https://doi.org/10.22502/jlmc.v10i1.481

Original Research Article

Screen Time in Children of Central Nepal: A Parent Reported Cross-sectional Study during COVID-19 Pandemic

Radha Bhurtel,[a,d] Ram Prasad Pokhrel,[b,d] Sumitra Sharma[c,e]

ABSTRACT:

Introduction: The insurgence of COVID-19 has affected many aspects of human life and its repercussions on the life of children cannot be undermined. In addition to the serious impact on health and food insecurity, lack of recreational activities, school closure and switch to online learning have pushed children to excessive screen exposure. This study aimed to assess the duration of screen time and parental perspective towards screen viewing in children during the pandemic. **Methods**: A community-based descriptive cross-sectional study was carried out in Bharatpur Metropolitan City. A total of 384 parents were included purposively. A semi-structured questionnaire was used to interview the parents during the pandemic for one month. During the data collection, appropriate universal precautions for COVID-19 were taken. **Results**: The median duration of screen exposure was two hours (30 minutes to 9 hours). Most (65%) of the parents stated that their children spent more time on screen compared to pre-COVID-19 times. The majority (82%) of the parents were worried about the possible consequences of excessive screen time. More than two-thirds (72%) of parents thought that screen exposure also has various benefits for children. **Conclusion**: Most of the children exceeded the duration of screen time recommended by the World Health Organization. Most of the parents were worried about the harmful effects on the health and behavior of children.

Key words: Child, COVID-19, Parents, Screen time.

INTRODUCTION:

Screens are omnipresent in modern life in the form of mobile phones, television and video games. There is a growing concern about duration and content of screen exposure among children due to its impact on cognitive and socio-emotional development, sleep outcomes and physical health.[1,2] In high-income and middle-income countries, excess screen time is reported in 10% to 97% and 21% to 98% children respectively.[3]

Submitted: 11 March, 2022
Accepted: 29 September, 2022
Published: 24 October, 2022

a: Lecturer, Department of Nursing
b: Assistant Professor, Department of Pediatrics
c: Fellow, TREIN Nepal
d: College of Medical Sciences Teaching Hospital, Bharatpur, Nepal
e: Kathmandu University School of Medical Sciences, Dhulikhel, Kavre, Nepal

Corresponding Author:
Radha Bhurtel,
Lecturer, Department of Nursing, College of Medical Sciences Teaching Hospital,
Mob: 9801214220
email: rrbhurtel@gmail.com
ORCID: 0000-0002-3286-9822

How to cite this article:
Bhurtel R, Pokhrel RP, Sharma S. Screen Time in Children of Central Nepal: A Parent Reported Cross-sectional Study during COVID-19 Pandemic. Journal of Lumbini Medical College. 2022;10(1):8 pages.
DOI:
https://doi.org/10.22502/jlmc.v10i1.
Epub: 2022 October 24

The COVID-19 outbreak has made this issue even more concerning. Around 1.5 billion children have been out of school and as a result, classrooms have been replaced by online learning. Time on the playground is now spent playing video games and watching videos.[4,5]

In Nepal, only few studies are carried out and those studies have focused mainly on sedentary behavior and television viewing but very few studies have included the use of mobile devices. Therefore, this study was conducted with the objective of examining duration and the perspective of screen viewing of the children by their parents during COVID-19 pandemic.

METHODS:

A community-based descriptive cross-sectional study was conducted in Bharatpur Metropolitan city, Chitwan to identify the duration of screen time and parental perspective towards screen viewing in children aged six months to 12 years who had at least one screen device at home like smartphone, television, tablet, laptop or computer. Children who did not have a screen device at home were excluded from the study. The study was carried out during a one month period, October 2020. Sample size was calculated using following formula

$n= z^2pq/d^2$

The prevalence was taken 50%, as there was no similar study done before. At 95% confidence interval and adding 10% non-response rate, total sample size estimated was 422. However, only 384 parents met the criteria hence was taken as the sample size.

Ethical clearance was obtained from the institutional review committee of College of Medical Sciences Teaching Hospital (COMSTH-IRC ref no: 2020-091). Permission was obtained from the ward chairperson of Ward no.12, Bharatpur Municipality before collecting the data. A written consent was taken from the respective parents before interviewing. A semi-structured interview schedule was used for the study that included two parts, the first part consisted of socio-demographic characteristics of the children and family and the second part was related to parental response towards the use of screen time.

The parents of children aged between six months to 12 years were approached with the help of community health volunteers. Parents were interviewed for 15 to 20 minutes maintaining social distance and other universal safety measures against COVID-19. The responses were recorded in the predesigned pro-forma.

The collected data were coded and entered in the Microsoft Excel Version 10 and then checked for completeness. The data were then extracted to Statistical Package for Social Sciences (SPSS) version 20 and analyzed using descriptive statistics.

RESULTS:

The median duration of screen time was two hours with interquartile range of (3-1) hours. Almost half (45%) of the children spent more than two hours on the digital screen every day. Children below two years and two to five years spent one hour on average while those between five to 12 years spent three hours on screen. More than half (65%) of parents stated that their children spent more time on screen devices in the present days as compared to the pre-pandemic time. Only 20% of the parents had set rules for duration and/or contents being watched by their children. A majority (96%) of the parents reported that they co-viewed screen content with their children. A higher number of children viewed Youtube (56%) and cartoon channels (45%) on media devices compared to other applications as shown in Table 1.

Table 1: Information related to screen use during COVID-19 (n=384)

Items	Frequency (%)
Duration	
Upto 2 hours	213 (55)
More than 2 hours	171 (45)
Spend more time on screen than before	
Yes	241 (65)
No	133 (35)
Contents watched on the screen*	
Youtube	213 (56)
Cartoon	174 (45)
Facebook	44 (12)
Songs	40 (10)
TikTok	28 (7)
Reasons parents allowed to watch*	
To calm the baby	129 (37)
To make clever	139 (36)
To make mealtime easier	69 (18)
To do household chores	19 (5)
To teach dance	16 (4)
To make fall asleep	14 (4)

**Multiple responses*

A majority (82%) of parents were worried about their children spending more time on screen. Regarding the possible health issues, almost half (46%) of the parents stated the effect on the eye as digital eye strain and refractive errors. Parents were also concerned about the exposure to violence (47%) and sexual content (11%) in those media. In contrast, 72% of parents pointed out positive aspects of watching various contents in electronic media even if the duration of screen time increased. This can be seen in table 2.

It was noted that mothers introduced screens to the child in the majority (92%) of cases and the most (57%) common reason was to calm the baby. A majority (96%) of the respondents had mobile phones in their

Table 2: Parental response towards screen viewing during covid-19 (n=384)

Parental response	Frequency (%)
Reaction when the children watch for long time	
Worried	315 (82)
Not worried	33 (9)
Do not know	36 (9)
Possible health issues due to excess screen time*	
Digital Eye strain, Refractive issues	176 (46)
Poor school performance	94 (24)
Behavioral problem	62 (16)
Mental Health Problems	23 (6)
Worrying about violence and sexual content*	
Exposure to Violence	181 (47)
Sexual content	41 (11)
Advantage of screen time*	
Learn various skills	275 (72)
Child become Clever	251 (65)
Improve communication skill	70 (18)
Better school performance	44 (12)

**Multiple responses*

house followed by television (83%), laptop (23%) and videogames (3%). A mobile phone was the most commonly used device in the house by both parents and children. It was notable that only 5% of children had their own devices. This is shown in table 3.

DISCUSSION:

World Health Organization (WHO) has recommended no screen time for under two children and not more than one hour of sedentary screen time for older children.[6] The American academy of Pediatrics (AAP) and Indian academy of Pediatrics (IAP) have also outlined similar guidelines.[7,8] In contrast to this recommendation, in the current study, almost half of the children spent more than two hours on screen time daily. Similar results were also obtained by Koirala S et al. in Nepal.[9] Shah RR et al. also found similar duration of screen exposure among pre-schoolers aged two to six years in western India.[10]

Table 3: Information related to the child and family (n=384)

Items	Frequency (%)
Age of the child (Median age: 6 years, IQR=9-4)	
≤2 years	54 (14)
<2-5 years	92 (24)
5-12 years	238 (62)
Family type	
Nuclear	220 (57)
Joint	164 (43)
Screen devices used*	
Mobile phone	369 (96)
TV	317 (83)
Laptop	89 (23)
Computer	64 (17)
Tablet	31 (8)
Videogame	11 (3)
Reason for introducing*	
To calm the baby	219 (57)
To make meal time easier	107 (28)
To make the child clever	101 (26)
To teach dance	21 (6)
To do household chores	14 (4)
To make fall asleep	17 (4)

**Multiple responses*

The reason for differences in prevalence of excessive screen time is multifactorial.[3] Approximately two-third of the parents admitted that their children spent more time on screen devices than pre-pandemic time. This finding is consistent with the survey where 49% of survey respondents' kids were spending more than six hours a day online compared to only 8% of kids before the pandemic.[11] The finding is also consistent with a study from Turkeyand a multinational study conducted by Bergmann C et al.[12,13]

Setting rules and parental co-viewing of screen is inversely related to the duration of screen exposure in children.[7,14] But this study showed only 20% of the parents had set rules for screen time. However, while setting restrictions on screen time in low-income countries, contextual family factors should be kept in mind which might affect the parents capacity to change the behavior.[15] In this study, a majority (96%) of the parents reported co-viewing the screen with their children. This finding is consistent with other recommendations.[7,16] In this study, the most common digital media platform watched by children was YouTube (56%) similar to the findings in a study by Radesky JS et al.[17]

A majority of the parents were worried that their children spent more time on screen. The most common health issue perceived by almost half of the parents due to excessive screen use was digital eye strain and refractive problems. Moderate evidence exists for eating/obesity, mental health issues and quality of life due to excess screen viewing.[18] However, in this study no parent showed concern over the possibility of obesity. Parents were also worried about the exposure to violence (47%) and sexual content (11%) of the videos being watched by their children. However, study conducted in Pokhara by Koirala S et al. showed that half (48.1%) of the respondents were never worried about their children's behavior of using gadgets.[9] Similar results were also noted

in a study conducted in India.[19] Even though attempts have been made to make bigtech companies responsible towards making the media contents safer, reducing deceptive advertisements and protecting young children from sexual predators, very few (14%) parents are convinced that enough is being done.[11] Parents were also aware about the possible advantages of media devices and majority (72%) of them thought that children could learn various life skills. This is in line with studies which highlights benefits of high-quality and interactive screen time.[20,21] The study finding is congruent with finding of common sense media which concluded that parents in lower-income homes are more likely to see positive effects of screen media than parents in higher-income homes.[22]

In the majority (92%) of children it was the mother who introduced screen to their child and stated for using gadget was to calm the baby. Similar findings was obtained in the study conducted by Susilowati et al.[23] In the current study, similar to a multi-national study, children were exposed to screen as early as first birthday.[13] Mobile was the most commonly used (96%) device by the parents and the children even though other gadgets were present in their house. This finding is consistent with the study done by Susilowati et al.[23] This shows the increasing popularity of smartphones over traditional fixed devices among adults and children. In the current study, only 5% of children had their own device which is lower than the study conducted by Kabali in which majority (75%) of young children had their own tablet.[24] This highlights the importance of setting our own guidelines as the availability and ownership of media device directly influences the screen exposure.

In this study, duration of screen viewing was a subjective response from the respective parents. The objective calculation of screen time was not feasible during the period of data collection.

CONCLUSION:

Children exceeded the recommended screen time during the COVID-19 pandemic. Most of the parents were worried about harmful effects on health and behavior of children. However, some of them thought that media exposure can benefit their children in skill development. Since the digital media exposure is rising, it is imperative to educate parents and children about the best ways to handle it.

Acknowledgement: Yanu Adhikari, Radhika Sharma

Conflict of Interest: None

Source of Funding: No funds were available.

REFERENCES:

1. Domingues-Montanari S. Clinical and psychological effects of excessive screen time on children. J Paediatr Child Health. 2017;53(4):333-8. PMID: 28168778 DOI:https://doi.org/10.1111/jpc.13462
2. Hale L, Guan S. Screen time and sleep among school-aged children and adolescents: A systematic literature review. Sleep Med Rev. 2015;21(0):50-8. PMID: 25193149 DOI:https://doi.org/10.1016/j.smrv.2014.07.007
3. Kaur N, Gupta M, Malhi P, Grover S. Screen time in under-five children. Indian Pediatr. 2019;56(9):773-88. PMID: 31638012
4. Aguilar-Farias N, Toledo-Vargas M, Miranda-Marquez S, Cortinez-O'Ryan A, Cristi-Montero C, Rodriguez-Rodriguez F, et al. Sociodemographic predictors of changes in physical activity, screen time, and sleep among toddlers and preschoolers in chile during the COVID-19 pandemic. Int J Environ

Res Public Health. 2020;18(1):176. PMID: 33383721 DOI: https://doi.org/10.3390/ijerph18010176

5. World Health Organization. Excessive screen use and gaming considerations during COVID-19 [Internet]. EMRO, Cairo, Egypt: WHO; 2021. [Accessed on 2022 Jan 20]. Available from: https://apps.who.int/iris/handle/10665/333467
6. World Health Organization. Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age [Internet]. Geneva: WHO; 2019. [Accessed on 2022 Jan 20]. Available from: https://apps.who.int/iris/handle/10665/311664
7. Council on Communication and Media. Children, Adolescents, and the Media. Pediatrics. 2013;132(5):958-61. PMID: 28448255 DOI: https://doi.org/10.1542/peds.2013-2656
8. Gupta P, Shah D, Bedi N, Galagali P, Dalwai S, Agrawal S, et al. Indian Academy of Pediatrics Guidelines on Screen Time and Digital Wellness in Infants, Children and Adolescents. Indian Pediatr. 2022;59(3):235-44. PMID: 34969943
9. Koirala S, Banstola S, Shrestha N, Gurung N, Sah SK, Sharma B. Role of parents on screen time of young children in Pokhara metropolitan, Nepal-a cross sectional study. Journal of Gandaki Medical College-Nepal. 2021;14(1):8-13. DOI: https://doi.org/10.3126/jgmcn.v14i1.34766
10. Shah RR, Fahey NM, Soni AV, Phatak AG, Nimbalkar SM. Screen time usage among preschoolers aged 2-6 in rural Western India: A cross-sectional study. J Family Med Prim Care. 2019;8(6):1999-2002. PMID:31334169 DOI:https://doi.org/10.4103/jfmpc.jfmpc_206_19
11. Parents Together Foundation. Survey Shows Parents Alarmed as Kids' Screen Time Skyrockets During COVID-19 Crisis [Internet]. Washington: Parents Together Foundation; 2020. [Accessed on 2022 Jan 20]. Available from: https://parentstogether.org/survey-shows-parents-alarmed-as-kids-screen-timeskyrockets-during-COVID-19-crisis/
12. Ozturk Eyimaya A, Yalçin Irmak A. Relationship Between Parenting Practices and Children's Screen Time During the COVID-19 Pandemic in Turkey. J Pediatr Nurs. 2021;56(0):24-9. PMID: 33181369 DOI: https://doi.org/10.1016/j.pedn.2020.10.002
13. Bergmann C, Dimitrova N, Alaslani K, Almohammadi A, Alroqi H, Aussems S, et al. Young children's screen time during the first COVID-19 lockdown in 11 countries. Osfpreprint. Forthcoming 2021 [Cited 2022 Jan 20]. Available from: https://osf.io/p5gm4
14. Corkin MT, Peterson ER, Henderson AME, Bird AL, Waldie KE, Reese E, et al. The Predictors of Screen Time at Two Years in a Large Nationally Diverse Cohort. Journal of Child and Family Studies. 2021;30(8):2076-96. DOI: https://doi.org/10.1007/s10826-021-01985-5
15. Lampard AM, Jurkowski JM, Davison KK. The family context of low-income parents who restrict child screen time. Child Obes. 2013;9(5):386-92. PMID: 24004326 DOI: https://doi.org/10.1089/chi.2013.0043

16. Dinleyici M, Carman KB, Ozturk E, Sahin-Dagli F. Media Use by Children, and Parents' Views on Children's Media Usage. Interact J Med Res. 2016;5(2):e18. PMID:27267624 DOI: https://doi.org/10.2196/ijmr.5668
17. Radesky JS, Weeks HM, Ball R, Schaller A, Yeo S, Durnez J, et al. Young children's use of smartphones and tablets. Pediatrics. 2020;146(1):e20193518. PMID:32482771 DOI: https://doi.org/10.1542/peds.2019-3518
18. Stiglic N, Viner RM. Effects of screen time on the health and well-being of children and adolescents: a systematic review of reviews. BMJ open. 2019;9(1):e023191. PMID:30606703 DOI: https://doi.org/10.1136/bmjopen-2018-023191
19. Meena P, Gupta P, Shah D. Screen time in Indian children by 15–18 months of age. Indian Pediatr. 2020;57(11):1033-6. PMID: 32788425
20. Radesky JS, Schumacher J, Zuckerman B. Mobile and interactive media use by young children: the good, the bad, and the unknown. Pediatrics. 2015;135(1):1-3. PMID: 25548323 DOI: https://doi.org/10.1542/peds.2014-2251
21. Canadian Paediatric Society, Digital Health Task Force, Ottawa, Ontario. Screen time and young children: Promoting health and development in a digital world. Paediatr Child Health. 2017;22(8):461-77. PMID: 29601064DOI: https://doi.org/10.1093/pch/pxx123
22. Rideout V, Robb MB. The Common Sense Census: Media Use by kids zero to Eight. San Francisco: Common Sense Media;2020. [Accessed on 2022 Jan 20]. Available from: https://www.commonsensemedia.org/sites/default/files/research/report/2020_zero_to_eight_census_final_web.pdf
23. Susilowati IH, Nugraha S, Alimoeso S, Hasiholan BP. Screen Time for Preschool Children: Learning from Home during the COVID-19 Pandemic. Glob Pediatr Health. 2021;8(0):2333794X211017836. PMID: 34031645 DOI: https://doi.org/10.1177/2333794x211017836
24. Kabali HK, Irigoyen MM, Nunez-Davis R, Budacki JG, Mohanty SH, Leister KP, et al. Exposure and use of mobile media devices by young children. Pediatrics. 2015;136(6):1044-50. PMID: 26527548 DOI: https://doi.org/10.1542/peds.2015-2151