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TV Viewing and computer use: The Independent factors accountable for overweight risk and diabetes in Children

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Abstract

The childhood obesity epidemic is a serious public health problem that increases morbidity, mortality, and has substantial long-term economic and social costs. Today's children, ages 8 to 18, consume multiple types of media and spend more time (44.5 hours per week) in front of computer, television and game screens than any other activity in their lives except sleeping. 19.43% children spent >2hours in front of television. Among these boys were more than girls. Urban students spent more time on computer, television etc. Higher levels of video-gaming and computer use are also associated with overweight. 25.56% were overweight and 26.09% children were diabetic in those spending more time on television. It has found strong associations between increases in advertising for non-nutritious foods and rates of childhood obesity. Most children under age 6 cannot distinguish between programming and advertising and children under age 8 do not understand the persuasive intent of advertising. Advertising directed at children by its very nature is exploitative. Duration of television watching is associated with increased body mass index. Children and adolescents ages 10-19, were spending more time i.e. 2 hours and >2 hours in front of computer, television and game screens than any other activity. Most of these children are overweight and having impaired glucose levels. It is reported that children and adolescents who spent most of the time watching television are more likely to be overweight. In addition, greater amounts of time spent watching television were associated with less time spent engaging in physical activity among adolescent boys and girls. Higher levels of video-gaming and computer use are also associated with overweight.

Keywords: Media; Overweight; Obesity; Physical Activity

INTRODUCTION

Obesity has become a worldwide public health problem. Media clearly plays an important role in the current epidemic of childhood and adolescent obesity. Children today spend more time each day watching television and are influenced by the programming and advertising they see. Screen time may displace more active pursuits, advertising of junk food and fast food increases children's requests for those particular foods and products, snacking increases while watching TV or movies and late-night screen time may interfere with getting adequate amounts of sleep, which is a known risk factor for obesity. Leisure time activities have also shifted from outdoor activities to indoor entertainment like television viewing and computer usage, both in children and adults.

TV and other media are known to upset young people's sleep patterns. Advertisers reach kids through various forms of media. A number of advertisements that children and adolescents see for junk food and fast food have an effect. They are shifting their good nutritional practices to junk foods due to excessive media dose. Current epidemic will require a major change in society's recognition of media exposure and the advertisements as a major risk factor for obesity in young people.

MATERIALS AND METHODS

A random sampling procedure was used to draw sample from Chandigarh and its surrounding areas. 2048 children had undergone questionnaire and dietary survey and health examination. Out of these 1017 were from urban population and 1031 from rural population Children and adolescent aged 10-19 years were selected randomly for questioning regarding the different aspects of epidemiology and their health examination was done. Before starting the data collection work, permissions were taken from Principals / headmasters of the schools. The permission from parents of the children, undergoing health examination and questionnaire survey was taken on the self-designed consent form.

The Centers for Disease Control and Prevention (CDC) suggests two levels of concern for children based on the BMI-for-age charts.

At the 85th percentile and above, children are "at risk for overweight" and,
At the 95th percentile or above, they are "overweight".
The cutoff for underweight of less than the 5th percentile is based on recommendations by the World Health Organization Expert Committee on Physical Status 1996.

Fasting Blood Sugar

Fasting blood sugar test was performed. The diagnostic criteria for diabetes mellitus have been modified from those previously recommended by WHO (1985). The revised criteria for the diagnosis of diabetes is used which is as follows:

Categories of Fasting plasma glucose (FPG) values are as follows:

- FPG <110 mg / dl (6.1 mmol / l) = **normal fasting glucose;**
- FPG ≥110 (6.1 mmol / l) and <126 mg / dl (7.0 mmol / l) = **IFG (Impaired Fasting Glucose)/Prediabetes.**
- FPG ≥126 mg / dl (7.0 mmol / l) = **diabetes**

(Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus (2003)

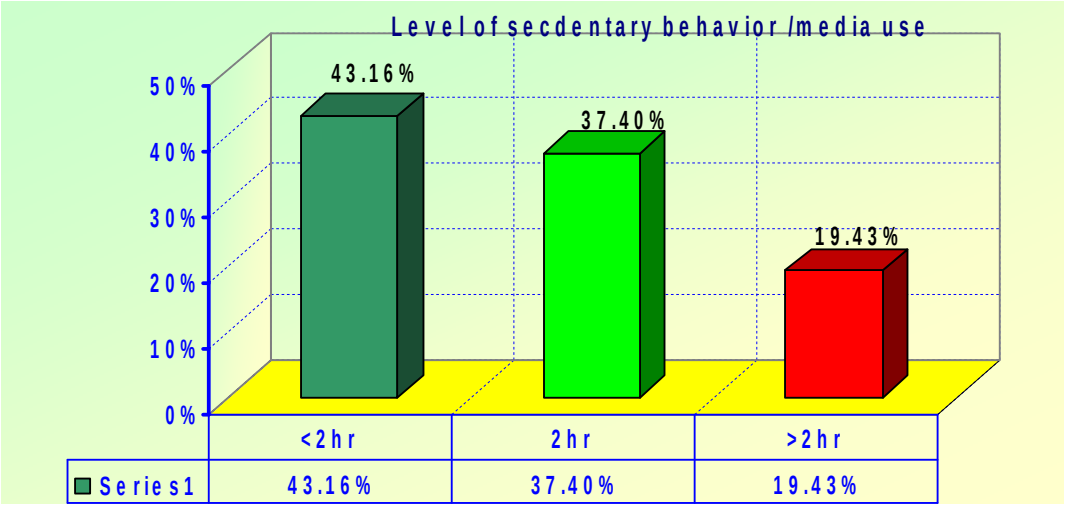
RESULTS AND DISCUSSION

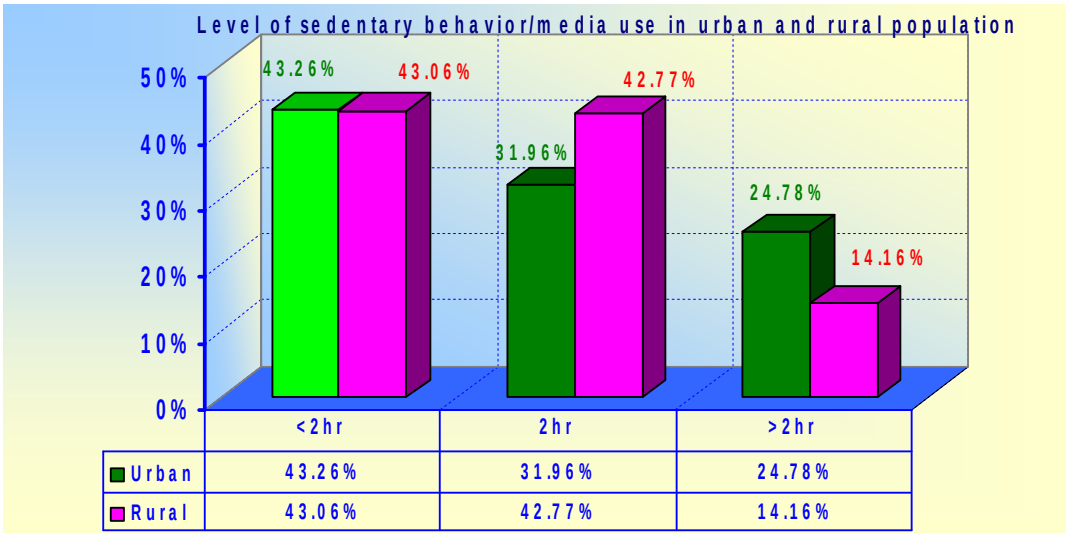
Children and adolescents ages 10-19, were spending more time i.e. 2 hours and >2 hours in front of computer, television and game screens than any other activity. Most of these children are overweight and having impaired glucose levels. It is reported that children and adolescents who spent most of the time watching television are more likely to be overweight (table 1). 19.43% children spent >2hours in front of television. Among these boys were more than girls. Urban students spent more time on computer, television etc. In addition, greater amounts of time spent watching television were associated with less time spent engaging in physical activity among adolescent boys and girls. Higher levels of video-gaming and computer use are also associated with overweight. 25.56% were overweight and 26.09% children were diabetic in those spending more time on television.

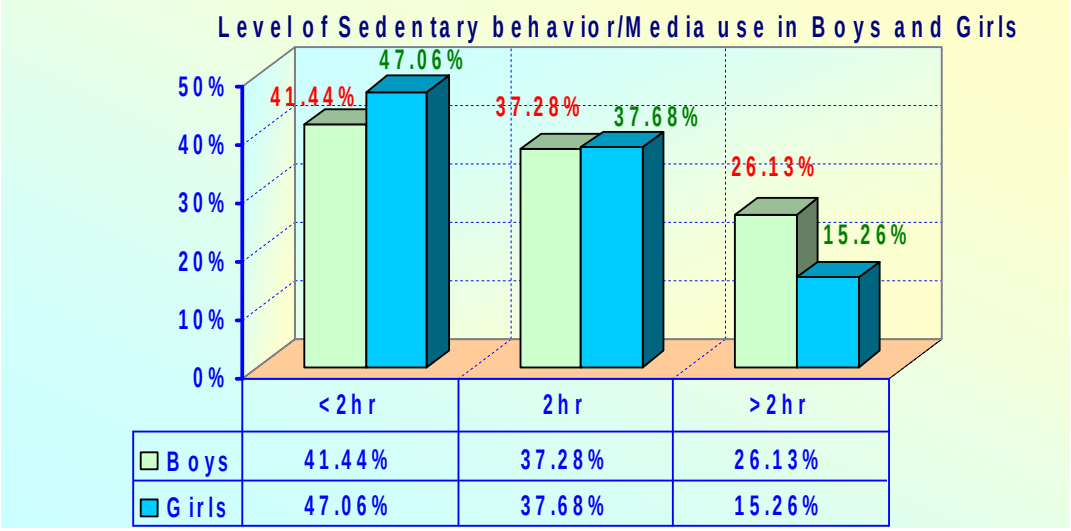
Table 1: Level of Sedentary behavior / Media dose (TV watching, computer, video games etc) per day and its relationship with obesity and diabetes.

Group / Sub Group	<2 hours		=2 hours		>2 hours	
	N	%	N	%	N	%
Area						
1.Urban	440	43.26	325	31.96	252	24.78
2.Rural	444	43.06	441	42.77	146	14.16
Chi^2=45.72**(df:2) C=0.15						
Gender						
1.Male	588	41.44	529	37.28	302	21.28
2.Female	296	47.06	237	37.68	96	15.26
Chi^2=11.34**(df:2) C=0.07						
FBG Categories						
1. <110	865	43.40	747	37.48	381	19.12
2. 110-126	9	28.12	12	37.50	11	34.38
3. >=126	10	43.48	7	30.43	6	26.09
Chi^2=6.31(df:4) C=0.06						
Percentile Based						
1. Under Wt.	221	43.50	201	39.57	86	16.93
2. Healthy Wt.	573	43.31	490	37.04	260	19.65
3.At Risk	53	41.73	45	35.43	29	2.83
4. Over Wt.	37	41.11	30	33.33	23	23 25.56
Chi^2=5.55(df:6) C=0.05						
All Data	884	43.16	766	37.40	398	19.43

Wt: weight


Level of secdentary behavior /media use
50%
40%
30%
20%
10%
0%
43.16%
37.40%
19.43%
<2hr
2hr
>2hr
Series1
43.16%
37.40%
19.43%


Level of sedentary behavior/media use in urban and rural population
50%
40%
30%
20%
10%
0%
43.26%
43.06%
31.96%
42.77%
24.78%
14.16%
<2hr
2hr
>2hr
Urban
43.26%
31.96%
24.78%
Rural
43.06%
42.77%
14.16%


Level of Sedentary behavior/Media use in Boys and Girls
50%
40%
30%
20%
10%
0%
41.44%
47.06%
37.28%
37.68%
26.13%
15.26%
<2hr
2hr
>2hr
Boys
41.44%
37.28%
26.13%
Girls
47.06%
37.68%
15.26%

Excessive time spent watching television, using the computer and playing video games is partly to blame for this escalating rate. Children, on average, spend up to five to six hours a day involved in these sedentary activities. They may be sufficiently active at other times but most of them were not active in other part of the day.

According to US Task Force on Media and Childhood Obesity of the Federal Communications Commission, children today spend many hours each day watching television and are influenced by the programming and advertising they see. U.S. Congress, Children's Television Act of 1990 reports, by the time the average child is 18 years old; he or she has spent between 10,000 and 15,000 hours watching television and has been exposed to more than 200,000 commercials. Once research study document that obesity in children increases as they spent more hours to watch television (Crespo, 2001). Another research study shows that children who watch more than three hours of television a day are 50% more likely to be obese than kids who watch fewer than two hours. (Tremblay, 2003).On such work reports that children who use a lot of media have a lower activity level which is linked to a higher rate of obesity.

To make matters worse, children are bombarded with well-crafted TV ads from fast-food chains and other high-fat, high-sugar meals and snacks. These highly effective advertising campaigns, combined with a physically inactive lifestyle, have produced a generation of kids who are at high risk for obesity-associated medical conditions. Television affects the health of both children and adults. First and foremost, television ads are constantly bombarding us with information about health and nutrition and unfortunately, most of its content is skewed. Our children are most susceptible to these leading advertisements. For instance, children may have a hard time recognizing fact from fiction when they see an ad that shows thin beautiful people enjoying high calorie, high fat foods and drinks.

Television viewing leads to obesity in children and adults when it replaces other, more active pursuits, such as walking, biking, or simply playing outdoors. All television shows, even educational non-commercial shows, replace physical activity. Watching TV is a sedentary activity that causes the metabolic rate to go even lower than when one is at rest. This means that you can burn more calories by just sitting quietly and doing nothing than you can when you sit and watch TV. TV leads to obesity in children and adults because of the foods that are typically consumed when one is watching TV. Most people tend to snack while watching TV, choosing junk foods that are convenient to eat in front of the television. According to the 2004 report "The Role of Media in Childhood Obesity" by the Kaiser Family Foundation, during the same period in which childhood obesity has increased so dramatically, there has also been an explosion in media targeted to children: TV shows and videos, specialized cable networks, video games, computer activities and Internet Web sites. Much of the media targeting children is laden with elaborate advertising campaigns, many of which promote foods such as candy, soda, and snacks. One study documented approximately 11 food commercials per hour during children's Saturday morning television programming, estimating that the av erage child viewer may be exposed to one food commercial every 5 minutes (Kotz, 1994).

Another study found those children's food choices were significantly impacted by which ads they saw i.e. either an ad for fruit or an ad for candy (Gorn, 1982). Other researchers found that for each additional hour of television viewed per day, daily servings of fruits and vegetables decreased among adolescents possibly due to television advertising (Boynton-Jarret, R, 2003).

While many researchers and studies are still establishing the role of media in child obesity and overweight issues, (the direct link between advertising and obesity has not been officially established), the advertisers certainly know that TV ads can influence children's and family

consumer choices. For example, fast food outlets alone spend $3 billion in television ads targeted to children. According to "Advertising, Marketing and the Media: Improving Messages from the Institute of Medicine of the National Academies, food and beverage advertisers collectively spend $10 billion to $12 billion a year to reach children and youth. It is the media which has to play a primary role in spreading awareness on how food and exercise play an important role in curbing diseases like obesity and diabetes. Children, ages 8 to 18, spend more time (44.5 hours per week) in front of computer, television and game screens than any other activity in their lives except sleeping (Kaiser Family Foundation, 2005). Among the many health complications associated with being an overweight child, the most common include hypertension, type 2 diabetes, respiratory ailments, orthopedic problems, difficulty sleeping, and depression.

One strategy employed to better understand childhood obesity has been to compare changes in sedentary behaviors such as media use. Media use is typically described as the use of video games, computers, television viewing and audio devices like CD players and MP3 players. Dietz and Gortmaker published one of the first reports of a direct relationship between television viewing (measured by time spent watching) and childhood obesity in 1985. Since 1985, many more media use devices have become integral in the lives of children. In 29 out of 33 countries studied, a strong association is seen with the effect of media use and childhood obesity, as well as media use with decreases in physical activity (Janssen et al., 2005). It appears that television watching is also highly associated with increased rates of consumption of energy-dense foods (Ebbeling et al, 2002). They also added that children in U.S. now spend 75% of their waking hours being inactive with only about 12 minutes of vigorous activity per day.

Media clearly play an important role in the current epidemic of childhood and adolescent obesity. The sheer number of advertisements that children and adolescents see for junk food and fast food have an effect and shifting away from good nutritional practices to bad ones. Any success in dealing with the current epidemic will require a major change in society's recognition of media exposure as a major risk factor for obesity and in young people's media habits and the advertisements to which they are exposed.

CONCLUSION

Media clearly play an important role in the current epidemic of childhood and adolescent obesity. Children today spend as much as more time each day watching television and are influenced by the programming and advertising they see. Screen time may displace more active pursuits, advertising of junk food and fast food increases children's requests for those particular foods and products, snacking increases while watching TV or movies. Late-night screen time may interfere with getting adequate amounts of sleep, which is a known risk factor for obesity. This epidemic will require a major change in society's recognition of media exposure as a major risk factor for obesity and in young people's media habits and the advertisements to which they are exposed.

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REFERENCES

1. Boynton-Jarret, R, et al, (2003) Impact of Television Viewing Patterna on Fruit and Vegetable Consumption among Adolescents, Pediatrics 2003; 112, 6:1321-1326
2. Center for Disease Control (CDC). Body mass Index: BMI for children and teens.2000.apps.nccd.cdc.gov/dnpabmi.
3. Crespo, Carlos J. et al. Television Watching, Energy Intake, and Obesity in U.S. Children, Archives of Pediatric and Adolescent Medicine, 2001; 155: 360-365.
4. Ebbeling CA, Pawlak DB & Ludwig DS. Childhood obesity: public-health crisis, common sense cure. Lancet 2002; 360: 473–482.
5. Gorn, G, et al, Behavioral Evidence of the Effects of televised Food Messages on Children, Journal of Consumer Research 1982;9: 200-205
6. Janssen, I., et al. Comparison of overweight and obesity prevalence in school-aged youth from 34 countries and their relationships with physical activity and dietary patterns. Obesity Reviews. 2005; 6: 123-132.
7. Kotz, K. et al . Food Advertisements during Children's Saturday Morning Television Programming: Are They Consistent with Dietary Recommendations?"Journal of the American Dietic Association 1994; 94(1994)11:1296-1300
8. The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. From the American Diabetes Association, Alexandria, Virginia Diabetes Care 2003; 26:S5-S20.
9. The Kaiser Family Foundation (2005): The Role of Media in Childhood Obesity: This Kaiser Family Foundation issue brief that reviews more than 40 studies on the role of media in the nation's dramatically increasing rates of childhood obesity explores what researchers do and do not know about the role media plays in childhood obesity. It also outlines media-related policy options that have been proposed help address childhood.
10. Tremblay, M.S. et al, (2003), Is the Canadian child obesity epidemic related to physical inactivity? International Journal of Obesity, 27, 1100-1105.
11. World Health Organization Expert Committee on Physical Status. (The World Health Organization Expert Committee on Physical Status. The Use and Interpretation of Anthropometry. Physical Status: Report of a WHO Expert Committee: WHO Technical Report Series 854, WHO, Geneva, 1996).
12. World Health Organization Study Group on Diabetes Mellitus Technical Report Series, 727, WHO Geneva,1985.
13. World Health Organization. Obesity. Preventing and managing the global epidemic: Report of WHO consultation group on obesity. Geneva: WHO; 1997.