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Original Article

Screen Time Behaviours among School going Adolescents Residing in a Selected District, Kerala

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Abstract

Introduction: World Health Organization report 'Sedentary lifestyle: a global public health problem' identified sedentary lifestyle as among the top ten leading causes of death and disability in the world. Various international and national organizations have recommended that children above the age of 2 years should not spend more than 2 hours a day in front of the screen. Though there are many potential academic and social benefits for TV/ Computer use, it leads to many negative health outcomes such as unhealthy eating, sedentary lifestyle, physical inactivity, low academic performance, and aggressive behaviour. It was also demonstrated that reducing screen time was associated with reduction in body weight, body fat, and obesity prevalence. In the long term sedentary behaviour have been identified as major independent risk factor for mortality and morbidity for non-communicable diseases. It is one of risk factor which can be modified to counteract the negative effects that may follow in adulthood. *Methodology:* The aim of the present study was to understand the screen time behaviours and its associated factors among adolescents. It was a cross-sectional survey among 252 school going adolescents aged 11 to 13 years, studying at private aided schools of Thrissur district, Kerala, South India, selected using a convenient sampling technique. A structured self administered questionnaire was used to collect data regarding socio demographic personal data and screen time behaviour; screen time, and habit of consuming food in front of television. Analysis was done using SPSS version 20. *Results:* The mean age of adolescents was 12.29±0.5 years. Though the mean screen time was found to be 1.15±0.75 (less than 2hours/day on weekdays), 7.5% of them were watching screen for more than the recommended duration during Saturday and Sunday resp. On weekends the mean duration of screen time was found to be more than 2 hours, but 68.7% and 75.8% of them were engaged in more than the recommended duration. It was also found that 38.9% of them were watching television at least once a day during meals. A statistically significant association was found between more than the recommended average screen time (>2hours/days) during weekdays and male gender ($p<0.05$), occupation of father bring private job ($p<0.01$) and shorter distance from home to school ($p<0.05$). Number of siblings having two or less was significantly associated with engaging in more than 2 hours of screen time during weekends at 0.05 level. *Conclusion:* The present study findings suggest that adolescents are spending more than the recommended duration in front of screen and necessitates actions at family, school, community, government and policy level actions to reduce sedentary behaviour associated with television, videotape, and video game use.

Keywords: Screen Time; Behaviours; Adolescents; Sedentary; Lifestyle.

Introduction

For the last few decades international and national studies have shown a trend towards early onset and increasing prevalence of non communicable diseases especially overweight and obesity among children and adolescents [1]. The addition of behavioural risk factors to the

ethnic or genetic susceptibility superimposed on the biological risk factors can be considered as the reason behind this [2]. Reducing sedentary behaviours, including television (TV) viewing, is important in preventing many lifestyle diseases including overweight and obesity [3,4]. Sedentary behaviors are different from having inadequate levels of physical activity or exercise and are those with minimum energy expenditure. Advances in new technologies and the convergence of different screens have generated a context in which constant interaction with the digital media forms an integral part of young people's lives. Although the social media are the most popular choice, television is the second most common type of screen [5]. In a study carried out by Marta and Gabelas concluded that "television continues to be the most popular screen among minors during their leisure time". Thus, even in this new media context, television continues to form part of young people's lives. They watch it mainly for entertainment, although to a lesser extent, as a source of information also [6]. Though there are many potential academic and social benefits for TV/Computer use, it leads to many negative health outcomes such as unhealthy eating, sedentary lifestyle, physical inactivity, low academic performance, and aggressive behavior. It is not just television that makes youth sedentary. Studies have shown that electronic devices like DVDs, Video games, computer, and videogames when included the time spent in front of screen increases to more than five hours a day.

World Health Organization report 'Sedentary lifestyle: a global public health problem' identified sedentary lifestyle as among the top ten leading causes of death and disability in the world [7]. Various organizations have recommended that children above the age of 2 years should not spend more than 2 hours a day in front of the screen [8].

An association between children's exposure to violent images on television and subsequent aggressive behavior also has been documented repeatedly in the literature [9]. Extended and frequent television viewing also has been shown to decrease the time and opportunity available for social interaction within the family [10]. Watarkar A et al among school going adolescents residing in India found that 21.47% of children watched TV for more than two hours per day and 16.23% spent more than 2 hours per day with computer or mobile. Both these factors were significantly associated with overweight [11]. Kaur H et al. in a study conducted among adolescents found that watching television for more than 2 hours a day doubled the risk of overweight compared to those who watched less than 2 hours a day [12]. Aadahl M et al. in Inter 99 study found a significant relationship between TV viewing and cardiovascular risk factors including waist/hip ratio, body mass index, triglycerides, low density lipoprotein, total cholesterol, systolic blood pressure, and diastolic blood pressure [13]. Unfavourable cardiovascular disease risk factors profile was observed independent of their weight status among adolescence who watches television for more than three hours a day [14]. Similar findings were revealed by Grontved A et al. in a prospective cohort study. Total screen time in adolescence was positively associated with adiposity, triglycerides, and metabolic syndrome in young adulthood. Individuals who increased their TV viewing, computer use, or total screen time with more than 2 hours/day from adolescence to young adulthood had 0.90, 0.95, and 1.40 kg/m^2 respectively had higher body mass index, in young adulthood compared with individuals who remained stable or decreased their viewing time [15].

The pathophysiological mechanism behind this could be reduced physical activity [16], increased energy intake while watching screen [17] or reduced metabolic rate [18], increased risk of insulin resistance [19], and alterations in lipid profile. It was also found that children who spend more than two hours per day watching TV are more likely to use tobacco, have poor fitness [20], and poor motor skills [21] as adults. It was also demonstrated that reducing screen time was associated with reduction in body weight, body fat, and obesity prevalence. A randomized trial among elementary school children provided evidence that TV viewing affected boy mass index; when time spent watching TV was reduced, relative to that for children in control schools, BMI was also reduced after 1 year [22].

In the long term sedentary behavior have been identified as major independent risk factor for mortality and morbidity for non-communicable diseases. It is one of risk factor which can be modified to counteract the negative effects that may follow in adulthood. This situation has prompted the investigator to undertake this study in Thrissur district, Kerala, South India where large number of educational institutions is established.

Material and methods

This was a cross-sectional survey including school going adolescents aged 11to 13 years, studying at private aided schools of Thrissur district, Kerala, South India selected using convenient sampling

technique. Permission to conduct the study was obtained from the directorate of district education, Thrissur and Directorate of Public Instructions, Thiruvanthapuram. The study was approved by Institutional ethics committee. Selected schools were visited and the consent and co-operation for the study was solicited from the concerned authority. Before starting the actual study, a pilot study was conducted to know the feasibility and practicality. Informed written consent procedures were followed for all. Children who were diagnosed as having some cardiovascular diseases, chronic illnesses, severe malnutrition, physical and mental defects or not cooperative were excluded from the study. A total of 252 school going adolescents participated in the study.

Data collection took place in the month of June 2015. Data was collected through a structured questionnaire. The reliability of the questionnaire was found to be r = 0.72. The questionnaire had two parts. The first part had 12 structured items for obtaining information regarding socio -demographic personal profile including age, gender, education and occupation of parents, area of living, sources of information regarding coronary artery disease, number of siblings, family history of chronic diseases, distance from home to school, physical education hours in school curriculum, and hours of attending tuition. The second part had 2 items capturing screen time, and habit of consuming food in front of television.

First item captured estimate time spend in front of Television/ Videos/DVD/ Computer on Saturday, Sunday, and average weekdays during the last 7 days. Weekly screen time was estimated by multiplying weekday viewing hours by 5, and adding viewing hours for Saturday and Sunday.

Category for screen time was formed as follows:

Appropriate - less than two hours /day

Inappropriate - two or more hours /day

Second item was on habit of watching television during meal using a 5-point likert scale with the following options. Always (2 or more times in a day), Quite often (Once in a day), Sometimes (3-5 days in a week), Hardly ever (1-2 days in a week), Never (I don't watch television during meals)

Categories were made as follows:

Appropriate - less than once a day

Inappropriate - at least once a day

The collected data were coded and entered in the master data sheet. Those columns left blank were taken as no responses. It was decided to analyze the data by descriptive and inferential statistics on the basis of objectives and the hypotheses of the study. The data was analyzed in terms of descriptive (mean, standard deviation, percentage) and inferential statistics (independent t- test, chi-sqaure test/fishers exact test). A p value of <0.05 was taken as statistically significant.

Results and discussion

Sociodemographic characteristics

The socioemogrpahic personal characteristics of adolescents participated in the study is given in Table 1. The mean age of adolescents was 12.29±0.5 yrs. n=252

Variable	Category	Frequency	Percent
Gender	Female	79	31.3
	Male	173	68.7
Education of mother	PG	10	4.0
	UG	69	27.4
	Upto metric	155	61.5
	Literate	14	5.6
	Illiterate	4	1.6
Education of father	PG	17	6.7
	UG	35	13.9
	Upto metric	174	69.0
	Literate	26	10.3
Occupation of mother	Farmer	1	0.4
	Own business	12	4.8
	Pvt job	50	19.8
	Govt job	38	15.1
	Unemployed	151	59.9

Variable	Category	Frequency	Percent
Occupation of father	Farmer	15	6.0
	Own business	77	30.6
	Pvt job	140	55.6
	Govt job	19	7.5
	Unemployed	1	0.4
Area of living	City	11	4.4
	Village	188	74.6
	Town	53	21.0
Source of information	School curriculum	3	1.2
	Media	2	0.8
	Health personnel	2	0.8
	None	245	97.2
No of siblings at home	Two or less	175	69.4
	More than two	77	30.6
Family history of cardiovascular diseases	Yes	125	49.6
	No	127	50.4
Distance to school from home	0-5km	141	56.0
	6-10km	74	29.4
	More than 10km	37	14.7
Hours of attending tuition	One or more than 1hr/day	123	48.8
	Less than 1hr/day	129	51.2

Screen time behaviour among adolescents

From Table 2 it is clear that though the mean screen time was less than 2 hours/day on week days, but 7.5% of them were (Figure 1) watching screen for more than the recommended duration. On weekends the mean duration of screen time was found to be more than 2hours, but 68.7% and 75.8% of them were engaged in more than the recommended duration of screen time. It was also found that 38.9% of them were inappropriately watching television during meals for at least once a day (Figure 2).

The Indian Academy of Paediatrics recommends that parents limit school-age children's total media time (watching TV/videos/computer and playing video games) to less than two hours per day. Various International (Wethington H et al. [23], and Kaur H et al. [24]) and national studies (Nayak BS, [25] Bhuvanesh S and Kaur A, [26] and Kumar D [27]) shows that the amount of time young people spend in sedentary behaviors has increased in recent years. While this includes TV time there is a dramatic increase in other types of screen time such as computers and video games that appears to be driving the trend. There also has been an increase in the percentage of kids who spend an excessive amount of time (2 or more hours per day) in sedentary behaviors.

Sudha R among Indian adolescents demonstrated that, children aged 8-18 years spend more time in front of the computer, that is 6.5 hours daily in front of television, computer and video games and more than half of television viewers in India today are children below 15 years [28].

Association between screen time habits and selected variables

In the present study, a statistically significant association was found between more than the recommended average screen time (>2hours/ days) during weekdays and male gender ($p<0.05$), occupation of father being private job ($p<0.01$) and shorter distance from home to school ($p<0.05$).

Table 2: Screen time duration (Hours) among adolescents

n=252

Variable	Minimum	Maximum	Mean	Std. Deviation
Screen time (weekdays) per day	0.0	3.0	1.15	0.75
Screen time Saturday	0.0	10.0	3.67	2.25
Screen time Sunday	0.0	10.0	4.03	2.17
Total Screen time per day	0.0	4.71	1.92	0.88

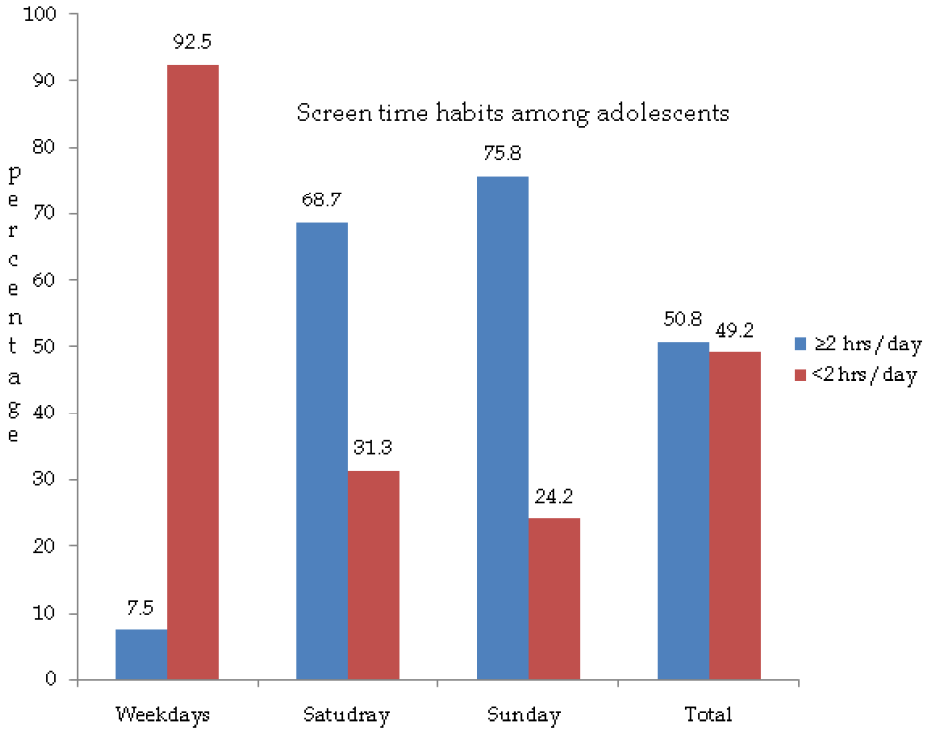

Fig. 1: Screen time habits among adolescents

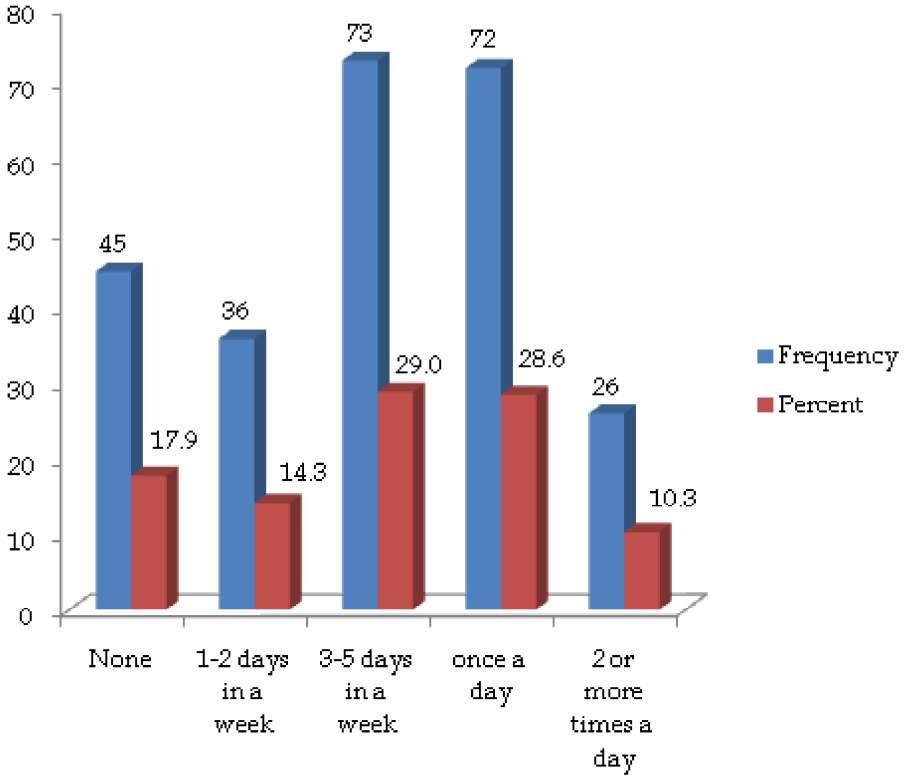

Fig. 2: Habit of watching television during meals

Number of siblings two or less was significantly associated with engaging in more than 2 hours of screen time during weekends at 0.05 level.

The prevalence of excessive screen time was 79.5% (95% CI 78.1-81.1) and it was higher in males (84.3%) compared to females (76.1%; p<0.001) [29]. Previous literature shows inconsistent evidence or no evidence for the associations for most social determinants (e.g. parental education, number of siblings, maternal physical activity). The absence of social support can increase children's time spent sedentary and having more TV related parenting risk factors and watching more TV as a family, can result in higher screen time in youth [30].

Conclusion

The present study findings suggest that adolescents are spending more than the recommended duration in front of screen. Since the previous evidences have shown primary negative health effects of screen time on violence and aggressive behaviour, sexuality, academic performance, body concept and self-image, nutrition, dieting, and obesity, and substance use and abuse patterns, the study recommends actions at family, school, community, government and policy level actions to reduce sedentary behaviour associated with television, videotape, and video game use among adolescents.

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