-1943 : TURE S
0000-0002-0200-8079 : VEKLIPASAOGLU S

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Ethics Committee Approval / *Etik Kurul Onayı*: This study was conducted in accordance with the Helsinki Declaration Principles. Ethical approval was obtained from the Clinical Studies Ethics Committee of Akdeniz University Faculty of Medicine (Decision No: KAEK-353).

Contribution of the Authors / Yazarların katkısı*: *TURE S: Constructing the hypothesis or idea of research and/or article, Planning methodology to reach the Conclusions, Taking responsibility in patient follow-up, collection of relevant biological materials, data management and reporting, execution of the experiments, Taking responsibility in logical interpretation and conclusion of the results, Taking responsibility in necessary literature review for the study, Taking responsibility in the writing of the whole or important parts of the study. ***VEKLIPASAOGLU S:*** Constructing the hypothesis or idea of research and/or article, Planning methodology to reach the Conclusions, Organizing, supervising the course of progress and taking the responsibility of the research/study, Taking responsibility in logical interpretation and conclusion of the results, Taking responsibility in necessary literature review for the study, Taking responsibility in the writing of the whole or important parts of the study, Reviewing the article before submission scientifically besides spelling and grammar.

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Correspondence Address / Yazışma Adresi:

Senay TURE
Deparment of Pediatrics, Division of Social Pediatrics,
Akdeniz University School of Medicine Antalya, Turkey
E-posta: drsenayture@gmail.com

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daha fazla zaman geçirmek zorunda kalmıştır. Bu çalışmada COVİD-19 pandemi sürecinin Türkiye'deki 3-9 yaş arasındaki çocukların ekran süresini nasıl etkilenmiş olduğunu belirlemek ve ekran süresine etki eden etmenlerin neler olduğunu incelemek amaçlanmıştır.

Gereç ve Yöntemler: Bu çalışma tanımlayıcı-kesitsel tipte bir çalışma olup 3 Mayıs 2020-30 Mayıs 2020 tarihleri arasında yapılmıştır. Türkiye genelinde çevrim içi anket formunun ulaştırılabildiği, 3-9 yaş arasında çocuğu olup anketi dolduran ebeveynler araştırmaya dahil edilmiştir.

Bulgular: Çalışmaya 3-9 yaş aralığında çocuğu olan 9483 ebeveyn katıldı. Çalışmaya katılan çocukların %82.9'unun pandemi öncesi dönem ile kıyaslandığında ekran süresinin artmış olduğu saptandı. Ekran süresindeki ortalama artış 150.84±95.842 dakika/gündü. Katılımcıların %74.9'unda (n=5122) artışın günde bir saatten fazla olduğu gözlendi. Pandemi döneminde belirtilen tarihlerde çalışmaya katılan çocukların günlük ortalama ekran süresi 193.2±123.8, ortalama çevrim içi eğitim süresi 66.8±62.2, çevrim içi eğitimden farklı bir nedenle ekran süresi 133±121.2 dakikaydı. Ebeveynin ekran süresi planının olmaması, ekranı ebeveyn kontrolünde izlememek, ebeveynin çocukla temel aktivitesinin ekran aracılı olması, çocuğun ekran kullanımındaki temel amacının oyun/eğlence olması artan ekran süresi ile ilişkili bulundu.

Sonuç: Pandemi döneminde çocukların önemli bir kısmının günlük ekran süresi artmıştır ve ekran karşısında geçirdikleri süre oldukça fazladır. Yaş gruplarına göre çocukların ekran kullanım amacı ve bu amaca yönelik olan ekran süreleri de değişiklik göstermektedir. Ebeveynlerin tutum ve davranışlarının pandemi döneminde çocukların ekran süresi ile ilişkili olduğu gözlenmiştir.

Anahtar Sözcükler: COVİD-19, Çocuk, Ekran süresi, Pandemi

INTRODUCTION

The first Covid-19 case in Turkey was detected on March 11, 2020, and measures were taken to prevent the epidemic's progression. While schools and preschools were closed as of March 12, 2020, a curfew was imposed on people under the age of 20 on April 3, 2020. With the curfew imposed on children, the closure of schools, and the periodic updating of the bans according to the course of the epidemic, children had to spend more time at home during the day.

For a healthy lifestyle, institutions such as the World Health Organization (WHO) and the American Academy of Pediatrics (AAP) recommend one hour of physical activity a day and as little screen time as possible for children and adolescents (1,2). At the same time, while one hour of daily screen exposure is accepted as 'excessive screen exposure' in children between the ages of 2-5, there are also studies that accept the 'excessive screen exposure' limit as 2 hours in children and young people (3).

Most studies examining the physical and psychological effects of screen time on children were conducted before the pandemic. These studies have shown the adverse effects of prolonged screen time on children (1-3). Being obliged to stay at home added to the long screen time may negatively reflect children's health. Therefore many institutions, including WHO and AAP, prepared recommendations for families and healthcare professionals to diminish the risks of new lifestyles imposed on children because of the pandemic (1,2,4-6).

The detrimental effects of prolonged screen time, such as cardiovascular diseases and obesity, on physical health are related to staying immobile and increasing high-calorie food intake in front of the screen, rather than the content watched on the screen (7). On the other hand, the psychological and developmental effects of the screen are mostly related to the screen content, and the characteristics of this influence may vary according to age (2,3,7-9). AAP recommending strict limits on children's screen time warns that attention should be paid to the screen's content, the purpose of use, and the length of time spent in front of the screen in pandemic period (4,5). Using screens to video chat and connect with important people in their lives, such as family, relatives, and friends, is essential for children's well-being (6). Particular attention should be paid to the time spent in front of the screen in preschool children who need to receive appropriate stimuli for neuromotor development (8). In general, screen time should not replace physical activity, adequate sleep, and nutrition in all age groups (4,5).

It may be beneficial to convey the principles of children's appropriate screen use to parents and to conduct counseling and awareness training on this subject (9-13). Counseling on this subject can be given by health, education, and social service providers. The responsibility of minimizing the negative impact of the COVID-19 epidemic on children and their families needs to be shared by all institutions (9).

So far, few studies have been conducted on the impact of the COVID-19 pandemic on children's screen time (4,14-16). Identifying the risk factors affecting screen time during the pandemic can offer an opinion for developing intervention programs to reduce screen time and prevent physical, psychological, and adverse social effects of screen exposure under extraordinary circumstances such as a pandemic. The study aimed to determine the effect of the pandemic period on the screen time of children aged 3-9 in Turkey and the factors associated with it.

MATERIAL and METHODS

This descriptive cross-sectional study was conducted between May 3, 2020, and May 30, 2020. Permission for the study was obtained from the Ministry of Health of the Republic of Turkey. Ethical approval was obtained from the Clinical Studies Ethics

Committee of Akdeniz University Faculty of Medicine (Decision No: KAEK-353).

Parents with children between the ages of 3 and 9 who filled out the online questionnaire across Turkey were included in the study.

The total number of children aged 3-9 in Turkey, which constitutes the universe of the study, is around 7 million (18), and the sample size calculated with a confidence interval of 99.9% and a margin of error of ±2 was 6759.

An online questionnaire was prepared to determine the time spent by children in front of the screen for a day when there was a curfew and schools were closed. The change in the duration of screen use was compared to the pre-pandemic period. Throughout Turkey, mothers or fathers with at least one child between the ages of 3 and 9 were invited to the survey via social media, telephone message groups, or e-mail. The parents who voluntarily answered the online questionnaire constituted the study participants.

Information regarding sociodemographic characteristics, average daily screen time of children and parents, parents' attitudes towards their children's screen time, the change in children's screen time during the pandemic period were sought. The total daily screen time of the children (the time to look at the screen with such as tv, tablet, computer, phone) and the screen time for online education were asked separately. Thus, the screen time for education and non-educational reasons were determined in addition to the total screen time. While determining the parents' screen time, work time, socialization/entertainment, and communication with family/friends were asked separately. The total screen time was obtained by adding these intervals.

Statistical analysis

The data obtained in the study were entered into the SPSS 22 (Statistical Package for the Social Sciences) statistical package program and evaluated with descriptive and comparative statistical analyzes. Descriptive statistics are presented with frequency, percentage, mean, standard deviation, median, minimum, maximum, 25%-75% percentile (Q1-Q3), or IQR values. Categorical data were evaluated using the chi-square test. Binary Logistic Regression Analysis was conducted to determine the independent risk factors that affect the frequency of increased screen time during the pandemic period. As a statistical significance level, p values <0.05 were considered significant.

RESULTS

The study included 10.525 parents who filled out the online questionnaire. When those who answered the question "Specify the age of your child" in the online questionnaire form outside the age range of 3-9 were excluded from the study, the study continued with the data of the remaining 9483 questionnaires (weighted mean [SD] age, 6,94 [1.58] years). 3488 (36.8%) were six years old or younger. Most mothers (68.2%) and fathers (65.7%) had high school or lower education. Most of the children (82.7%) lived with their nuclear families. Nearly one-fifth of working mothers (20.2%) and one-third (32.1%) of working fathers stopped working due to the pandemic. The sociodemographic characteristics of the children are summarized in Table I.

During the pandemic, the average daily screen time of the children was 193±124 minutes (min-max; 0-840) (min: minimum; max; maximum). Average daily screen use for online education was 67±62 minutes (min-max; 0-540) and for leisure activities was 133±121 (min-max; 0-840) minutes. The average daily screen time of the parents was 269±190 minutes (min-max;0-1200). Of the participants, 82.9% (n=7598) indicated that their children's screen time increased during the pandemic compared to the pre-pandemic period. The average increase in screen time was 151±96 (min-max; 10-840, median;120, IQR;120) minutes, and this increase was more than one hour per day in 74.9% (n=5122) of the children (Table II). Only 25 (0.3%) of the children participating in the study had no screen exposure.

Screen use for 1-2 hours/day was more common in the 3-6 age group, and screen use over two hours was more common in the 7-9 age group during the pandemic. When the screen times are examined according to the purpose of use, for a reason other than online education, the frequency of screen use was higher in the 3-6 age group. The frequency of screen use for education was higher in the 7-9 age group. The screen time frequencies of children 1-2 hours/day and more than two hours per day during the pandemic are summarized in according to the types of screen time Table III.

In the group whose screen time increased compared to the pre-pandemic period, the factors that could affect this were evaluated with binary logistic regression analysis. In the model evaluated, the mother's working status, the mother being the child's primary caretaker during the day, and the total screen time of the parents were not found to be related to increased screen time. Screen time was significantly higher in children whose parent did not have a plan for child's screen use (OR: 3.085, 95% CI, 2.723 to 3.494, p<.001) or children who did not use the screen under parental control (OR: 1.533, 95% CI, 1.352 to 1.73, p<.001). Other factors are listed in Table IV.

When the participation of children in online education was examined, it was observed that 288 (4.8%) of 5995 children in the 7-9 age group never followed online education, 1228 (20.5%) followed it sporadically, and 4479 (74.7%) regularly. In the group of children who cannot follow the online training regularly, having an extended family, more than two siblings,

Table I: Characteristics of the participants.

Characteristics (number of participants answering the relevant question)	n (%)
Child's Age (n=9483)	
3-4-5-6	3488 (36.8)
7-8-9	5995 (63.2)
Mother's education level (n=9409)	
High school or less	6413 (68.2)
University	2996 (31.8)
Father's education level (n=9409)	
High school or less	6183 (65.7)
University	3226 (34.3)
Family Type (n=9483)	
Nuclear family	7845 (82.7)
Extended family	1638 (17.3)
Number of siblings (n=9429)	
No siblings	1694 (18.0)
Has one sibling	4705 (49.9)
Has two or more siblings	3030 (32.1)
Change in mother's working status during the pandemic (n=9051)	
Was unemployed before the pandemic and is still not working	4179 (46.2)
Continues to work	2339 (25.8)
On temporary layoff	1827 (20.2)
Reduced working hours	706 (7.8)
Change in father's working status during the pandemic process (n=8823)	
Continues to work	5087 (57.7)
On temporary layoff	2835 (32.1)
Reduced working hours	901 (10.2)

Table II: Features of screen use during the pandemic period.

	n (%)
Screen time change compared to the pre-pandemic period (n=9163)	
Screen time increased	7598 (82.9)
Screen time not increased	1565 (17.1)
Total screen time per day (min/day)	
Mean±SD	193±123
Median (range)	180 (0-840)
Interquartile range	120
Screen time used for online education (min/day)	
Mean±SD	67±62
Median (range)	60 (0-540)
Interquartile range	60
Duration of screen use for a reason other than online education (min/day)	
Mean±SD	133±121
Median (range)	120 (0-840)
Interquartile range	120
The daily increase in screen time compared to the pre-pandemic period (min/day)	
Mean±SD	151±95
Median (range)	120 (1840)
Interquartile range	120
Parents' total daily screen time (min/day)	
Mean±SD	269±190
Median (range)	220 (0-1200)
İnterquartile range	205

Table III. The frequency and cause of screen use 1-2 hours/day and more than two hours per day in children during the pandemic period according to age groups.

	All age groups (n=9299)	3-6 age group (n=3425)	7-9 age group (n=5874)	Odds Ratio (95% CI) (Reference group= 3-6 age group)	p
Total screen time					
1-2 hours/day	2242 (24.1)	914 (26.7)	1328 (22.6)	0.920 (0.885-0.956)	<.001
>2 hours/day	5497 (59.1)	1876 (54.8)	3621 (61.6)	1.125 (1.085-1.167)	<.001
Screen time used for education					
1-2 hours/day	1632 (17.5)	362 (10.6)	1270 (21.5)	1.290 (1.250-1.332)	<.001
>2 hours/day	878 (9.4)	234 (6.9)	644 (10.9)	1.590 (1.377-1.835)	<.001
Screen time is used for a reason other than education.					
1-2 hours/day	2145 (23.5)	821 (24.5)	1324 (22.9)	0.967 (0.931-1.004)	0.07
>2 hours/day	3482 (38.1)	1349 (40.3)	2133 (36.8)	0.915 (0.867-965)	0.01

Chi-Square Tests

a parent with a lower education level, and the father's job being adversely affected by the pandemic were more common (p<.001).

Among the parents, 85.9% indicated that they have problems spending time with their children without a screen device. The most frequently expressed problem by the mothers was lack of time while it had a hectic work for the fathers. There was a statistically significant difference between the answers of the mothers and fathers in almost all titles. Parental views on other causes are summarized in Table V.

To the question of what activity they do with their children during the day, the parents indicated a screen-mediated activity such as tv/video/digital game with a rate of 14.2% (n=1317). Of the parents, 40% (n=3714) stated that they did lessons and educational activities together, while 45.73% (n=4240) stated that they played games.

Table IV: Binary logistic regression analysis of the factors that may influence the increase in screen time.

Independent variables/ Categories	Number of participants answering the question about screen time in this group	Increased screen time during the pandemic n (%)	Adjusted odds ratio (95% CI)	p
Age group				
3-4-5-6 years	3372	2754 (81.7)	1	<.001
7-8-9 years	5791	4844 (83.6)	1.304 (1.147-1.483)	
Mother's education level				
High school or less	6152	4955 (80.5)	1	<.001
University	2941	2586 (87.9)	1.434 (1.191-1.727)	
Father's education level				
High school or less	5933	4788 (80.7)	1	<.001
University	3160	2753 (87.1)	1.401 (1.183-1.659)	
Mother's working status				
Working	3434	2965 (86.3)	1.089 (0.931-1.273)	0.28
Not working	5648	4567 (80.9)	1	
Family type				
Nuclear family	7606	6370 (83.7)	1.193 (1.023-1.392)	0.02
Extended family	1557	1228 (78.9)	1	
Who is primarily involved in the care of the child?				
Mother	8121	6696 (82.5)	1.120 (0.890-1.410)	0.33
Other people	1042	902 (86.6)	1	
Child's private screen tool possession				
Yes	4387	3743 (85.3)	1.194 (1.057-1.348)	0.01
No	4776	3855 (80.7)	1	
The main activity of the parent with the child				
Game/activity/lesson	7684	6282 (81.8)	1	0.01
TV/movie/video/digital game	1278	1152 (90.1)	1.384 (1.142-1.677)	
Parental plan for the child's screen use				
There is a limitation	2946	1695 (67.9)	1	<.001
No limitation	6640	5895 (88.8)	3.085 (2.723-3.494)	
Parental supervision over the screen content				
Present	4101	3152 (76.9)	1	<.001
Not present	5062	4446 (87.8)	1.533 (1.352-1.737)	
The main purpose of the child's screen use				
Education	2326	1767 (76)	1.305 (1.143-1.490)	<.001
Gaming/entertainment/watching videos	6837	5831 (85.3)	1	

Nagelkerke R Square: 0.133.

Table V: Reasons why parents could not do an activity with their child without using a screen device.

	Parents' answer (n=9409) n(%)	Mothers' answer (n=7752) n(%)	Fathers' answer (n=1657) n(%)	p
I do not have time because of other duties such as cleaning/cooking/ housewor	3760 (39.6)	3528 (45.5)	232 (14)	<.001
My child has no desire to play with me	2589 (7.5)	2198 (28.4)	391 (23.6)	<.001
I do not have time because I also have to take care of my other child(ren)	2135 (22.7)	1836 (23.7)	299 (18)	<.001
My work is hectic.	1709 (18.2)	1094 (14.1)	615 (37.1)	<.001
I also like to spend time with the screen	545 (5.8)	290 (3.7)	255 (15.4)	<.001
I do not have the patience to play games	412 (4.4)	319 (4.1)	93 (5.6)	0.01
It is normal for my child to spend time with the screen	154 (1.6)	106 (1.4)	48 (2.9)	<.001
If I do not use a screen device, my child prefers to play with siblings/ friends rather than with me	102 (10.84)	88 (1.1)	14 (0.8)	>0.05

DISCUSSION

This study determined that the screen time of 82.9% of children aged 3-9 years increased during a certain period of the pandemic compared to the pre-pandemic period. The mean increase in screen time was 151±96 minutes/day. The absence of a parental screen time plan, not watching the screen under parental control, the parent's main activity with the child being

screen-mediated, and the child's primary purpose of screen use being game/entertainment were associated with screen time increase.

Before the pandemic period, it was reported that 12.1% of children aged 6 to 9 years were in front of the screen for more then two hours a day (14). The average screen time for children aged between 2 and 6 years was 86 minutes per day (15). In the present study covering the pandemic period, the frequency of screen time over 2 hours was 59.1%, while the average daily screen time of children aged 3-6 was around 180 minutes.

The fact that the study data were collected when the curfew was imposed on children and the schools were closed can be considered a reasonable date to evaluate the effect of the pandemic on the screen time of the 3-9 age group. In a study conducted by Oflu et al. (16) using face-to-face questionnaire filling technique with 253 children of similar age and date range in Turkey who were admitted to the hospital, it was observed that the frequency of screen use longer than one hour a day for purposes other than online education was 88.9%. In our study, the frequency of screen use longer than one hour for a reason other than online education was 61.5%, while the frequency of screen use longer than one hour a day for any reason was 83.2%. The lower frequency in the study of Oflu et al. (16) may be due to methodological differences between the two studies. The main advantage of our study is that it is not performed on children admitted to the hospital but in a broader participant population by accessing them using online methods.

In a study conducted in Germany, screen time for entertainment and recreational screen time was found to be 194.5±141.3 minutes/day in 1711 participants aged 4-17 years (18). In the present study, we found a non-educational screen time of 133 min/day, which was less than the entertainment/recreational screen time determined in Germany. This difference may be due to the inclusion of older children in the study in Germany.

In Shanghai, the screen time of 2426 children aged 6-17 years during the pandemic was examined using the same method as our study. During the pandemic period, the total screen time was approximately 334 min/day, the non-educational screen time was 64 min/day, and the daily screen time of 30.9% of the participants exceeded two hours (19). In our study, the total screen time of the participants was 193 min/day, nearly half of the time observed in Shanghai, while the non-educational screen time was 133 min/day, which was nearly twice that in Shanghai. The difference between the Shanghai study and ours may be due to age range, cultural differences, and the variety of off-screen activities (19). In addition, as the online education time increases, children's free time and the time they spend in front of the screen may decrease. In support of this view, our study determined that the 3-6 age group, outside the target group of compulsory education, used screens for more extended periods for non-educational reasons than the 7-9 age group.

In this study, the total daily screen time of the 3-6 age group, who did not have to use the screen for compulsory education, was similar to the 7-9 age group who had to use a screen for education. There is no study in the literature that we can access, including the 3-6 age group during the pandemic period and comparing the total screen time with other age groups. It is thought that it is crucial to conduct more comprehensive and structured studies in younger age groups where appropriate stimuli are essential for neuromotor development, and more strict screen time limitations should be used (8,9).

One of the critical reasons for the increase in screen time during the pandemic is online education. It is expected and necessary for children to increase their screen time to use their right to education during the pandemic. Some opinions using screens to video chat, connect with influential people in their lives (such as family, relatives, friends), and continued education supports children's well-being (6). One of the points to be considered in screen time is the purpose of using it. Appropriate screen time for games/entertainment according to the child's age group during the COVID-19 pandemic is essential for physical and psychosocial health (20).

Identifying the risk factors affecting screen time during the pandemic may help reduce screen time for COVID-19 and possible future pandemics. It can also offer essential ideas for developing intervention programs to prevent physical, psychological, and social adverse effects of screen exposure.

In this study, when the factors affecting the duration of screen used for purposes other than online education during the pandemic period were evaluated by regression analysis; It has been determined that lack of parental screen time plan, not using the screen under parental supervision, the parent's primary activity with the child being screen-mediated, and the child's primary purpose of screen use for game/entertainment were significantly associated with increased screen time.

According to the study of Eyimaya et al. (21), covering the 6-13 age group in Turkey, the absence of a parental screen time plan is a significant risk factor for increased screen time of children. Studies conducted before the pandemic revealed that determining the house rules and having a parental plan for screen time reduce children's screen use (10-13).

The COVID-19 pandemic presents new and unique challenges for parents. For many parents, it is difficult to fulfill both their daily duties and responsibilities for supervision of their children throughout the day and to spend quality time with them. In this study, 85.9% of parents stated that they had problems spending time with their children without a screen device. When it was questioned why parents could not spend time with their children without using the screen during the pandemic period, the parents' answers on this issue differed. Parents must develop balanced and practical approaches to screen use to support children's physical and psychological health during the epidemic. The literature on how and how much time

parents spend with their children during the day showed that there was not enough study on this subject. In a study from the pre-pandemic period, it was found that parents spend less time as their children get older (22). Considering factors such as the pandemic period, the advancement of technology, and easy access to many types of screens, it would be helpful to conduct up-to-date and comprehensive studies on the quantity and quality of the time parents spend with their children today.

One of the crucial findings of this study was that 25.3% of the children aged 7-9 years never participated in online education or participated sporadically. It was determined that low education level of parents, having two or more siblings, a father losing his job due to the pandemic or having to work with short-time working allowance, and having a large family were risk factors for not being able to follow online education in the 7-9 age group. UNICEF's report also drew attention to the inequality in children's access to education (23). There were different results between countries depending on the socioeconomic level of the families. It has been stated that children do not have access to online education, which is more common in developing countries. Even worse, up to 43% of children cannot continue their education (23).

It is essential to protect every child's right to education during the pandemic period and provide an urgent solution by determining the obstacles in front of children's access to education through more comprehensive studies (4,13).

Strengths and weaknesses of the study

The fact that the study was conducted with an on-line questionnaire and parents were reached by using on-line links may have reduced the capacity of the sample group to represent the general population. At the same time, since parents' information about children's screen time is based on estimates and average times, the information given may also be affected by parents' characteristics and perceptions.

Forgetting to include a gender question in the questionnaire and the impossibility of accessing this retrospective information may have caused the inability to detect gender-based differences.

While considering a specific age group in the study provides an opportunity for a better evaluation of this age group, it should be kept in mind that the results should not be generalized to the whole child age group.

The strength of the current study is that it is a study with large sample size, including children aged 3-9 in Turkey, living in rural and urban areas.

CONCLUSION

During the pandemic period, children's total daily screen time has increased. According to age groups, the purpose of children's screen use and the screen time for this purpose vary. Parents should be adequately informed about the negative consequences of children's unlimited and excessive screen exposure in this process. The necessary support should be provided for children to plan their screen time.

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