

Research Article

Pattern of Screen Time among Middle School Students in Chennai, Tamil Nadu

Arun Murugan

Stanley Medical College, Chennai, Tamil Nadu, India.

DOI: <https://doi.org/10.24321/2454.325X.201921>

I N F O

E-mail Id:

aruncommed@gmail.com

Orcid Id:

<https://orcid.org/0000-0002-3304-3002>

How to cite this article:

Murugan A. Pattern of Screen Time among Middle School Students in Chennai, Tamil Nadu. *Int J Preven Curat Comm Med* 2019; 5(4): 1-4.

Date of Submission: 2020-01-20

Date of Acceptance: 2020-02-06

A B S T R A C T

Background: "Digital media has been found to be immersed in children's growth and it has both positive and negative effects on their development. The amount of time spent looking at the screen is termed as screen time which includes Television (TVs), computers, smart phones, tablets and video consoles. Doctors have reported that screen time has effect on students' development.

Objective: To analyse the pattern of screen time overload (> 2 hours per day) among middle school students aged 11 to 15 years.

Methodology: This is an analytical cross sectional study conducted amongst 205 school students aged 11-15 years with screen time exposure greater than 2 hours per day along with their parents in various recreational parks in Chennai. The study was carried out in the months of May and July 2018. A structured questionnaire was used and were entered on MS Excel sheet. Statistical analysis was done with Statistical Package for the Social Sciences 17 version.

Result and Discussion: Out of the total 205 students included in the study, 111 (54.15%) were male students. Majority of the students were in the 15 years age group (39.51%) and 61.73% spent between 3 to 5 hours as screen time daily. Gadgets predominantly used were smartphones (45.68%) followed by TV (19.75%). Students with both parents employed (55.56%) and no co-parental viewing (71.76%) habit had an abnormally elevated screen time duration. Also school students with increased screen time beyond recommended duration reported of snacking during media exposure (82.44%), sleep loss (71.22%), appetite loss (65.85%) and academic performance loss (55.61%).

Conclusion: We can safely conclude that a high proportion of middle school students are using smartphones for more than the recommended screen time and this is associated with negative health outcomes. Channelling school students into engaging and creative sorts of activities on screen coupled with passive and supportive observation is the key to making screen time positive.

Keywords: Young Students, Adolescents, Media Use, IAP Guidelines

Introduction

Today, students grow up immersed in digital media technology, which has both positive and negative effects on healthy development. Screen time is a term used to describe the amount of time spent looking at a screen. Screens include Television (TVs), computers, smart phones, tablets, and video consoles. The Indian Association of Paediatrics (IAP) discourages media use, except for video-chatting and recommends a limit to 2 hour of screen time a day of high quality programming and watch with your kids to help them understand what they see. According to American Academy of Paediatrics (AAP) guidelines, any exposure to media below 2 years is considered abnormal. Exposure to media above 1 hour per day among above 2 years is considered abnormal.

Doctors are talking about screen time because they are starting to see some effects on child health. It is only recently that students' access to a wide range of screen devices has dramatically increased. The time spent in front of a screen, and the quality of the content on screen, has been linked to a number of positive and negative health outcomes. This include issues related to weight, sleep, neck pain, eye strain, eating habits, communication with others and exposure to harmful information. The middle and high school age group is very important to focus due to following reasons: habit formation age group, high likelihood of habit retention later in life, initiation period of most of the health and behavioural issues and peak academic period. Any intervention during this period will have a huge impact on future health outcomes

Materials and Methods

This is a community based descriptive cross sectional study conducted amongst 205 students and their parents in various recreational parks within Chennai Corporation limit. The study population identified was the students between 11-15 years of age during the time of the study period. The study was carried out in the months of May and July 2018. A two-stage sampling process was adopted. First, the parks were selected by simple random procedure from a list provided by Chennai Corporation. Then students and mothers were selected using a convenience sampling method. After obtaining informed consent, a pre tested semi-structured questionnaire was used to elicit responses using interview method focussing on basic demographic information and screen time pattern. All study variables were assessed via parent-proxy report and time spent before screens was recorded using a 1-week recall method. Data were entered on MS Excel sheet. Statistical analysis was done with SPSS 17 version. Prior permission was obtained from the Institute of Ethical Committee, Kilpauk Medical College. Informed consent was obtained from the parent of each participant.

Result

Out of the total 205 students included in the study, 111 (54.1%) were males belonging mostly to 14 years (23.4%) and 15 years (21.9%) age groups. Among parents, 51.2% were full-time employed, 36.1% were part-time employed, and 12.7% were stay-at-home caregivers. The incidence of parental co-viewing was 22.9% in our study. 82.4 % of students had history of snacking during screen time exposure and only 7.8% of the parents were aware about standard guidelines for viewing electronic and media devices (screen time) recommendations. The average daily screen time spent was reported to be in the 3-4 hours range in 32.7% of study subjects followed by 30.7% in 4-5 hours range. Maximum exposure of screen time was noticed for smartphones (42.9%) followed by TVs (1.5%). Sleep loss (71.2%), appetite loss (65.8%) and academic performance loss (55.6%) were the common effects reported following excessive screen time among students (Table 1).

Table 1. Shows the study variables and their percentages in each categories

Study Variables	Categories	Numbers	Percentages
Gender	Male	111	54.15
	Female	94	45.85
Age	11 years	41	20.00
	12 years	34	16.59
	13 years	37	18.05
	14years	48	23.41
	15 years	45	21.95
Parents Employment	Both	105	51.22
	Father Only	74	36.10
	Mother Only	26	12.68
Parental Co-viewing	Yes	47	22.93
	No	158	77.07
Snacking while Screen Time	Yes	169	82.44
	No	36	17.56
Awareness on Screen Time Recommendations	Yes	16	7.80
	No	189	92.20
Average Daily Screen Time Spent	2-3 hours	56	27.32
	3-4 hours	67	32.68
	4-5 hours	63	30.73
	More than 5 hours	19	9.27

Gadgets Predominantly used for screen Time	TV	44	21.46
	Computers	28	13.66
	Tablets	26	12.68
	Games Consoles	19	9.27
	Smartphones	88	42.93
Experiencing Sleep Loss	Yes	146	71.22
	No	59	28.78
Experiencing Appetite Loss	Yes	135	65.85
	No	70	34.15
Experiencing Academic Performance Loss	Yes	114	55.61
	No	91	44.39

Discussion

Full time parental employment was associated with excessive screen time exposure in our study. Ron Warren et al study was in tune with our results and supported the hypothesis that excessive work hours of parents influence their involvement with students, which, in turn, was predicted to influence screen time exposure.⁶ In our study, relatively low levels of parental co-viewing were found. Similarly a study done in Europe by Julie Latomme et al reported parental co-viewing to be around 39.20%. This is very worrying, since parental co-viewing has the potential to function as important deterrent to excessive screen time exposure and ensures healthy behaviour formation due to social interaction and emotional bonding opportunities.⁷

We found that majority of our study participant's snacked while on exposure to excessive screen time. This is in similarity to a study conducted by Jillian Ciccone et al. this study reported the association of increased screen time with greater snack portion sizes and overall poor diet quality.⁸ Our finding suggests that parents have a very low awareness on screen time recommendations. In a study done by S. Alph Shirley et al only 3.7% of the participants were aware of the exact screen time guidelines in students. This was much below that what we had reported. This proves that the chance of students exceeding screen time recommendations was higher when parental awareness of recommendations was literally absent.⁹

The screen time recorded among study subjects was higher in our study. This is accordance with the study conducted by Dubey et al. this study reported screen time calculated for the vacation and school days as 3.9 and 3.2 hours respectively. The main gadget contributing to excessive screen time in our study is smartphone. But Dubey et al study differs and reports TV to be the predominant gadget contributing to excessive screen time.¹⁰ With respect to

high screen time, a detrimental effect of excessive screen time was observed on sleep, appetite and academic concentration in our study. The same effect was echoed in the study done by Foerster et al.¹¹

Limitation

Limitations are that this is a study done in limited amount of time, participants may not have accurately recall behaviours related to screen time use, a lack of understanding of the definitions and terminology could have hindered answers and use of less robust sampling technique.

Conclusion and Recommendation

We can safely conclude that a high proportion of middle school students are using smartphones for more than the recommended screen time and a substantial fraction of them have negative health outcomes. This research will serve as a base for further studies, preferably observational and interventional. Based on the results from the study we recommend that parents of middle school students should certainly place consistent limits on the use of any technology and media. With the growing numbers of screen time sources being introduced everyday especially into classrooms, the challenge is to ensure that screens are being used in appropriate, meaningful and empowering ways. Channelling school students into engaging and creative sorts of activities on screen coupled with passive and supportive observation is the key to making screen time positive. The real problem is "wasted time on screen and not screen time".

Acknowledgement

The authors are extremely grateful and thankful to authors of all those articles, journals and books from where the literature references for this article was reviewed and discussed.

Ethical Approval

Prior permission was obtained from the Institute of Ethical Committee, Kilpauk Medical college. Informed consent was obtained from each participant.

Funding: No funding sources

Conflicts of Interest: None

References

1. Parent J, Sanders W, Forehand R. Youth Screen Time and Behavioral Health Problems: The Role of Sleep Duration and Disturbances. *J Dev Behav Pediatr* 2016; 37(4): 277-284. Available from: <https://insights.ovid.com/article/00004703-201605000-00003> [PubMed/Google Scholar].
2. Dinleyici M, Carman KB, Ozturk E, Sahin-Dagli, F. Media Use by Children, and Parents' Views on Children's Media Usage. *Interactive journal of medical research* 2016;

- 5(2): e18. Available from: <https://www.i-jmr.org/2016/2/e18/> [DOI: 10.2196/ijmr.5668/ PubMed/ Google Scholar].
3. De Jong E, Visscher TLS, HiraSing RA, Heymans MW, Seidell JC, Renders CM. Association between TV viewing, computer use and overweight, determinants and competing activities of screen time in 4- to 13-year-old children. *Int J Obes* 2013; 37(1): 47-53. Available from: <https://www.nature.com/articles/ijo2011244> [DOI: 10.1038/ijo.2011.244/ PubMed/ Google Scholar].
 4. Allen MS, Vella SA. Screen-based sedentary behaviour and psychosocial well-being in childhood: cross-sectional and longitudinal associations. *Ment Health Phys Act* 2015; 9: 41-47. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1755296615000253> [Google Scholar].
 5. Hinkley T, Verbestel V, Ahrens W, et al. Early Childhood Electronic Media Use as a Predictor of Poorer Well-being: A Prospective Cohort Study. *JAMA Pediatr* 2014; 168(5): 485-492. Available from: <https://jamanetwork.com/journals/jamapediatrics/fullarticle/1844044> [DOI: 10.1001/jamapediatrics.2014.94/ Google Scholar].
 6. Warren R. Parental Mediation of Children's Television Viewing in Low-Income Families. *Journal of Communication* 2005; 55(4): 847-863. Available from: <https://academic.oup.com/joc/article-abstract/55/4/847/4103023?redirectedFrom=fulltext> [Google Scholar].
 7. Latomme J, Van Stappen V, Cardon G, Morgan PJ, Lateva M, Chakarova N et al. The Association between Children's and Parents' Co-TV Viewing and Their Total Screen Time in Six European Countries: Cross-Sectional Data from the Feel4diabetes-Study. *Int J Environ Res Public Health* 2018; 15(11): 2599. [PubMed/ Google Scholar].
 8. Jillian Ciccone, Sarah J. Woodruff, Katherine Fryer, Ty Campbell, Mary Cole. Associations among evening snacking, screen time, weight status and overall diet quality in young adolescents. *Appl Physiol Nutr Metab* 2013; 38: 789-794. Available from: <https://www.nrcresearchpress.com/doi/abs/10.1139/apnm-2012-0374#.XmCTLagzbIV> [PubMed/ Google Scholar].
 9. Shirley S, Kumar S. Awareness and attitude among parents of primary school students towards screen time in children. *International Journal of Contemporary Pediatrics* 2019; 7: 107. [ResearchGate].
 10. Dubey M, Nongkynrih B, Gupta SK, Kalaivani M, Goswami AK, Salve HR. Screen-based media use and screen time assessment among adolescents residing in an Urban Resettlement Colony in New Delhi, India. *J Family Med Prim Care* 2018; 7(6): 1236-1242. [DOI :10.4103/jfmpc.jfmpc_190_18/ PubMed/ Google Scholar].
 11. Foerster M, Henneke A, Chetty-Mhlanga S, Rössli, M. Impact of Adolescents' Screen Time and Nocturnal Mobile Phone-Related Awakenings on Sleep and General Health Symptoms: A Prospective Cohort Study. *International journal of environmental research and public health* 2019; 16(3): 518. [PubMed/ Google Scholar].