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The Influence of Nutrition Knowledge and Food Choosing Attitude on Adolescent Eating Behavior in Kediri District

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A B S T R A C T S

Adolescence is a period of transition from children to adults, during this period the food consumed must be considered both in terms of safety and nutrition. Balanced nutrition will determine their health in the future and prevent them from double nutritional problems. This study aims to identify the effect of nutritional knowledge and attitudes toward food choices on adolescent eating behavior. Sampling used purposive sampling with a total sample of 77 people aged 12-21 years. The research design used was observational with a cross sectional approach. The research was conducted in Kediri Regency, East Java through a survey method by distributing questionnaires online via the Google Form. Research data were analyzed using percentages in tabular form and data correlated between variables. The results of the analysis of data by sex showed that 67.53% of adolescents were female and 32.47% were male. The results of the subsequent analysis showed that 50.65% of adolescents had good nutritional knowledge, 64.94% of adolescents had sufficient attitudes to choose food and 61.04% of adolescents had sufficient eating behavior. The results of the correlation test between nutritional knowledge and the attitude of choosing food obtained a significant value of 0.160 which means that there is no significant relationship between the two variables. While the results of the correlation test between nutritional knowledge and eating behavior of adolescents and the attitude of choosing food with eating behavior both obtained a significant value of less than 0.005 which means that there is a significant relationship between the two variables. A multiple correlation value (R) of 0.005 was obtained, meaning that there was an influence between nutritional knowledge and attitudes towards choosing food on eating behavior in adolescents.

A R T I C L E I N F O

1. INTRODUCTION

Food is a basic human need that must be met at any time. Good food is food that has high nutritional value and benefits for the body. To produce food that is beneficial to the body requires good knowledge of the selection of food ingredients and their processing. Consumption of quality food can be realized by paying attention to the nutritional content consumed every day.

Healthy food when it meets a healthy diet that contains balanced nutrients such as carbohydrates, protein, vitamins, minerals. The adoption of this healthy eating pattern is in accordance with the Regulation of the Indonesian Minister of Health no 41 of 2014 concerning balanced nutrition guidelines which are packaged in the "Fill My Plate" campaign. The contents of my plate is a guide in managing a healthy diet consisting of staple foods, side dishes, vegetables and fruit in one dinner plate with portions that are adjusted to the needs of the body. The Contents of My Plate also contains information on a healthy lifestyle, namely sufficient physical activity, maintaining cleanliness by washing hands after doing activities and consuming enough water (Kemenkes, 2019).

Poor diet can cause multiple nutritional problems. Double nutrition is a problem caused by excess nutrition or obesity and undernutrition or underweight. Malnourished sufferers are more susceptible to diseases such as hypertension, heart disease, diabetes and others, while those with less nutrition are prone to anemia, stunting or stunting and others. Fulfillment of balanced nutrition is very necessary at productive ages such as in adolescence, because at this time it requires adequate nutrition to support the growth process.

Teenagers are a good generation as the nation's successor. Adolescence is a period of transition from children to adults. The age range of adolescents starts from the age of 10 to the age of 19 or can be called pre-puberty and puberty (Kemenkes, 2014). According to Desmita in (Mahdadi, 2013) Adolescent growth and development can be divided into four stages, namely pre-adolescence at the age of 10-12 years, early adolescence at the age of 12-15 years, mid-adolescence at the age of 15-18 years and late adolescence at the age of 18-21 years. This research is aimed at adolescents with an age range of 12-21 years in Kediri Regency.

Adolescence is a time when there are changes to the physical, cognitive and psychosocial. This period is a period of transition from childhood to adolescence which is marked by many changes including the growth of muscle mass, body fat tissue and hormonal changes (Dainur, 2003). These changes can affect a person's nutritional needs (Indriati, 2020). In their teens here they are responsible and free in choosing and determining what they want, including in terms of choosing their own food. Important components that influence the selection of healthy foods are nutritional knowledge and attitudes.

Adolescent nutritional knowledge is very influential on food choices (Dainur, 2003). Low nutritional knowledge is a risk factor for nutritional problems and changes in eating habits during adolescence (Dewi, 2013). A teenager will have sufficient nutrition if the food they eat is able to provide the nutrients needed by the body (Dainur, 2003). Knowledge of nutrition includes knowledge related to food and nutrients, sources of nutrients in food, food that is safe for consumption so it does not cause disease and how to process food properly so that the nutrients in food are not lost and how to live healthily (Lestari, 2020). Nutritional knowledge will affect the food intake that enters the body, because nutritional knowledge provides information related to nutrition, food and its relationship to health (Dewi, 2013). The choice of healthy food related to the fulfillment of balanced nutrition and health is influenced by the nutritional knowledge of adolescents (Jayanti & Tentang, 2019). The level

of nutritional knowledge of a teenager will affect attitudes and behavior in choosing food, which determines whether or not it is easy for a person to understand the benefits of the nutritional content of the food consumed (Kanah, 2020). Modern behavioral changes also affect adolescent behavior in choosing foods that tend to be high in calories, high in fat and low in fiber (Dila, 2014). Fulfillment of unbalanced nutrition in adolescents can cause several health problems and changes in nutritional status such as multiple nutritional problems, namely excess nutrition (overweight or obesity) and undernutrition (thin or underweight) (Kemenkes, 2018).

Basic Health Research Data for 2018 (Hermawan, 2021) shows that the number of obesity in adolescents aged ≥ 15 years increased from 26.6% in 2013 (Mirtha *et al.,* 2021) to 31% in 2018. The province with the highest prevalence is North Sulawesi, which is 42%. Based on Riskesdas data for 2018[12]in adolescents aged 16-18 years, the prevalence of obesity in 2013[13]by 7.3 percent (5.7% obese and 1.6% obese) but increased to 13.5% (9.5% obese and 4.0% obese). Whereas the prevalence of wasting in 2013 was 9.4% (1.9% was very thin and 7.5% was thin) and in 2018 it had decreased to 8.3% (1.4% was very thin and 6.7% thin).

Changes in eating habits in adolescents are caused by low nutritional knowledge. The low knowledge and practice of adolescent nutrition is reflected in the behavior in the habit of choosing the wrong food (Aulia, 2021). Teenagers have a significant influence on eating habits, where they begin to interact with more environmental influences and experience the formation of behavior, which makes teenagers more active, eats more outside the home and gets a lot of influence in choosing the food they will eat, teenagers are also more often motivated try new foods, one of which is fast food and junk food (Dainur, 2003). Adolescents who have good nutritional knowledge will prefer food according to their needs (Aulia, 2021).

Based on the background description, the main issues to be examined are the Effect of Nutritional Knowledge and Attitudes on Choosing Food on Adolescent Eating Behavior in Kediri Regency, East Java. This study aims to identify the effect of nutritional knowledge and attitudes toward food choices on adolescent eating behavior.

2. METHODS

The research design used was observational with a cross sectional approach. The number of samples in this study were 77 people aged 12-21 years in Kediri Regency. Retrieval of data using purposive sampling technique or sampling by determining the appropriate characteristics of the research objectives. The research instrument used was an online questionnaire and distributed via Google Form, containing questions and statements that had been tested for reliability. The following is a reliability test table.

Table 1. Reliability test results.

Variable	Reliability Coefficient	Criteria Value	Information
Nutrition Knowledge	0.827	0.70	Reliable
Attitude to Choose Food	0.721	0.70	Reliable
Eating Behavior	0.723	0.70	Reliable

The data collected in this study is nutritional knowledge which is calculated based on Body Mass Index (BMI), attitudes in choosing food, eating behavior, age and gender. Testing the

hypothesis using the chi square test with a confidence level of 95% to determine whether or not there is an influence or not between nutritional knowledge and food-choosing attitudes on eating behavior in adolescents (Aulia, 2021). The data obtained is tabulated in tables according to the type of influencing variable.

3. RESULTS AND DISCUSSION
3.1. Characteristics of respondents

Respondents to this study were teenagers aged 12 to 21 years in Kediri Regency with a total of 77 people. The data obtained is tabulated according to the research variables in the form of pictures and tables.

3.1.1. Description of respondent's gender

Based on the results of the study, data were obtained regarding the gender of respondents aged 12-21 years. It can be seen the number of respondents by gender in the following table.

Table 2. Description of respondent's gender.

Gender	Frequency	Percentage (%)
Man	25	32.47 %
Woman	52	67.53 %
Amount	77	100

Table 2 depicts the sex of the respondents, it was found that the sex of the most respondents was women, namely 52 people (67.53%) while the least were men, namely 25 people (32.47%).

3.1.2. Description of respondent's age

Based on the results of the study, data were obtained regarding the age of the respondents aged 12-21 years. It can be seen the number of respondents by age in the following table.

Table 3. Description of respondents age.

Age Category	Frequency	Percentage (%)
12 - 15 years	3	3.90
16 - 18 years	44	57,14
19 - 21 years	30	38.96
Amount	77	100

Table 3 depicts the age of the respondents. It was found that the most age group of respondents was at the age of 16-18 years, namely 44 people (57.14%), while the least were at the age of 12-15 years, namely 3 people (3.90%).

3.1.3. Description of respondent's nutrition knowledge

Nutritional knowledge was measured by assessing the subject's answers to a questionnaire containing questions about nutritional knowledge. The results of measuring nutritional knowledge are presented in the following table.

Table4. Description of respondents' nutrition knowledge.

Category	Frequency	Percentage (%)
Not enough	14	18,18
Enough	24	31,17
Good	39	50.65
Amount	77	100

Based on table 4, it shows that the level of knowledge of adolescent nutrition in Kediri Regency is in the good category, this is evidenced by the percentage value higher than the other categories, namely 50.65%, then the percentage value in the sufficient category is 31.17%, for the less category value by 18.18%. This shows that the average knowledge of nutrition in adolescents is dominated by the good category. The results showed that there were still a small number of adolescents who had good knowledge of nutrition.

3.1.4. Description of respondent's food choice attitudes

The percentage of food-choosing attitudes in adolescents in Kediri Regency based on the value of food-choosing attitudes resulting from calculations based on the rubric can be seen in the following table.

Table 5. Description of respondents' food choice attitudes.

Category	Frequency	Percentage (%)
Not enough	2	2.60
Enough	50	64,94
Good	25	32,47
Amount	77	100

Based on table 5, it shows that the attitude towards choosing food for teenagers in Kediri Regency is in the sufficient category, this is evidenced by a higher percentage value, compared to other categories, namely 64.94%, then a less percentage value of 2.60%, for the good category of 32.47%. This shows that the average attitude of choosing food in adolescents is dominated by the moderate category. The results of the study show that there are still a small proportion of adolescents who have a good attitude towards choosing food.

3.1.5. Description of respondent's eating behavior

The results of the questionnaire regarding the percentage of eating behavior given to 77 respondents can be seen in the following table.

Table 6. Description of respondents' eating behaviour.

Category	Frequency	Percentage (%)
Not enough	3	3.90
Enough	47	61.04
Good	27	35.06
Amount	77	100

Based on table 5, it shows that the level of adolescent eating behavior in Kediri Regency is in the moderate category, this is evidenced by a higher percentage value, compared to other categories, which is 61.04%, then the percentage value is less than 3.90%, for the category value good at 35.06%. This shows that the average eating behavior of adolescents is dominated by the moderate category. The results of the study show that there are still a small proportion of adolescents who have good eating habits.

3.2. The Relationship Between Nutritional Knowledge and Food Choice Attitudes With Adolescent Eating Behavior
3.2.1. The relationship between knowledge of nutrition with attitudes to choose food

Table 7. The Relationship between knowledge of nutrition with attitudes to choose food.

Attitude	Nutrition Knowledge			Total	Sig.
	Good	Enough	Not enough		
Good	17	21	1	39	
	68.0%	42.0%	50.0%	50.6%	
Enough	6	18	0	24	
	24.0%	36.0%	0.0%	31.2%	
Not enough	2	11	1	14	0.160
	8.0%	22.0%	50.0%	18.2%	
Total	25	50	2	77	
	100.0%	100.0%	100.0%	100.0%	

Table 7 shows that there were 39 respondents with a good attitude towards choosing food, with 17 people being good, 21 people having enough and 1 person lacking knowledge of nutrition. The attitude of choosing food in the sufficient category amounted to 24 people with 6 good people and 18 people enough towards nutritional knowledge. The attitude of choosing food in the less category amounted to 14 people with 2 good people, 11 people having enough and 1 person lacking knowledge of nutrition. The results of the chi square analysis obtained a sig value of 0.160 > 0.05, which means that there is no relationship between nutritional knowledge and attitudes towards adolescent food choices in Kediri Regency. It can be said that nutritional knowledge does not always affect attitudes in choosing food in adolescents.

3.2.2. Relationship between nutritional knowledge and eating behavior

Table 8. Relationship between nutritional knowledge and eating behaviour.

Eating Behavior	Nutrition Knowledge			Total	Sig.
	Good	**Enough**	**Not enough**		
Good	20	19	0	39	
	74.1%	40.4%	0.0%	50.6%	
Enough	7	17	0	24	
	25.9%	36.2%	0.0%	31.2%	0.000
Not enough	0	11	3	14	
	0.0%	23.4%	100.0%	18.2%	
Total	27	47	3	77	
	100.0%	100.0%	100.0%	100.0%	

Table 8 shows that the respondents with good eating behavior were 39 people with 20 good people and 19 people who had sufficient knowledge of nutrition. There were 24 people with good eating behavior in the adequate category, with 7 people having good knowledge and 17 people having sufficient knowledge of nutrition. There were 14 people with poor eating behavior, with 11 people having enough and 3 people lacking knowledge of nutrition. The results of the Chi Square analysis obtained a sig value of 0.000 <0.05, which means that there is a relationship between nutritional knowledge and eating behavior of adolescents in Kediri Regency. This is because knowledge of nutrition can affect eating behavior in adolescents which is an important role of knowledge in the formation of one's eating habits by influencing the way a person chooses the type and amount of food consumed (Prapat *et al.,* 2021).

3.2.3. The relationship between attitudes to choose food with eating behavior

Table 9. The relationship between attitudes to choose food with eating behaviour.

Eating Behavior	Attitude			Total	Sig.
	Good	**Enough**	**Not enough**		
Good	16	9	0	25	
	59.3%	19.1%	0.0%	32.5%	
Enough	11	36	3	50	
	40.7%	76.6%	100.0%	64.9%	0.005
Not enough	0	2	0	2	
	0.0%	4.3%	0.0%	2.6%	
Total	27	47	3	77	
	100.0%	100.0%	100.0%	100.0%	

Table 9 shows that the respondents with good eating behavior were 25 people with 16 good people and 9 people who had enough attitude towards choosing food. There are 50

people with sufficient eating behavior, with 11 good people, 36 people with enough and 3 people with less attitude towards choosing food. Eating behavior is categorized as lacking in the amount of 2 people with 2 people being sufficient for the attitude of choosing food. The results of the Chi Square analysis obtained a sig value of 0.005 <0.05, which means that there is a relationship between the attitude of choosing food and the eating behavior of adolescents in Kediri Regency. According to Neil Niven in (Prapat *et al.,* 2021) said that a person's attitude is an important component in health behavior, then it is assumed that there is a direct relationship between a person's attitude and behavior. A person's positive attitude towards health may not immediately make people's behavior positive, but a negative attitude towards health will almost certainly make a person's behavior negative (Prapat *et al.,* 2021).

3.3. The effect of nutrition knowledge and food choice attitudes on adolescent eating behavior

Table 10. The effect of nutrition knowledge and food choice attitudes on adolescent eating behavior

PG	Attitude	Eating Behavior			Total	Sig.
		Good	**Enough**	**Not enough**		
Good	Good	12	5	0	17	
		60.0%	26.3%	0.0%	43.6%	
	Enough	8	13	0	21	
		40.0%	68.4%	0.0%	53.8%	
	Not enough	0	1	0	1	
		0.0%	5.3%	0.0%	2.6%	
	Total	20	19	0	39	
		100.0%	100.0%	0.0%	100.0%	
Enough	Good	4	2	0	6	
		57.1%	11.8%	0.0%	25.0%	
	Enough	3	15	0	18	
		42.9%	88.2%	0.0%	75.0%	
	Total	7	17	0	24	
		100.0%	100.0%	0.0%	100.0%	0.005
Not enough	Good	0	2	0	2	
		0.0%	18.2%	0.0%	14.3%	
	Enough	0	8	3	11	
		0.0%	72.7%	100.0%	78.6%	
	Not enough	0	1	0	1	
		0.0%	9.1%	0.0%	7.1%	
	Total	0	11	3	14	
		0.0%	100.0%	100.0%	100.0%	
Total	Good	16	9	0	25	
		59.3%	19.1%	0.0%	32.5%	
	Enough	11	36	3	50	
		40.7%	76.6%	100.0%	64.9%	
	Not enough	0	2	0	2	

PG	Attitude	Eating Behavior			Total	Sig.
		Good	Enough	Not enough		
		0.0%	4.3%	0.0%	2.6%	
	Total	27	47	3	77	
		100.0%	100.0%	100.0%	100.0%	

Based on the table above, the results of the multiple linear regression test obtained a multiple correlation value (R) of 0.005 <0.05, which means that there is an influence between nutritional knowledge and attitudes towards eating on adolescent eating behavior. This knowledge of nutrition and the attitude of choosing good food greatly influences eating behavior in adolescents because it has a direct impact on fulfilling balanced nutrition and one's health condition (Dainur, 2003).

Nutritional knowledge possessed by adolescents is a basic provision to fulfill the body's nutrition, but it cannot guarantee that a person has a good diet and is in accordance with balanced nutrition guidelines if it is not based on strong motivation and self-awareness. Adolescents' eating patterns are determined by their attitudes in choosing the foods they consume every day.

Food is needed by humans to carry out daily activities and to support growth. If the food consumed is less than the body's needs, the food reserves contained in the body will be used, and if this continues to occur, it can result in weight loss and a decrease in other nutrients. Lack of nutrients in the body can cause stunted physical growth, decreased body immunity and decreased academic achievement. Fulfillment of good nutrition in adolescents will produce the next generation who are healthy, qualified, productive and able to compete in academic and non-academic potential.

4. CONCLUSION

Based on the results of the research that has been done, it can be concluded as follows: There is no relationship between nutritional knowledge and attitudes towards choosing food in adolescents aged 12-21 years in Kediri Regency. There is a relationship between nutritional knowledge and eating behavior in adolescents aged 12-21 years in Kediri Regency. There is a relationship between the attitude of choosing food and eating behavior in adolescents aged 12-21 years in Kediri Regency. There is an influence between nutritional knowledge and attitudes towards choosing food on eating behavior of adolescents in Kediri Regency.

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