Original article

Arch Argent Pediatr 2024;122(3):e202310122

Media use and attitudes towards screens in children aged 36-72 months; a cross-sectional, descriptive study

Zehra Kardas[a], *Nagihan Erdog Sahin*[a], *Meda Kondolot*[b]

ABSTRACT

Introduction: The age at which children are introduced to media devices is becoming increasingly earlier. Studies regarding the media habits of young children have gained importance. The aim of the study was to describe the screen media habits (age of introduction media, time spend with screen, popular choices) of preschool children and to explore their relationship with household characteristics.

***Population and methods*:** Cross-sectional descriptive study; the parents of children aged 36-72 months who attended childcare centers in Kayseri, a central Anatolian city in Türkiye, completed a questionnaire on media habits of families and children.

Results: There were 858 questionaires included. The proportion of children using screen media more than 2 h/day was 28%; 36% of children were introduced to media devices before the age of two. The most frequently used media tool was television (95%) and the program watched was cartoons for TV (86.7%). Children of highly educated parents had shorter TV, computer and smartphone screen time ($p = 0.012$, $p = 0.007$, $p < 0.01$ for mother and $p = 0.049$, $p = 0.032$, $p = 0.04$ for father respectively). Introducing books in the first 6 months was associated with shorter daily screen time ($p = 0.011$, $p = 0.009$, $p = 0.002$ for TV, computer and smartphone ,respectively). Parent's time spent on TV was positively correlated with children's time spent on TV ($p < 0.05$, $r = 0.354$).

Conclusion: Parents' education levels, parents' screen time and introducing book in early age was related to children's media habits. Comprehensive studies are needed to explain this relationship more clearly.

Keywords: *child; screen time; comunications media.*

doi: http://dx.doi.org/10.5546/aap.2023-10122.eng

To cite: Kardas Z, Erdog Sahin N, Kondolot M. Media use and attitudes towards screens in children aged 36-72 months; a cross-sectional, descriptive study. *Arch Argent Pediatr* 2024;122(3):e202310122.

[a] *Department of Pediatrics, Social Pediatrics Unit, Kayseri City Education and Research Hospital, Kayseri, Turkey.*
[b] *Department of Pediatrics, Social Pediatrics Unit, Erciyes University Faculty of Medicine, Kayseri, Turkey.*

Correspondence to *Nagihan Erdoğ Şahin: dr.nagihansahin@yahoo.com*

Funding: *None.*

Conflict of interest: *None.*

Received: *6-12-2023*
Accepted: *9-26-2023*

INTRODUCTION

In the 21st century, children are surrounded by a rich environment containing many kinds of digital equipment,[1] with some children being taught to smile for cameras before they're even introduced to their grandparents. The age at which children are introduced to media devices is decreasing continuously.[2] However, studies have shown that watching television (TV) programs, even educational ones, has no benefit for children under 2 years of age.[3] Furthermore, in children aged 2 years and older, prolonged use of media devices can cause problems in speaking skills, sleep behavior and attention and result in overall behavior changes.[4,5] While it may be impossible to eliminate media use from children's lives entirely, their use of media devices should be supervised and based on their age and needs. The content being consumed on these devices is as important as the time spent on them. Previous studies have shown that having a lower socioeconomic status or a single parent increases the time children spend in front of a screen.[6-8] Furthermore, parents' education levels are associated with children's media use.[9]

Kaiser et al. demonstrated that household media behavior influences children's media habits.[6] Parents' media use plays an important role in child development and determines the quality of parent-child interactions. It has been suggested that high screen time among parents reduces parent-child interaction, which, in turn, negatively impacts children's talk time and, therefore, their language skills.[10,11] Furthermore, family media use reduces a child's attention period during play, even if they do not use media themselves.[12] Childhood is an important and valuable period of human life. Development during this period should be directed carefully to ensure a well-rounded future generation.

The aim of the study was to describe the screen media habits (e.g., age of introduction media, time spend with screen, popular choices) of preschool children in Kayseri, an Anatolian province in Turkey, and to explore their relationship with household characteristics.

POPULATION AND METHODS

This cross-sectional, descriptive study involved the parents of children aged 36–72 months who attended any childcare center in Kayseri. This study was conducted between April 2019 and May 2020 in Kayseri, a central Anatolian city in Turkey and it was approved by the ethics committee of the Erciyes University School of Medicine (2019/217). Educational preschool institutions in the province were divided into groups according to the regional culture and parents' income level (high, middle, or low socioeconomic levels). Schools were visited with the permissions from the Provincial Directorate of National Education. The researchers were two pediatricians who asked 1000 parents to participate in the questionnaire. Parents of children with physical disabilities, neuropsychiatric disorders or developmental disorders were excluded from the study. In total, 858 eligible parents agreed to participate in the study. All parents gave written informed consent for themselves and their children. Participants were not provided with a financial incentive to participate.

Questionnaire

A self-completion questionnaire containing a mixture of open-ended, dichotomous (yes/no), and multiple-choice questions was provided to the parents. Only the mother and/or father were asked to complete the questionnaire.

The questionnaire was organized by the researchers and comprised three parts. The first part involved questions on the sociodemographic characteristics of the participants. For example, parents' education and socioeconomic levels, number of siblings, and caregivers' education levels were assessed. Parents' monthly incomes were categorized into one of four groups based on values of the national poverty line (1500 Turkish Lira/TL) at the time of the study.The second part involved questions regarding the most popular media device among children (TV, smartphone, or computer/tablet), the most popular media device application, the age children were introduced to media devices, children's daily screen time, and the media habits of the parents. The third part included general health (e.g., sleep problems and body mass index) and reading habit questions.

Sample size

It had been previously determined that, in the research area, about 65% of children aged 36–72 months accessed the internet in their home environment.[13] The total number of children in childcare centers in the city center was provided by the Provincial Directorate of National Education (n = 26 500). Assuming an error level of 0.05, a power of 0.80, and a tolerance value of 0.05, the minimum sample size required for the study was calculated to be 698.

Statistical analysis

The normal distribution of the data was evaluated using the Shapiro-Wilk and Kolmogrow-Smirnov tests. Variance homogeneity was assessed using the Levene test. The binary comparison of quantitative variables was achieved via a Mann-Whitney U test and two independent samples t-tests. The Kruskal Wallis H test was used for comparisons between more than two groups. Pearson's χ2 (chi-square) analysis was used to compare categorical data. The Dunn-Bonferroni test was applied for multiple comparisons. The data were evaluated using the SPSS 25.0 program. The significance level was set as $p < 0.05$.

RESULTS

This study included 858 preschool children from different socioeconomic statuses. Their mean age was 66 months, and 52.8% were male. Regarding the children's caregivers when not at their childcare centers, 29% were cared for by their grandparents, 31% were cared for by a non-family caregiver, and the remaining 39% were cared for by their parents (mother and/or father) (*Table 1*).

In this study, 25% of children were introduced to media devices between the ages of 12–24 and 11% were introduced before the age of 12 months; a total of 36% of children started using media devices before the age of two. The proportion of children using screen media more than 2h/day was 28%. The most frequently used media device was television (95%). Children's program choices changed based on the media device used. The most popular programs across devices were cartoons for TV (86.7%), cartoons and videos for computers/tablets (38.5%) and games for smartphones (47.8%). Preferences and attitudes of children related with screen media are shown in *Table 2*.

The duration of TV and computer use differed significantly between genders; and it was longer in boys ($p = 0.005$ and $p = 0.001$, respectively) (*Table 3*). There was no association between the age media device use began and time spent on TVs, computers, and smartphones ($p = 0.370$, $p = 0.858$, $p = 0.777$, respectively). However, the screen time of children for television, computer and smart phone who shared reading books in the first 6 months was significantly shorter than children who shared reading books after 36 months ($p = 0.011$, $p = 0.009$, $p = 0.002$, respectively) (*Table 3*).

The duration of TV, computer and smart phone use was significantly shorter in the children of mothers with higher education (undergraduate) ($p = 0.012$, $p = 0.007$, $p < 0.01$, respectively). Similarly, duration of TV, computer and smart phone use was significantly shorter in fathers with higher education (undergraduate) ($p = 0.049$, $p = 0.032$, $p = 0.04$ respectively). As the education level of caregivers increased, the exposure time of children to TV and smartphone was shortened ($p = 0.017$, $p = 0.003$ respectively) (*Table 3*).

Mothers' employment statuses were associated with children's media habits. Children with stay-at-home mothers spent longer time on television and computer ($p = 0.001$, $p = 0.012$, respectively). In the high-income group, the duration of watching TV was significantly shorter than the group above the national poverty threshold ($p = 0.003$) and the duration of smart phone use decreased as the income level increased ($p = 0.001$).

Media devices exposure times were found to be similar in the group with and without sleep problems ($p = 0.097$, $p = 0.245$, $p = 0.259$ respectively for TVs, computers, and smartphones).

Especially the time spent by children on TVs was positively correlated with their parents' TV use ($p < 0.05$, $r = 0.354$). Parents' time spent on TV was weak positive correlated with the time spent by children on computers and smartphones ($p < 0.05$, $r = 0.074$; $p < 0.05$, $r = 0.198$ respectively). Furthermore, parents' time spent on internet was weak positive correlated with the time spent by children on TVs, computers, and smartphones ($p < 0.05$, $r = 0.087$; $p < 0.05$, $r = 0,141$; and $p < 0.05$, $r = 0.197$, respectively) (*Table 4*).

Children's screen time was not correlated with the age of their mothers ($p>0.05$, $p>0.05$, $p>0.05$ respectively). However, the time children spent on computers and smartphones increased as their fathers' age increased and there was a weak correlation ($p < 0.05$, $r = 0.141$; $p < 0.05$, $r = 0.197$, respectively) (*Table 4*).

DISCUSSION

In this study, the media device use habits of preschool children's aged 36–72 months and their association with parent', child care provider' and household characteristics' were examined.

The age that children are introduced to media devices is becoming increasingly younger.[14] The American Academy of Pediatrics (AAP) stated that 90% of children in the United States have

Table 1. Sociodemographic characteristics of participants

	N = 858	%
Sex/gender of children		
Female	405	47.2
Male	453	52.8
Age (months)		
36-47	38	4,4
48-60	132	15,3
61-72	688	80,1
Number of siblings		
0	151	17,6
1	491	57,2
2	181	21,1
≥3	35	4
Mother's age (year)		
21-30	186	21,6
31-40	603	70,2
41-50	69	8
Father's age (year)		
26-35	317	36,9
36-45	483	56,2
46-57	58	6,7
Main caregiver (except during school hours)		
Mother and/or father	336	39,1
Grandparent	252	29,3
Caregiver	270	31,4
Mother's education Level		
Primary	113	13,2
High school	266	31
Undergraduate	477	55,6
Else	2	0,2
Father's education level		
Primary	99	11,5
High school	242	28,2
Undergraduate	512	59,7
Else	5	0,6
Caregiver's education Level		
Primary	235	27,4
High school	285	33,2
Undergraduate	321	37,4
Else	17	2,0
Mother's employment status		
Employe	322	37,5
Housewife	536	62,5
Income per month		
Below the national poverty threshold (<1500 tl)	39	4,6
Above the national poverty threshold (1500-4500 tl)	398	46,4
Middle income (4500-10000 tl)	373	43,5
High income (>10000 tl)	48	5,6
Health problem		
No	783	91,3
Yes	75	8,7

Table 2. Media use features and preferences of children related with screen media

	N = 858	%
Time spent on TV (minutes)		
Not use	40	4,6
≤30	75	8,7
>30 - ≤120	499	58,1
>120 - ≤180	138	16,0
>180	106	12,3
Time spent on computer (minutes)		
Not use	368	42,8
≤30	133	15,5
>30 - ≤120	284	33,1
>120 - ≤180	40	4,6
>180	33	3,8
Time spent on smartphone (minutes)		
Not use	321	37,4
≤30	197	22,9
>30 - ≤120	290	33,7
>120 - ≤180	28	3,2
>180	22	2,5
Media introducing age (months)		
0-6	27	3,2
6-12	67	7,8
12-24	213	24,8
24-36	228	26,6
>36	323	37,6
Books introducing age (months)		
0-6	87	10,2
6-12	164	19,1
12-24	266	31
24-36	175	20,4
>36	166	19,3
Most popular choice on TV		
Cartoons	744	86,7
Advertisement	5	0,6
Music programm	11	1,3
TV series	74	8,6
Else	24	2,8
Most popular choice on PC/tablet		
Games	262	30,5
Cartoons	330	38,5
Internet surfing	50	5,8
Music	20	2,4
Else	196	22,8
Most popular choice on smartphone		
Games	410	47,8
Taking photos	111	12,9
Music	37	4,3
Internet surfing	83	9,7
Else	217	25,3

already begun watching TV by the age of 2.[15] Similarly, a Korean study found that most children begin to use TV and smartphone devices before the age of 2.[2] In the current study, 25% of children were introduced to media devices between the ages of 12–24, with approximately 11% introduced before the age of 12 months.

The AAP recommends that parents start daily shared reading with their children in early infancy (as young as 6 months) and continue until school entry age to support children's social-emotional, language, and early literacy skill development.[16]

Table 3. Relationship between children's time spent with TV, computer, smartphone, and other variables

Variables	TV N = 818		Computer N = 490		Smartphone N = 537	
	Time spent on (min)	p value	Time spent on (min)	p value	Time spent on (min)	p value
Gender						
Male	120 (60-180)	0.005*	60 (30-120)	0.001*	60 (30-110)	0.151
Female	120 (60-150)		60 (30-105)		60 (30-60)	
Media introducing age (months)						
0-6	60 (60-97.5)	0.370	90 (30-170)	0.858	60 (40-90)	0.777
6-12	120 (60-180)		60 (60-120)		60 (30-60)	
12-24	120 (60-180)		60 (30-120)		60 (30-60)	
24-36	120 (60-150)		60 (30-120)		60 (30-90)	
>36	120 (60-150)		60 (30-120)		60 (30-90)	
Age of start reading books (months)						
0-6	85 (60-120)[a]	0.011**	60 (30-75)[a]	0.009**	30(20-60)[a]	0.002**
6-12	120 (60-180)		60 (30-120)		60 (30-60)	
12-24	120 (60-150)		60 (30-120)		60 (30-60)	
24-36	120 (60-180)		60 (60-120)		60 (30-120)	
>36	120 (60-180)[b]		60 (60-120)[b]		60 (30-120)[b]	
Mothers' education level						
Primary	120 (60-180)[a]	0.012**	60 (37.5-150)	0.007**	60 (30-120)[a]	<0.01**
High school	120 (60-180)		60 (55-120)[a]		60 (30-120)	
Undergraduate	120 (60-150)[b]		60 (30-120)[b]		60 (30-60)[b]	
Mothers'employment status						
Employe	90 (60-120)	0.001*	60 (30-97.5)	0.012*	60 (30-60)	0.195
Housewife	120 (60-180)		60 (30-120)		60 (30-70)	
Fathers'education level						
Primary	120 (60-180)[a]	0.049**	75(60-120)[a]	0.032**	60 (50-120)[a]	0.04**
High school	120 (60-180)		60 (30-120)		60 (30-120)	
Undergraduate	120 (60-150)[b]		60 (30-120)[b]		60 (30-60)[b]	
Caregivers' education level						
Primary	120 (60-180)[a]	0.017**	60 (30-120)	0.077	60 (30-120)[a]	0.003**
High school	120 (60-150)		60 (30-120)		60 (30-90)	
Undergraduate	120 (60-130)[b]		60 (30-120)		60 (30-60)[b]	
Monthly household income						
Below the national poverty threshold	60 (60-120)	0.003**	60 (30-160)	0.07	60 (30-120)	0.001**
Above the national poverty threshold	120 (60-180)[a]		60 (60-120)		60 (30-120)[a]	
Middle income	120 (60-150)		60 (30-120)		60 (30-60)[b]	
High income	90 (60-120)[b]		60 (30-120)		40 (15-60)	
Sleep problems						
No	120 (60-150)	0.097	90 (30-120)	0.245	60 (30-80)	0.259
Yes	120 (60-180)		90 (40-120)		60 (30-120)	

Values are expressed as median (1st-3rd quartiles).
**Mann Whitney test, statistically significant P value < 0.05 ** Kruskal Wallis H test, statistically significant p value < 0.05.*
Different superscripts (a, b) in a same column indicate statistically significant difference among groups.

Table 4. Relationship between children's time spent with TV, computer, smartphone, and other variables

Variables	Time spent on TV	Time spent on computer	Time spent on smartphone
Parent's time spent on TV	r = 0.354 **p <0.05**	r = 0.074 **p <0.05**	r = 0.198 **p <0.05**
Parent's time spent on internet	r = 0.087 **p <0.05**	r = 0,141 **p <0.05**	r = 0.197 **p <0.05**
Mother age	r = 0.038 p >0.05	r = 0.006 p >0.05	r = 0.040 p >0.05
Father age	r = -0.005 p >0.05	r = 0.077 **p <0.05**	r = 0.089 **p <0.05**
Body mass index (BMI)	r = -0.087 **p = 0.044**	r = 0.024 p >0.05	r = -0.005 p >0.05

This study has shown that children's screen time significantly shorter who shared reading books in the early months. For this reason, shared reading with the children in early infancy may also associated with screen time and managing media habits. There were studies demonstrated that relationship between screen use and reading habits of children and parents.[17,18]

In this study male children were found spend more time watching TV and computer. But a few studies have shown that media behaviors are similar by gender.[19]

The results of the current study demonstrated that parents' education levels related the time spent on media devices significantly. The duration of TV, computer and smartphone use was shorter in the children of mothers and fathers with higher education (undergraduate). This is in line with the findings of previous studies.[6,8,20,21] Furthermore, the education levels of non-parental caregivers also influenced children's media device behaviors. Consequently, high education level may affect parental awareness of their children's media habits.

Previous studies have reported different results regarding the impact of family income on children's media device use.[9,22] One study found that both the duration of use and content of media devices differed based on a family's income. Children from high-income families preferred educational programs, while children from low-income families preferred entertainment programs.[23] Our study has shown that TV and smartphone use time shorter in the high-income group.

Previous studies have demonstrated that parents' media behaviors affect those of children.[6] Children in families with serious media addictions read less.[6,24] According to the current study, children's media device use time was correlated with the time spent by their parents on media devices, which is in line with the findings of other studies.[11] Furthermore, previous studies have shown that as the time spent by parents' on media devices increases, the time spent paying attention to their children decreases, which consequently impacts the number of parent-child interactions.[10,11]

It is well-known that prolonged media device use has harmful effects on young children, even educational programs.[4,21] While these effects differ based on the time spent on media devices and the content consumed,[21] content is known to have several harmful effects on children, as they can be impacted by rapidly changing features, such as music and animation.[25] Excessive media use impacts children's language skills, sleep behaviors, cognitive development, weight, and attention span.[5] Media devices exposure times were found to be similar in the group with and without sleep problems in our study. In this study, families were asked whether their children had sleep problems and to explain the situation they defined as sleep problems. Most parents complained that their children were going to bed at late hours. However, this situation described as a sleep problem was based only on parental discourse and it was subjective. Due to the method used in our study, it cannot be said whether there is a clear relationship between screen time and sleep problems.

However, no correlation was found between BMI and media device use, which was consistent with the results of an earlier review.[20] This may

be due to the more physically active nature of preschool-age children.

Children's media behaviors were not associated with their mothers' age; however, as the age of their father increased, children's screen time increased, particularly on computers and smartphones. Therefore, while mothers' awareness of media device use may be independent of age, younger fathers may be more aware of this use.

There were some limitations in this study. One of the limitations is that the questionnaire used for data collection is unvalidated. While there are questionnaires available for evaluating media use among older children, they were not suitable for the age range assessed in the current study. Other limitation is the data were obtained through a survey file; it can be affected by the remembering factor of parents. However, due to the importance of studying media use among children aged 36–72 months and the wide socioeconomic distribution of families included in the study, the study sample is considered a good indicator of the wider population. Future studies should look to develop an age-appropriate scale to evaluate media use in this age range or conduct a longitudinal survey to follow changes in the media device behaviors of children.

In conclusion, it was observed that parental education levels, caregiver education levels, the age of starting to read books and parental TV/internet usage times were associated with screen media times of children. Children with parents and caregivers with higher levels of education and children with an early reading age spent less time on TV, computer and phone. In addition, as parents' TV and internet usage time increased, children's screen media usage time increased as well. As a result, raising the awareness of parents/caregivers about media attitudes and introduce children to reading at an early age is important for children to acquire the healthy media habits. ■

Acknowledgments

The authors thank Dr. Maruf Göğebakan for his contributions to the statistical analyses.

REFERENCES

1. Reid Chassiakos YL, Radesky J, Christakis D, Moreno MA, Cross C; COUNCIL ON COMMUNICATIONS AND MEDIA. Children and Adolescents and Digital Media. *Pediatrics.* 2016;138(5):e20162593.
2. Chang H, Park E, Yoo H, Lee J, Shin Y. Electronic Media Exposure and Use among Toddlers. *Psychiatry Investig.* 2018;15(6):568-73.
3. Christakis DA. The Effects of Infant Media Usage: What Do We Know and What Should We Learn? *Acta Paediatr.* 2009;98(1):8-16.
4. Council on Communications and Media. Media Use in School-Aged Children and Adolescents. *Pediatrics.* 2016;138(5):e20162592.
5. Owens J, Maxim R, McGuinn M, Nobile C, et al. Television-Viewing Habits and Sleep Disturbance in School Children. *Pediatrics.* 1999;104(3):e27.
6. Rideout VJ, Hamel E. The Media Family: Electronic Media in the Lives of Infants, Toddlers, Preschoolers and Their Parents. Menlo Park, CA: Kaiser Family Foundation; 2006.
7. Mistry KB, Minkovitz CS, Strobino DM, Borzekowski DL. Children's television exposure and behavioral and social outcomes at 5.5 years: does timing of exposure matter? *Pediatrics.* 2007;120(4):762-9.
8. Certain LK, Kahn RS. Prevalence, correlates and trajectory of television viewing among infants and toddlers. *Pediatrics.* 2002;109(4):634-42.
9. Anand S, Krosnick JA. Demographic predictors of media use among infants, toddlers and preschoolers. *Am Behav Sci.* 2005;48(5):539-61.
10. Anderson DR, Evans MK. Peril and Potential of Media for Infants and Toddlers. *Zero Three*. 2001;22:10-6.
11. Kirkorian HL, Pempek TA, Murphy LA, Schmidt ME, Anderson DR. The impact of background television on parent-child interaction. *Child Dev*. 2009;80(5):1350-9.
12. Schmidt ME, Pempek TA, Kirkorian HL, Lund AF, Anderson DR. The effects of background television on the toy play behavior of very young children. *Child Dev*. 2008;79(4):1137-51.
13. Gündoğdu Z, Seytepe Ö, Pelit BM, Doğru H, et al. Media use by preschool-aged children. *Kocaeli* Üniversitesi *Sağlık Bilimleri Dergisi.* 2016;2(2):6-10.
14. Livingstone S, Marsh J, Plowman L, Ottovordemgentschenfelde S, Fletcher-Watson B. Young Children (0-8) and Digital Technology: a qualitative exploratory study – national report - UK. London: London School of Economics and Political Science; 2014.
15. Media Education. American Academy of Pediatrics. Committee on Public Education. *Pediatrics.* 1999;104(2 Pt 1):341-3.
16. Council on Early Childhood, High PC, Klass P. Literacy promotion: an essential component of primary care pediatric practice. *Pediatrics*. 2014;134(2):404-9.
17. Sarı E, Ayhan Başer D, Yalcin SS. Father's reading beliefs and child's media usage habits. *Int J Environ Health Res.* 2023;12:1-13.
18. McArthur BA, Browne D, McDonald S, Tough S, Madigan S. Longitudinal associations between screen use and reading in preschool-aged children. *Pediatrics.* 2021;147(6):e2020011429.
19. Lee DY, Roh HW, Kim SJ, Park EJ, et al. Trends in digital media use in Korean preschool children. *J Korean Med Sci.* 2019;34(41):e263.
20. Paudel S, Jancey J, Subedi N, Leavy J. Correlates of mobile screen media use among children aged 0-8: a systematic review. *BMJ Open*. 2017;7(10):e014585.
21. Hosokawa R, Katsura T. Association between mobile technology use and child adjustment in early elementary school age. *PLoS One.* 2018;13(7):e0199959.
22. Vandewater EA, Rideout VJ, Wartella EA, Huang X, et al. Digital childhood: electronic media and technology use among infants, toddlers, and preschoolers. *Pediatrics.* 2007;119(5):e1006-15.
23. Rideout V. Zero to Eight: Children's Media Use in America. San Francisco, CA: Common Sense Media; 2013.
24. Vandewater EA, Bickham DS, Lee JH, Cummings HM, et al. When the television is always on: heavy television

exposure and young children's development. *Am Behav Sci.* 2005;48(5):562-77.
25. Sigmundová D, Sigmund E, Badura P, Vokáčová J, et al. Weekday- weekend patterns of physical activity and screen time in parents and their pre-schoolers. *BMC Public Health*. 2016;16(1):898.