Childhood obesity continues to be a barrier to medical innovation. Over the last three decades, the frequency of childhood overweight/obesity has increased significantly. Children spend a significant amount of time in front of electronic devices such as cell phones, games, computers, and television that is linked to a decreased physical activity and weight gain. The purpose of the study was to find the association between watching screen media and obesity in school-aged children from Zakho.

Materials and methods. This is a cross-sectional, case-control, face-to-face survey study. All students aged 9–15 years from different schools were invited to complete the questionnaire. Well-trained medical students collected the anthropometric measurements of weight and height. Results. A total of 500 students between 9 and 15 years were interviewed. Approximately 72% of them were males and 28% were females. There was a significant association between a history of eating while watching screens and obesity (P = 0.003), as well as between the average number of hours spent daily using a computer and obesity (P = 0.016).

Conclusions. In summary, this study supported the link between screen usage and childhood obesity in school-aged children. As a result, it is vital to create health promotion initiatives that emphasize a healthy 24-hour period, which includes a balanced amount of time spent engaging in physical activity, watching television, and sleeping.

Keywords: obesity; overweight; screen media; TV; exercise

Introduction

Childhood obesity continues to be a barrier to medical innovation, which affects healthcare systems greatly [1, 2]. It continues into school age and adolescence and causes adult obesity, typically with metabolic and non-metabolic risk factors linked to a variety of problems [2, 3].

The prevalence of childhood overweight and obesity has considerably grown during the previous three decades [4]. Between 1990 and 2010, it rose from 4.2 to 6.7% [5]. Nowadays, between 16 and 31% of children are obese, but the Middle East has the highest prevalence, up to 45% in some areas [6, 7]. There are more than 379 million overweight or obese children and adolescents worldwide [8].

Similar to other rising nations, the Kurdistan region of Iraq is experiencing a major rise in health risk factors among its younger people. The incidence of obesity and overweight was 1.6 and 9.3%, respectively, in the research sample of children in primary school in Erbil city, according to the findings of a study on the prevalence of childhood obesity [9].

Food intake in this region has changed to reflect Western society’s lifestyles, which has been related to this health issue. Although some research indicated that the risk variables of race and family socioeconomic level had an erratic relationship with the disease’s incidence, other research suggested that the disease’s incidence was influenced by both environmental and genetic variables. Physical inactivity as children may lead to inaction as an adult. A lot of young people do not exercise because they spend too much time performing immobile activities like playing video games or watching television [7, 10, 11].

Children of school age spend a significant amount of time in front of electronic devices such as cell phones, games, computers, and television, it’s linked to decreased physical activity and weight gain [12].

There is no information on the association between TV viewing and obesity in Zakho, despite a reported rise in the incidence of childhood obesity throughout the world and the role that TV viewing may play in these trends. As a result,
the study’s goal is to determine if screen time and obesity are related to Zakho City’s school-age population.

Materials and methods

Selection of subjects

Students from different institutions have been invited to fill out a questionnaire paper, the study started on 01/10/2022 to 01/04/2023. The sampling method was a face-to-face collection of data from around (500 students aged 9—15 years) in different schools in the Kurdistan Region, Iraq.

Research design

This is a case-control, cross-sectional face-to-face survey study, the obese students were cases, and the non-obese students were controls. Cases of obesity brought on by chronic disease or drug usage were not included.

Ethical aspects

Iraq’s Kurdistan Region’s University of Zakho’s College of Medicine, ethics committee authorized the study proposal. Before collecting samples, parents of children were contacted for permission to participate in the study, and informed written agreements were obtained from all participants.

Study subjects

All students aged 9—15 years old from different schools were invited to complete the questionnaire to know the association between watching screens and obesity. Children who visited the school health clinic on an unplanned basis were enrolled for the research. Twenty children were assigned to the obese group (cases) each day of the research period, and 20 to the non-obese group (controls).

Data collection

A 20-item Kurdish questionnaire was used by three certified medical students to interview the subjects. Based on a review of the published literature, a questionnaire was used. The following details were gathered: population statistics, TV viewing, exercise, meals, and anthropometric measures.

Anthropometric measures

The weight and height anthropometric measurements were taken by competent medical students. Without shoes, the subject’s weight and height were measured to the closest “100 g” and “0.5 cm”, respectively, while they were both in light clothing. The weighing scale was a Health O Meter Digital Scale (USA-made), which reads to the closest to 100 g. All of the pupils were weighed on the same scale. Every day, this scale was calibrated, and zero was guaranteed before any student’s weight was recorded.

Definition of variation

For each research participant, the body mass index (BMI), which is equal to the product of weight in kilograms and height in square meters (kg/m²), was computed.

According to the CDC BMI growth charts for both boys and girls, we define obesity as any value above the 95th percentile [13].

Data analysis

Analysis of the study’s findings using the SPSS vs. 25 applications. Variational statistics included the calculation of averages and relative values. The significance of the difference (qualitative data) was evaluated using the chi-square test (2 test). Statistical significance in chi-square analysis is indicated by a P-value of 0.05 or less. The causes of obesity were found using logistic regression analysis.

Results

Interviews were conducted with 500 children, aged 9 to 15. Student population as a whole was 28 % more female than male (72 %).

Table 1 illustrates that approximately half of them were 11-year-olds (55.8 %), obesity was present in 48 % of 12-year-olds, 50 % of 13-year-olds, 54.1 % of 14-year-olds, and 46.8 % of 15-year-olds, as opposed to 43.2 and 38.9 % of pupils aged 9 and 10 years, respectively, with a P = 0.001, this difference was significant. Approximately 24.8 % of females and 75.2 % of males were obese (P = 0.111).

According to Table 2, there was no connection between obesity and the number of screens in a household. In comparison to children with only one screen at home, (49.03 %) of those who had three or more screens at home were obese (P = 0.615). Compared to children who viewed screens at other times, those who watched screens late at night had a higher likelihood of being fat (P = 0.708).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>Body mass index</th>
<th>Total</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Obese</td>
<td>Non-obese</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>9 years</td>
<td>16 (43.2)</td>
<td>21 (56.8)</td>
<td>37 (100)</td>
</tr>
<tr>
<td></td>
<td>10 years</td>
<td>7 (38.9)</td>
<td>11 (61.1)</td>
<td>18 (100)</td>
</tr>
<tr>
<td></td>
<td>11 years</td>
<td>24 (55.8)</td>
<td>19 (42.2)</td>
<td>43 (100)</td>
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<tr>
<td></td>
<td>12 years</td>
<td>36 (48)</td>
<td>39 (52)</td>
<td>75 (100)</td>
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<td>14 years</td>
<td>80 (54.1)</td>
<td>68 (45.1)</td>
<td>148 (100)</td>
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<tr>
<td></td>
<td>15 years</td>
<td>37 (46.8)</td>
<td>42 (53.2)</td>
<td>79 (100)</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>188 (75.2)</td>
<td>172 (68.8)</td>
<td>360 (100)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>62 (24.8)</td>
<td>78 (31.2)</td>
<td>140 (100)</td>
</tr>
</tbody>
</table>
Obesity and a history of eating while using a screen were significantly correlated ($P = 0.003$). In comparison to children who watched the television alone (43.8 %), with their parents (50.8 %), or with friends (50 %), those who watched the screen with their siblings had a greater risk of obesity (56.6 %). This difference, meanwhile, was not statistically significant ($P = 0.247$).

The average daily time spent using a computer and obesity were significantly associated ($P = 0.016$). 35.4 % of the individuals watched the screen for more than three hours. However, compared to 30.2 % of pupils who viewed the screen for less than three hours, 56.9 % of children who watched the screen for more than three hours were obese ($P = 0.016$). Most individuals (62.4 %) had three or more screens in their homes, and 49.1 % were obese.

According to Table 3, more children who ate more than three meals per day (70.1 %) reported being obese than those who ate two or three meals per day (38.8 %) or less (49.1 %), respectively. This distinction was important ($P = 0.0001$). Additionally, there was a strong correlation ($P = 0.01$) between the quantity of snacks consumed and childhood obesity.

As shown in Table 4 ($P = 0.0001$), there were significant correlations between obesity and the frequency of exercise, whether done at home, at school, or outside.

**Discussion**

Children now spend far more time using electronic devices than they did in the past due to the rapid advancements in technology [14]. The results of the current study support previous findings that early television viewing is linked to higher BMI.

According to Poulton and Hancox [15], these correlations were more pronounced and consistently significant in girls. In contrast, the current study found no difference in gender. The latest study also discovered that older children were more likely to be obese. Others have reported findings that are similar to ours [13, 16].

Numerous studies may only be focusing on the connection between a particular type of screen time and childhood overweight/obesity, which makes it unlikely that they will reveal the impact of screen time in general on overweight/obesity [17–19]. Instead of asking about the various screen media separately in our study, we opted to utilize a total screen time variable. In contrast to research that just includes the usage of television or video games and leaves out more recent forms of electronic media, such as the Internet, our justification was that a combined variable could offer more pertinent information. The majority of children in our research watch more than three hours of screen time each day, which is more than the two hours recommended
by the American Academy of Pediatrics and is comparable to quantities found in previous studies [20–22].

High screen time lowers lipoprotein lipase activity, which in turn causes skeletal muscles to absorb less plasma triglycerides, lower HDL levels, and a postprandial rise in blood lipids, all of which contribute to fat deposition in arteries or adipose tissue [23].

The current study’s findings suggest that overweight and obese individuals watch more television at night, which is consistent with the findings of numerous earlier research [24, 25].

Bin Zaal et al. found no significant relationship between obesity and eating meals in front of the TV because the fat content of the foods was more important than the quantity of food consumed while watching TV [26]. However, contrary to other studies, our research revealed a substantial link between obesity and eating in front of the TV [14, 27–29].

Children shouldn’t use a computer device while eating, according to recommendations. According to the results of this study, the majority of children were exposed to screens while eating. This essential element has the potential to cause obesity and eating disorders. Digital distraction during meals hurts our eating patterns and encourages overeating. Additionally, studies show that children who use electronics at meals eat more junk food. During a week-long study, 85.3 % of participants used a smartphone at least once while eating, according to Yong et al. On average, one in three meals involved smartphone use [30–33].

Additionally, more screen time results in more food consumption. Previous research found that watching television boosts children’s and teenagers’ motivated reactions to eating and snacking behavior [34, 35]; this is also accurate when using a computer and playing video games [36–39]. More importantly, several food-related TV commercials encourage the consumption of fast food and junk food, which raises the risk of obesity [40–42]. As a result, there are many different contributing factors to the link between obesity and screen use.

Walking to school and engaging in physical activity during class time boosted energy expenditure, because of this, our study discovered a high association between physical exercise and a decline in overweight and obesity. This is consistent with earlier research. However, some research did not discover a substantial link between obesity and physical exercise [43, 44].

Conclusions

In summary, this study supported the link between screen usage and school-aged obese children. As a result, it is vital to create health promotion initiatives that emphasize a healthy 24-hour period, which includes a balanced amount of time spent engaging in exercise, watching television, and sleeping.

The study’s cross-sectional design and use of self- and proxy estimates of screen time involvement are limitations that preclude us from inferring causal relationships from the findings. Self-report may be the most practical way to evaluate recreational screen time in population surveys, but it’s vital to understand that this screen time measurement might be affected by social desirability bias and recollection bias, which may result in some misclassification.

References


Ожиріння серед дітей шкільного віку з міста Заху (Курдистан, Ірак) пов’язане з переглядом мультимедіа

Резюме. Актуальність. Системи охорони здоров’я дуже стурбовані здоровою дітей, особливо ожирінням. З метою діагностики та громадської освіти потребують здійснення досліджень з оцінюванням впливу додаткових факторів, таких як перегляд медіа, на екологію здоров’я дітей.

Мета дослідження. Визначити зв’язок між переглядом медіа та ожирінням у дітей шкільного віку з міста Заху.

Матеріал та метою. Це був перехресний опитувальний метод з визначення екстенсії споживання і телекомунікацій, що пов’язано з ожирінням.

Результати. Усього опитано 500 учнів віком від 9 до 15 років, серед яких було приблизно 72 % хлопчиків і 28 % дівчаток. Виявлено вірогідний зв’язок між споживанням їжі під час перегляду медіа та ожирінням (P = 0.003), а також між середньою кількістю годин, проведених за комп’ютером, та ожирінням (P = 0.016).

Ключові слова: ожиріння, перегляд медіа, фізична активність, екологія здоров’я.

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