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Article

Consuming Habits *Fast Food* and the incidence of obesity in elementary school students

Baithesda[1], Juliastri Anggraini Schu[2], Autry Alvian Mandagi[3]

[1,2]Nursing Science Study Program, Sari Putra Indonesia University Tomohon, Tomohon City, Indonesia
[3]Nursing Profession Study Program, Sari Putra Indonesia University Tomohon, Tomohon City, Indonesia

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CORRESPONDENCE

Email: mandagiautry@gmail.com

ABSTRACT

Obesity has become a global pandemic throughout the world and is declared the largest chronic health problem, making it a major public health problem, including for school-aged children. The aim of this research is to identify the relationship between consumption *fast food* and the incidence of obesity in elementary school students. Design approach *cross-sectional* with a student population in one of the elementary schools in Manado City. The number of respondents was 162 people with the criteria being aged 6 years and over and having consent from their parents, taken using techniques *quota sampling*. Fast food consumption data was collected using a paper-based questionnaire, while the incidence of obesity was measured by BMI. Data were analyzed using the Chi-square test with significance values $p \leq 0.005$. The research results showed a significant relationship between consumption frequency *fast food* with the incidence of obesity in students ($p < 0.001$). It is recommended for schools to provide school canteens that comply with health standards and for parents to prepare a healthy breakfast for children.

I. INTRODUCTION

The prevalence of obesity is still high and has become a pandemic throughout the world. *NCD Risk Factor Collaboration* (NCD-RisC) reports that globally, the prevalence of obesity almost tripled from 1975 to 2016. More than 340 million children and adolescents aged 5-19 years are overweight or obese. However, this prevalence varies by region [4,5]. WHO reports that at least 2.8 million people die every year due to being overweight or obese. Estimated 35.8 million (2.3%) *disability-adjusted life year* (DALY) globally caused by overweight or obesity (WHO, 2021).

Although various studies show that the prevalence of overweight and obesity status is below 2.3% in Asia and Sub-Saharan Africa (De Onis and Blössner, 2000; Martorell et al., 2000). However, sustained economic growth and increased financial stability in Asia over the last three decades have increased lifestyle changes, leading to nutritional problems and the occurrence of chronic diseases (Tee, 2002). Strong evidence of an increasing trend in childhood obesity in low- and middle-income countries has been reported, even though obesity was once considered a problem unique to high-income countries. In addition, the prevalence of obesity is higher in urban areas in many low- and middle-income countries (Wang and Lobstain, 2006).

Overweight and obesity are terms used to describe body weight exceeding what is considered healthy for a given height (WHO, 2021). A sedentary lifestyle with low energy expenditure and consumption of high-calorie foods with low nutritional value are assumed to be the two most important factors responsible for increasing obesity rates in children (Ranjani et al., 2016). Overweight children have a greater chance of becoming overweight or obese as they enter adulthood and have a greater risk of developing chronic disease conditions in adulthood (Ogden et al., 2003; WHO, 2021) . The problem of obesity/overweight is one of the main causes of non-communicable diseases (WHO, 2017). The high increase in consumption of foods rich in fat, sugar and salt is known to be the main reason for the increase in non-communicable diseases (Mohammadbeigi et al., 2019). The basic cause of obesity and overweight is an energy imbalance between calories consumed and calories expended (WHO, 2021). Fast food (*fast food*) occupies a prominent place among foods high in flour, sugar and salt. Several infectious diseases, namely diabetes, heart disease and cancer, are known to be caused by high consumption of fast food. Childhood obesity is associated with a higher likelihood of obesity, early death, and disability in adulthood.

Indonesia, as a developing country, also faces these problems

from the double burden of disease, which includes infectious diseases, malnutrition, and underweight, and on the other hand is childhood and adolescent obesity. The prevalence of obesity among school-aged children 6-12 years in Indonesia has also increased significantly over the past decade, from 7.1% in 2006 to 16.1% in 2016, of which more than 50% were experienced by children. men (The Barbecue Lab, 2023). Research on the incidence of obesity in elementary school students in Manado City is still very limited, the latest research by Damopolii, Mayulu, and Masi (2013) found that 33.8% of students consumed *fast food* more than the average, 23.5% of them are obese. This research aims to identify consumption habits *fast food* and the incidence of obesity in school-aged children.

II. METHOD

Design approach *cross-sectional* (Suhron, 2024), is used to identify the relationship between consumption frequency *fast food* with a student population in one

of the elementary schools in Manado City. The number of respondents was 162 people with the criteria being students in grades 1-5, aged 6 years and over and who received approval from their parents, taken using quota sampling techniques. Collection of consumption frequency data *fast food* in the form of a paper-based 4 Likert scale questionnaire (0 = never to 2 = often) with interview techniques. The types of fast food studied were limited to processed meat, fried foods and instant noodles. The incidence of obesity is determined by anthropometric measurements obtained through measuring body weight, height and calculating BMI. If BMI ≥ 25 is classified as obese. Data was analyzed using tests *Chi-square* with a significance value of p ≤ 0.005.

III. RESULTS

Of the 162 students more than half (54.9%) were in the age group 10-12 years and were boys (56.8%) (Table 1).

Table 1.
Respondent characteristics
(n = 162)

Characteristics	n	%
Age	Last	
7-9 years	Similar	
10-12 years		
Gender		
Man		
Woman		

Table 2.

Frequency of consumption *fast food* (n = 162)

Consumption *fast food*	n	%
Never	0	0
Seldom	50	30,9
Often	112	69.1

All students have consumed it *fast food*, 69.1% of them often consume it *fast food* (Table 2.)

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Table 3.

Incidence of obesity in students (n = 162)

Consumption *fast food*	n	%
Non-obese	76	46,9
Obesity	86	53.1

Table 3 shows that more than half of the students (53.1%) are obese

Table 4.
Analysis of the Relationship between Fast Food Consumption and Incidence of Obesity in Students

		The incidence of obesity				Total		p-value
		Non-obese		Obesity				
		n	%	n	%	n	%	
Consumption on *fast food*	Seldom	38	23,5	12	7,4	50	30,9	<0,001
	Often	38	23,5	74	45,7	112	69,1	
Total		76	46,9	86	53,1	162	100,0	

Table 4 shows that of the 112 students who frequently consume *fast food*, 74 (45.7%) of them suffered from obesity. Meanwhile, 50 students rarely consume it *fast food*, only 12 people (7.4%) were obese. The results of the analysis show that there is a significant relationship between consumption frequency *fast food* and the incidence of obesity in students ($p < 0.001$).

IV. DISCUSSION

The results of research on 162 students at a private elementary school in Manado City found that the majority of students often consume *fast food* (69.1%). This result is twice as high as the research results of Damopolii, Mayulu, and Masi (2013). In addition, the relationship between frequent consumption of junk/fast food and the risk of being overweight was found to have a significant positive correlation in other studies (Ahmed et al., 2013).

In many areas, especially urban areas, as industry develops *fast food*, there is a tendency to consume high-calorie foods, According to the Barbecue Lab (2023) with 826,000 restaurants *fast food* all over the world – this type of food is easy to find. Lunch time is the most popular time for fast food consumption. The fact that school-age children spend more of their lunch time at school.

On average there are 836 calories in fast food. Children tend to consume 120 calories more each day when they eat at restaurants *fast food*, and 34% of children eat fast food every day. For both adults and children, more fat, sugar and sodium are consumed in meals *fast food* eaten than when all food is prepared at home (the Barbecue Lab, 2023).

Children in low- and middle-income countries are more vulnerable to prenatal, infant and young child nutritional deficiencies. At the same time, these children consume foods that are high in fat, high in sugar, high in salt, energy dense and poor in micronutrients, which tend to be cheaper but also of lower nutritional quality. This type of eating pattern, coupled with low levels of physical activity, including genetic factors, has resulted in a sharp increase in childhood obesity, while the problem of malnutrition remains unresolved (Wiklund, 2016; WHO, 2021).

Like other research, this research also has limitations. First, because this research is *cross-sectional*, then a cause-and-effect relationship cannot be established. Second, this study did not evaluate genetic factors, the amount of calorie intake based on type of food, nutritional status, and students' physical activity levels. Third, this research did not involve parents so this could be a possibility *recall bias*.

V. CONCLUSION

High frequency of consumption *fast food* and the incidence of obesity among students in Manado City. There is a significant relationship between frequency of consumption *fast food* and the incidence of obesity among students in Manado City. It is recommended that schools provide healthy canteens for students with varied menus and processing methods. Likewise for parents, to provide a food menu that is high in nutrition at home so that children's growth and development is optimal
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