

EFFECT OF SCREEN TIME ON PHYSICAL HEALTH IN SCHOOL CHILDREN DURING COVID-19 PANDEMIC.

Dr.PATAN.AISHA SIDDIKA¹, Dr.PAGADPALLY SRINIVAS², Dr.S.VINOTH³

Affiliation

¹MD Postgraduate, Department of Paediatrics, VMMCH, Karaikal, Pondicherry.

²Head and Professor of Department, Department of Paediatrics, VMMCH, Karaikal, Pondicherry .

³Associate professor, Department of Paediatrics, VMMCH, Karaikal, Pondicherry. ongoing COVID-19 pandemic, this study made an effort to fill a knowledge

ABSTRACT

AIMS and OBJECTIVE: In light of the ongoing COVID-19 pandemic, this study made an effort to fill a knowledge gap about the influence of screen time (ST) on adolescents' lifestyle choices in India. During the COVID-19 pandemic in Karaikal, the study's goals were to 1) assess the frequency and duration of screen use, as well as screen addiction behaviours in 5-18 year old children and 2) To know the effect of screen time on physical health.

MATERIALS and METHODS: The sample in this cross-sectional study were 1000 children. A pre-structured questionnaire is given to children to know their screen time during covid pandemic with parents/guardian consent and guidance. Parents were asked to fill the pre-structured questionnaire .

RESULTS: A total of 1000 children were enrolled in the study. High screen time i.e., >4hrs/day seen more in 16 – 18 years followed by 11-15 years then by 5-10 years. Screen time had negative impact on physical health ($P < 0.0001$). High screen time in 16-18 years (51.13%) are more prone to overweight/obesity followed by 11-15 years (45.53%) and then 5-10 years (35.63%) according to the study.

CONCLUSION: This study has paved the way for need of larger study and development of guidelines on impact of screen time on children in developing nations where screen time guidelines is yet to be set more so in era of COVID 19 pandemic.

KEYWORDS: COVID-19 pandemic, Screen time, Obesity, Physical activity

INTRODUCTION:

The LOCKDOWN (covid 19 pandemics) has resulted in some unique circumstances and changes in adolescent and child lifestyles. Children's health and wellbeing are negatively impacted by Covid-19 pandemics. Covid-19 has caused unusual restrictions in all areas, such as SOCIAL ISOLATION, quarantines, and school closures, resulting in less physical activity in both children and adolescence. Being active is well known to be beneficial to one's health, but the covid-19 pandemic lockdown restrictions imposed around the world have significantly altered people's lifestyles.

The extended closures of schools prompted the educational institutions to adopt online teaching-learning models for students and the movement bans resulted in greater use of screens for entertainment and social interactions. While these measures have helped to a certain extent to maintain normalcy, they have also inadvertently increased the usage of varied screens, such as television, computers, video gaming, and mobile devices, in adolescents, much beyond the recommended duration of two hours per day [1–5]. The negative health consequences of excess

screen time (ST), such as weight gain, behavioural problems, and sleep disturbances are well documented [6–9]. So, the increase in ST during the ongoing COVID-19 pandemic is likely to pose a greater risk of adverse health outcomes in adolescents, many of whom may have already been engaging in unhealthy lifestyle behaviours. This brings forth a need to investigate the prevalence of excess ST during the pandemic and evaluate its potential influences on lifestyle behaviour.

Children who are under lockdown are spending more time online on virtual classes and assignments. Due to the lockdown, schools and sports clubs are closed, resulting in a significant lack of physical activity in children, and as a result of the lack of physical activity in children, the weight gain issue is increasing in the general population. Being overweight is a risk factor for several chronic diseases, including diabetes, hypertension, sleep apnoea, abnormal body fat, and metabolic syndrome, so it is critical to incorporate some physical activity into your daily routine. The online survey, which was conducted for young children between the ages of 0 and 16 years, concluded that children between the ages of 6 and 14 years are more prone to obesity than the other age groups. The majority of parents believe their child gained weight during the lockdown.

The lockdown to prevent covid infection has made it difficult for children to leave the house, has reduced physical activity, and has increased children's use of digital media, leading to childhood obesity. changes in children's eating habits, sleeping habits, and levels of physical activity are contributing to the rise in childhood obesity. Due to children's online learning schedule during the lockdown, suddenly changes happened in their routine schedule like spending close to 6 to 8 hours per day in front of phones, computers, and television , reduce physical activity, and alter sleeping habits. The possibility to decrease possibilities for physical activity while increasing children's screen time exists with social withdrawal and stay-at-home rules.

OBJECTIVES: To study the effect of screen time on physical health in school children during covid-pandemic.

MATERIALS AND METHODS:

PLACE OF STUDY: Government and private schools children aged 5 to 18 years in various schools of Karaikal.

STUDY DESIGN: Cross sectional study

STUDY DURATION: January 2021-june 2022.

SAMPLE SIZE: 1000 Children

Sampling technique: Probability sampling-simple random sampling of all school children.

INCLUSION CRITERIA:

All school students including both the sexes between 5-18 years in both government and private schools.

EXCLUSION CRITERIA: Children aged below 5years and above 18 years.Children who do not get the consent from the parents.

ETHICAL PERMISSION: After getting approval from the institution and from the parents/guardian.

SURVEY METHOD:

This cross sectional study was conducted among children ages 5-18years old from both private and government aided schools in Karaikal. A pre-structured questionnaire is given to each student to fill the details like name, age ,gender, current address ,screen time, height and weight. The parents were informed to provide consent.

STATISTICAL ANALYSIS:

Statistical package for the social sciences (SPSS) will be used for data analysis.The Chi-square test will be used to compare quantitative and qualitative variables.P-value is also calculated.

RESULT:

A total of 1000 children were included in the study after parental consent. Gender distribution among 1000 children are 568(56.8%) are males and 432(43.2%) are females. (Table 1)

Among 1000 children,348(34.8%) children belong to 5-10years age group.300(30%) children belong to 11-15 years,352 children belongs to 16-18 years.(Table 2)

Depending upon BMI, among 5-10years 124(35.63%) were overweight/obese .Among 300 children of 11-15 years 136(45.66%) were overweight/obese.In 16-18 years 180(39.7%)children among 352 children were overweight/obese.(Table 3)

Mobile phone , computers , television, tablet were the gadget used mostly for educational and entertainment purpose in covid pandemic. Among 5-10 years age group,78(22.4%)children were having screen time>4hours,58(16.66%)children were having screen time 2-4hrs,66(18.9%) children were having screen time <2hours,146(41.95%)children were having screen time <1 hour. Among 11-15 years age group 120(40%) children were having screen time>4hours,62(20.66%) children were having screen time 2-4hrs,60(20%) children were having screen time <2hours,58(19.33%) children were having screen time <1 hour. Among 16-18 years age group 158(44.88%) children were having screen time>4hours,102(28.97%) children were having screen time 2-4hrs,50(14.2%) children were having screen time <2hours,42(11.93%) children were having screen time <1 hour.(Table 4)

Comparison in screen time >4hrs between 5-10 years and 11-15 years ,95%CI =10.47% TO 24.54%, Chi-squared =23.48, DF=1, P<0.0001(significant) .Comparison in screen time >4hrs between 5-10 years and 16-18 years, 95%CI =15.55% TO 29.09%,Chi-squared =39.52,DF=1,P<0.0001(significant). Comparison in screen time 2-4hrs between 5-10 years

and 16-18 years ,95%CI =6.10% to 18.39%, Chi-squared =15.02, DF=1, P<0.0001(significant). Comparison in screen time < 2hrs between 5-10 years and 16-18 years ,95%CI =-0.81% to 10.21%, Chi-squared =2.79, DF=1, P<0.0945(non-significant). Comparison in screen time <1hrs between 5-10 years and 11-15 years ,95%CI =15.63% TO 29.28%, Chi-squared =38.27, DF=1, P<0.0001(significant). Comparison in screen time < 1hrs between 5-10 years and 16-18 years ,95%CI =23.68% to 36.05%, Chi-squared =80.17, DF=1, P<0.0001(significant). (Table 5)

DISCUSSION:

In this cross-sectional study of 1000 children, this study produced several significant findings, including the following:

1) Adolescent daily screen usage was very high, with the mean reported screen time being higher during the weekdays than the weekends. Teenagers spent a lot of time using screens for homework and studying, and it was commonplace to see them becoming addicted to screens.

2) The prevalence of physical inactivity during the pandemic was highlighted by the fact that only a small minority engaged in moderate to vigorous physical activity levels.

3) There were reports of people consuming fast food, fried food, and fizzy beverages frequently. The prevalence of sleep delay, daytime dysfunction, and poor sleep quality were higher in older adolescents (ages 13 to 15)

4) A bigger screen addiction was adversely related to healthy eating practices, physical activity and sleep characteristics but not with depression symptoms. A higher screen time was also linked to lower physical activity and more sleep issues. Due to the nationwide lockdown limitations put in place starting in March 2020, the teenagers had been confined to their homes. Adolescents daily schedules, lifestyle choices, and mental health are likely to have been significantly disrupted as a result. According to various research [3, 8, 18], adolescents used digital devices excessively during the pandemic, which is consistent with our findings. The negative effects of excessive screen time on one's likelihood of obesity.

5) There is, however, also a lot of interest in examining the potential uses of screens as coping mechanisms for education, social connection, eradicating boredom, and gaining more access to scientific data. A report published in the child and adolescent health section of the Lancet journal recommended that the amount of time spent using screens should be tailored keeping into consideration other factors, such as social media use and environmental stressors brought on by pandemics [14], and a systemic review suggested that the amount of time spent using screens should be tailored taking into consideration other factors, such as snacking behaviours and activity patterns in adolescents (15)Age-appropriate resources that encourage wise use of screens must be prioritised, and public awareness of the harmful health effects of excessive screen time must also be promoted, given the established negative effects of increased screen time and the need to make the most of the time spent using screens for educational and social benefits.

6) In this study, we found that teenagers' prolonged screen use was correlated with other hazardous lifestyle behaviours, poor eating patterns, and insufficient sleep quantity and quality. The lockdown that resulted in limited access to organised sports activities, restricted free play in playgrounds, parks, and areas near apartments, as well as a general feeling of fear among parents to send children outside for playing, can be used to explain the startling prevalence of physical inactivity found in our study.

7) During the pandemic, adolescents reported consuming more nutritious foods like fruits and salads as well as bad items like fast food, fried foods, and fizzy beverages. Previous studies (5) have reported on unhealthy snacking habits and emotional overeating as coping mechanisms for boredom and stress. The findings regarding the perceived rise in consumption of healthy foods are consistent with those of related research that found that teenagers' overall diet quality had improved as a result of increased parental involvement in meal preparation and improved mealtime food monitoring.

8) Eating patterns, physical activity, and sleep were examined in relation to screen-related characteristics. According to research, there is a direct link between watching television and unhealthy eating habits [6,11,12], that using screens more frequently can take time away from PA [4,17,], and that using digital devices excessively can suppress melatonin secretion, delay sleepiness, and worsen sleep disturbances [17,2,3].

9) The usage of digital gadgets and screens has become a necessity because the COVID-19 pandemic's end is still undetermined. In this situation, parents' roles are crucial in reducing sedentary screen-based leisure activities, establishing limits for screen media usage, and motivating teenagers to engage in enjoyable indoor activities like dancing, rope skipping, hoops, and online fitness classes.

10) In order to get through the difficulties brought on by the pandemic, the families must also take advantage of the enforced stay-at-home recommendations to have more regular family meals together, set an example for healthier eating and sleeping habits, and strengthen relationships with adolescents..

Finally, policymakers in India must pay close attention to the ST guidelines, address the new issues posed by increased screen time, insufficient PA levels, and inadequate sleep due to the pandemic, and offer workable solutions to reduce the associated short- and long-term health issues in adolescents..

CONCLUSION: Children's physical health is being negatively impacted by screen time, and there is a lack of both active and passive parental supervision. 8,9 This effort supports the need for more comprehensive research from both urban and rural areas of the nation. These findings will be useful in developing screen time recommendations, particularly in the epidemic era when the schools have closed.

ACKNOWLEDGEMENT: Parents who participated in the study.

REFERENCE:

1. Ghosh A, Nundy S, Mallick TK. How India is dealing with COVID-19 pandemic. *Sensors Int* 2020.
2. Patel A, Agarwal R, Rudramurthy SM, Shevkani M, Xess I, Sharma R, et al. Multicenter Epidemiologic
3. Nagata JM, Magid HSA, Gabriel KP. Screen Time for Children and Adolescents During the Coronavirus
4. Schmidt SCE, Anedda B, Burchartz A, Eichsteller A, Kolb S, Nigg C, et al. Physical activity and screen
5. Vardoulakis S, Sheel M, Lal A, Gray D. COVID-19 environmental transmission and preventive public
6. Rosen LD, Lim AF, Felt J, Carrier LM, Cheever NA, Lara-Ruiz JM, et al. Media and technology use

7. Hale L, Kirschen GW, LeBourgeois MK, Gradisar M, Garrison MM, Montgomery-Downs H, et al. Youth
8. Xiao S, Yan Z, Zhao L. Physical Activity, Screen Time, and Mood Disturbance Among Chinese Adolescents
9. Barnett TA, Kelly CAS, Young DR, Perry CK, Pratt CA, Edwards NM, et al. Sedentary behaviors
10. Xiang M, Zhang Z, Kuwahara K. Impact of COVID-19 pandemic on children and adolescents' lifestyle
11. O'Connor TM, Hingle M, Chuang RJ, Gorely T, Hinkley T, Jago R, et al. Conceptual understanding of screen media parenting: Report of a working group. *Child Obes.* 2013;9 Suppl 1:S110-S118. <https://doi.org/10.1089/chi.2013.0025>
12. Gentile DA, Reimer RA, Nathanson AI, Walsh DA and Eisenmann JC. Protective effects of parental monitoring of children's media use: A prospective study. *JAMA Pediatr.* 2014;168(5):479-484. <https://doi.org/10.1001/jamapediatrics.2014.146>
13. WHO Multicentre Growth Reference Study Group. WHO child growth standards based on length/height, weight and age. *Acta Paediatr Suppl.* 2006;450:76-85.
14. Ashton JJ, Beattie RM. Screen time in children and adolescents: is there evidence to guide parents *Adolesc Heal* 2019; 3:292–4. <https://doi.org/10.1016/S2352-464>
15. R T, B M, MJ C, M L, L W, S S, et al. A Systematic Review of Digital Interventions for Improving the Adolescent Health 2017.
16. Lang UE, Beglinger C, Schweinfurth N, Walter M, Borgwardt S. Nutritional aspects of depression. *Cell*
17. Sanchez-Villegas A, Marti/1741-7015-11-3 PMID: 232867887.
18. Saxena S, Koreti S, Gaur A. Prevalence and Predictors of Sleep Wake Disturbances Among Adolescent
19. Nussbaumer-Streit B, Mayr V, Dobrescu AI, Chapman A, Persad E, Klerings I, et al. Quarantine alone
20. Moitra P, Madan J, Shaikh NI. Eating habits and sleep patterns of adolescent

TABLE -1

Depending upon Age distribution:

AGE	NO.OF CHILDREN(FREQUENCY)	PERCENTAGE
5-10 YEARS	348	34.8%
11-15 YEARS	300	30.0%
16_18 YEARS	352	35.2%
TOTAL	1000	100%

TABLE -2

Depending on Gender:

GENDER	NO.OF CHILDREN(FREQUENCY)	PERCENTAGE
MALES	568	56.8%
FEMALES	432	43.2%
TOTAL	1000	100%

TABLE-3

Depending upon BMI:

AGE	NORMAL	PERCENTAGE	OVERWEIGHT/OBESITY	PERCENTAGE	TOTAL
5-10 YEARS	224	64.36%	124	35.63%	348
11-15 YEARS	164	54.66%	136	45.33%	300
16-18YEARS	172	48.86%	180	51.13%	352
TOTAL	560		440		1000

TABLE -4

Depending on hours of screen time :

AGE	>4hrs	%	2-4hrs	%	<2hrs	%	<1 hr	%	TOTAL
5-10 YEARS	78	22.4%	58	16.6%	66	18.9%	146	41.9%	348
11-15 YEARS	120	40%	62	20.6%	60	20%	58	19.3%	300

16-18YEARS	158	44.8%	102	28.9%	50	14.2%	42	11.9%	352
TOTAL	356		222		176		246		1000

TABLE-5

Comparison of screen time for different age groups

AGE	SCREEN TIME	DIFFERENCE	95% CI	Chi-square	DF	Significance level(P-VALUE)
5-10Yrs 11-15Yrs	4 hrs	17.6%	10.4% to 24.5%	23.4	1	P<0.0001
5-10 Yrs 16-18Yrs	4hrs	22.48%	15.5% to 29.09%	39.5	1	P<0.0001
5-10Yrs 11-15Yrs	2-4hrs	3.94%	-2.04% to 10.01%	1.65	1	P=0.1980
5-10Yrs 16-18 Yrs	2-4hrs	12.3%	6.1% to 18.3%	15.02	1	P=0.0001
5-10 Yrs 11-15 Yrs	<2 hrs	1.1%	-4.97% to 7.27%	0.124	1	P=0.724
5-10 Yrs 16-18 Yrs	<2hrs	4.7%	-0.81% to 10.21%	2.797	1	P=0.0945

5-10 Yrs 11- 15Yrs	<1hrs	22.65%	15.6% to 29.2%	38.2	1	P<0.0001
5- 10Yrs 16- 18Yrs	<1hrs	30.02%	23.6% to 36.05%	80.1	1	P<0.0001