

FACTORS AFFECTING THE CHOICES OF HEALTHY DIET AMONG ADOLESCENTS IN RURAL AREAS

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ABSTRACT

Many adolescents tend to pick unhealthy diets with high amount of sugar, salt and fat, while the number of adolescents who consume vegetables and fruit is relatively low. As adolescents begin to pick their own diets by themselves, there are certain reasons behind each of their preferences in foods. This study was aimed to analyze the factors affecting the choices of healthy diet among adolescents in rural areas. This was quantitative research with analytical and observational research method with a cross sectional design. The data sampling method used in this study was a multistage random sampling method. This research was conducted to 160 respondents with a population of 1,143 from 10 different high schools. The sample size was calculated using the OpenEpi software. The data on factors or reasons behind the choice of healthy diet was taken using the Food Choice Questionnaire (FCQ), while the data on the choices of healthy foods was taken using a structured questionnaire, both of which had been tested for validity and reliability. The collected data were analyzed using the Spearman Rank test. The main reasons that can influence adolescents to pick healthy diets in rural area were for healthiness concerns, the natural contents of the foods, and body weight control (BW) ($p < 0.005$). It is recommended for adolescents to optimize their knowledge and skills in food selection, especially healthy food.

Keywords: rural area, adolescents, food choices, healthy diet.

INTRODUCTION

Adolescence is a stage between childhood and adulthood between the age of 10 to 19 years old. Adolescents experience rapid physical, cognitive and psychosocial growth, which affects their feeling, decision-making and their way of interaction. As each age group is facing different health risk, adolescent are also vulnerable to certain risks. Children aged 10-14 years old are vulnerable to risks related to water, hygiene, and sanitation, while for children aged 15-19 years old, the risks are often associated with unhealthy habits, such as alcohol abuse, poor diet, and minimum amount of physical exercises (World Health Organization, 2021).

The COVID-19 pandemic has affected every line of life, including food consumption patterns. Unfortunately, the changes that occur can lead to both positive and negative eating patterns. Maintaining a balanced diet during a pandemic is crucial to support the body's immune system against viruses, bacteria and disease organisms. Changes in conditions during the COVID-

19 pandemic should require people to adopt a healthier and more diverse diet. Unfortunately, the impact of the COVID-19 pandemic on diet can lead to both positive and negative behavior (Amaliyah et al., 2021; Di Renzo et al., 2020; Mustakim et al., 2021; Tampatty et al., 2020).

Healthy lifestyles need to be applied from the beginning to generate positive impact on the body. Adolescent, consciously or not, may have developed unhealthy lifestyle habits. Inactiveness and low physical exercises, fast food consumption, unhealthy sleep schedule, and overworking are some of the example (Albert et al., 2018). Aside of the daily intake of fruit; vegetable, physical activity, and micronutrient intake in rural area are still relatively low. A research conducted by (Davidson et al., 2018). found that the quality of the density of micronutrient intake such as intake of calcium, iron, vitamin A, and vitamin C in rural area is still low. The low density of micronutrient intake in preschooler can be caused by the high consumption of snacks and other foods that are high in energy, but low in micronutrient quality. The nutritional density of food for rural preschool-

aged children is still relatively low. More than half the respondents are exposed to the risk of high morbidity rate.

Fulfillment of nutritional intake in adolescence shall be taken seriously due to the increasing amount of need for nutrients at this stage to support physical and psychological growth and development. The lifestyle and diet of adolescent are also important aspects to watch because those can affect each persons' percentage of nutritional intake (Hardinsyah & Supariasa, 2016).

Indonesian people are already at very high risk of sugar, salt, and fat consumption (SSF). The combination of these SSF consumptions shows that Indonesia have entered an alert situation, where thirty percent of the population (equivalent to approximately 77 million people) consume more than the recommended intake per day. Policies to reduce the national sugar, salt, and fat intake shall be implemented immediately to anticipate the increase of population with the risk of non-communicable diseases (Atmarita et al., 2016).

The amount of sodium intakes among the population aged over five years old is more than 2000 mg/person/day. This number has exceeded the intake limit set in the Regulation of the Minister of Health No. 30 of 2013. The number of population who consumes sodium for more than 2000 mg per day, or the equivalent of 5 gram of salt, is seen to be highest among the population between 13-18 years old—which are the nation younger generation. This situation need to be taken into concern to prevent rises on the amount of non-communicable diseases in the future (Sri et al., 2016).

Sugary foods with high amount of fat are more popular than healthy foods, such as green vegetables, among children. The accessibility, good taste, low price, or even good marketing strategies, and peer influence are contributing to the popularity of unhealthy junk food among children and adolescent. A study found a high prevalence of junk food consumption (36%) among students in rural area of Himachal Pradesh India. High junk food consumption has been observed among the people from both urban and rural area due to easy accessibility and increased family income. Consumption of junk food in high frequency and in high amount will eventually risk adverse impacts

on the body, one of which is obesity. Additionally, a study stated that urbanization is also found to be connected with increasing body weight among adolescent in Ontario, Canada. That study showed that the percentage of overweight and obese respondents from rural areas was significantly higher than in urban area (Aakriti et al., 2018; Ismailov & Leatherdale, 2010; Jaya et al., 2011).

Choosing a diet plan is generally a complex process that may be influenced by family, mass media and environment. In addition, globalization can erode people preferences for traditional food while providing a wider choice and availability of food, therefore it is also a factor that influences people dietary choices (Aulia & Yuliati, 2018). There is no difference in food choices between adolescent living in rural and urban area, but there are differences in terms of factors that influence healthy food choices.

Nearly 35% of students aged between 9-13 years old in the rural area in Poland consume sweets frequently, while 40% of the students do not consume vegetable and consume fruit at least once a day. Adolescent diet is usually known by low intake of fruit and vegetable with the consumption of foods with high calories and low nutrients. This includes sweet and savory foods, sugary drinks with extra amount of sugar, and also fast foods (Akseer et al., 2017; Keats et al., 2018; Witold et al., 2011).

Picking diet is defined as the degree of preferences in foods which will affect each individual diet. There are several factors that may affect this preference. Previous studies regarding factors that can impact individual diet choices are still showing varied results, thus it is necessary to do more research on factors that affect the selection of healthy diets among adolescents in rural areas. Based on the previous explanation, the researcher tried to analyze factors associated with the choice of these foods. Previous studies explained that lifestyle and characteristics or habits of adolescents who live in urban and rural area of course have a difference. (Setyawati & Setyawati, 2015).

METHODS

This research was conducted in quantitative methods of analytical and observational research

with cross sectional research design. The total population in this study amounted to 1143 people, sample size of this study was calculated using a computer program called OpenEpi, with the following criteria: aged between 14-19 years old, adolescent living in rural area, and willing to be research subject. Based on these criteria, the number of sample in this study was 160 respondents. Each of the research samples had stated their agreement to participate in this study by signing the informed consent agreement. This research was conducted from May to June 2021.

The data used in this study were obtained from two sources: the first was the primary data, which were obtained directly from the food choice questionnaires and healthy food selection questionnaire filled out by the respondents. The questionnaire contained lists of questions on factors affecting healthy diets and on healthy food selection. The second was secondary data, which were obtained from existing sources, which in the form of the total number of students whom were used as research sample and obtained from the Central Statistics Agency.

The sampling method used in this study was a multistage random sampling method, which was conducted on regional level. The first stage was to determine which sub-districts were considered and met the criteria as rural area. Tulang Bawang is one of the regencies in Lampung with 15 sub-districts, and 12 of which are rural area. Fifty percent of the 12 rural areas were picked as the determined sampling area. The selection of the 6 districts was conducted randomly via Microsoft excel. The selected sub-districts are: Gedung Aji, Meraksa Aji, Penawar Aji, Rawa Pitu, Penawar Tama, and Gedung Aji Baru sub-districts. The second step was to determine the schools that would be used as research locations. From the selected 6 sub-districts, there were 21 high schools/ equivalent schools registered. We picked 50% of that amount randomly, which would be used as the research locations. The school selection was done by random sampling using Microsoft Excel with the rand between formulas.

Data on reasons or aspects affecting individual choice of diet were obtained from the FCQ (Food Choice Questionnaire) questionnaire. There were 36 questions representing nine

major aspects affecting choices of diet, including health condition, emotion, convenience, sensory appeal towards food, food natural content, food price range, weight control, familiarity towards certain flavours or foods, and ethical values. This questionnaire was developed by Steptoe et al., 1995, to identify the major aspect taken by a person in picking their diet by adding up the scores on each answer according to categories. The three most picked aspects would be considered as the most impactful aspects affecting the respondents in picking their diet.

The second questionnaire was the healthy diet selection questionnaire. As what has been described above, the selection of healthy diet is a process of determining which nutritious, healthy, and safe food should consumed by a person. This questionnaire was carried out by referring to the Balanced Nutrition Guidelines, published by the Ministry of Health of the Republic of Indonesia in 2014. Respondents were asked to express their opinion whether they: strongly disagree (STS), disagree (TS), undecided (RG), agree (S), or strongly agree (ST) against the statements in the questionnaire. Both questionnaires had been tested for validity and reliability with a sample of 30 respondents.

The data were analysed using the Spearman Rank test, since the particular data were not normally-distributed data. This research had obtained ethical approval from the Health Research Ethical Commission. (KEPK) Sebelas Maret University Number 30/UN27.06.6.1/KEP/EC/2021.

RESULT AND DISCUSSION

Respondents Characteristics

Half of the respondents, approximately 55% of the total respondents, participating in this study are high school students from the older adolescence age group. Seventy-five percent of the research subjects are female. Forty nine percent of the subjects have pocket money less than Rp. 10,000 a day. While the average amount of pocket money is Rp. 5,000 a day. Characteristics of respondents can be seen thoroughly on Table 1.

Table 1. Characteristics of The Respondents (n=160)

Variable	n	%
Age Group (Age)		
Younger Adolescence (11-13)	-	
Middle Adolescence (14-16)	72	45%
Older Adolescence (17-20)	88	55%
Gender		
Female	121	76%
Male	39	24%
Pocket Money (in Rupiah)		
Low (< 10.000)	78	49%
Average (10.000-15.000)	74	46%
High (>15.000)	8	5%

Source: primary data (2021).

Factors Affecting Adolescent Choice of Healthy Diet

The analysis in this study was conducted using the Spearman Rank test, which aimed to see the correlation between two variables. The variables used in this research are: health aspects, emotional conditions, convenience, sensory appeal towards certain foods, food's natural content, price range of foods, body weight control, familiarity, and ethical values. The dependent variable in the research is the adolescent choices of healthy diet.

Identifying factors that influence healthy food choices can be done by looking at the reasons or motives of respondents in choosing healthy foods using the FCQ (Food Choice Questionnaire). Based on the results obtained, the main factors of respondents in determining the choice of food

were health (4.49 ± 0.79), natural content (4.34 ± 0.97), and weight control (4.14 ± 0.94). The results of this study were in accordance with the research of Puspawati & Briawan, (2015), which states that health is one of the factors that influence the choice of healthy food, where the main reason for choosing food is the natural content in food (score 6.25 ± 0.69), and health (score 6.15 ± 0.68).

The statistic result showed that there was a correlation between factors of health concerns, body weight control, and food's natural contents behind healthy diets among adolescents in rural areas ($p < 0.005$). This showed that respondents prioritize health as the main reason in determining the food to be consumed. This can be concluded that adolescent understand that consuming unhealthy foods can affect their health.

Based on the results of the study, most of the respondents were female. Usually the choice of eating between men and women is different. A person's gender can affect their preference of food. A research conducted by Choiriyah et al., (2019), states that there was a relationship between diet and gender, because gender is a factor that can differentiate pattern of food consumption among children. Male adolescent generally have a pattern of eating more food than female adolescent. In addition, the preference of food between men and women tend to be different as well. Men tend to enjoy more unhealthy foods such as foods with high amount of fat, carbohydrate, protein, sugar, and alcohol; while women prefer much healthier

Table 2. The Relation between Affecting Factors and Adolescent's Choice of Healthy Diets

Affecting Factors	Choice of Healthy Diets		
	Mean \pm SD	Correlation Coefficiency (ρ)	p
Health Factor	4.49 ± 0.79	0.353	0.000**
Food's Natural Content	4.34 ± 0.97	0.293	0.000**
Body Weight Control	4.14 ± 0.94	0.318	0.000**
Price Range	4.10 ± 0.98	0.041	0.610
Convenience	4.00 ± 0.99	0.043	0.586
Emotional Condition	3.96 ± 1.11	0.107	0.178
Sensory Appeals	3.87 ± 1.11	0.033	0.679
Familiarity	3.68 ± 1.06	0.000	0.999
Ethical Values	3.23 ± 1.26	0.045	0.573

Source: primary data (2021).

**correlation is significant at the 0,01 level (2-tailed)

choice of foods such as fruit, vegetable and low-fat product (Barrie et al., 2015).

Pocket money is the amount of money given from the parents to their children as part of the allocation of family income to the children which can be used for snacks or other purposes preferred by the student (Zainuddin et al., 2018). Most of the respondents have less than Rp. 10,000 per day. The amount of pocket money given to the students can affect student's choice of diet. A research conducted by Widyoningsih et al, (2016) stated that the students with lesser amount of pocket money had 18 times bigger chance to choose healthy snacks compared to students with higher amount of pocket money.

A province consisted of an urban area and a rural area. Adolescents who live in these two regions certainly have different sets of characters. Research conducted by Anggraeni et al, (2020), showed that there was a difference in the frequency of consumption of packaged snacks containing MSG in urban and sub-urban youth. Percentage of sub-urban youth with consumption frequency of 7 times per week was 34.0% higher than urban youth, which was 27.7%. Research conducted by Setyawati & Setyowati (2015) showed that both adolescent in rural and urban area did not have unhealthy eating behavior according to the general message of balanced nutrition. Not good eating behavior that many adolescents often do include: not having breakfast, the tendency for eating snacks, confectionery and soft drinks. In addition, research conducted by Wesley & Joseph, (2011) found that adults from rural areas had lower amount of fruit and vegetable intake than the people in urban area.

The result from the questionnaires in this study showed that there were three main factors affecting adolescent in choosing healthy foods. Those factors are: health factors, food's natural contents, and body weight control. Respondents majorly picked health factors as the reason for them to choose healthy foods. The health factors in question are foods that are high in fiber, nutritious foods, foods with good amounts of vitamin and mineral, foods that are high in protein, as well as foods that are good for their health, and their body. This result showed that the nutritional knowledge of respondents who live in rural area are relatively

good. The more familiar a person is to facts and information regarding food's nutritional content, the higher chance for them to pick healthier choice of foods, and vice versa. The more a person understands about the nutritional information on foods, the higher chance for them to watch out the foods they consume. A person's level of nutritional knowledge affects their attitude and behavior in picking their diet (Setyawati & Setyowati, 2015; Syafira, 2015).

In 2017, a study stated that the people's awareness on the importance of a healthy lifestyle had increased, where health became one of the top three most important factors behind the people's food preferences after the factors of taste and price (Ho & Song, 2017). In the last two decades, there have been significant changes in the people's food selection and consumption (Küster & Vila, 2017).

Accessibility of information makes it easy for teenager to get the information they want. In this context, the information regarding nutritional aspects of foods. The rapid technological advancement has changed the lives of people in all regions. The increasingly sophisticated technology offers various conveniences and choices of lifestyle that sometimes may even substitute the old and traditional ways. Human nowadays depend on TV, radio, newspaper, internet, and other mass communication media as the source of information. Every adolescent, both in rural and urban area, has easy access to information through social media. Social media is a vehicle for communication or exchange of information in the community. Social media, in some ways, also demands physical involvement of the individual in the communication process. Social media provides easy access of face-to-face communication in the form of interpersonal communication and collective communication. Social media is described as cheap, easy, promoting equal access to information, culturally-appropriate, legitimate, entertaining, and trusted by the rural communities. Various kinds of social media are increasing every year with different advantages and disadvantages (Setyawati & Setyowati, 2015).

The respondents also picked food's natural content factor as the second main factors they consider in picking their foods. The natural content in question may include the consideration of

whether the food contains additive substances or not, whether the food contains any natural ingredients or not, and whether the food contains any artificial chemicals or not. This illustrates that the overall respondents were already informed that foods with artificial chemicals are not good for their health. This is what makes foods' natural ingredients as one of the main reasons of the respondents in considering and choosing their food. Diseases that might be caused by the long-term consumption of artificial food ingredients include cancer, kidney damage, and many others. It is stated in the Regulation of the Minister of Health of the Republic of Indonesia Number 033 of 2012 concerning Food Additives. The use of *rhodamine B* may cause respiratory tract irritation and is a carcinogenic substance which may cause cancer (Deny, 2015).

The next main reason considered by the respondents before choosing their diets was the effort in keeping their body weight within a healthy number. The aspect of weight control in question was the respondents' consideration whether the food is low in calories, low in fat, and is good for body weight control or not. Body weight control is closely related to the public perception of body shapes. Many adolescent idolizing public idols with good body shape, which contributed in creating the ambition among adolescents to get that particular body type. One helpful way to shape the body is by watching the amount of the daily calories intake, limiting the consumption of certain types of food, or planning healthy diets. However, adolescents with positive body image tend to not set any particular limits to their food consumption (Asnudin & Sanjaya, 2018).

In addition to the three factors above, there were several other factors affecting adolescents in choosing healthy diets, such as emotional condition, convenience, sensory appeal, price range, familiarity and ethical values. The 4th major factor considered by the respondents in choosing a healthy diet is the price of food. The respondents generally (4.10 ± 0.98) consider the importance of price in picking their foods. Respondents prefer the cheaper and more affordable option for their foods. Of the 160 respondents, 78 respondents have less than Rp. 10.000, pocket money, which was a relatively low amount. Consequently, respondents

were bound to consider the cheaper options for their choice of food. According to research done by Pamela, (2018), price and taste are some of the main factors that can trigger the consumption of unhealthy foods in adolescent, for example: fast foods.

The 5th priority is convenience. The average of respondents (4.00 ± 0.99) considered convenience as one of the important things in choosing healthy food. Convenience means that the food is easy to prepare, and easy to find in shop/market nearby. The availability of food nearby their houses is one of the most influential factors towards the frequency of eating and the quality of the diet (Febrina et al., 2020).

In the aspect of mood or emotional conditions, the average value was 3.96 ± 1.11 , this showed that respondents do not consider the emotional condition too much in choosing healthy foods. Emotional aspect was ranked at the 6th factor. The mood aspect in this study was measured in terms of whether they pick a food because it helps cheering them up, easing their stress, keeping them awake, helping the body relax, or feeling better. Some people consume certain foods to relieve stress or help the body to relax. A research conducted by Claresta & Purwoko, (2017) stated that there was a decrease on the anxiety level of a group of college students before tests who consume chocolate and an increase on the anxiety levels of the group who do not.

The 7th affecting factor was sensory appeal. The sensory appeal aspect in this study consisted of the condition of foods that is appealing to the human's senses, such as: good tastes, nice smell, pleasant texture, and nice plating. The average of the (3.87 ± 1.11) respondents did not pick sensory appeal as the top affecting factors behind adolescent's choice of healthy food. A study showed that most adolescents in Padang consider the taste, color, portion, aroma, texture, and price of the food before they pick their foods (Azrimaidaliza & Purnakarya, 2011).

The next factor affecting choice of healthy food among adolescents is familiarity. This aspect might include foods consumed in childhood, familiar foods, and foods that are consumed daily. This factor is on the 8th priority for respondents in choosing the healthy diets with an average value of 3.68 ± 1.06 .

The last factor affecting choice of healthy food was ethical values. Ethical values behind a person's choice of foods might include: preference towards foods with environmental-friendly packaging, foods from a certain country, or foods with clear information regarding the source. The aspect of ethical values is not a major aspect behind the respondent's choice of healthy food. It is placed within the lowest average value of 3.23 ± 1.26 . Ethical values are the last reason for choosing their meal. This is because ethical values are factors that are not considered important by respondents. As research conducted by Markovina et al., (2015), showed the result that ethical values were consistently ranked as the least important in nine countries, namely Germany, Greece, Ireland, Poland, Portugal, Spain, the Netherlands, the UK, and Norway.

CONCLUSION

Based on the analysis, it can be concluded that among the nine possible aspects which affect a person's choice of healthy diets, there were three major aspects used by adolescents in rural area in picking their healthy diets. These aspects include health factors, food's natural content, and weight control. There was a correlation found between the aspects of health, food's natural content, and weight control behind the healthy diet choices among adolescents in rural areas ($p < 0.005$). Food selection in adolescents was quite good. It is recommended for adolescents to optimize their knowledge and skills in food selection, especially healthy food.

ACKNOWLEDGEMENT

The authors would like to express our gratitude towards all parties who have contributed to this research, including the lecturers and all school principals who have allowed the author to conduct the research in the particular school, which are: SMKN 01 Gedung Aji, SMAN 01 Gedung Aji, MAS Al Fadlu, SMAN 01 Meraksa Aji, SMAN 01 Rawa Pitu, SMAN 01 Penawar Aji, MAS Nurul Iman, SMKS Kosgoro, SMKN 01 Penawar Tama, and SMAN 01 Gedung Aji Baru.

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