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RELATIONSHIP BETWEEN OVERNUTRITION STATUS WITH PHYSICAL ACTIVITY AND FAST FOOD CONSUMPTION AT PASUNDAN 2 SENIOR HIGH SCHOOL BANDUNG

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ABSTRACT

Adolescence is a time of many preferences, including changes in dietary habits that affect nutritional health. Fast food is popular food choices among teens due to its availability and practical value but if excessively consumed can lead to health issues such as being overweight and obesity. Another challenge in digital era, teenager lacked in physical activity. Regular physical activity increases energy expenditure, and more frequent exercise helps balance energy intake from food. Both have emerged as concerns due to increasing cases of overnutrition among adolescents living in urban area. This study used a cross-sectional design with 188 randomly selected students from Pasundan 2 Senior High School Kota Bandung. The aim of the study was to evaluate fast food consumption, physical activity and its relationship to student's nutrition status. Food consumption assessed with Food Frequency Questionnaire (FFQ), while physical activity and nutritional status were measured with Global Physical Activity Questionnaire (GPAQ) also to calculate Body Mass Index (BMI). Among 151 students who frequently ate fast food, 80 (42.5%) overnourished, and 71 (37.2%) had normal nutrition status. 37 students who ate fast food less often, 23 (12.2%) had normal nutrition status, 14 (7.5%) were overnourished. 67 students (35.6%) who frequently ate fast food and had normal nutritional status, mostly engaged in physical activities. Additionally, 48 students (25.5%) who frequently ate fast food but had poorer nutrition were also more likely had high physical activities. Statistical analysis showed no significant relation between fast food consumption and overnutrition ($p = 0.09$). However, there was a significant association between overnutrition and physical activity levels ($p = 0.01$).

Keywords: Fast food, Nutrition, Physical activity, Malnutrition, Adolescence

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INTRODUCTION

Fast food is a type of food that may be consumed quickly or in a short amount of time (Loka, 206; Atifatul, 2021). Due to its practicality and affordable prices, fast food is currently a popular food among teenagers. It should be noted that fast food is a high-calorie, high-protein food that includes lipid, natrium, sugar, low in fibers and high in trans and saturated fat. Fast food consumption in an unhealthy way can affect a person's metabolism, which might negatively impact on their nutritional status (Azizi et al., 2025). According to WHO data from 2020, 80% of teenagers regularly eat fast food, which is composed of 50% at lunch, 15% at dinner, and 15% at breakfast (Fevi, 2020). Nutrition problems affect more in teenagers due to imbalance between the body's energy intake and expenditure (Atifatul, 2021). Over nutrition status more accurately represented by the body mass index (BMI) than by age. This is the result of excess body lipid (Loka, 2016). According to Riskesdas data from 2018, the prevalence of over nutrition is higher among people aged 15 and over (31%), compared to 26.6% in 2013, indicating a 4.4% increase (Cahyorini et al., 2022). Over nutrition (overweight and obesity) is a global epidemic due to its contribution as the risk factor to the highest rates of obesity worldwide. Obesity can be a risk factor for various metabolic and degenerative diseases, which can reduce productivity. This is a serious problem for teens due to its probability to continue through adulthood and result in an increase in morbidity (Amernia et al., 2022). According to earlier research conducted by Hafid, there is a significant correlation between fast food consumption and physical activity and obesity, in contrast to other study by Lina, which showed both overweight and normal weight did not significantly differ in their consumption of healthy foods and physical activity (Hafid&Hanapi, 2019). In order to fill the gap above, we would like to explore the relationship between fast food consumption and physical activities in teens whether it might be prone to overweight and obesity.

METHOD

A cross-sectional observational study was conducted with 188 students from Pasundan 2 High School at Bandung City. The research procedure began with anthropometric examination followed by calculating the BMI using formula to classify the nutritional status of the respondents as normal, overweight, and obesity. Respondents then provided with FFQ and GPAQ questionnaires, then explained the correct way to fill out the questionnaires and asked the respondents to complete them. Once the data has been collected, the next process is data processing using SPSS and analysing the results univariate and bivariate using chi-square analysis. Research was taken at Pasundan 2 High School and ethics were approved by ethical committee.

RESULT

From 188 respondents, 104 respondents were females and 84 males. 33 of students were 15 years old, 104 students were 16 years old, 43 students were17 years old and 8 students were 18 years old.

Table 1 : Characteristic of Respondents

Subject characteristic	Frequency (n)	Percentage (%)
Sex		
Male	84	44.7
Female	104	55.3
Age group		
15	33	17.6
16	104	55.3
17	43	22.9
18	8	4.2

The majority of respondents (115 students or 62%) had high levels of physical activity. This was followed by 56 students (29.8%) with moderate activity levels and 17 students (9%) who had low physical activity.

Table 2: Distribution of Physical Activity Levels Among Respondents (n=188)

Physical activity	Frequency (n)	Percentage (%)
Low	17	9.0
Moderate	56	29.8
High	115	61.2
Total	**188**	100

As shown in the table 3, 151 students (80.3%) often consume fast food, while 37 students (19.7%) rarely consume fast food.

Table 3: Distribution of Fast Food Consumption Frequency (n=188)

Fast food consumption frequency	Frequency (n)	Percentage (%)
Often	151	80,3
Rarely	37	19,7
Total	**188**	**100**

As shown in Table 4, majority of students had normal nutritional status (94 students or 50%), 28 students were overweight (14.9%). Meanwhile 38 students had obesity class I(20.7%), and 27 students had obesity class II (14.4%).

Table 4: Distribution of Nutritional Status Among Respondents (n=188)

Nutrition status	Frequency (n)	Percentage (%)
Normal	94	50
Overweight	28	14.9
Obesity Class I	39	20.7
Obesity Class II	27	14.4
Total	**188**	**100**

Among the 151 students who frequently consumed fast food, 80 students (42.5%) were overnourished while 71 students (37.8%) had normal nutritional status. Of 37 students who rarely consume fast food, 14 (7.5%) were overnourished and 23 (12.2%) had good nutrition. Regarding physical activity, 48 of the 115 students with high activity levels (25.5%) were overnourished, while 67 (35.6%) had good nutrition. Meanwhile, of the 56 students with moderate activity, 36 (19.1%) were overnourished and 20 (10.6%) had good nutrition. Among the 17 students with low activity, 10 (5.3%) were overnourished and 7 (3.7%) had good nutrition. Statistical analysis showed no significant association between fast food consumption and overnutrition (p = 0.09). However, there was a significant association between physical activity and nutritional status (p = 0.01).

Table 5: Relationship between Physical Activity, Fast Food Consumption and Overnutrition status (n=188)

Variable	Nutrition status				Total		*p-value*
	Overnutrition		Good nutrition				
	N	%	n	%	n	%	
Fast Food consumption							
Often	80	42.5	71	37.8	151	80,3	0.09
Rarely	14	7.5	23	12.2	37	19.7	
Physical Activity							
Low	10	5.3	7	3.7	17	9.0	0.01
Moderate	36	19.1	20	10.6	56	29.8	
High	48	25.5	67	35.6	115	61.2	

DISCUSSION

Based on statistical tests using chi-square, there is no significant relationship between the frequency of fast-food consumption and the difference in overweight and normal nutritional status in adolescents at Pasundan 2 Senior High School Bandung, with *p-value* ≥ 0.05. The habit of consuming fast food excessively or more than once a week is considered unhealthy (Putri et al., 2022). The impact of frequent consumption of fast food can be overweight and obesity, cardiovascular disease, type 2 diabetes, and other metabolic disorders (Bahadoran et al., 2015; Nadia&Soviana, 2020). Fast food is divided into two types, namely, western fast food such as hamburgers, french fries, fried chicken, pizza, sandwiches, soft drinks and traditional fast food

such as fried rice, meatballs, chicken noodles, soto, chicken satay, and the like (Bonita et al., 2017). From the results of the questionnaire, students at Pasundan 2 Senior High School Bandung prefer to consume fast food such as instant noodles, fried foods, fried chicken, chicken nuggets, and sausages. WHO (2010) states that fast food consumers with overnutrition status are caused by the possible size and quantity of fast-food portions consumed excessively. Weight gain might result from eating large portions. The frequency of fast-food consumption is measured in this study, however the amount of fast food consumed in a single meal is not specified.

The findings of this study are consistent with those of Lina Agestika's study, which found no significance difference in fast food consumption between those with normal and excess nutritional status (Agestika&Maulani, 2022). But according to Hafid's research, there was a strong correlation between teenage obesity in Gorontalo Regency and fast-food intake. According to the study, even though the participants did not frequently eat fast food, they did so in increasing quantities or portions each time, which led to their obesity (Hafid&Hanapi, 2019). Fast food amounts and nutritional status were found to be significantly correlated in a study by Hatta on junior high school students. This is due to the reason that students' food intake is driven more by desires than by necessities, often exceeding 2475 kcal or the daily portion requirements (Hatta, 2019).Therefore, it can be said that daily calorie intake plays a role in excess nutritional status in addition to the kind and frequency of fast-food consumption (Saputri et al., 2021).

According to the findings of the bivariate analysis of physical activity and nutritional status, 10 (5.3%) of the 17 students who engaged in light activities were overweight, and seven (3.7%) were well-nourished. From 56 students who participated in moderate activities, 20 students (10.6%) were well-nourished and 36 students (19.1%) were overweight. From the 115 students who engaged in high activities, 48 (25.5%) were overweight and 67 (35.6%) were well-nourished. Adolescent students at Pasundan 2 Senior High School Bandung had a significant correlation ($p < 0.05$) between physical activity and differences in overweight and normal nutritional status, according to the results of the chi-square statistical test. Good physical activity is done 3 times a week or more with a length of 30 minutes a day and the type of activity is moderate intensity. In this study, well-nourished students engaged in heavy-intensity activities for the most part. Even with a high-fat diet, this prevents obesity by increasing the body's calorie expenditure (Kemenkes RI, 2017; Hafid&Hanapi, 2019). These findings are consistent with Lestari's study, which reported a significant relationship between physical activity and obesity prevalence among adolescents (Lestari, 2021). Regular physical activity plays a critical role in maintaining energy balance and promoting optimal nutritional health in adolescents.

CONCLUSION

The findings of the study indicate that there was a significant association between physical activity and the difference between students' normal and overweight nutritional status, but there was no significant association between the frequency of fast-food consumption and the difference between students' normal and overweight nutritional status at Pasundan 2 Senior High School Bandung.

RECOMMENDATION

The study shows a significant association between physical activity and differences in nutritional status between normal and over weigh individuals. This findings suggest that encouraging and facilitating regular physical activity can be an effective strategy to help students maintain a healthy weight and improve their overall nutritional status. Practical steps could include implementing or enhancing physical education programs in schools, promoting extracurricular sports, encouraging active transportation such as walking or cycling to and from school and creating sport events for students. The study found no significant association between the frequency of fast-food consumption and the difference in nutritional status among students. This suggests that simply reducing fast food frequency may not be sufficient or the impactful enough as the solution of overweight issues in this population. However, this does not mean fast food consumption is irrelevant to health, but it indicates that other factors such as physical activity, may play a more critical role. Nutritional education should continue to promote balanced diets and raise awareness in healthy food choices, however interventions should not rely solely on reducing the frequency of fast food consumption.

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