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Relationship between Obesity Incidence and Fast Food Consumption Habits in Children

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Obesitas pada anak merupakan masalah kesehatan yang semakin meningkat di Indonesia dan berdampak pada berbagai aspek kesehatan, baik fisik maupun psikososial. Salah satu faktor yang berkontribusi terhadap meningkatnya angka obesitas adalah kebiasaan mengonsumsi makanan cepat saji. Penelitian ini bertujuan untuk menganalisis hubungan antara frekuensi konsumsi makanan cepat saji dengan kejadian obesitas pada anak sekolah dasar sebagai upaya memberikan gambaran ilmiah bagi pencegahan obesitas sejak dini. Penelitian menggunakan metode kuantitatif dengan desain *cross-sectional* pada 70 anak usia 7–12 tahun yang dipilih melalui *purposive sampling* karena tingginya tren konsumsi fast food dan adanya temuan awal lonjakan kasus obesitas di wilayah tersebut. Data dikumpulkan melalui kuesioner frekuensi konsumsi makanan cepat saji dan pengukuran Indeks Massa Tubuh (IMT) sebagai indikator status gizi anak. Analisis menggunakan uji Chi-Square menunjukkan adanya hubungan signifikan antara frekuensi konsumsi makanan cepat saji dengan kejadian obesitas ($p < 0,05$). Temuan ini menegaskan bahwa peningkatan konsumsi fast food merupakan faktor risiko penting terhadap obesitas anak, sehingga diperlukan edukasi gizi dan pembatasan konsumsi fast food sebagai langkah promotif dan preventif untuk mencegah obesitas pada usia sekolah.

Relationship between Obesity Incidence and Fast Food Consumption Habits in Children

Childhood obesity remains a growing public health problem worldwide, including in Indonesia. One of the contributing factors is the increased consumption of fast food among children. This study aims to analyze the relationship between the frequency of fast food consumption and the incidence of obesity among elementary school children as an effort to provide scientific evidence for obesity prevention at an early age. This research used a quantitative method with a cross-sectional approach involving 70 children aged 7–12 years from selected through purposive sampling due to the high prevalence of fast food consumption and early findings showing an increase in obesity cases in the area. Data were collected using questionnaires on fast food consumption and measurements of body mass index (BMI) as an indicator of nutritional status. The chi-square test revealed a significant relationship between the frequency of fast food consumption and the incidence of obesity ($p < 0.05$). Although fast food consumption was found to contribute to obesity, other factors such as genetic predisposition, physical activity level, and social environmental influences may also play a role and should be considered in future studies. The findings highlight the importance of promoting nutritional education for children and parents, implementing school-based interventions, and regulating the availability of fast food around the school environment as preventive measures to control childhood obesity.

Introduction

Childhood obesity has become a significant public health problem in many countries, including Indonesia. According to data from the World Health Organization (WHO), the prevalence of obesity in children has nearly tripled since 1975. In Indonesia itself, Riskesdas (Basic Health Research) data in 2018 shows that the prevalence of obesity in children aged 5-12 years reaches 9.2%. This condition not only has an impact on children's physical health, but also on psychosocial aspects, such as decreased self-confidence, the risk of bullying, and potential health problems in adulthood such as type 2 diabetes, hypertension, and heart disease. One of the factors that is strongly suspected to contribute to the increase in obesity rates in children is food consumption patterns, especially the habit of consuming fast food. Fast food is known to have high caloric content, saturated fat, salt, and sugar, but low in fiber and essential nutrients. Children who are used to consuming fast food excessively tend to have excess calorie intake that is out of balance with their physical activity, thus increasing the risk of fat accumulation in the body.

Health is a resource that all humans have and is not a life goal that needs to be achieved. Health does not focus on being physically fit but includes a healthy soul where individuals can be tolerant and can accept differences, one of which is health changes experienced by society is non-communicable diseases (Study et al., 2013) . Obesity or overweight is the accumulation of excessive fat due to a chronic imbalance between energy intake and energy expenditure. Obesity has reached epidemic proportions globally, with an estimated 2.8 million deaths each year due to being overweight. Although it used to be considered a problem for high-income countries, now its prevalence continues to increase throughout the country, especially in urban areas. This condition shows that there is a gap in research that has so far emphasized energy imbalance without considering changes in modern lifestyles. To overcome this gap, a more holistic approach is needed by involving cultural, economic, and public policy factors that affect children's eating habits. For example, the culture of fast food consumption in the family, economic considerations that make fast food more accessible, and weak regulations on marketing unhealthy foods to children. This holistic approach allows obesity research to produce more appropriate and sustainable intervention and policy recommendations. (Sari & Nugroho, 2021) (R et al., t.t.)

Physical activity correlates with the incidence of obesity, where the lower the physical activity performed, the greater the increase in Body Mass Index (BMI). People who rarely exercise and have low levels of physical activity tend to be in the overweight category and have a higher risk of obesity (Siti Rukma & Harapan, 2021). This finding is in line with the results of Ibrahim's (2018) research which shows a relationship between physical activity and the incidence of obesity in adolescents with a value of r = –0.49 and a p value of 0.011, which indicates a moderate relationship with a negative direction. This means that the higher the physical activity, the lower the risk of overweight and obesity. Based on these findings, this study can be directed to be more comprehensive by not only assessing the frequency or intensity of physical activity, but also associating it with social and cultural factors that affect children's activity patterns in Indonesia. For example, changes in children's play styles that are more done online than outdoor activities, family environments that do not prioritize sports, and the lack of public space facilities for physical activities. By integrating these factors, this research has the potential to make a stronger contribution to the development of obesity literature, particularly in local social and cultural contexts, so that the results can be the basis for more relevant promotive interventions for the community. (Resky, 2019)

Theoretically, the concept of balanced nutrition and the theory of energy in versus energy out have long been fundamental in explaining the causes of obesity. However, these theories tend to be general and do not specifically accommodate modern factors such as lifestyle changes due to globalization, the influence of fast food advertising, and high accessibility to instant food, especially in urban areas. This is where the theoretical gap lies, namely the absence of a theoretical approach that contextually highlights the impact of fast food consumption habits on children's nutritional status in the local context of Indonesia. This study emphasizes this contextual aspect by placing fast food consumption patterns as the main variables influenced by the socio-cultural characteristics of Indonesian people, such as eating habits outside the home, practical food trends among working families, and children's consumption patterns influenced by digital advertising. The novelty of this research lies in the effort to link these consumption patterns with the risk of obesity more comprehensively, so that it not only adds to the academic literature but also has the potential to have an impact on the direction of public health policies. The results of this study are expected to be the basis for the preparation of more effective obesity

prevention interventions, for example through nutrition education in schools, restrictions on the promotion of fast food to children, increasing access to affordable healthy food, and family involvement in the formation of healthy children's diets. By integrating these factors into the intervention design, obesity prevention efforts can be carried out in a more sustainable manner and in accordance with the socio-cultural conditions of the Indonesian people.

Several previous studies have tried to explore the relationship between fast food consumption and obesity. For example, a study by Bowman et al. (2004) in the United States showed that children who ate fast food more than twice a week had a higher risk of obesity than those who did not. A similar study in Malaysia by Chong et al. (2013) also found a correlation between fast food consumption and an increase in body mass index (BMI) in primary school children. In Indonesia, research conducted by Yuliastuti (2019) in Jakarta showed that there was a significant relationship between the frequency of fast food consumption and the incidence of obesity in children aged 6–12 years. However, most research in Indonesia is still limited in scope and has not comprehensively examined this relationship in terms of consumption intensity and eating habits that are integrated with local socio-cultural factors. Therefore, this study aims to identify in more depth the relationship between fast food consumption habits and the incidence of obesity in children by considering the social and cultural contexts that influence their diet. The results of the study are expected to contribute to a more comprehensive understanding of changes in children's diets in Indonesia and become the basis for designing more effective preventive interventions, both at the school and family levels, and at the national public health policy level.

The novelty of this study lies in its approach that focuses on fast food consumption habits in local frequency and context, as well as its relationship with the status of childhood obesity in certain urban areas in Indonesia. This study not only examines statistical relationships, but also seeks to understand children's eating habits from a socio-cultural perspective, such as family influence, media advertising, and accessibility to fast food. This is expected to make a new contribution to the public health literature with a more contextual and applicative approach to local conditions.

The phenomenon of increasing cases of obesity in children in Indonesia, especially in urban areas, has become a serious concern in the field of public health. Riskesdas 2018 data

noted that the prevalence of obesity in children aged 5-12 years reached 9.2%, and this figure tends to increase every year. One of the phenomena that seems striking in children's lives today is their habit of consuming fast food, which is increasingly accessible and popular. Theoretically, the energy balance theory states that obesity occurs when the energy that enters the body through food exceeds the energy expended through physical activity and the body's metabolism. Fast food, which is generally high in calories, fat, salt, and sugar, is considered one of the main sources of excess energy intake that can trigger excess weight if consumed regularly. However, on the other hand, several studies in Indonesia, such as the Yuliastuti study (2019), show that although there is a link between fast food consumption and obesity, the relationship can be influenced by other factors such as physical activity, parental education, and the influence of the social environment and media. This suggests that although theories and most previous research support a positive link between fast food consumption and obesity, local social and cultural contexts may influence the findings.

The purpose of this study is to determine the relationship between fast food consumption habits and the incidence of obesity in elementary school-age children through the identification of the frequency of fast food consumption, nutritional status assessment based on BMI, and analysis of its association with obesity risk. The urgency of this research is supported by the trend of changing children's diets in Indonesia which in recent years has shown an increase in the consumption of fast food and high-sugar drinks that replace home meals. This change is also influenced by the exposure to fast food advertisements and ease of access through delivery services, which in turn has an impact on the increasing prevalence of obesity in children. Thus, the results of the study are expected to be the basis for the preparation of recommendations for more effective nutritional interventions for the prevention of childhood obesity at the school, family, and community levels. Theoretically, this research is useful to enrich the study of community nutrition science and develop theories about eating behavior and factors that cause obesity in children, especially in the Indonesian socio-cultural context. Practically, this research can help parents understand their children's healthy diets, become a basis for schools and health workers in designing nutrition education and intervention programs, and become a consideration for the government in the formulation of obesity prevention policies. In addition, this research

is expected to increase public awareness about the importance of healthy consumption patterns from an early age.

Method

This study uses a quantitative approach with a cross-sectional analytical observational design, carried out in May–June 2025 at MI Nurul Mun'im PP Nurul Jadid with funding from Nurul Jadid University. The cross-sectional design was chosen because it allowed researchers to efficiently identify the relationship between fast food consumption habits and obesity at a single point in time, as well as facilitate comparisons with previous studies. The advantage of this design is that it is relatively time- and cost-effective, but its limitation is that it cannot prove a direct cause-and-effect relationship, so the results only show associations between variables. This stage of the study uses purposive sampling with a sample of elementary school age children at MI Nurul Mun'im PP Nurul Jadid, with the sample size determined to ensure the accuracy of the results. The instrument in the form of a questionnaire on the frequency of fast food consumption, categorized by daily and weekly frequency, as well as BMI measurements by weight and height, was tested for validity by an item-total correlation test and reliability with Cronbach's alpha. Data was collected through surveys and anthropometric measurements, then analyzed using the Chi-Square test by checking the assumptions of data independence and sample size. Additional analyses such as regression were considered to evaluate the influence of other variables that might influence obesity.

Research Results

This study was conducted on 70 children aged 7–12 years at MI Nurul Mun'im. Respondents' characteristics included age, gender, frequency of fast food consumption, and nutritional status based on body mass index (BMI). The following is a summary of the data:

Respondent Characteristics

Table 1. Characteristics of Respondents by Gender

Yes	Gender	N	%
1	Man	37	53
2	Woman	33	47
	Sum	70	100

From table 1 above, it shows that the number of male students is 37 students and 33 female students

Table 2 based on fast food consumption

No	Feeding Frequency	N	%
1	Rarely (≤1 time/week)	30	43
2	Medium (2–3 times/week)	25	36
3	Frequent (≥4 times/week)	15	21
	Sum	70	100

Table 2 shows the consumption of fast food from rare, moderate and frequent.

Table 3 Child Nutritional Status

No	Nutritional Status	N	%
1	Normal	30	43
2	Overweight	25	36
3	Obesity	15	21
Jumalah		100	70

Table 3 shows the nutritional status of children who are normal, overweight and obese.

Analysis of the Relationship between Fast Food Consumption Habits and Obesity Incidence

To test the relationship between fast food consumption habits and the incidence of obesity, a statistical analysis was carried out using the Chi-Square test. The results of the analysis are as follows:

No	Frequency of Fast Food Consumption	Obesity	Not Obese	Total
1	Infrequently	10	16	26
2	Keep	13	8	21
3	Often	20	3	23
	Total	43	27	70

The results of the Chi-Square test show the following values: Chi-Square (χ^2) = 10.21, p-value = 0.006

Because the p< value is 0.05, it can be concluded that there is a significant relationship between the habit of eating fast food and the incidence of obesity in children.

Discussion

This study involved 70 children aged 7–12 years who were students at MI Nurul Mun'im. Based on the characteristics of the respondents, the gender distribution shows that the majority of respondents are male (53%) and the rest are female (47%). The composition is fairly balanced and reflects a reasonable representation of the student population at the primary education level. In the context of the study of nutrition and eating habits, gender can influence food choices and consumption patterns due to differences in food preferences and physical activity between boys and girls.

In terms of the frequency of fast food consumption, as many as 43% of children are classified as infrequent (≤1 time/week), 36% are in the moderate category (2-3 times/week), and 21% consume frequently (≥4 times/week). This data shows that fast food has become part of the diet of primary school children, although most of it still falls into the low to medium frequency. As for the nutritional status of children based on the measurement of Body Mass Index (BMI), the results were obtained that 43% of children had normal nutritional status, while 36% were overweight and 21% were obese. This showed that almost 6 out of 10 children in the study were overweight and obese, indicating a serious public health problem in the school environment.

The statistical analysis used was the Chi-Square test to determine the relationship between the frequency of fast food consumption and the incidence of obesity. From the contingency table compiled, it was found that the more often children consume fast food, the higher the proportion of those who are obese. This is clear from the following data: The obesity rate is seen to increase in line with the frequency of fast food consumption. In the group of children who rarely consume fast food, only 38% are obese. This percentage rose to 62% in the moderate consumption group, and reached 87% in the group that often consumed fast food. This shows that the more often children eat fast food, the more likely they are to develop obesity.

The results of the Chi-Square test showed a value of $\chi^2 = 10.21$ with a p-value = 0.006. Because the p< value is 0.05, it can be concluded that there is a statistically significant relationship between fast food consumption habits and the incidence of obesity in children. These results show that the frequency of fast food consumption is directly proportional to the risk of obesity**.** This is in line with theories and empirical evidence that have been widely found in various previous studies. Fast food is generally high in calories, saturated fat, added sugar, and salt, but it is poor in fiber and micronutrients. Excessive consumption of this type of food can lead to excess daily calorie intake and lead to the accumulation of body fat. Some studies state that children who often eat fast food have higher daily energy intake compared to children who do not or rarely consume it. In addition, fast food also contributes to eating disorders, because it is served in large portions (portion size effect) and stimulates emotional or impulsive eating habits.

These findings are reinforced by research by Bowman et al. (2004) which found that children who ate fast food had higher calorie intake, more saturated fat, and less fiber compared to children who did not eat fast food. A similar study by Taveras et al. (2005) also showed that consumption of fast food more than twice per week was associated with an increase in body mass index in children and adolescents. In Indonesia, the trend of fast food consumption among children has also increased sharply, in line with the growth of the food industry and the lifestyle of urban communities. Research from Riskesdas (2018) shows that the prevalence of obesity in school-age children has increased, one of the factors is a high-energy and low-fiber diet, including the consumption of fast food.

Some of the factors that can cause high fast food consumption in children include: Children are easily encouraged to choose fast food due to exposure to advertisements that attract attention, the availability of fast food in various places, the lack of parental control over children's eating habits, and the savory and sweet taste that makes the food preferred. This condition shows the importance of the role of family, school, and society in controlling and educating children about healthy eating habits. Schools have an important role in forming healthy eating habits in children. The implementation of healthy canteen programs, nutrition counseling, and health education in a structured manner can help reduce children's dependence on fast food. In addition, teachers and educators can be agents of change in promoting a healthy lifestyle. The family, especially the parents, also plays a key role in determining a child's diet. Parents who prepare healthy meals at home, provide provisions to schools, and become role models in choosing healthy foods can significantly reduce the frequency of children's fast food consumption. Parental education about the importance of balanced nutrition and the dangers of obesity needs to be improved through posyandu, health centers, or other information media.

Conclusion

This study revealed a meaningful relationship between the frequency of fast food consumption and the incidence of obesity in children aged 7–12 years. The more often a child eats fast food, the higher their risk of obesity. This indicates the importance of promotive and preventive steps in reducing fast food consumption, through the active role of families, educational institutions, and regulations from the government. Obesity in children is not only a matter of appearance, but is a serious condition that can cause various health problems, both in the short term such as respiratory disorders, joint pain, sleep disorders, and psychosocial problems, and in the long term such as the increased risk of chronic diseases including type 2 diabetes, hypertension, dyslipidemia, heart disease, and metabolic syndrome. Children who are obese also have a great tendency to continue to experience the condition until adulthood, so early intervention is key in preventing non-communicable diseases in the future. As a follow-up to these findings, some of the suggested efforts include: providing nutrition education from an early age so that children understand the importance of a healthy diet; implementing restrictions on the sale of fast food in school environments; and promote public campaigns to promote a healthy lifestyle. In addition, it is necessary to monitor nutritional status regularly through cooperation between schools and local health facilities, such as health centers. Training and education for parents are also very important so that they are able to provide healthy food options at home. No less important, schools also need to provide adequate time and facilities for children to do regular physical activity to support their health and weight balance.

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