Fast Food Consumption Patterns Relationship and Physical Activity with Nutritional Status in Adolescents at SMA Dr. Soetomo Surabaya City

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ARTICLE INFO	ABSTRACT
	Teenagers need increasing nutritional intake due to experiencing physical changes and transitioning from childhood to adolescence. One of the factors influencing this is their dietary habits and physical activities. The researches objective is to understand the relationship between fast food consumption patterns,physical activities,and Nutritional status among 11th-grade students at SMA Dr. Soetomo in Surabaya City. The research methodology used was an analytical survey design with a cross-sectional approach.The sample consists of 60 respondents.The statistical analysis used in this research was the Spearman's rank correlation.The results of this research,shows that the majority of respondents were 17 years old and categorized as having excessive or overweight Nutritional status. They had poor dietary habits and engaged in very light physical activities. There's a significant relationship between fast food consumption patterns and Nutritional status (p=0.000),as well as between physical activities and Nutritional status (p=0.042) among 11th-grade students at SMA Dr. Soetomo in Surabaya City.In conclusion,this research reveals a connection between fast food consumption patterns, physical activities, and Nutritional status among 11th-grade students at SMA Dr. Soetomo in Surabaya City,should be made to limit fast food consumption and increase physical activities to reduce overweight and obesity.

INTRODUCTION

According to the World Health Organization argues that adolescence is defined as a range of 10-19 years, which undergoes physical, emotional, social, and cognitive changes.[1] Often, the amount of energy received in and out of the body is out of balance.[2] A person's nutritional condition is influenced by how they use the nutrients consumed through their activities.[3] Infectious diseases, consumption patterns, and physical activity are direct components that affect Nutritional status in adolescents, while nutritional knowledge, food availability, socio-economic, environmental, lifestyle, health services, and environmental sanitation are indirect factors [4]

Based on Basic Health Research in Indonesia, the prevalence of obesity (BMI/Age ≥ 2SD) in adolescents aged 16 to 18 years jumped to 9.5% fat, 4% for obesity. Data from Basic Health Research East Java (2018) proves that the prevalence of more nutrition at the age of 16 to 18 years reaches 11.32%. Meanwhile, the prevalence of more nutrition in Surabaya City in the adolescent group aged 16-18 years reached 14.46%.[5]

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Nutrition is more common in big cities because of the impact of modernization such as changes in traditional lifestyle to sedentary lifestyle. In the phase of children and adolescents today more often spend time with light activities, such as busy with cellphones or gadgets, playing video games and watching television to sitting for hours.[6] The busyness experienced by teenagers outside the home, encourages more eating outside behavior One of the reasons, namely because of the dense activity. [7] Fast food is any kind of food that can be consumed in a fast and short time, although it has low nutritional value.[8]

According to a preliminary study conducted on 61 students of DR. Soetomo Surabaya City amounted to 63.93% classified as overweight, 4.92% classified as level I obesity, 16.39% classified as malnourished, and 14.75% classified as normal. This is due to the strategic location of the school because of the many cafes and *restaurants* around the school area that sell fast food foods such as Kentucky and many kinds of snacks to heavy foods sold in the school cafeteria such as chicken noodles, meatballs, fried rice, etc.

Based on these data, Nutritional status, especially nutrition, is still a common nutritional problem for adolescents, due to the wrong pattern of fast-food consumption and very light physical activity, so this study has the aim of analyzing the relationship between fast food consumption patterns and physical activity with Nutritional status in grade XI adolescents at SMA Dr. Soetomo Surabaya City.

MATERIALS AND METHODS

This study used an analytical observational type. The research was held at Dr.Soetomo High School in Surabaya City, namely October 2022 – June 2023. The study population was taken from all students and class XI students at SMA Dr. Soetomo Surabaya city with a total of 152 students. A sample of 60 people was taken using simple random sampling.

Data collection techniques in this study consisted of respondents' identities, fast food diet interviews using FFQ, Physical Activity Level (PAL) physical activity questionnaires, anthropometric measurements were part of the primary data. Meanwhile, the number of students and the list of names are secondary data parts. Furthermore, it will be processed using Spearman's rho test.

RESULTS

The results of the study include age, gender and class characteristics, fast food consumption patterns, physical activity and Nutritional status including:

Table 1. Frequency Distribution of Respondents by Adolescent Age in Grade XI of SMA Dr. Soetomo, Surabaya city

Age (years)	Number	
	n	%
16	26	43.3
17	32	53.3
18	2	3.3
Total	**60**	**100**

Source: Primary Data, 2022

The data proved that the majority of respondents were 17 years old, as many as 32 students and female students (53.3%).

Table 2. Frequency Distribution of Responden by Gender of Adolescents in Grade XI of SMA Dr. Soetomo, Surabaya city

Gender	Number	
	n	%
Male	30	50
Female	30	50
Total	**60**	**100**

Source: Primary Data, 2022

The data proves that the number of respondents by gender has no difference, namely as many as 30 students and female students (50%).

Table 3. Frequency Distribution of Respondents by Class of Adolescents in Grade XI of SMA Dr. Soetomo, Surabaya city

Class	Number	
	n	%
Science 1	13	21.7
Science 2	10	16.7
Science 3	10	16.7
Social 1	11	18.3
Social 2	16	26.7
Total	**60**	**100**

Source: Primary Data, 2022

The data proves that most of the respondents came from social studies class 2, namely as many as 16 students and female students (26.7%).

Table 4. Frequency Distribution of Respondents by Fast Food Consumption Type of Adolescents in Grade XI of SMA Dr. Soetomo, Surabaya City

Fast Food Consumption Type	Number	
	n	%
Few	19	31.7
Many	41	68.3
Total	**60**	**100**

Source: Primary Data, 2022

The data proves that the majority of respondents who consume fast food types in many classifications are 41 students and female students (68.3%).

Tabel 5 Frequency Distribution of Respondents by Frequency of Fast Food Consumption among Grade XI Adolescents at SMA Dr. Soetomo, Surabaya City

Fast Food Consumtion Frequency	Number	
	n	%
Rarely	11	18.3
Often	49	81.7
Total	**60**	**100**

Source: Primary Data, 2022

The data proves that the majority of students who consume fast food often are 49 people (81.7%).

Table 6. Frequency Distribution of Respondents by Fast Food Consumption Pattern among Grade XI Adolescents at SMA Dr. Soetomo, Surabaya City

Eating Pattern	Number	
	n	%
Good	9	15
Not Good	51	85
Total	**60**	**100**

Source: Primary Data, 2022

The data indicates that the majority of students with poor consumption patterns are 51 individuals (85%).

Table 7. Frequency Distribution of Respondents by Physical Activity among Grade XI Adolescents at SMA Dr. Soetomo, Surabaya City

Physical Activity	Number	
	n	%
Very Light	27	45
Light	14	23.3
Moderate	9	15
Heavy	6	10
Very Heavy	4	6.7
Total	**60**	**100**

Source: Primary Data, 2022

The data proves that most students with very light activities are 27 people (45%).

Table 8. Frequency Distribution of Respondents by Nutritional status of Grade XI Adolescents at SMA Dr. Soetomo, Surabaya City

Nutritional status	Total	
	n	%
Malnutrition	1	1.7
Underweight	3	5
Normal/Good	14	23.3
Overweight	34	56.7
Obesity	8	13.3
Total	**60**	**100**

Source: Primary Data, 2022

The data proved that the number of students based on Nutritional status was the highest frequency, namely overweight Nutritional status of 34 people (56.7%).

Table 9. Cross Tabulation of Fast Food Consumption Pattern with Nutritional status of Grade XI Adolescents at SMA Dr. Soetomo, Surabaya City

Eating pattern	Nutritional status										Total		Sig.(2-tailed)
	Malnutrition		Underweight		Normal/Good		Overweight		Obesity		n	%	
	n	%	n	%	n	%	n	%	n	%			
Good	1	11.1	2	22.2	6	66.7	0	0	0	0	9	100	0,000
Not Good	0	0	1	2	8	15.7	34	66.7	8	15.7	51	100	
Total	**1**	**1.7**	**3**	**5**	**14**	**23.3**	**34**	**56.7**	**8**	**13.3**	**60**	**100**	

Source: Primary Data, 2022

The data proved that from 60 students and female students, there was a fast food diet in the category of poor and overweight as many as 34 people (66.7%), obese 8 people (15.7%). While the fast-food diet with a good category and has a good Nutritional status of 6 people (66.7%), and malnutrition of 2 people (22.2%).

Spearman's test shows significance that ρ= 0.000 (ρ- value< 0.05) which means there is a correlation between fast food consumption patterns and Nutritional status.

Table 10. Cross Tabulation of Physical Activity with Nutritional Status of Grade XI Adolescents at SMA Dr. Soetomo, Surabaya City

Physical Activity	Nutritional status										Total		Sig.(2-tailed)
	Malnutrition		Underweight		Gizi Baik/Normal		Gizi Lebih/Overweight		Obesitas		n	%	
	n	%	n	%	n	%	n	%	n	%			

												0.042
Very light	1	3.7	1	3.7	2	7.4	19	70.4	4	14.8	27	100
Light	0	0	0	0	5	35.7	6	42.9	3	21.4	14	100
Moderate	0	0	0	0	4	44.4	5	55.6	0	0	9	100
Heavy	0	0	2	33.3	1	16.7	3	50	0	0	6	100
Very Heavy	0	0	0	0	2	50	1	25	1	25	4	100
Total	**1**	**1.7**	**3**	**5**	**14**	**23.3**	**34**	**56.7**	**8**	**13.3**	**60**	**100**

Source: Primary Data, 2022

The data proved that 60 students and female students, in the physical activity category was very light and had overweight Nutritional status of 19 people (70.4%), and obesity as many as 4 people (14.8%). Physical activity category is very heavy and has good / normal Nutritional status of 2 people (50%), overweight of 1 person (25%), obese of 1 person (25%).

Spearman's test showed significance $\rho= 0.042$ (ρ- value< 0.05) which showed a correlation of physical activity with Nutritional status in grade XI students of SMA Dr. Soetomo Surabaya City.

DISCUSSION

1. Characteristics Responden

Based on the findings of research conducted at SMA Dr.Soetomo Kota Surabaya, respondents were mostly 17 years old amounting to 32 people with a percentage of 53.3%. The gender of respondents in this study had the same number, namely women and men as many as 30 people (50%). According to the results of the study, the majority of respondents want to have an ideal body to appear more confident. However, not a few of them have fast eating habits where they eat with a state of not hunger, just because they are stressed or anxious.

This is in line with the findings of Kurniawati and Suarya (2019), adolescents who cannot achieve the desired ideal body shape and weight will experience anxiety, and excessive anxiety will result in difficulties when doing physical activity, which can also have an impact on wrong attitudes related to diet.[9]

1. Fast Food Consumption Patterns

a. Types of Fast Food

In a research study that has been carried out by filling out the FFQ questionnaire, it was obtained the type of ready-to-eat food consumed by Shiva and female students in the last 1 week, namely in the category of many related to consuming fast-food types of 41 respondents with a percentage of 68.3%. Based on the results of the interview, it also shows that most class XI students more often consume various types of fast food due to several reasons such as advertising promos on social media that are very tempting at prices according to students' pockets and urgent situations when hungry so that respondents choose to consume these foods.

This type of food eventually causes a national problem, namely an increase in the number of people who are obese.[10] This has an effect on sharing the accompanying diseases, such as hypertension, heart, diabetes mellitus.[11]

b. Fast Food Frequency

Based on the findings of research that has been carried out by filling out the FFQ questionnaire, it was found that the frequency of fast food consumed in the last 1 week was respondents who had a frequency with frequent categories of 51 people, with a percentage of 85%, and rarely consumed fast food of 9 people, with a percentage of 15%. The results of the interview explained that some respondents make fast food restaurants a place to gather with their peers, because restaurants are relaxed, comfortable, attractive places and added the availability of free internet is their attraction. Thus, causing frequent frequency in consuming fast food.

According to research by Imtihani and Noer (2018), the frequency of fast food consumption affects the adequacy of energy, protein, fat compared to the amount of nutrients needed. [12] If a person often consumes fast food, negative impacts such as weight gain can appear. [13]

Based on data from the accumulation of types and frequency of ready-to-eat foods, obtained on the consumption patterns of fast-food respondents, namely as many as 51 people with a percentage of 85% included in the category of not good for the pattern of food consumption, and as many as 9 people with a percentage of 15% have a pattern of fast-food consumption with a good category. As a result, fast food has become a popular choice among the public because of its speed. [14]

1. Physical activity

According to the findings of the research conducted, it has been found that respondents who have a very light activity level of 27 people with a percentage of 45%, light activity of 14 people with a percentage of 23.3%, moderate activity of 9 people (15%), heavy activity of 6 people (10%), very heavy activity of 4 people (6.7%).

This study is in line with the study researched by Oktaviani (2019), which aims to identify physical activity that can reduce the risk of obesity. [15] Children aged 16-18 years lack activity and consume an unbalanced diet that causes fat accumulation, which changes BMI.[16] In their growing years, teenagers crave physical activity because it provides many long-term benefits and helps keep their bodies healthy and fit.[17] According to Fadhilah (2020) through physical activity or physical exercise, fat in the body can be burned, so that excess calories can be reduced.[18]

2. Nutritional status

The results of this study showed that from 60 respondents of class XI students, 34 people were found to be overweight with a percentage of 56.7%, good / normal nutrition as many as 14 people (23.3%), obesity as many as 8 people (13.3%), malnutrition as many as 3 people (5%), and

malnutrition as many as 1 person (1.7%). In this case, most of them are influenced by several factors, one of which is spending time sitting back and playing gadgets at home, causing a lack of physical activity. In addition, school activities are dense, so respondents choose foods that do not take long in serving to consume.

According to Indarjo (2021), Nutritional status is a condition determined by the level of physical activity based on energy and nutritional adequacy. Each individual who is overweight, making more activity can reduce energy that exceeds the amount of food consumed.[19] This causes an energy deficit and leads to weight loss (Amelia, 2021).[20]

1. The relationship between fast food diet and nutritional status

Based on the findings of the study conducted, it proved that class XI students of SMA Dr. Soetomo related to fast food consumption patterns were not good and had overweight Nutritional status as many as 34 people with a percentage of 66.7%. The good category in fast food consumption patterns and good / normal Nutritional status as many as 6 people with a percentage of 66.7%. The results of spearman rho's test obtained significant results of 0.000 (pvalue < 0.05), showing a correlation between fast food consumption patterns and Nutritional status in grade XI students of SMA Dr. Soetomo Surabaya City. Based on the findings made, it shows an inappropriate attitude in respondents in determining the type of food and dietary arrangements that are still not right for them.

According to Widyastuti and Sodik (2018), fast food is very popular among the public because of its ease and practicality in preparation and consumption.[22] According to the research journal Handari et al., (2021), which found a relationship between *fastfood consumption patterns* and Nutritional status at SMA Lab School Kebayoranbaru Jakarta Selataan 2021.[23] Based on findings conducted by Hatta (2019) also concluded that the type of fast food consumed has an influence on Nutritional status.[24]

In the opinion of researchers, respondents with poor consumption patterns and experiencing Nutritional status are more influenced by the type and amount of frequency of these foods. So that the more types of fast food consumed the increased risk of experiencing nutritional problems, one of which is overweight and obesity. In grade XI students of SMA Dr. Soetomo, as many as 15.7% have normal Nutritional status but have poor fast food consumption patterns, it is likely due to respondents matching them with moderate or sufficient physical activity.

1. Relationship of physical activity with nutritional status

Based on the findings made that grade XI students of SMA Dr. Soetomo with very light physical activity category and overweight Nutritional status and as much as (70.4%), Nutritional status obesity (14.8%). While physical activity is very heavy on normal Nutritional status (50%). The results of spearman rho's test obtained significant results of 0.042 (pvalue < 0.05) which showed a

correlation of physical activity with Nutritional status in grade XI students of SMA Dr. Soetomo Surabaya City.

Based on the findings made, respondents who had very light physical activity and experienced more Nutritional status because most respondents mentioned that they only lay down and play gadgets. As for respondents who have strenuous activities and normal Nutritional status because most respondents are active in extracurricular activities at school, and when at home they divide their time by cleaning the house. Each individual has different levels of physical activity, depending on lifestyle and other causative factors. [25]

This finding is consistent with Krismawati et al., (2018), stating that there is a significant correlation between variables, namely lack of physical activity with increased calorie hoarding and the incidence of obesity or obesity. The results of the study clouded down the higher an individual in physical activity levels, the more likely to be overweight will be reduced. [16]

CONCLUSION

The results of research on adolescents at SMA Dr.Soetomo Kota Surabaya provide several conclusions, including:

1. In the age characteristics of class XI students of SMA Dr. Soetomo Surabaya City as many as (53.3%) are 17 years old, and the genders of women and men have no difference (50%).
2. In the category of consumption patterns of students and class XI students of SMA Dr. Soetomo Surabaya City as many as (85%) have fast food consumption patterns with poor categories
3. In the physical activity category, students of grade XI SMA Dr. Soetomo Surabaya City as many as (45%) have very light physical activity.
4. In the incidence of more Nutritional status, students and class XI students of SMA Dr. Soetomo Surabaya City as many as (56.7%) have more Nutritional status.
5. There is a relationship or correlation between fast food consumption patterns and the Nutritional status of grade XI students of SMA Dr. Soetomo Surabaya City
6. There is a relationship or correlation between physical activity and the Nutritional status of students and class XI students of SMA Dr. Soetomo Surabaya City.

SUGGESTION

In relation to this study, the authors can suggest among others:

1. It is expected that class XI students of SMA Dr. Soetomo Surabaya City to limit the consumption of fast food, in addition to the physical activity factor can be increased as a prevention of *overweight* and obesity.

2. It is hoped that educational institutions, namely SMA Dr. Soetomo Surabaya City, can develop knowledge to students regarding the importance of healthy and nutritious food by collaborating with local health centers to provide education related to choosing the right type of food. In addition, to change in environmental factors institutions can make canteens healthy and carry out routine activities such as gymnastics and sports together to increase physical activity to reduce and prevent the incidence of overweight and obesity.

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