

Physical Activity, Diet and Screen Media Exposure and the Occurrence of Obesity in Children

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Abstract

Original Research Article

Childhood and adolescent obesity and overweight are on the rise. Children who are obese are above the normal weight for their age and height. Childhood obesity is particularly worrisome because the extra weight often start children on the path to health problems that were once considered adult problems — diabetes, high blood pressure and high cholesterol. Many obese children become obese adults, especially if one or both parents are obese. Childhood obesity can also lead to poor self-esteem and depression. Lifestyle changes towards a healthy diet, increased physical activity and reduced sedentary activities are recommended to prevent and treat obesity. Research consistently shows that the majority of children do not consume diets that meet the recommendations of the Dietary Guidelines, nor do they achieve adequate levels of daily physical activity. We undertook a cross sectional study where we measured the height, weight and body mass index of 116 adolescent children in an urban affluent school in Chennai and also collected information about their diet, consumption of junk foods, physical activity and screen time.

Keywords: Obesity, overweight, exercise, diet, screen time

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INTRODUCTION

Childhood obesity is a complex health issue. It occurs when a child is well above the normal weight for his or her age and height. The causes of excess weight gain in children are similar to those in adults, including factors such as a person's behavior and genetics. Behaviors that influence excess weight gain include eating high-calorie, low-nutrient foods and beverages, not getting enough physical activity, sedentary activities such as watching television or other screen devices. Obesity during childhood can be harmful in a variety of ways. Children who have obesity are more likely to have high blood pressure and high cholesterol, which are risk factors for cardiovascular disease (CVD), increased risk of impaired glucose tolerance, insulin resistance, and type 2 diabetes, breathing problems, such as asthma and sleep apnea, joint problems and musculoskeletal discomfort, polycystic ovarian disease, fatty liver disease, gallstones, and gastro-esophageal reflux. The prevalence of childhood obesity has increased dramatically during the past decades all over the world. The majority of obesity in adulthood [5] has its origins in childhood which makes obesity a pediatric concern and the period when interventions should be done. Prevention of obesity is critical, since effective treatment of this disease is

limited. Food management and increased physical activity must be encouraged and promoted to protect children. There are a number of different approaches to measuring obesity. The most common approach to measuring obesity is the **Body Mass Index (BMI)** [2] which is calculated by dividing a person's weight in kilograms by his or her height in meters squared (kg/m^2). This value is then matched to a weight classification on a BMI chart, where underweight, normal weight, overweight and obesity are defined based on specific cut-offs.

MATERIALS AND METHODS

The study included 116 children aged 15 – 17 years in an urban affluent school in Chennai. The weight and height were measured using standardized instruments following standard guidelines. Details regarding food habits, exercise and screen time were obtained. Overweight is defined as a BMI at or above the 85 th percentile and below the 95 th percentile for children and adolescents of the same age and sex. Obesity is defined as a BMI at or above the 95 th percentile for children and adolescents of the same age and sex. Weight was measured using an electronic weighing machine Omron and height was measured with a stadiometer. Screen time was the time the child

spent using digital media for entertainment purposes like viewing television, computer, mobiles, I pads etc. For children aged 2- 5 the screen time should be restricted to 1 hour per day according to the American Academy of Pediatrics recommendations. For children over 6 years parents should determine the restrictions for screen time. The children were questioned about their food habits whether they took vegetarian or non vegetarian food. The children were questioned about the number of hours they spent in outdoor play each day.

RESULTS AND DISCUSSION

A cross sectional study of the height and weight was done in an affluent school in 116 children Chennai. The mean age of the children was 16.4 years. The mean weight of the children was found to be 56.8 Kg (SD 11.3 Kg). The mean height of the children was found to be 159.8 cm (SD 6 cm). 90 children were non vegetarian and 20 children were vegetarian. 96 children had a playtime of less than one hour while 20 children had a play time of more than 1 hour. 71 children had a screen time of more than 2 hours and 45 children had a screen time of less than 2 hours. 12 children were found to be obese and 104 children were normal.

With more than 95% of school-aged youth enrolled in schools for 6 hours per day for up to 13 years, schools offer a broad reach to obesity assessment. Pediatric obesity is increasing worldwide [1] and it is associated with an increased risk of obesity later in life. Excess weight in children has been found to be related to many risk factors such as metabolic syndrome; type 2 diabetes, hypertension, insulin resistance, metabolic syndrome and dyslipidemia. The primary cause of pediatric obesity is not well understood. It is a multidisciplinary disease that involves genetics, environment and lifestyle factors and of them that have been found to play a significant role is a dietary pattern. Childhood obesity has been connected to the unhealthy dietary patterns (fats, red meat, sugars, and junk foods) by many researchers. On the other side vegetable and fruit intakes have been found to play a role in preventing obesity among adolescents. As a result, it has become important to understand children's dietary patterns and develop appropriate methods to nurture healthy eating habits among them. The aim of the present study was to report the prevalence of obesity in children, and to evaluate the dietary intake of children and adolescents and to find any possible associations between dietary intakes and obesity.

Obesity is one of the documented outcomes of screen media exposure. Many observational studies find associations between screen media exposure and increased risks of obesity. Randomized controlled trials of reducing screen time in community settings have reduced weight gain in children, demonstrating a cause and effect relationship. Screen media exposure leads to obesity in children and adolescents through increased eating while viewing; exposure to high-calorie, low-

nutrient food and beverage marketing that influences children's preferences and reduced sleep duration.

CONCLUSIONS

From this study it was concluded that non vegetarian food intake [4] was associated with obesity. Reduced physical activity and increased screen media exposure was also associated with obesity. This study's findings highlight that high energy low nutrient junk food must not be given to children and that it must be replaced with nutritious diet containing more of fresh fruits and vegetables. Screen time should be minimized in children and children must be encouraged to undertake physical activity in the form of exercises, cycling, outdoor games etc to reduce obesity. This study also showed that obesity is on the rise in urban schools [3] and among the affluent population.

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