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The Relationship Between Eating Patterns and Fast Food Consumption on Adolescent Obesity at Bina Utama High School Pontianak

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Obesity or overweight, commonly referred to as excessive weight gain, is a concerning issue among adolescents. Adolescents are the future assets of a nation and are also a vulnerable group at risk of various nutritional problems, including both undernutrition and overnutrition. Obesity is a risk factor for non-communicable diseases such as hypertension, diabetes, and coronary heart disease. The prevalence of overnutrition among adolescents aged 13–15 years in Indonesia is 15.3%, consisting of 8.7% overweight and 6.6% obese. In West Kalimantan, the prevalence is 12.0% for males and 22.0% for females, with an average of 19.3%. This study aims to determine the relationship between eating patterns and fast food consumption with obesity among students at Bina Utama Senior High School in Pontianak. This research used a case-control study design and was conducted at SMA Bina Utama Pontianak on June 22, 2022, using a simple random sampling technique. The total population was 170 students, and the sample size, determined using the Slovin formula, was 62 students. Based on the Chi-square test results, there is a significant relationship between eating patterns and obesity in adolescents, indicated by a p-value of 0.000, and a significant relationship between fast food consumption and obesity, indicated by a p-value of 0.003. Therefore, there is a relationship between eating patterns and obesity, as well as between fast food consumption and obesity among adolescents at SMA Bina Utama Pontianak.

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1. INTRODUCTION

Obesity or overweight, commonly referred to as excessive weight gain, is an increasingly alarming health issue among adolescents. Obesity has now become a global pandemic and has been recognized as one of the most serious chronic health problems worldwide. The prevalence of obesity is rising not only in developed countries but also in developing countries, including Indonesia (Mangopa et al., 2023). From a public health perspective, this trend is particularly concerning because obesity is directly associated with an increased risk of various non-communicable diseases such as hypertension, diabetes, and coronary heart disease.

The prevalence of overweight nutritional status among adolescents aged 16–18 years in Indonesia increased by 1.4% to 7.3% (Badan Penelitian dan Pengembangan Kesehatan, 2019). Based on the 2013 Basic Health Research (Riskesdas), the national prevalence of overnutrition among adolescents aged 13–15 years was 14.8%. This figure rose to 15.3% in 2018, consisting of 8.7% categorized as overweight and 6.6% as obese. In West Kalimantan, the prevalence of overnutrition among adolescents was recorded at 12.0% for males and 22.0% for females, with an average of 19.3% (Badan Penelitian dan Pengembangan Kesehatan, 2013). The 2018 Riskesdas report further indicated that the prevalence of obesity among adolescents in Indonesia had reached 25% (Badan Penelitian dan Pengembangan Kesehatan, 2019).

One of the main contributing factors to obesity is excessive food intake. Nowadays, many adolescents consume processed and instant foods, particularly fast food such as burgers, pizzas, hot dogs, and other ready-to-eat meals commonly found in modern food outlets (Hasrul, Hamzah, & Hafid, 2020). A survey conducted by Nielsen found that 69% of urban Indonesians consume fast food, with 33% of respondents stating that lunchtime is the most suitable time to visit fast food restaurants (Nielsen, 2008). This unbalanced dietary pattern significantly contributes to uncontrolled weight gain among adolescents.

Initial screening conducted at Bina Utama Senior High School in Pontianak revealed that out of the total students assessed, 12 students (7%) were undernourished, 66 students (38.8%) had normal nutritional status, 41 students (24.1%) were overweight, and 51 students (30%) were obese. This study aims to determine the relationship between eating patterns and fast food consumption with obesity among students at Bina Utama Senior High School in Pontianak.

2. METHOD

This study used a case-control study design, in which data were collected at the same time to identify both independent and dependent variables within the population. The population of this research consisted of students from grades X and XI at Bina Utama Senior High School in Pontianak. The sample selected for the study met specific inclusion and exclusion criteria, and the sample size was determined using the Slovin formula, resulting in a total of 62 respondents. The sampling technique applied was simple random sampling.

The data used in this research included primary data, which were obtained through interviews to collect respondent characteristics (such as age and gender) and dietary pattern data. Fast food consumption data were collected using a Food Frequency Questionnaire (FFQ), while height and weight were measured using anthropometric assessments. Secondary data included general information about the school and other relevant supporting data.

To ensure data validity, researchers followed standardized procedures for anthropometric measurements and used structured, pre-tested questionnaires for interviews and dietary assessments. All data were then analyzed to determine the

relationship between eating patterns, fast food consumption, and obesity among adolescents. The results of this study are expected to provide useful insights for health education and the development of targeted intervention programs in schools.

3. RESULTS AND DISCUSSION

Table 1. Respondent characteristics

Variable	Category	n	%
Gender	Male	25	40.3%
	Female	37	59.7%
Age	16 years old	26	41.9%
	17 years old	36	58.1%
Eating Pattern	Regular	26	41.9%
	Irregular	36	58.1%
Fast Food Consumption	Frequent	44	71.0%
	Infrequent	18	29.0%
Nutritional Status (Sample)	Obese	31	50.0%
	Not Obese	31	50.0%

Table 1 shows that the 62 respondents in the study sample from Bina Utama Senior High School in Pontianak, the majority were female (59.7%) and aged 17 years (58.1%). In terms of eating patterns, most students had irregular eating habits (58.1%), and nearly three-quarters of the respondents (71%) frequently consumed fast food. Regarding nutritional status, the respondents were evenly distributed between those classified as obese and those not obese, with each group comprising 50%. These results indicate significant variation in eating patterns, fast food consumption, and nutritional status among adolescents at Bina Utama Senior High School in Pontianak, which could affect health issues such as obesity.

Table 2. Relationship Between Eating Patterns, Fast Food Consumption, and Nutritional Status of Students

Variable	Category	Obese	% Non-Obese (n)	%	p	OR	
Eating Pattern	Regular	6	19.4%	20	64.5%	0.000	0.13
	Irregular	25	80.6%	11	35.5%		
Fast Food Consumption	Frequent	25	80.6%	19	61.3%	0.003	0.38
	Infrequent	6	19.4%	12	38.7%		

Table 2 shows that a clear relationship between eating patterns, fast food consumption, and obesity among adolescents at Bina Utama Senior High School in Pontianak. Among respondents with a regular eating pattern, most did not experience obesity (64.5%), while those with an irregular eating pattern had a significantly higher proportion of obesity (80.6%). Statistical analysis using chi-square indicated a significant association between eating patterns and nutritional status, with a p-value of 0.000, meaning the relationship is statistically significant. The Odds Ratio (OR) for irregular eating patterns was 0.13, indicating that adolescents with irregular eating habits are at 0.13 times higher risk of becoming obese. Similarly, among respondents who frequently consumed fast food, 80.6% were obese, compared to 38.7% of those who consumed fast food infrequently. The chi-square test for the relationship between fast food consumption and nutritional status yielded a p-value of 0.003, confirming a significant association. The Odds Ratio (OR) for frequent fast food consumption was 0.38, meaning adolescents who frequently consume fast food are at 0.38 times higher risk of being obese.

DISCUSSION

The modern consumption patterns in urban areas, with a wide variety of food choices, stimulate the public to prefer fast and practical food services, as well as to choose eating places and types of food. If the body's nutritional needs are met properly, both in terms of quality and quantity, the body will achieve optimal health and nutrition. Excessive consumption of food will lead to an over-nutrition condition (Kristianti, 2009). A diet with excessive calories will likely result in obesity, as people who eat more tend to suffer from weight gain. Consuming high-fat and low-fiber foods is a contributing factor to obesity (Manurung, 2009). According to Kristianti (2009), the frequency of meals is an important aspect of eating habits that directly affects nutrient intake. From the data on meal frequency, it can be seen that this is an opportunity for individuals to consume food that meets the necessary nutrition for healthy living. The frequency of main meals is suspected to have a relationship with nutritional status. The first possibility is that the frequency of meals does not align with the amount of nutrients, especially energy and protein, in the food. The second possibility is that adolescent nutritional needs are more fulfilled by snacks rather than main meals.

The chi-square test revealed a relationship between eating patterns and obesity among adolescents at Bina Utama Senior High School in Pontianak, with a p-value of 0.000, which is less than 0.05, indicating a significant relationship between eating patterns and obesity. Manurung et al., (2009) at SMU RK Tri Sakti Medan, which also found a significant relationship between eating patterns and obesity. This is caused by an unbalanced diet consisting only of staple foods and side dishes without vegetables or fruits, which help regulate body metabolism, leading to a higher likelihood of obesity. According to Khomsan (2004), eating patterns are one of the factors contributing to obesity. The most noticeable effect of globalization on urban populations is the consumption lifestyle, including how people choose where to eat and the type of food consumed. Changes in eating habits, particularly those driven by higher income, work pressures, and the promotion of trendy Western-style foods, also depend on age and gender.

Frequent consumption of fast food can cause obesity due to its high energy content, sugar, fat, and low fiber. Therefore, frequent consumption of fast food increases the risk of insufficient intake of energy, macro, and micro-nutrients. Fast food is typically high in sodium and saturated fats, which can negatively impact health (Sachithanathan, 2015). Excessive consumption of fast food can lead to negative health effects such as obesity, hypertension, diabetes, stroke, and coronary heart disease (Pamelia, 2018). This is supported by research (Ali, 2018), which found that fast food consumption is a risk factor for obesity in adolescents. The habit of consuming fast food among adolescents is driven by taste, convenience, accessibility, and affordability, which leads to frequent consumption without considering long-term health consequences like obesity and other related health issues.

The chi-square test showed a relationship between fast food consumption and obesity among adolescents at Bina Utama Senior High School in Pontianak, with a p-value of 0.003, which is less than 0.05, indicating a significant relationship between fast food consumption and obesity. The more frequently fast food is consumed, the higher the incidence of obesity due to the high energy and fat content of these foods. This finding is also supported by research by Lieswanti (2007), which found a link between fast food consumption and nutritional status, particularly obesity, at SMU Harapan 1 Medan. Similarly, research by Damopolii, Mayulu, and Masi, (2013) in Manado found a connection between fast food consumption and obesity.

4. CONCLUSION

There is a relationship between eating patterns and obesity among adolescents at Bina Utama Senior High School in Pontianak, as indicated by the p-value of 0.000, which is less than 0.05, meaning the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. The relative risk analysis/Odds Ratio shows an OR value of 0.13, meaning adolescents with irregular eating patterns are 0.13 times more likely to experience obesity. Additionally, there is a relationship between fast food consumption and obesity among adolescents at Bina Utama Senior High School in Pontianak, with a p-value of 0.003, which is also less than 0.05, indicating the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. The relative risk analysis/Odds Ratio shows an OR value of 0.38, meaning adolescents who frequently consume fast food are 0.38 times more likely to experience obesity.

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