Sedentary Activities and Nutrition Intake during Fasting Month at Aduts in Central Java

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Abstract: *Background:* Macro-nutrients from energy sources such as carbohydrates, fats and proteins are needed by the body to carry out normal metabolic processes. Macronutrients, especially energy and protein, have a major influence on determining a person's nutritional status. *Objectives:* The objective of this study was to describe food intake and sedentary life in adults in Central Java during the fasting month. *Methods:* This study uses a quantitative approach, which is a research approach that primarily uses a survey strategy that requires statistical data. This study uses a descriptive analysis method by distributing surveys to gather information from the respondents. The subjects of this study were adults, residing in Central Java, who were willing to fill out questionnaires via Googleform, totaling 520 people. Data on food intake and sedentary life using Google Forms. Questionnaire distribution was carried out during the fasting month of 2021. *Results:* The results showed that respondens who have good category in protein intake were 9.8%, in vegetables consumption were 15.6%, in fruits consumption were 25.6%, in grains consumption were 33.3%, in fiber consumption were 8.7%, in iron consumption were 3.3%, in calcium consumption were 4.8%, and in Vitamin C consumption were 8.7%. The longest time which respondent spends for sedentary activities were 960 minutes a day. The average adult population in Central Java spends 345 minutes per day doing sedentary activities. *Conclusions:* The conclusion of this study is that an average of 12% of Central Java's nutritional intake during fasting is in the good category, 42% is in the moderate category, and 36% is in the moderate category. not enough. The average time spent on sedentary activities is 345 minutes per day (5 hours 45 minutes).

Keywords: Sedentary, Nutrition, Adult.

INTRODUCTION

The problem of nutrition is still become a top priority that must be faced by the Indonesian government. One of the nutritional problems that must be addressed is the problem of overnutrition (Kemenkes RI, 2019). The incidence of over nutrition in Indonesia is increasing, especially in adolescents. One of the causes of excess nutrition is decreased physical activity and increased consumption of food, especially those containing high carbohydrates and fats, where this

consumption is not matched by consumption of fiber and other nutrients (Abraham *et al*., 2018). Research ever conducted by Colley on adolescents in Canada stated that there were 95% of adolescents who did not carry out physical activity as recommended. In addition, according to the results of research conducted in Medan, it was stated that as many as 55% of adolescents had bad eating habits (Colley *et al*., 2011).

According to RISKESDAS results, in 2018 around 96.4% of adolescents had the habit of consuming fruit vegetables in the less category (Kemenkes RI, 2019). Based on the research results of Ng M *et al*. used a systematic review in 2013, involving research from 188 countries, it was found that 10 countries had the highest prevalence of overnutrition in the world (Ng, M *et al*., 2014). More than 50% of the world's 671 million obese people in Asia live in these ten countries. Based on RISKESDAS data for 2018, the prevalence of adolescents (16-18 years) who are overweight according to Body Mass Index (BMI) is 13.6%, an increase from 2013 of 11.5%. The prevalence of adults (> 18 years) who experience excess nutrition is 35.4%, this figure has increased from 2013 of 28.7% (Kemenkes RI, 2019).

The problem of overweight and obesity is increasing rapidly in many parts of the world to epidemic proportions. This illustrates an increase in diets high in fat and sugar accompanied by a decrease in physical activity (Park *et al*., 2020). In developed countries, obesity has become an epidemic by contributing 35% to morbidity and contributing 15-20% to death. Obesity does not cause death directly, but causes serious health problems that can trigger cardiovascular, renal, metabolic, prothrombotic and inflammatory responses (Potter *et al*., 2016). Globalization has had various impacts on society, the negative impact that has occurred is changes in lifestyle (Yang *et al*., 2019; Scalvedi *et al*., 2021). People are starting to shift from traditional lifestyle patterns to sedentary lifestyles, namely living with less physical activity and deviations from eating patterns where intake tends to be high in energy (carbohydrates, fat and protein) but low in fiber. These factors are associated with the risk of being overweight and the incidence of obesity (Ridley *et al*., 2019).

Every year, Muslims will face the month of Ramadan, in which month Muslims are required to fast for a full month. During fasting, food consumption habits will change, as well as patterns of physical activity. This is the basis for researchers to describe how nutrition consumption and sedentary activities are during the fasting month. The purpose of this study is to describe food intake and sedentary life in adults in Central Java during the fasting month.

METHOD

This study uses a quantitative approach, which is a research approach that primarily uses a survey strategy that requires statistical data. This study uses a descriptive analysis method by distributing surveys to gather information from the respondents. The research procedures consisted of: 1) preparing and reviewing literature, 2) developing research instruments, 3) distributing and collecting questionnaires, and 4) conducting data studies and analysis. The subjects of this study were adults, residing in Central Java, who were willing to fill out questionnaires via Googleform, totaling 520 people. Data on food intake and sedentary life using Google Forms, obtained by giving questionnaires to respondents. Questionnaire distribution was carried out during the fasting month of 2021. All members of the population will be taken as respondents (census).

RESULTS

Respondents in this study amounted to 520 people who are people in the adult category and reside in the province of Central Java. Table 1 shows the characteristics of the respondents in this study, namely their gender and level of education. Table 2 shows the city where the respondent lives in Central Java.

Table 1. Gender and Education Level of Respondents

Variable	Frequency	Percent (%)
Gender		
Male	139	26.7
Female	381	73.3
Level of Education		
Low	27	5.2
High	493	94.8

Table 1 shows that the majority of respondents are female, which is 73.3%. At the education level, 94.8% of respondents have a higher education level. In this study, education level was divided into 2 categories, namely high education level and low education level. A person include to high level category of education if he has graduated from junior high school, so he has taken at least 9 years of basic education. This is in accordance with government regulations regarding basic education.

Table 2. Respondent's City of Residence

City	Frequency	Percent (%)
Semarang city	70	13.5
Semarang Regency	36	6.9
Banyumas	7	1.3

City	Frequency	Percent (%)
Boyolali	16	3.1
Grobogan	19	3.7
Jepara	20	3.8
Klaten	16	3.1
Kudus	36	6.9
Brebes	23	4.4
Banjarnegara	21	4.0
Magelang	40	7.7
Pekalongan	22	4.2
Pati	25	4.8
Purbalingga	12	2.3
Demak	16	3.1
Pemalang	15	2.9
Temanggung	29	5.6
Tegal	30	5.8
Wonosobo	4	0.8
Sragen	3	0.6
Wonogiri	3	0.6
Salatiga	6	1.2
Cilacap	11	2.1
Kendal	7	1.3
Purworejo	1	0.2
Sukoharjo	3	0.6
Blora	5	1.0
Surakarta	3	0.6
Rembang	15	2.9
Batang	3	0.6
Kebumen	3	0.6
Total	520	100.0

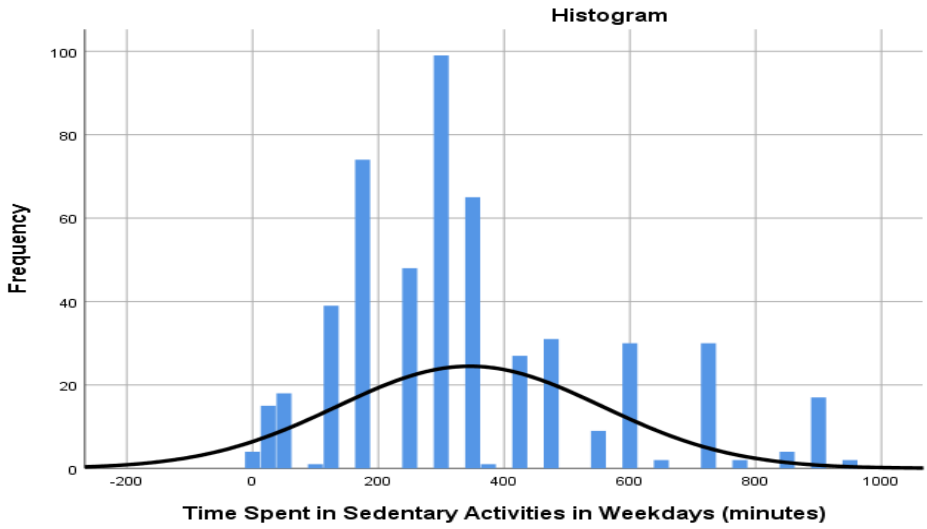
Based on table 2 it is known that the majority of respondents came from the City of Semarang, Magelang, Semarang Regency and Kudus Regency, each 13.5, 7.7, 6.9, and 6,9. Table 3 will describe the average daily intake of nutrients for adults in Central Java during the fasting month. Intake of these nutrients is categorized into 3, namely good, moderate, and deficient. Table 4 will describe sedentary activities in adults in Central Java during the fasting month. This sedentary activity is calculated on average each day.

Table 3. Intake Nutrition

Variable	Frequency	Percent (%)
Protein Intake		
Good	51	9.8
Moderate	320	61.5
Deficient	149	28.7

Vegetables Consumption		
Good	81	15.6
Moderate	235	45.2
Deficient	204	39.2
Fruits Consumption		
Good	133	25.6
Moderate	364	70.0
Deficient	23	4.4
Grains Consumption		
Good	173	33.3
Moderate	161	31.0
Deficient	186	35.8
Fiber Consumption		
Good	45	8.7
Moderate	212	40.8
Deficient	263	50.6
Iron Consumption		
Good	17	3.3
Moderate	178	34.2
Deficient	325	62.5
Calcium Consumption		
Good	25	4.8
Moderate	177	34.0
Deficient	318	61.2
Vitamin C Consumption		
Good	45	8.7
Moderate	221	42.5
Deficient	254	48.8

The results showed that only 12.5% of protein intake was in the good category, 9.8% vegetables consumption in the good category, 25.6% fruits consumption in the good category, 33.3% grains consumption in the good category, 8 .7% fiber consumption in the good category, 3.3% iron consumption in the good category, 4.8% calcium consumption in the good category, and 8.7% vitamin C consumption in the good category.



Picture 1. Sedentary Activities in Weekdays

Table 4. Statistics of Sedentary Activiies

N	520
Mean	345.16
Median	300
Mode	3000
Std. Deviation	210.968
Minimum	0
Maximum	960

Based on Table 4, showed that from 520 respondent, the longest the respondent spends 960 minutes doing sedentary activities in a day. The average adult population in Central Java spends 345 minutes per day doing sedentary activities in weekdays.

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DISCUSSION

Macro-nutrients from energy sources such as carbohydrates, fats and proteins are needed by the body to carry out normal metabolic processes. Macronutrients, especially energy and protein, have a major influence on determining a person's nutritional status. Energy is needed by a person to carry out daily activities. If energy is not met, then the body will break down protein to be used as energy so that protein cannot carry out its functions optimally (Dhandevi & jeewon, 2015). Protein is very important for the preparation of body tissues, because most of the body's cells are composed of protein. Protein is a source of amino acids that are not owned by fat or carbohydrates, so that its role is needed in the body's metabolic processes (Artaza-Artabe *et al*., 2016).

Overnutrition in adolescents is generally caused by multifactors including the habit of skipping breakfast, consumption of fast food, consumption of vegetables and fruit, physical activity, and sedentary behavior. The habit of skipping breakfast is proven to be one of the factors causing excess nutrition. Another factor that influences the incidence of obesity is the consumption of fast food. Children who often consume fast food are more at risk of obesity than children who rarely consume fast food. In addition, low consumption of vegetables and fruit is also associated with the incidence of excess nutrition. Another factor that also influences the incidence of excess nutrition is sedentary activity. Sedentary behavior is relaxed behavior, including sitting, lying down, and so on in daily life, both at work, at home, and on the go/transportation, excluding sleeping time. The lighter the physical activity, the greater the BMI/age (Bauman *et al*., 2018).

The higher the fiber consumed, it will further reduce the risk of excess nutrition. Lack of vegetable consumption is not the only factor that causes excess nutrition, but there are several other factors that can cause excess nutrition, for example excessive food intake and lack of physical activity (Deutz *et al*., 2016; Spronk *et al*., 2014). In addition, there are other factors that indirectly influence the occurrence of excess nutrition, including knowledge about nutrition, negative body image, and gender. The results of this study indicate that when fasting, people's daily physical activity tends to change from normal days, where they are not fasting. Some people will reduce physical activity, and prefer activities that don't expend too much energy (Falck *et al*., 2017; Thyfault *et al*., 2015). Likewise with sports activities, people tend to reduce sports activities, or choose lighter types of sports. When fasting, sedentary activity tends to increase. High sedentary activity cannot directly cause excess nutrition if it is not accompanied by high fat intake. Fat is an energy-forming nutrient that can produce the highest energy compared to carbohydrates and proteins. In 1 gram of fat contains 9 Kcal. Therefore, it is important to pay attention to fat intake in your diet, so that excess nutrition can be avoided (Farzana *et al*., 2017; Gibbs *et al*., 2015).

In this study, 64% of respondents had a pattern of food consumption with good or sufficient nutrition, so they had a tendency to have normal nutritional status compared to respondents whose nutritional intake was inadequate or whose diet was sparse. This is because food sources of protein, both animal protein and vegetable protein, are easy to obtain around the respondent's residence at affordable prices for the community. The main function of protein is as a builder substance and serves to maintain body tissues. Protein is also a nutrient source of energy, so if a person consumes food with adequate nutrient content, then the nutrients consumed will be used by the body to achieve optimal nutritional status (Ma *et al.,* 2022; Rathore *et al*., 2017).

In this study, fat consumption was not examined by respondents, due to difficulties in data collection. Even though the calculation of fat consumption is very important in determining a person's nutritional status. A person with a pattern of consumption of food sources of sufficient fat often has a tendency to have a normal nutritional status compared to a person with a low-fat diet. According to the researchers' assumptions, this is due to the eating habits of people who like to consume foods that use food sources of fat, namely coconut oil and coconut milk. Basically, the use of calories in adult humans decreases as the body's metabolism decreases and the amount of fat increases in someone who is starting to enter old age. This is influenced by physical activity that is less and not offset by a reduction in food intake. However, if the frequent consumption of food sources of fat is also balanced with frequent high physical activity, then the risk of fat accumulation can be reduced. Excess calorie intake will lead to accumulation of body fat. People whose consumption pattern of fat sources often have the opportunity to experience normal nutritional status 2.5 times than people whose consumption patterns of food sources of fat are rare. Entering old age, people will tend to consume foods that contain sugar, high in salt and high in saturated fat and low in vegetables and fiber. This is because when entering the elderly, people will experience a decrease in the ability of the senses of taste and taste so that the elderly often experience nutritional problems, both over nutrition and under nutrition (Abraham *et al*., 2018).

Indonesian youth are currently facing three nutritional problems (triple burden of malnutrition), namely malnutrition, overweight, and micronutrient deficiencies with anemia. This nutritional problem is a challenge for all parties and health workers (Kemenkes RI, 2019). If not treated early it can cause an increase in the incidence of non-communicable diseases, permanent cognitive impairment, and even death. If the problem in adulthood continues, it will affect the health of the fetus and will continue to the next generation. As for some disorders caused by nutritional problems, such as malnutrition resulting in vulnerability to high mortality rates as a result the majority of diseases that occur in childhood. And various epidemiological methods show that undernutrition causes 56% of child deaths in all nations, and mild, moderate and severe undernutrition conditions increase the risk of death. Furthermore, malnutrition can increase susceptibility to acute morbidity, when compared to people with normal nutrition, individuals with malnutrition tend to get malaria, diarrhea, as well as respiratory infections, and there is a high chance of getting many diseases over a long period of time(Artaza-Artabe *et al*., 2016).

Malnourished conditions can result in decreased cognitive development, decreased economic productivity and vulnerability to infectious diseases in old age. Overnutrition can be one

of the determinants of mortality and morbidity. Overnutrition can be associated with increased mortality in cardiovascular disease risk factors such as hypertension, hyperlipidemia, and diabetes. Overeating contributes to high blood pressure and blood fat levels which increase the risk of death. Being overweight (especially abdominal obesity) is an important risk factor for type 2 diabetes. Nutritional problems are also a risk factor for various other diseases such as cancer, musculoskeletal disorders, respiratory disorders and are associated with work and mobility disabilities (Abraham *et al*., 2018).

Nutritional problems can be influenced by poor lifestyle factors (diet and exercise), social economy, stress and other factors. People often change their eating patterns, such as consuming less fruits and vegetables, consuming lots of sweet, salty and fatty foods as well as low physical activity. The pattern of consumption of risky foods is one of the factors causing nutritional problems. Patterns of consumption of risky foods include consumption of foods/drinks that contain high sugar, foods with a high salt content, foods high in fat, foods that are burned, foods with preservatives, flavorings, soft drinks or carbonated drinks, energy drinks, and instant foods (Artaza-Artabe *et al*., 2016). Another factor that causes nutritional problems is a lack of physical activity or a sedentary lifestyle (Leask *et al*., 2015; Lavie *et al*., 2019). Sedentary lifestyle is the habit of someone who does not do physical activity in a day (<30 minutes/day). This lifestyle is usually carried out by millennials who are sedentary, such as sitting, lying down, reading, watching television and playing cellphones for too long (Harvey *et al*., 2015; Kang *et al*., 2015). Some of the factors that influence nutritional problems above are supported by various studies which show that nutritional problems in adolescents are mostly caused by consumption of risky foods and sedentary activities.

CONCLUSION

The conclusion of this study is that an average of 12% of Central Java's nutritional intake during fasting is in the good category, 42% is in the moderate category, and 36% is in the moderate category. not enough. The average time spent on sedentary activities is 345 minutes per day (5 hours 45 minutes).

Conflict of Interest

The authors have no conflict of interest in this research.

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