

Impact of Prolonged Electronic Gadget Use on Dietary Habits: A Comprehensive Study on Children and Women

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How to cite this article:

Aslam, T. & Qureshi, I. S. (2023). Impact of prolonged electronic gadget use on dietary habits: A comprehensive study on children and women. *Medical and Life Sciences*, 2(2), 36–42.

Received: 8 July 2023 / Accepted: 27 October 2023 / Published online: 5 December 2023
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Abstract

Among the behaviors related to food intake, using electronic gadgets (television, computer/laptop, and mobile phone/tablet) is vital, given the number of children and women exposed. Also, more time spent using electronic gadgets (television, computer/laptop, and mobile phone/tablet) has been correlated with physical inactivity and less required dietary intake among women and children. The study aimed to assess the relationship between electronic gadgets and unhealthy eating and the amount of time spent on electronic gadgets. A cross-sectional survey-based evaluative study was performed on children and women. A questionnaire was designed for the survey. The total number of participants was 400, 200 of whom were women and 200 of whom were children. Participants were both male and female. All parameters were obtained and statistically analyzed. Spending more than five hours per day using electronic gadgets was significantly associated with higher intake of unhealthy foods in both children and women. A higher intake of low-nutrient foods and sugar beverages was observed among those spending additional time watching television. The study shows that more than (70%) of subjects agreed that advertisements affect their food choices

Keywords: Electronic Gadgets, Dietary Habits, Children and Women

1 Introduction

Electronic gadgets, such as televisions (TV), computers, laptops, mobile phones, and tablets, can execute several functions at a time with great speed and work more efficiently. These devices assist us by making paperwork, entertainment, and communication easy (Nadeem & Ahmed, [2020](#)). Inadequate food intake includes overeating and undereating, less intake of fruits and vegetables, high intake of saturated fats, and low-nutrient foods. Healthy eating refers to various foods that maintain your health and mood and provide energy. These nutrients include proteins, carbohydrates, fats, vitamins, and minerals (Rajesh et al., [2022](#)).

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Different studies found that food and beverage advertisements affected the diet pattern in children and increased obesity rates. This pattern leads to different lifetime food-borne diseases (Packer et al., [2022](#)). Most TV advertisements promote the consumption of low-nutrient, energy-dense, sugars, salty and fatty foods. These foods affect the human body negatively and cause many health problems (Correa et al., [2020](#)).

A study showed that children aged 2-11 years were watching 11.8 advertisements on average (Fleming-Milici & Harris, [2018](#)). The obesity rate has increased dramatically in the last 30 years (Mumena et al., [2022](#)). In 2004, a study was conducted that showed one-third of the population of children and adolescents was overweight or at a higher risk of becoming overweight, almost three times than in 1971. Significant contributions were a sedentary lifestyle, eating low-nutrient and energy-rich foods, and the other major cause of unhealthy eating among children was television advertisements of unhealthy foods (Fleming-Milici & Harris, [2020](#)). More time spent watching television leads to obesity in children. Parents blame the food industry for children's unhealthy eating habits. While the owners have claimed that parents should set limits on watching television for children (Castronuovo et al., [2021](#)).

In the United States, the food industry established the Children's Food and Beverage Advertising Initiative (CFBAI) self-regulatory program in 2006 (Council of Better Business Bureau (CBBB), 2016). Body distress had achieved standardizing levels among American girls and young ladies. Around half of the young ladies reported disappointment with their body frame (Rodgers et al., [2016](#)). These emotions were not immaterial but connected to fundamental physical and psychological well-being issues (Stewart et al., [2022](#)). Previous studies showed that watching television is associated with unhealthy eating behaviors like overconsumption of food, enhanced consumption of energy-rich foods, fast foods, energy drinks, and soda drinks, and intake of fruits and vegetables (Kenney et al., [2021](#)).

In China, studies have also described the effect of watching television on eating snacks. A survey conducted in nine urban and rural provinces of China indicated that few families can watch TV (Chan et al., [2016](#)). In 1999, a study conducted by McNeal and Ji found that children in urban areas spent more than 17.2 hours watching TV. These patterns suggest that the trend of watching television in urban Chinese children is increasing. Watching television advertisements dramatically affects children's food intake (Emond et al., [2016](#)). The effect of television on food selection has been studied in different people to assess interpersonal differences. This study showed that obese persons have more attraction towards food advertisements than thin persons, and exposure to these food advertisements is the cause of overeating. Watching horror movies has a negative effect, which promotes overeating (Whalen et al., [2019](#)). Globally, 2.6 billion people own a Smartphone, with ownership predicted to rise to 6.1 billion by 2020 (Norman et al., [2018](#)).

Mobile phones emit energy through radio signals, a type of non-ionizing electromagnetic radiation; tissues closer to the tissues can absorb this energy (Monteath & McCabe, [1997](#); Omer, [2021](#)). Children can be at higher risk than adults for developing brain cancer from the use of cell phones. Their nervous systems are underdeveloped and, therefore, more prone to factors that may cause cancer (Wardzinski et al., [2022](#)). Computer games are the most prevalent entertainment in advanced societies, and they target a range of people of multiple ages. The dependence on the opposition and excitement of the games makes them the utmost standard entertainment programs for today's youths, so they do whatever to reach an advanced level of the game; they plunge into the game so much that they are isolated from their surroundings. Facing the barriers and reaching an elevated level in the game make the players upset, and failing the game makes them nervous (Gunter, [2019](#)).

The study aimed to analyze the effect of high screen time on eating patterns among women and

children.

2 Materials and method

2.1 Sample size

A randomized cross-sectional study was conducted. Data was collected randomly from different areas in Sahiwal, one out of nine Punjab province, Pakistan divisions. Among 400 participants, 200 were children, and 200 were women. The children's ages range from 10 to 15 years, and for women ranges from 22 to 50 years. The participants were randomly selected from different areas. A questionnaire was designed to assess the relationship between electronic gadgets and unhealthy eating. The questionnaire comprised three segments; the First segment was designed to assess the usage of electronic gadgets. The second segment comprised questions to assess behavior towards electronic gadgets. The time spent watching television was evaluated, and different questions were included. The third segment included questions to assess the consumption of different unhealthy foods. Different unhealthy foods have been mentioned in the questionnaire, like energy-dense foods, low-nutrient foods, fatty foods, salty foods, potato chips, and sugar drinks, to assess food behavior. A total of 43 questions were included in the questionnaire, explaining different parameters to assess the relationship between the use of electronic gadgets and unhealthy eating.

2.2 Data Collection

The evaluation comprised self-administered questionnaires. The women and mothers of children completed the home questionnaire. At school, children responded to a questionnaire comprising further information on physical activity, beverage intake, etc. As part of the home questionnaire, the amount of time spent using electronic gadgets (television, computer, laptop, mobile phone, and tablet) was evaluated by asking multiple questions.

2.3 Statistical analysis

Data were assessed separately for women and children. Proportions and medians were compared using the X² and ANOVA tests, respectively. A P-value of <0.05 was considered statistically significant. All parameters were obtained and statistically analyzed.

3 Results

Data was collected from 400 subjects, including the subjects' ages range, including children and women. The results were calculated separately for children and women based on objectives. The subjects' ages range from 22 to 50 years and 10 to 15 years for women and children, respectively. The study showed that among women, 84% used to watch television, 57.5% used a computer/laptop, and 78% used a mobile/tablet. Likewise, the study showed that among children, 92.5% used television, 48.5% used a computer/laptop, and 70% used a mobile/tablet. Most females (84.5%) used to eat snacks while watching television, and 79.1% and 79.5% of females used to eat snacks while using a computer/laptop and mobile/tablet, respectively. Likewise, most children (87%) used to eat snacks while watching tele television, 48.5% used a computer/laptop, 70% of children used a vision, and 87.6% and 90% of children used to eat snacks while using a computer/laptop and mobile/tablet respectively.

Table 1: Results of eating unhealthy foods by women

Foods	P-value	Result
Energy-dense foods	0.00**	H.sig.
Low nutrient foods	0.86	Non
Fatty foods	0.05	Non
Salty foods	0.00**	H.sig.
Sweats	0.39	Non
Potato chips	0.001**	H.sig.
Popcorn	0.005**	H.sig.
Carbonated beverages	0.03*	Sig.

$P < 0.01$ = highly significant**, $P < 0.05$ = Significant*, NS = Non-significant

Table 1 shows that $p < 0.01$ for energy-dense foods, salty foods, potato chips, and popcorn so the results were highly significant. Also, $p < 0.05$ for carbonated beverages predicted significant results.

The data showed that the subjects used to spend more than five hours using any type of electronic gadgets irrespective of women and children. It is shown by the study, more than (70%) of subjects agreed that advertisements affect their food choices.

Table 2: Results of eating unhealthy foods by children

Foods	P-value	Result
Low nutrient foods	0.03*	Sig.
Sweets	0.002**	H.sig.
Potato chips	0.008**	H.sig.
Popcorn	0.02 *	Sig.
Carbonated beverages	0.04*	Sig.

$P < 0.01$ = highly significant*, $P < 0.05$ = Significant*, NS = Non-significant

Table 2 shows that $p < 0.01$ for sweets so the results were highly significant. Also, $p < 0.05$ for low-nutrient foods, potato chips, popcorn, and carbonated beverages predicted significant results.

4 Discussion

This study showed that children who watch television more than five hours a day are more likely to consume energy-dense and high-sugar foods. These results on food intake are reliable with past studies which showed that feeding of fast foods, carbonated drinks, and snacks is higher as compared to fruit and vegetable consumption while watching television (Xu et al., 2020).

Considering nutrient intake, this study associated with spending more screen time was considerably associated with elevated intake of total fats and salty foods. A previous study established that notably greater energy intake from fatty foods among individuals shaving more screen time as compared to average and lower users (Neta et al., 2021).

Other findings showed significantly higher intake of total fat by children who watch television more than two hours a day. Past studies in children and adolescents focused on the effect of watching TV on energy intake and Body Mass Index (BMI) (Carlier et al., 2020). Our study, noting an effect on energy intake, supports that screen time may have effects on food choice. During adolescence, there is a greater demand for energy and micronutrients, and less intake of nutrients can have serious health implications (Wallace et al., 2022).

Most previous studies in children and adolescents determined the role of watching TV on energy intake, as well as BMI. The American Heart Association (AHA) advises low intake of fats, especially saturated fats, and a suitable intake of fruits and vegetables, linked with an effective lifestyle contributes to lowering the risk for cardiovascular diseases (Shin, 2017). Thus, based on

our data, it is believed that spending more time watching TV may cause to a favorable environment for the promotion of atherosclerosis and an improved risk for cardiovascular diseases during life.

One of the principal difficulties in reviewing nutrient intake is the absence of tools by individuals for detailed measurement of food consumption. In this study, dietary intake was assessed using a Food Frequency Questionnaire (FFQ), previously confirmed in the Portuguese grown population 18, and food items more regularly eaten by adolescents were added to confirm a more comprehensive evaluation of adolescents' diet. Moreover, adolescents also were urged to enlist foods in an open section, foods eaten at least weekly, which were not in the FFQ. In large-scale epidemiologic studies, this type of questionnaire has been the approach most widely used for the estimation of food intake because it is considered one of the most simple, quick to govern, and economical. Adolescents with more screen time are linked with lower amounts of physical activity, which would impact poorer bone health in the future (Sowmya & Manjuvani, [2019](#)).

This study showed almost (70%) of subjects agreed that advertisements affect their food choices. Children's attention to TV advertisements has sometimes been measured in experimental studies in which children are decisively exposed to specific commercials or investigators directly observed children's television use and acquaintance to television advertisements changed food choices (Ortega et al., [2020](#)).

4.1 Conclusion

This study shows that spending more time using electronic gadgets leads to physical inactivity. Almost 80-90% of subjects eat snacks while using electronic gadgets, leading to unhealthy eating. And more than 70% of individuals agreed that television advertisements lead to changes in their food choices. These findings highlight the significance of efforts to restrict children's and adolescents' exposure to messages that push taste and pleasure of unhealthy foods, either through reduced TV watching or limitations on publicity for unhealthy foods.

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