

Obesity In Association With Usage Of Electronic Media Among Adolscent School Going Girls In Urban Chennai District, Tamilnadu:A Review



Gynaecology

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ABSTRACT

In the 21th century, the young adolescent school going children are spending most of the time with electronic media such as watching TV, playing video games ,watching YouTube video and interacting with computer or cellular phone for internet and they are away from physical activities. The last year research claimed that adolescent girls were 20% more likely to spend at least two hours on the electronic media a day. This is one of the main factor for increasing weight gain in them . This study investigated relationship between obesity of adolescent school going children and usage of electronic media. This study also investigated the social context of playing games and watching video, TV and academic performance among the adolescent girls. Playing games, watching YouTube video and TV and messaging are the favorite activities for adolescents. High usage of electronic media is associated with increased BMI. However, this activity is defined as a seated activity that helps increase the sedantary life style. Literature survey revealed that time spent in electronic media are linked to adolescent's obesity and the decreasing levels of physical activity.

INTRODUCTION

Playing video games, watching YouTube, TV, whatsapp messaging are very popular activity among adolescent girls .Some studies demonstrated that adolescent obesity is strongly related to time spent playing video games [1, 2]. Spending large amounts of time playing video games leads to an increase in the Body Mass Index (BMI) among children and adolescents. Different literature investigated the potential reasons for the spread of obesity among children and adolescents and the reasons behind the increase in this problem. One of the major reasons for this problem was related to decreasing levels of physical activity as well as an increase of sedentary life style amongst adolescents .There has been a large amount of research into the relationship between sedentary life style , physical activity and obesity in children and adolescents [1][3] [4] [5]. In Canada, a study that covered a large sample of population indicated that physical activity is a tool that can be used to prevent the problem of overweight and obesity while sedentary activity such as playing video games could contribute to this problem. More specifically, there is a strong relationship between screen-based activity and increasing Body Mass Index (BMI) among children [5]. In this study it was demonstrated that children who are involved in screen-based activity and who do less vigorous physical activity are more likely to have a higher BMI [5]. Therefore, effective strategies to help increase physical activity levels and decrease of sedentary behavior among children in order to prevent childhood obesity are necessary [3] [4] [5]. For the above reasons, one study concluded that children should be encouraged to reduce time spent in sedentary activity, especially watching TV and playing electronic games [1]. There are a number of barriers that prevent adolescents participating in outdoor physical activity. Due to this effect the levels of inactive behavior are increased. These barriers include safety as many families prefer their adolescents not to play outside due to crime in their neighbourhoods [5] [6]. Other possible reasons relate to the presence of parks in close proximity to adolescent's houses as adolescent girls who live near parks with active facilities are more likely to engage in physical activity [7]. Another potential contributing factor that has been suggested relates to environmental conditions. For example when there is bad weather, adolescents are prevented from participating in outdoor activity [8]. Physical activity is recommended for adolescents because of its benefits on their overall health, development, skills, fitness and behavior. It is therefore recommended that physical education should be started at

an early age and continued into adolescence. Strategies which motivate adolescents to become more involved in physical activity and reduce the amount of sedentary life style should be widespread in communities, schools and homes. It is recommended that adolescents participate in at least 60 minutes of moderate to vigorous physical activity daily [9]. A study [10] conducted among 1111 children aged between 7 and 14 years investigated how often children play video games. Regarding the frequency of video game play, 55.7% of boys and 29% of girls played video games on a regular basis whereas 40% of boys and 51% of girls played them casually (less than once a week). It was reported that 6% of boys and 20% of girls do not play video games at all Since inactive habits increase during adolescence [11],[12], several countries have established recommendations to limit screen time. In the USA, the American Academy of Pediatrics (AAP) recommends less than 2 hours per day of TV-watching [13]. In Australia and Canada, similar recommendations targeting children and adolescents have been issued [14], [15]. It has been suggested that the relationship between screen-time and obesity may be of little clinical significance in children and youth [16],[17]. However, longitudinal studies have shown that screen-time, particularly TV time, increased the risk of being overweight or obese [18][19]. Childhood obesity is reaching alarming proportions with India reporting around 22% prevalence rate over the last 5 years in children and adolescents aged between 5-19 years[20].

Raising concerns about the rise of adult diseases in youth, like high blood pressure, type 2 diabetes, heart disease and osteoporosis, the report highlights the effect of obesity on a child's immediate health, educational attainment and quality of life. "It is important to address the problem of obesity and overweight at school level itself , otherwise it can lead to disease burden which will continue into adulthood," says Dr Anoop Misra, chairman, Fortis CDOD hospital for diabetes and allied specialities.[20]

MATERIAL AND METHODS

In order to accomplish the aim of the study, both qualitative and quantitative research methods were adopted. The amount of time spent interacting with electronic media was assessed by three questions. Asking participants to estimate the amount of time spent "watching TV or movie", "playing video game", using computer for internet or using cellular phone for internet, The participants were asked to estimate the time in hours and minutes per day. Body mass

index (BMI), which is weight in kilograms divided by height in meters squared (kg/m^2), was calculated for all study participants. BMI (kg/m^2) was calculated from self-reported height and weight. Obesity was defined using the gender- and age-specific cut-off points for BMI. The study covered 400 adolescent girls (11-17 years) in and around Chennai district through house-to-house survey for collecting information. At the same time they will be educated need of physical activity to improve their health status. The students were educated to reduce the sedentary life style to avoid obesity.

RESULTS:

A total of 400 adolescent girls between 11 and 17 years were interviewed. There was significant association between the number of hours spent daily using a electronic media and obesity. Of the participants, 21% and 40% used electronic media for more than three hours during the week and at weekends, respectively. However, more than half of the children (56.7%) who spent more than three hours usage of electronic media over the weekend were obese, compared to 46.2% of the students who used electronic media for less than three hours in the weekend. Mean BMI according to the hours per day spent on watching TV was $19.92 \pm 3.01 \text{ kg}/\text{m}^2$ for watching TV $\leq 1\text{h}$, $22.26 \pm 4.19 \text{ kg}/\text{m}^2$ for $1\text{h} < 2\text{h}$, and $22.45 \pm 4.15 \text{ kg}/\text{m}^2$ for watching more than 2h. In table-1 participant's percentages by BMI classification between the hours spent for electronic media are presented. Participant's mean value of height was $160.18 \pm 5.50 \text{ cm}$ and the mean weight was $53.54 \pm 9.63 \text{ kg}$. The mean BMI was $20.83 \pm 3.41 \text{ kg}/\text{m}^2$. the present study shows that 24.1% adolescent were obese. Thus 1 in 4 adolescents were obese when the 85 percentile of BMI was used as the criterion. Participants who watched TV more than 2 hours/day had higher BMI.

TABLE -1: Participant's percentages by BMI classification between usage of electronic media

BMI characteristics	Usage of electronic media by the hours in %		
	<1h	>1h<2h	>2h
Underweight	7.5	3.3	0
Normal	83	55.7	57.1
Overweight	7.5	25.4	28.6
Obesity	1.9	15.6	14.3

DISCUSSION:

Previous study confirmed that inactive behaviour may cause obesity among adolescents [7],[8],[9]. The current study confirmed that high usage of electronic media (watching television, video, playing video games, using computer of cellular phone for internet, messaging) is associated with an increased BMI. These associations were stronger and more consistently significant in girls.

The findings from the present study are in accordance with a large number of cross-sectional surveys, a smaller number of longitudinal studies, and one randomized trial that indicate that high usage of electronic media is a risk factor for adolescent obesity [12]. Adolescents spend a substantial portion of their lives watching television [12]. Investigators have hypothesized that watching television causes obesity through at least one of the following three mechanisms: (1) displacement of physical activity, (2) increased calorie consumption while watching as a result of advertising, and (3) reduced resting metabolism. The relationship between watching television and obesity has been examined in a relatively large number of cross-sectional epidemiologic studies and few longitudinal studies. Many of these studies have found relatively weak, positive associations, but others have found no association or mixed results. However, the weak and variable associations may be the result of limitations in measurement. Several experimental studies to reduce television watching have recently been completed [10]. Most of these studies did not directly test the effects of reducing television watching behaviors alone. However their results support the suggestion that reducing the time spent in watching television may reduce the risk of obesity or help promote weight loss in obese adolescents [13].

Many studies [5],[10],[14],[15] have shown that longer TV watching time is associated with higher BMI, lower levels of fitness, and higher blood cholesterol levels. Although the effect size estimated from observational studies is small (with watching TV explaining very little of the variance in BMI), the results of intervention studies show large effect sizes. In this study, watching TV for more than three hours per day, especially over the weekend, was significantly associated with childhood obesity.

The present study did not find a significant association between the parents feelings about how much TV their children watched and obesity among children. It is difficult to reduce TV watching hours because potential strategies, such as social marketing and education, are likely to be relatively weak interventions. However, the evidence suggests that a reduction in watching of TV could significantly reduce the prevalence of obesity [16].

Although no research has systematically documented a relationship between obesity and computer use, there is evidence that adolescent obesity is linked to excessive watching of television, that is, five or more hours per day [18][19]. As adolescents spend increasing amounts of time in front of computer monitors (in addition to the time spent in front of a television screen), they are likely to increase their risk of obesity. In the present study, this was confirmed, especially with regard to time spent over the weekend. Consequently, the American Academy of Paediatrics advises parents to limit the time their children spend with the media and to emphasize alternative activities, such as athletics, physical conditioning, and imaginative play. The relationship between computer use and adiposity warrants confirmation and further study, especially since the trend is of more computer use among adolescent of school-age with increasing availability of software that targets this group.

CONCLUSION: The present investigation reveals that TV watching represents an important risk factor for obesity in adolescent girls of school-age. It confirms that a substantial percentage of children of school-age view TV for more than three hours on week days and at weekends. High usage of electronic media (Screen time) is associated with an increased risk of obesity. School-based intervention programs should be properly implemented, as these programs effectively reduce the exposure to TV and BMI, especially in adolescent girls. In addition, parents should play a more positive role in reducing the time their children spend watching TV, high usage of electronic media such as computer, laptop, tablet, cellular phone etc and encourage them to engage in physical activities. It has been conclusively demonstrated that there is an relationship between increasing rates of adolescent obesity and adolescent engaging in high usage of electronic media (screen based activity). The current findings suggest a need for further investigation into the determinants of screen time and possible initiatives to reduce screen time and increase physical activity levels to meet current guidelines.

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