

## **Impact of media on the physical health of urban school children of age group 11-17yrs in Chennai - A cross sectional study**

R.Priyadarshini, Jasmine S Sundar, Valarmathi. S, Kalpana. S, Parameswari  
Srijayanth

(Department of epidemiology, The tamilnadu Dr.MGR medical University, India)

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**Abstract :** A cross sectional study was done to investigate the impact of media on the physical health of adolescents in Chennai. Media usage was found to be a highly influencing factor for the physical health of adolescents. The sample comprised of 448 school students in the age range of 11-17. A semi structured questionnaire was used to get information. The results revealed that 90% of the participants eat while watching TV. 33% eat fast foods at least once a week. 82% buy food products based on advertisements and 59% skipped some outdoor activity for TV. 42% diet & 42% exercise to get the body like their favorite media personality. The Chi square test resulted significant associations of BMI vs the variables such as eating fast foods ( $p$  0.027), frequency of outdoor play ( $p$  0.019), eating while watching TV ( $p$  0.037), dieting for changing the body image like their favorite media person ( $p$  0.033), skipped some outdoor activity for TV ( $p$  0.018). Further regression analysis was carried out for BMI interval and other related media usage variables and it suggested that the odds of media usage as a predicting factor for BMI are increased 2-3 units. Thus the study concluded that educating adolescents to use media on time and constructively will improve their health holistically.

**Key words:** Adolescents, Impact, Media, Physical health, & Regression

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### **I. INTRODUCTION**

The media is increasingly pervasive in the lives of children and adolescents. In busy urban life, adolescents spend very little time to relate with people. Rather they spend much time in media, exploring new knowledge about the world. Media is having an enormous impact on adolescent health in either way both positive and negative. Often it is believed that media has negative impact on physical health. Hence it is important to study the media usage and its effects on youths to build a healthy community. According to American Academy of Pediatrics (AAP), children and adolescents are influenced by media- they learn by observing, imitating and making behaviors on their own [1]. WHO defines “**adolescents**” as individuals in the age group of 10-19 years, there are about 1.2 billion adolescents worldwide and one in every five people in the world is an adolescent. Adolescents constitute 18-25% of the population in member countries of South East Asian Region, the world has around 0.6 billion adolescents between 15 and 19 years, which is nearly 12 percent of the world’s population. The Tenth Five Year Plan in India recognizes adolescents as a distinct group for policy and program attention. It is believed that promoting better health among adolescents can help nations in their efforts to achieve the Millennium Development Goals (MDGs) [2].

In the 2000s, a classification called the “seven mass media” became popular. In order of introduction, they are: Print media (books, pamphlets, news papers, magazines, etc.) recordings (gramophone cards, magnetic tapes, cassettes, cartridges, CDs, DVDs), Radio, Television, Internet, Mobile phones. Video games may also be evolving into a mass medium. Video games convey the same messages and ideologies to all their users. Kaiser Family Foundation study (2012) found from a survey in the United States that children aged 8 to 18 years spend an average of 7 hours and 38 minutes on entertainment media every day (more than 53 hours a week) including television content, music/audio, computers, video games, print material, and movies are indeed alarming. And because they spend so much of that time in ‘media multitasking’ (using more than one medium at a time), they actually manage to pack a total of 10 hours and 45 minutes (10:45) worth of media content into those 7½ hours [3].

Report card on adolescents 2010-UNICEF studied the usage of media by adolescents of age group 15-19 yrs and reported that Internet use is more likely with higher income and education, and more men than women use the technology in both industrialized and developing countries. The study further indicated a deep urban/rural divide, with urban dwellers more likely to log on. Internet use is also more common among people who are currently in school. In all countries, a higher proportion of people under age 25 use the Internet than people over age 25 [4]. A study done by Ferdon stated that over 80% of adolescents own at least one form of new media technology such as cell phones, Internet, etc [5]. A study conducted in Australia in 2011 states that electronic screen use (such as watching television/DVDs, and using computers, video games and portable

devices) is the most common leisure activity of youth in Australia and many other industrialized countries. A large majority of children and adolescents in Australia exceed the recommended maximum of two hours a day of screen use for leisure and that time spent in screen activities is increasing [6]. It is identified 11-12 year olds reported daily average screen use of around 5 hours [7] In 2008, three quarters of Australian children aged 5 to 14 owned a mobile phone [8]. Personal computer ownership is also being supported by the imperative to provide the best educational opportunities and resources for youth. In Australia, the National Secondary School Computer Fund has been initiated to ensure every student in the high school year groups 9 to 12 will have access to a computer at school, with many schools allowing laptops to be taken home by the children [9]. A longitudinal study by **Hancox RJ et al** found children and adolescents who watched television one hour or less a day were the healthiest at age 26. Unsurprisingly, few fit into this group; only 6% of males and 8% of females. This study suggests that minimal screen time is best for health [10].

In India, there are over 190 million adolescents, which is nearly one-fifth of the total population of the country [2]. The scenario in India shows a similar trend with Indian children spending more than two hours of their time on the television daily [11]. An article says that Children cannot discriminate between reality and fantasy. They lack adult reasoning abilities and may perceive TV shows as being realistic and shape their behaviors accordingly [12]. Effects of the mass media have been found to be far reaching and potentially harmful in influencing the health-related behaviors of children and adolescents, many of whom are not yet mature enough to distinguish fantasy from reality, particularly when it is presented as “real life. The media has a disturbing potential to negatively affect many aspects of children’s healthy development, including weight status, sexual initiation, aggressive feelings and beliefs, consumerism and social isolation. Media also has potential for positive effects on child health [13].

First, the media needs to be recognized as a major public health issue rather than as a series of commercial endeavors in need of regulation, as they are among the most profound influences on children. . Television and other media must be viewed as more than sources of evil or mere idle Pleasures [13].

All the studies were done in the western countries only and there are very few studies available for Indian context. Since India is a developing country and there is rapid urbanization and westernization, it is believed that the technological bloom is having a major impact on the youth in either way both positive and negative. Since media have enormous effects on physical, mental and social health of adolescents, it is important to study the usage and impact of media on adolescents. Thus the present study was with the objectives as to assess the impact of media on the physical components of health among school students in a broader way.

## II. METHODS

A Cross sectional study was conducted on 11-17 yrs of school children of both sexes from private and public schools of Chennai. After obtaining informed consent, a semi structured questionnaire was used to get information regarding media usage. Anthropometric measurements such as height and weight were taken. Stratified random sampling technique was used to select the samples. A questionnaire for collecting personal details, family details, eating habits, physical activity and the media factors influencing physical health was used.

## III. RESULTS

A total of 448 students with equal distribution of zones, classes and gender were taken from four educational zones of Chennai. More than 50% of the participants were under the abnormal BMI category which included the underweight, over weight and obese which is shown in the fig 1 below.

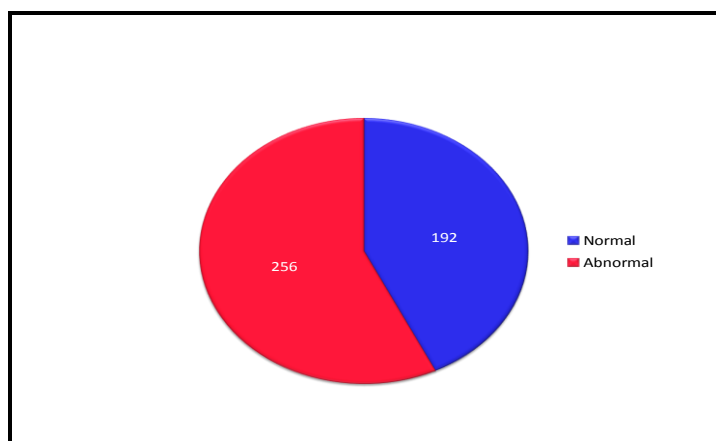


Figure 1: BMI classification

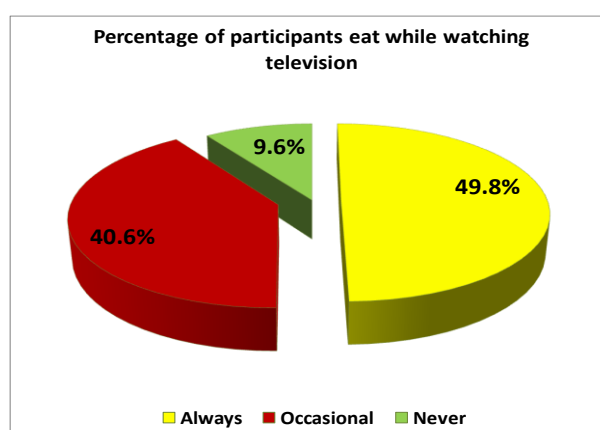


Figure 2: Habit of eating while watching television

90.4% of the participants eat always or occasionally while watching. The eating might be either food or snacks including fried and proprietary foods.

The following table showed the effect of stereotyping in physical health due to improper media usage. Media has more influence in shaping the physic of adolescents.

**Table 1:** Dieting and exercising to change the body image like their favorite personality

Variables	Options	Frequency(n=448)	Percentage
Dieting for changing the body image	Yes	262	58.5
	No	186	41.5
Want to gain or lose weight	Gain wt	50	11.2
	Lose wt	120	26.8
	To maintain weight	1	0.2
	NA	277	61.8
Measures taken in diet	Increase food intake	9	2.0
	Decrease food intake	42	9.4
	Increase non veg intake	5	1.1
	Decease non veg intake	8	1.8
	Increase veg intake	4	0.9
	Decrease veg intake	0	0
	Others	6	1.3
	NA	370	82.6
Exercising to change the body image	Yes	190	42.4
	No	258	57.6
Want to gain or lose weight	Gain weight	53	11.8
	Lose weight	97	21.7
	To maintain wt	2	0.4
	NA	290	64.7
	Height	3	0.7
	For fitness	3	0.7

The table below showed the formation of habits due to media influence. This is also considered as an important component of stereotyping.

**Table 2:** Buying food products or snacks based on advertisements

Options	Frequency(n=448)	Percentage
Some times	342	76.3
Always	24	5.4
Never	82	18.3

The following tables 3 & 4 explained the significant associations of the physical health variables and the media variables. The BMI was categorized into four as underweight, normal, overweight and obese. The variables eating while watching TV, dieting or exercising to change the body image were found to be significantly associated with the media usage.

**Table 3:** Association of physical health variables with media variables

<b>BMI interval vs. media variables</b>	<b>Chi square value</b>	<b>P value</b>
Interested areas in news papers	131.635	0.016
Types of magazines read	107.004	<0.01
Time spent in recordings	122.050	<0.01
Time spent in Radio listening	85.257	<0.01
Types of TV programs watched	530.914	<0.01
Purpose of TV watching	132.930	<0.01
Purpose of using mobile phones	134.001	0.030
Frequency of eating fast foods	23.091	0.027
Frequency of going out to play	28.406	0.019
Eating while watching TV or using any other media	13.404	0.037
Dieting in order to change your body image like their favorite media personality	18.168	0.033
Wanting to gain or lose weight like their favorite media personality	28.617	<0.01
Measures taken in diet do you take to gain or lose weight like their favorite media personality	60.770	<0.01
Wanting to gain or lose weight by exercising like their favorite media personality	26.949	0.029
Skipping any outdoor activity to watch a program in TV	15.264	0.018

Avoiding or restricting to go out to play is an important contributing factor for physical health. This was significantly associated with the media usage variables related to TV, internet, social networking, mobile phones and videogames.

**Table 4:** Association of physical health variables with media variables

<b>Frequency of going out for playing vs. media variables</b>	<b>Chi square value</b>	<b>P value</b>
Types of storybooks do you read	130.859	<0.01
Usage of I pods, memory cards, MP3	37.242	<0.01
Types of cinemas watched	155.137	<0.01
listening to radio	22.727	0.012
Time spent in television	168.401	<0.01
Frequency of TV watching	42.648	0.015
Purpose of TV watching	594.920	<0.01
Thinking TV is a must	467.083	<0.01
Languages used for cinema	561.920	<0.01
Availability of PC	133.582	<0.01
Use of internet	32.574	<0.01
Purpose of internet	104.390	0.035
Usage of social networks	190.955	<0.01
Types of social networks used	104.294	<0.01
Having personal mobile	26.209	<0.01
Most contacting person through mobile	92.349	0.015
Frequency of using the applications in the mobile	39.437	0.033
Playing videogames	46.000	<0.01
Videogames types	58.904	<0.01
Thinking videogame is a must	23.657	<0.01

### 3.1. Estimation of risk using Backward Logistic regression

BMI is categorized into normal or abnormal and was used as an outcome variable for the assessing physical health. Variables found to be significant in multivariate analysis and clinically significant variables were included in the model of multiple logistic regression. Hosmer and Lemeshow Goodness of fit are used for

assessing how well the model fits the data. Back ward logistic regression was done which carried out 16 steps. Hosmer lemshow test showed statistical non significance (0.603) which is an indicative of a model that really predicts Population fairly well. The results of the iterative steps have been tabulated (Table 5). The table suggested that the odds of media usage as a predicting factor for BMI are increased 2-3 units.

**Table 5:** Backward Logistic regression

Variables	Crude Odds ratio	95% confidence interval for crude OR	
		Lower bound	Upper bound
Eating while watching TV	3.190	2.672	3.935
Buying food based on media advertisements	2.186	1.840	2.724
Wanting to gain or lose weight to change body image like their favorite media personality	3.184	2.656	3.939
Skipping any outdoor activity to watch any favorite program in television	2.275	1.956	2.737
Diet- vegetarian or non vegetarian	1.952	1.564	2.726
Types of snacks preferred	2.965	2.721	3.258
Frequency of going out to play	3.111	2.737	3.589

#### IV. DISCUSSIONS

The impact of media on physical health varies from formation of poor eating habits to eating disorders and poor physical fitness. In this study, there were more number of participants (256 (57%)) with abnormal BMI. Abnormal BMI included the underweight participants than the overweight participants (Fig 1).

##### 6.1. Eating habits

A Canadian article said that an average child sees more than 20,000 commercials each year. More than 60% of commercials promote sugared cereals, candy, fatty foods and toys [14]. Adolescents who spend much time in media are tending to be influenced by advertisements coming in media. Often these so called healthy foods are not very much healthy as they are advertised; instead they are high fat and high energy snack foods which are popularly called as junk foods and fast foods. It is evident in this study by the significant association (p value 0.027) between frequency of fast foods and BMI interval. Kuriyan *et al* found that there is association between excessive TV viewing and childhood obesity. This study further tells that exposure to advertisements is associated to the children’s request for specific foods, food purchasing and food consumption [15]. Lewis MK *et al* found that the mechanism of effect of media exposure on obesity may also operate through the extensive advertising messages for unhealthy foods targeted at children [16]. These facts were proved in this study by the finding that 81.7% bought some food products based on advertisements in TV. 90.4% answered that they eat something while watching TV (Fig 2) which was associated significantly (p value 0.037) with BMI interval. This ultimately results in the formation of poor eating habits.

##### 6.2. Influence of stereotyping in physical health

Girls always want to lose weight to develop body image like their thin role models portrayed in the media which ultimately end in eating disorders. The study found that 58.5% diet in order to change their body image like the favorite media personality in which 26.8% wanted to lose and 11.2% wanted to gain weight. 9.4% decreased food intake for reducing their weight. 42.2% exercise in order to change their body image like their favorite media personality in which 21.7% wanted to lose and 11.8% wanted to gain their weights (Table 1). 81.7% bought some food products based on advertisements in TV (Table 2). BMI interval was also significantly associated (p<0.05) with these variables (Table 3). Decrease in the physical activity due to media usage was evident by the significant associations (p<0.05) of the variable frequency of going out to play with the media variables (Table 4).

#### V. CONCLUSION

This study clearly depicted that media is widely used by adolescents and having enormous effects on their physical health. It makes them to crave and buy the unhealthy food products. Dieting or starving to obtain the body image like their favorite personalities and skipping outdoor activities for TV etc may cause health problems like obesity, nutritional deficiencies etc. So bringing media literacy among adolescents to use media constructively will improve their health holistically. Parents and schools should encourage their children to increase the physical activity, social participation and not to rely on advertisements for buying food products

rather they can educate about the healthy foods and life style. Limiting the time of screen usage not more than 1-2 hours of children and restriction of eating while watching TV could be the measures taken by the parents at home. Government could bring regulations for media in controlling the advertisements of unhealthy foods targeted at children.

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