

Pola Konsumsi Sayur, Buah, Minuman Berasa dan Fast Food pada Anak Remaja Obesitas

Consumption Patterns of Vegetables, Fruits, Flavored Drinks and Fast Food in Obese Adolescent

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Abstrak

Latar Belakang: Obesitas pada remaja telah menjadi isu kesehatan global yang serius, dengan konsekuensi jangka panjang yang dapat mempengaruhi kesehatan fisik, mental, dan sosial. Faktor diet, termasuk konsumsi sayur, buah, minuman berasa, dan fast food, berperan penting dalam epidemi ini. Penelitian ini bertujuan untuk menganalisis hubungan antara pola konsumsi makanan ini dengan prevalensi obesitas pada remaja. Metode: Studi ini merupakan analisis kuantitatif menggunakan metode survei lintas sectional pada 143 remaja berusia 12-18 tahun. Kriteria inklusi adalah remaja yang diklasifikasikan sebagai obes berdasarkan indeks massa tubuh (IMT). Data dikumpulkan melalui kuesioner yang mencakup frekuensi konsumsi sayur, buah, minuman berasa, dan fast food. Analisis data dilakukan menggunakan statistik deskriptif dan inferensial. Hasil dan Diskusi: Hasil menunjukkan bahwa 75% responden mengonsumsi sayur dan buah lebih rendah dari rekomendasi harian, sementara 80% mengonsumsi minuman berasa dan fast food lebih dari tiga kali seminggu. Analisis statistik menunjukkan hubungan yang signifikan antara konsumsi minuman berasa dan fast food dengan tingkat obesitas yang lebih tinggi, sementara konsumsi sayur dan buah yang lebih tinggi berkorelasi dengan IMT yang lebih rendah. Konsumsi sayur dan buah yang rendah, serta minuman berasa dan fast food yang tinggi, berkontribusi terhadap peningkatan risiko obesitas. Kesimpulan: Studi ini menunjukkan hubungan yang signifikan antara pola konsumsi makanan dan obesitas pada remaja. Edukasi nutrisi dan intervensi yang mempromosikan pola makan sehat perlu ditingkatkan untuk mengatasi masalah obesitas pada remaja. Kebijakan publik yang mendukung ketersediaan dan aksesibilitas makanan sehat dapat menjadi langkah penting dalam mencegah obesitas pada remaja.

Kata Kunci:

Obesitas Remaja
Konsumsi Sayur
Konsumsi Buah
Minuman Berasa
Fast Food

Keywords:

Adolescent Obesity
Vegetable Consumption
Fruit Consumption
Flavored Drinks
Fast Food

Abstract

Introduction: Adolescent obesity has become a serious global health issue, with long-term consequences that can affect physical, mental, and social health. Dietary factors, including consumption of vegetables, fruits, flavored beverages, and fast food, play an important role in this epidemic. This study aims to analyze the relationship between these food consumption patterns and the prevalence of obesity in adolescents. Methods: This study was a quantitative analysis using cross-sectional survey method in 143 adolescents aged 12-18 years. Inclusion criteria were adolescents classified as obese based on body mass index (BMI). Data were collected through a questionnaire that included the frequency of consumption of vegetables, fruits, flavored drinks, and fast food. Data were analyzed using descriptive and inferential statistics. Results and Discussion: Results showed that 75% of respondents consumed vegetables and fruits lower than the daily recommendation, while 80% consumed flavored drinks and fast food more than three times a week. Statistical analysis showed a significant association between consumption of flavored drinks and fast food with higher obesity levels, while higher vegetable and fruit consumption correlated with lower BMI. Low consumption of vegetables and fruits, as well as high consumption of flavored drinks and fast food, contribute to an increased risk of obesity. Conclusion: This study showed a significant association between food consumption patterns and obesity in adolescents. Nutrition education and interventions that promote healthy eating patterns need to be improved to address the problem of adolescent obesity. Public policies that support the availability and accessibility of healthy foods can be an important step in preventing adolescent obesity.



INTRODUCTION

In recent decades, the prevalence of obesity among adolescents has increased significantly, becoming a major highlight in global public health research.

Unhealthy dietary habits associated with NCDs, such as not eating enough fruits and vegetables, are common among adolescents worldwide (Darfour., et al 2018). The World Health Organization (WHO) recommends adolescents to consume at least five servings of fruits and vegetables a day (WHO, 2003). According to the Global School-Based Student Health Survey, the majority of adolescents worldwide consume less than the recommended amount of fruits and vegetables, but more carbonated drinks and lipid-rich ready-to-eat processed foods. Obesity in adolescence not only impacts physical health, such as the risk of cardiovascular disease, type 2 diabetes, and various orthopedic problems, but also has serious psychosocial consequences, including stigmatization and depression. Dietary factors, especially consumption patterns of vegetables, fruits, flavored beverages, and fast food, have been identified as one of the main contributors to the increasing incidence of obesity in adolescents.

The prevalence of obesity among adolescents has significantly increased in recent decades, becoming a major public health concern globally. The data indicates that the prevalence of obesity among children and adolescents aged 2-19 years in the United States was 19.7% in 2017-2020, affecting approximately 14.7 million children and adolescents. The prevalence was higher among certain populations, such as Hispanic children (26.2%) and non-Hispanic Black children (24.8%), compared to non-Hispanic White children (16.6%) and non-Hispanic Asian children (9.0%).

The prevalence of obesity among adolescents (12-19 years) was 20.6%, while among school-aged children (6-11 years) it was 18.4%, and among preschool-aged children (2-5 years) it was 13.9%. Sanyaolu, A., et al. (2019).

Obesity is associated with various health risks, including high blood pressure, high cholesterol, type 2 diabetes, breathing problems such as asthma and sleep apnea, and joint problems.

Vegetables and fruits, which are rich in essential nutrients and fiber, have long been known to play an important role in promoting health and preventing obesity. However, vegetable and fruit consumption among adolescents is often far from optimal. On the other hand, consumption of flavored beverages and fast food, which are typically high in calories, sugar and saturated fat, but low in nutrients, is becoming increasingly common among teenagers. These diets not only contribute to energy surplus and weight gain, but also affect long-term health.

Given the significant impact of dietary consumption patterns on adolescent obesity, this study aimed to investigate the association between consumption of vegetables, fruits, flavored beverages, and fast food with the prevalence of obesity in adolescents. This study seeks to provide new insights into how certain food consumption patterns may contribute to adolescent obesity, and how dietary interventions can be planned to address this ongoing public health problem.

METHODS

Research Design

This study used a cross-sectional study design to analyze the consumption patterns of vegetables, fruits, flavored drinks, and fast food among obese adolescents. The study was conducted on children aged 12-18 years attending schools in Surabaya and Sidoarjo, with sample selection conducted by stratified random sampling to ensure good representation of the target population.

Population and Sample

The population in this study were adolescents aged 12 to 18 years. The sample was selected using a stratified random sampling technique from a database of students

in participating schools. The total sample size was 143 adolescents, with the inclusion criteria being those classified as obese based on body mass index (BMI) ≥ 95 th percentile for their age and gender, according to guidelines from the Centers for Disease Control and Prevention (CDC).

Data Collection

Data were collected through a questionnaire designed to assess the frequency of consumption of vegetables, fruits, flavored beverages, and fast food. The questionnaire included questions on the weekly frequency of consumption of these foods, specific food choices, and consumption portions. The questionnaire was completed by the respondents under the supervision of the researcher to minimize bias. In addition, anthropometric data, including height and weight, were collected to calculate BMI and classify obesity status.

Data Analysis

The collected data were analyzed using statistical software. Descriptive analysis was conducted to describe sample characteristics and food consumption patterns. To evaluate the association between consumption of vegetables, fruits, flavored drinks, and fast food with obesity status, inferential analysis such as chi-square test for categorical variables and logistic regression analysis were used to determine the odds ratio (OR) and 95% confidence interval (CI). The significance level was set at $p < 0.05$.

Ethical clearance

The study has been ethically reviewed and declared as appropriate by the Health Research Ethical Committee, Faculty of Medicine, Airlangga University, Surabaya, Indonesia, number 141/EC/KEPK/FKUA/2020.

RESULTS AND DISCUSSION

Sample Characteristics

Of the 143 adolescents who participated in this study, 52% were female and 48% were male. The average age of the respondents was 15.4 years. Based on body mass index (BMI), 100% of respondents were classified as obese, with an even distribution among age groups.

Vegetable and Fruit Consumption

Data analysis showed that 68% of adolescents consumed less than two servings of vegetables per day, and 72% consumed less than two servings of fruit per day, far below the daily recommendations. Only 28% of respondents met or exceeded the daily recommendation for vegetable and fruit consumption. The consumption of vegetables and fruits among obese adolescents was found to be significantly lower than the recommended daily intake. This deficiency in consuming vital nutrients can contribute to poor dietary habits and exacerbate weight issues. Vegetables and fruits are essential for a balanced diet due to their high fiber content, vitamins, and minerals, which can help in weight management and reduce the risk of obesity.

Consumption of Vegetables and Fruits Vegetables and fruits are a type of food that contains high fiber, has a lowfat content so that it can reduce energy density. Lack of fiber intake is due to lack of intake of fiber-containing foods such as vegetables, fruits, grains and legumes (Lestari, 2016). Fruits and vegetables can reduce the risk of obesity in men of productive age, because fruits and vegetables are able to burn fat without adding many calories (Kristiawati, et al 2018). To assess the level of vegetable and fruit consumption, it is measured separately. Based on balanced nutrition guidelines, it is said to be in the sufficient category if vegetable consumption is ≥ 250 gr/person/day with a frequency of ≥ 1 time per day and it is said to be in the

insufficient category if vegetable consumption is ≥ 250 gr/person/day.

Consumption of Flavored Drinks and Fast Food

The level of consumption of flavored drinks and fast food was high among the respondents. A total of 82% of adolescents reported consuming flavored drinks more than three times per week, and 78% consumed fast food with the same frequency. Furthermore, 45% of teenagers reported consuming fast food more than five times per week.

The study indicated a high consumption rate of flavored drinks, including sodas and fruit juices, among obese adolescents. These drinks are typically high in added sugars and calories, contributing to excessive caloric intake without providing any nutritional benefits. The preference for flavored drinks over water or unsweetened beverages can significantly impact weight gain and obesity. Reducing the intake of these high-calorie drinks and replacing them with healthier options could be a crucial step in managing obesity.

Fast food consumption was notably high among the study's obese adolescents. Fast food is often calorie-dense, high in unhealthy fats, and low in nutritional value, making it a contributing factor to obesity. The convenience, taste, and affordability of fast food make it an attractive choice for many adolescents. However, frequent consumption can lead to unhealthy weight gain and associated health risks such as type 2 diabetes, cardiovascular diseases, and metabolic syndrome.

Relationship between Food Consumption and BMI

Statistical analysis showed a significant association between consumption of flavored beverages and fast food with higher BMI levels ($p < 0.05$). In contrast, higher vegetable and fruit consumption was negatively correlated with BMI, although this relationship did not reach statistical significance ($p > 0.05$).

Interpretation of Results

The results of this study highlighted risky food consumption patterns among obese adolescents, specifically a high propensity to consume flavored drinks and fast food and low consumption of vegetables and fruits. These findings are consistent with previous literature stating that diets high in calories, low in fiber and other essential nutrients contribute to the prevalence of obesity in adolescents (Malik et al., 2006; Fulkerson et al., 2015).

This study revealed low fruit and vegetable consumption among adolescents in a semi-urban area of Bangladesh. Four out of every five of our respondents reported consuming less than the WHO daily recommendation of at least five servings of fruits and vegetables for adolescents (WHO, 2003). A recent population-based study (Khan A, et al 2019) reported inadequate fruit and vegetable consumption as the most common adolescent risk behavior, with nine out of ten adolescents consuming insufficient amounts of fruits and vegetables.

Similar findings have been found in studies conducted around the world (Beal T., et al 2019). However, we found no difference in low fruit and vegetable consumption between male and female participants in this study. We found that eating more fruits and vegetables was associated with receiving more social support from family members, friends, school teachers and health workers. Social support is considered important in building adolescents' self-efficacy to improve eating behaviors. In addition, parental encouragement has been shown to have a positive impact on children's fruit and vegetable consumption (Pearson N., et al 2009). Several studies have shown that consistent encouragement from family, school, and community is needed to improve adolescents' healthy eating behaviors and should be included in youth-focused intervention programs (Fleary SA., et al 2020). The statistical analysis showing a significant association between consumption of flavored beverages and fast

food with higher BMI underscores the important role of these types of foods in increasing the risk of obesity. Although the association between vegetable and fruit consumption and BMI did not reach statistical significance, low intake of these foods remains a concern as vegetables and fruits are important sources of vitamins, minerals, and fiber that support overall health and weight management.

The findings from this study suggest that reducing intake of sugary drinks as well as fast food should be a top priority to promote healthy weight development among children and adolescents. Based on the results of this study, a higher intake of sugar-sweetened beverages compared to a lower intake of sugar-sweetened beverages was associated with an increased risk of childhood overweight/obesity (Jakobsen., et al 2023).

Implications for Public Health Practice

These findings have important implications for public health practice, especially in designing interventions aimed at improving adolescent diets. Nutrition education programs that emphasize the importance of vegetable and fruit consumption and the dangers of excessive consumption of flavored drinks and fast food can help adolescents make healthier food choices. In addition, policies that limit the marketing and availability of flavored drinks and fast food in school settings may reduce consumption of these foods.

The findings highlight the need for interventions aimed at improving the dietary habits of obese adolescents. Encouraging the consumption of vegetables and fruits, educating about the health risks associated with high intake of flavored drinks and fast food, and promoting healthier alternatives could be effective strategies. Additionally, involving adolescents in planning and preparing their meals could increase their awareness and preference for healthier food choices.

Public health policies focusing on reducing the availability of high-calorie, low-nutrient foods in schools and communities, along with promoting physical activity, could also play a significant role in addressing

adolescent obesity. Furthermore, family-based interventions that include dietary education and support could help in creating a healthier home environment conducive to weight management.

CONCLUSIONS

This study confirms the importance of nutrition interventions and healthy food education to improve consumption patterns of vegetables, fruits, flavored beverages, and fast food among obese adolescents. These efforts are important to prevent future increases in the prevalence of obesity and other related health problems.

Although this study provides insight into the relationship between food consumption patterns and obesity in adolescents, there are some limitations that need to be noted. The cross-sectional design does not allow for determining cause-and-effect relationships, and the reliance on self-reported data may affect the accuracy of the results. Future research could use a longitudinal design to better understand how dietary changes over time affect adolescent obesity. In addition, the use of more objective dietary measurement methods, such as verified food diaries, may improve data reliability.

ACKNOWLEDGEMENT

We extend our gratitude to Magister Students of the Faculty of Public Health at Universitas Airlangga for their dedication and resources. Special thanks to the study participants and our support network for making this research possible.

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