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OVERVIEW OF NUTRITION INTAKE OF RURAL AND URBAN ADOLESCENTS

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ABSTRACT

Background: Growth in adolescence requires high nutrition for growth. Lack of fulfillment of nutritional needs during the transition from childhood to adulthood can result in delayed sexual maturation and growth retardation. In childhood, the nutritional needs of boys and girls are relatively the same, but during adolescence, there are specific biological and physiological changes according to gender. **Methods**: This study uses descriptive analysis with a cross-sectional approach, sampling technique with purposive sampling, and a sample of 100 respondents**. Results**: The carbohydrate intake pattern of rural (94%) and urban (62%) adolescents came from rice. The protein consumed most often by rural (50%) and urban (40%) adolescents were tempe or tofu. The most frequently consumed source of fat was vegetable oil (52%) in rural adolescents while in urban adolescents it was milk and cheese (18%). The snacks most often consumed by rural youth (36%) and urban (16%) are fried foods. Meanwhile, vegetables are the most consumed source of fiber by rural (70%) and urban (36%). Consumption patterns with balanced nutrition are very important for adolescents in their growth period to produce optimal future generations for the Indonesian nation. **Conclusion:** The overview of the nutritional fulfillment of urban and rural adolescents is different, however, almost all respondents have the same source of carbohydrate intake from rice.

Keywords: Youth, Nutritional Intake, Rural, Urban

INTRODUCTION

Adolescence is a period of transition from children to adults. Growth in adolescence requires high nutrition so that maximum growth potential is achieved, this is because growth and nutrition are an integral relationship. Lack of fulfillment of nutritional needs during the transition from childhood to adulthood can result in delayed sexual maturation and growth retardation. In childhood, the nutritional needs of boys and girls are relatively the same, but during adolescence, there are specific biological and physiological changes according to gender. This change causes nutrient needs to be different, for example, adolescent girls need more iron because they have menstruation every month.

Currently, Indonesia is still faced with a double burden of nutritional problems, namely

the high prevalence of stunting, wasting, and obesity as well as micronutrient deficiencies, especially anemia which is still a big challenge in Indonesia today. Multiple nutritional problems and the prevalence of obesity in adolescents do not occur in urban areas (7.8%), but also in rural areas (2%) (Dwiningsih and Pramono, 2013). The main nutritional problems in adolescents are the occurrence of micronutrient deficiencies, especially anemia or iron deficiency, as well as malnutrition problems, both undernutrition, and short stature, and overweight to obesity with comorbidities often related to wrong eating behavior.

Based on the 2018 Riskesdas data, the prevalence of anemia in adolescents is 32%, meaning that 3-4 out of 10 adolescents experience anemia Badan Litbang Kesehatan, 2018). This is influenced by the habit of nutritional intake that is not optimal and the lack of physical activity. This is a big threat considering its impact on the decline in the quality of human resources in the future. The composition of the largest population in East Java Province is the group aged 15-19 years with a male population of 1,560,158 and a female population of 1,497,411. (Dinkes Jawa Timur, 2018). Nutritional problems that occur in adolescence will increase susceptibility to disease in adulthood and have the risk of giving birth to a generation that has nutritional problems. Nutritional problems that occur since adolescence will affect cognitive development, productivity, performance, and competitiveness at the global level, which can have an impact on the ability to earn a decent living in the futureKementerian Kesehatan RI, 2021).

The proportion of consumption of fruit or vegetables by day a week among adolescents in East Java in the sufficient category (≥5 portions) is only 4.04% for adolescents aged 10-14 years and 4.70% for adolescents aged 15-19 years (Riskesdas Jatim, 2018). Consuming vegetables and fruit is one of the requirements in meeting the nutritional needs of a balanced menu. Lack of eating fruits and vegetables can cause the body to experience nutritional deficiencies such as lack of vitamins, minerals, and fiber so that it can cause various diseases(Sekti and Fayasari, 2019). Based on these data, the authors want to know the pattern of nutritional intake in adolescents in Malang Regency and Malang City.

METHOD

This type of research is a descriptive study using a cross-sectional approach that aims to describe the nutritional intake patterns of adolescents in urban and rural areas. The population of this research is the youth of SMPN 21 Malang City and the youth of Selorejo Village, Dau District, Malang. The research sample was taken using a purposive sampling technique for as many as 100 teenagers. Collecting data using a questionnaire containing questions about the

pattern of nutritional intake. Questionnaires were given via google form for youth at SMPN 21 Malang. As for the youth of Selorejo Village, Malang Regency, the questionnaire was given directly to be filled out using a form. The data obtained were then tabulated and analyzed. The analytical technique used in this study is descriptive analysis to describe the data that has been obtained from distributing questionnaires to adolescents about nutritional intake using a frequency distribution. This study received an ethical test from the Health Research Ethics Commission of the Health Polytechnic of the Ministry of Health Malang Reg. No.207/KEPK-POLKESMA/2021.

RESULTS

Respondents in this study amounted to 100 teenagers with the characteristics that will be shown in table 1.

Table 1. Characteristics of Respondents

Characteristics	Rural *f*(%)	Urban *f*(%)
Gender		
Man	14 (28)	12 (24)
Woman	36 (72)	38 (76)
Respondent Age		
12 years old	1 (2)	2 (4)
13 years old	7 (14)	20 (40)
14 years	6 (12)	22 (44)
15 years	23 (46)	5 (5)
16 years	8 (16)	1 (1)
17 years	5 (10)	0 (0)

Based on table 1 it can be concluded that almost all respondents both in rural (72%) and urban (76%) are women, and the most age in rural areas is 15 years (46%) and in urban areas 14 years (44%).

Table 2. Nutritional Intake Pattern

Food Ingredients	Country Teen				Urban Teen			
	1 x/hr (n, %)	4-6 x/week (n, %)	< 1-3 x/week (n, %)	Never (n, %)	1 x/hr (n, %)	4-6 x/week (n, %)	< 1-3 x/week (n, %)	Never (n, %)
Carbohydrate Source								
Rice	47(94)	3(6)	0(0)	0(0)	31(62)	14(28)	5(10)	0(0)
Cassava	0(0)	1(2)	45(90)	4(8)	7(14)	2(4)	15(30)	26(52)
Sweet potato	0(0)	2(4)	43(86)	5(10)	6(12)	2(4)	12(24)	30(60)
Bread	11(22)	12(24)	26(52)	1(2)	9(18)	14(28)	21(42)	6(12)
Noodles	9(18)	14(28)	26(52)	1(2)	7(14)	8(16)	34(68)	1(2)
Syrup/sweet	10(20)	15(30)	24(48)	1(2)	13(26)	10(20)	24(48)	3(6)

drink								
Protein Source								
Beef	3(6)	8(16)	31(62)	8(16)	7(14)	7(14)	32(64)	4(8)
Chicken meat	6(12)	22(44)	21(42)	1(2)	7(14)	27(54)	16(32)	0(0)
Lamb	0(0)	1(2)	27(54)	22(44)	3(6)	2(4)	13(26)	32(64)
Chicken eggs	18(36)	21(42)	10(20)	1(2)	10(20)	29(58)	10(20)	1(2)
Fresh fish	10(20)	15(30)	21(42)	4(8)	5(10)	15(30)	27(54)	3(6)
Tempe/tofu	25(50)	17(34)	7(14)	1(2)	20(40)	18(36)	11(22)	1(2)
Nuts	10(20)	17(34)	19(38)	4(8)	9(18)	8(19)	24(48)	9(18)
Source of Fat								
Full cream milk	7(14)	9(18)	24(48)	10(20)	9(18)	17(34)	17(34)	7(14)
Vegetable oil	26(52)	5(10)	12(24)	7(14)	7(14)	8(16)	17(34)	18(36)
Innards	3(6)	9(18)	22(44)	16(32)	3(6)	2(4)	16(32)	29(58)
Cheese	8(16)	11(22)	25(50)	6(12)	9(18)	9(18)	25(50)	7(14)
Butter	5(10)	10(20)	29(58)	6(12)	5(10)	13(26)	24(48)	8(16)
Coconut cream	11(22)	15(30)	22(44)	2(4)	3(6)	9(18)	28(56)	10(20)
Prepared Food/Snacks								
Fast food	9(18)	15(30)	20(40)	6(12)	5(10)	8(16)	28(56)	9(18)
Softdrink	8(16)	14(28)	20(40)	8(16)	4(8)	8(16)	24(48)	14(28)
Fried food	18(36)	13(26)	19(38)	0(0)	8(16)	13(26)	26(52)	3(6)
Fiber Source								
Vegetables	35(70)	11(22)	4(8)	0(0)	18(36)	23(46)	8(16)	1(2)
Fruits	19(38)	18(36)	13(26)	0(0)	16(32)	18(36)	15(30)	1(2)

The pattern of daily carbohydrate intake of adolescents originating from rice in rural areas is (94%) and in urban areas (62%). The protein consumed most often by rural youth (50%) and urban (40%) is the same, namely tempeh or tofu. The most frequently consumed source of fat was vegetable oil (52%) in rural adolescents while in urban adolescents it was milk and cheese (18%). The processed foods or snacks that are most often consumed by rural (36%) and urban (16%) adolescents every day are fried foods. Meanwhile, vegetables are the most consumed source of fiber by rural (70%) and urban (36%).

DISCUSSION

The adolescent group is a transitional age group from children to young adolescents to adults. Important conditions that affect the nutritional needs of this group are rapid growth entering the age of puberty, menstruation, and attention to the physical appearance of body image in adolescent girls. Teenagers can be said to be of a consumptive age, so they often eat various types of food without being accompanied by a healthy lifestyle(Andini and Awwalia, 2018). Thus the calculation of the nutritional needs of this group must take into account these conditions. Especially for young women, more attention should be paid to their preparation

before marriage.

Based on the results of the study, it is known that the most frequently consumed carbohydrate source by rural (94%) and urban youth (62%) is rice. Research conducted by Farah et al (2016) found that all adolescents consumed rice as a staple food. Rice is consumed with a frequency of more than 1x every day (Mokoginta et al., 2016). Rice is the staple food of the Indonesian people, East Java is no exception. The staple food is food containing carbohydrates that are often consumed or have been part of the eating culture of various ethnic groups in Indonesia for a long time. Examples of carbohydrate foods are rice, corn, cassava, sweet potatoes, taro, arrowroot, barley, sago, and their processed products. Indonesia is rich in a variety of food sources of these carbohydrates. Besides containing carbohydrates, staple foods usually also contain vitamin B1 (thiamine), B2 (riboflavin), and several minerals. Minerals from these staple foods usually have low biological quality or absorption by the body. Whole grains such as corn, brown rice, black rice, or whole grains that are not milled are high in fiber. This fiber is important for smooth bowel movements and controlling blood cholesterol. In addition, these cereals also have carbohydrates that are slowly converted into blood sugar so that they help prevent high blood sugar. Some types of tubers also contain non-nutritive substances that are beneficial for health such as purple sweet potato and yellow sweet potato which contain anthocyanins and others (Menteri Kesehatan Republik Indonesia, 2014).

The results showed that the source of protein consumed most frequently by rural youth (50%) and urban (40%) was the same, namely tempe or tofu, while the protein that was most frequently consumed next was chicken eggs. Research conducted by Dwiningsih and Adrian Pramono showed the same thing, namely, there was no difference between the intake of energy, protein, fat, and carbohydrates between subjects in urban and rural areas (Dwiningsih and Pramono, 2013). Research conducted by Olivia G. Mokolensang, et al (2016) to high school teenagers in Bitung City found that protein sources tend to be chicken eggs, chicken meat, and their processed products, including sausages and nuggets, tofu, and tempe (Mokolensang et al., 2016). Vegetable protein foods have the advantage of containing a higher proportion of unsaturated fat than animal foods. It also contains isoflavones, which are phytochemicals that also function like the hormone estrogen and are antioxidants and anti-cholesterol. Consumption of soybeans and tempeh has been shown to lower cholesterol and increase insulin sensitivity and insulin production. So it can control cholesterol and blood sugar levels. However, the quality of protein and minerals contained in vegetable protein foods is lower than animal protein foods. Animal foods have amino acids that are more

complete and have better nutritional quality, such as protein, vitamins, and minerals because they contain more nutrients and are easily absorbed by the body. But animal foods contain high cholesterol (except fish) and fat. Fats from meat and poultry contain more saturated fat than the body needs, especially in children but needs to be limited in their intake in adults. In realizing Balanced Nutrition, these two food groups (animal and vegetable) need to be consumed together with other food groups every day, so that the amount and quality of the nutrients consumed are more perfect. Animal food needs 2-4 servings and vegetable protein food 2-4 servings a day so that the amount and quality of nutrients consumed are better and perfect. Animal food needs 2-4 servings and vegetable protein food 2-4 servings a day so that the amount and quality of nutrients consumed are better and perfect. Animal food needs 2-4 servings and vegetable protein food 2-4 servings a day (Menteri Kesehatan Republik Indonesia, 2014).

Hemoglobin, the red blood pigment that functions as a carrier of oxygen and carbon dioxide, is a protein bond. Proteins also play a role in the process of transporting substances including iron from the gastrointestinal tract into the blood, from the blood to the tissues, and through cell membranes into cells. So if there is a lack of protein, it will cause interference with the absorption and transportation of nutrients (Almatsier, 2016). Sholicha and Muniroh, (2019) stated that there was a significant relationship between protein intake and hemoglobin levels in adolescent girls. This is the reason why adolescents must meet their protein needs to prevent the incidence of anemia, especially in adolescent girls.

Research data states that the most consumed source of fat by adolescents is vegetable oil (52%) in rural adolescents while in urban adolescents is milk and cheese (18%). The fat contained in food is useful for increasing the amount of energy, helping the absorption of vitamins A, D, E, and K, and adding to the deliciousness of the dish. Consumption of fats and oils in daily meals is recommended no more than 25% of energy needs if consuming excessive fat will result in reduced consumption of other foods (Menteri Kesehatan Republik Indonesia, 2014). This is because fat stays in the digestive system relatively longer than protein and carbohydrates, so fat causes a longer feeling of fullness. According to their fatty acid content, oils are divided into 2 groups, namely the unsaturated fat group and the saturated fat group. Foods that contain unsaturated fats, generally come from plant foods, except coconut oil. While foods that contain saturated fatty acids, generally come from animal foods. In producing hormones, the body needs cholesterol which is a substance found in the body. The body makes cholesterol from nutrients consumed from foods that contain saturated fat, such as egg yolks, fatty meats, and cheese. The fat requirement for children aged 13-15 years

should be 80 grams for boys and 70 grams for girls. (Moeloek, 2019). Wulandari and Mardiyati (2017) said fat intake that exceeds needs in the long term can trigger excessive nutritional problems.

Based on research data, processed foods or snacks that are most often consumed by rural (36%) and urban adolescents (16%) every day are fried foods. Eating fried foods too often can pose several health risks such as cholesterol due to the high oil content. Fried foods sold in Indonesia consist of various preparations mixed with wheat flour such as tempeh and fried tofu, stuffed tofu, bakwan, and fried bananas. The frying process using oil repeatedly can increase the fat and calorie content so that if consumed in excess it will cause high health risks such as increased body mass index and the risk of heart disease. Eating fried foods is something that is commonly consumed every day because fried foods are a type of food that is relatively cheap, tasty, and easy to get both among children, adults, and the elderly. Fried foods are a source of saturated fat, high and excessive intake of trans fatty acids can be at risk of weight gain and increased obesity or overweight. (Lisa and Nugroho, 2021).

Based on the results of the study, the most consumed sources of fiber by adolescents are vegetables with the number of rural youth (70%) and urban (36%). Based on the Guidelines for Balanced Nutrition (2014), the recommendation to consume fruits and vegetables in Indonesia is 3-5 servings of vegetables or the equivalent of 250 grams of vegetables and 2-3 servings of fruit or the equivalent of 150 grams of fruit. (Menteri Kesehatan Republik Indonesia, 2014). In general, vegetables and fruits are sources of various vitamins, minerals, and dietary fiber. Some vitamins, minerals contained in vegetables and fruits act as antioxidants or antidotes to bad compounds in the body. Unlike vegetables, fruits also provide carbohydrates, especially in the form of fructose and glucose. Certain vegetables also provide carbohydrates, such as carrots and potato vegetables. While certain fruits also provide unsaturated fats such as avocados and red fruit. Therefore, consumption of vegetables and fruits is an important part of realizing Balanced Nutrition. Adequacy of fiber intake is now recommended higher, given the many benefits that are beneficial for health (Hardi et al., 2019).

CONCLUSION

The nutritional intake of adolescents in rural and urban areas is mostly the same, namely carbohydrate intake, protein intake sources, fried snacks, and consuming vegetables, while those with different nutritional intakes are sources of fat intake, namely if in rural areas vegetable oil is often consumed but in rural areas, vegetable oil is often consumed urban areas

are milk and cheese.

ABBREVIATIONS

SMPN : Sekolah Menengah Pertama Negeri

COMPETING INTEREST

No conflict of interest.

AUTHORS' CONTRIBUTION

The author, Lisa Purbawaning, contributed starting from making research concepts, research methods, data collection, and descriptive data analysis.

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