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STUDY OF STUDENT CHARACTERISTICS WHO EXPERIENCE OVERWEIGHT CASE STUDY ON HEALTH SCIENCE HIGH SCHOOL STUDENTS DIRGAHAYU SAMARINDA

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ABSTRACT

Obesity is an energy imbalance where the energy intake obtained from food exceeds the required energy requirements. Obesity can be caused by an imbalance between energy intake and energy used, this is influenced by physical activity, diet, and the environment. In recent years, there has been an increase in the prevalence of overweight and obesity throughout the world. Based on a national survey in Indonesia, 8.1% of men in Indonesia suffer from obesity and 13.5% of women. The research aimed to determine the characteristics of gender, age, weight, height, and eating patterns of students who were overweight at Dirgahayu Samarinda College of Health Sciences. This type of research is descriptive with the object being students who are pre-obese. The research was carried out at the Dirgahayu Samarinda College of Health Sciences Campus, East Kalimantan Province from May 2023 to March 2024. The research activities carried out were: preparation, literature study, sample determination, data collection, data analysis, concluding, and drafting a report. The research population was Diploma III Nursing students at Dirgahayu Samarinda College of Health Sciences, totaling 197 people, and a sample of 67 people was taken which was determined using the purposive sampling method. Data collection consists of (1) primary data obtained from observations and interviews with respondents with the help of questionnaires; and (2) secondary data obtained from documents related to research activities. Data analysis was carried out using validity and reliability tests as well as univariate tests. The results showed that most of the prevalence of overweight occurred in student respondents who were female (95.5%), aged 19-20 years (74.5%), had a height of 156-160 cm (76.2%) and a weight of 56-60 kg (77.6%) and have an overeating pattern of 65.7%,

KEYWORDS:

Characteristics, Overweight, Students.

INTRODUCTION

Being overweight is one of the nutritional problems in Indonesia which will affect the quality of health. An increase in the prevalence of obesity has been identified as being more risky in the female group as age increases. Other determinants include the use of contraceptives, food intake that is not by needs, lack of activity, and family history (Izhar, 2020).

Overweight is a very serious problem that is being faced by many countries, not only Indonesia but also many other countries throughout the world. Data shows that the incidence of overweight continues to increase and is found in all age groups, from children to adults, even in the elderly. Today overweight has reached epidemic proportions globally, with at least 2.8 million people dying every year due to being overweight or obese. Once associated with high-income countries, overweight is now also prevalent in low- or middle-income countries (WHO, 2017).

East Kalimantan is one of the provinces with a prevalence of overweight above the national prevalence among 16-18 year-olds who are believed to be overweight at (8.7%) and obese at (2.2%) (Indonesian Ministry of Health,2013).

This result is higher compared to 2007 which obtained a result of 13.9% and 2010 of 7.8%. The female population has a higher prevalence than the male population, namely 32.9%. This result increased quite significantly from the previous one which only reached 13.9% in 2007 and 15.5% in 2010 (Sudikno, Syarief, and Dwiriani, 2015). The number of obese people in the world has increased quite rapidly from 875 million people in 1980 to 2.1 billion people in 2015 and it is predicted that by 2030 obesity sufferers will reach 50% of the total world population (Suparno, 2016).

Overweight is caused by wrong eating behavior. Although genetic factors are thought to play a role, they cannot explain the increase in the prevalence of overweight. The influence of environmental factors mainly occurs through an imbalance between diet and eating behavior. This is mainly related to lifestyle changes that lead to a sedentary lifestyle, an eating pattern that is a trigger for obesity. and overweight is the frequency of consuming portions of carbohydrates (more than needed), foods high in fat, high in simple carbohydrates,, and low in fiber, wrong eating behavior is the act of choosing food in the form of packaged foods and soft drinks (Mustofa, et al. 2021).

One of the factors causing overweight is excessive eating patterns or food intake which comes from instant processed foods, soft drinks, and snacks such as fast food(burgers, pizza, hot dogs) which are available in food outlets. Based on data on the frequency of fast food consumption for 1 week in teenagers, it is known that obese teenagers (69.4%) consume fast food with a frequency of more than 2 times a week, while normal children have a maximum frequency of 1-2 times a week. Fast food contains high calories so excessive consumption will cause overweight problems (Septiani, 2017).

Handling overweight can be done using healthy eating behavior, namely a healthy diet by reducing snacks and foods high in carbohydrates and reducing foods that are fatty and high in cholesterol because they cause fat accumulation in the body. Healthy eating behavior is the behavior of consuming foods that are by nutritional needs. To achieve nutritional balance, each person must consume at least one type of food from each food group, such as carbohydrates, animal protein, vegetables, vegetables and fruit, and milk. what we call four healthy five perfect (Thasim, et al, 2013). From preliminary research conducted by researchers on 10 students of Dirgahayu Samarinda College of Health Sciences on March 13, 2023, 8 respondents were overweight with a BMI of 24-25.9 and 2 respondents who were not overweight.

The research aimed to determine the characteristics of gender, age, educational attainment, weight, and height, as well as the eating patterns of students who were overweight at the Dirgahayu Samarinda College of Health Sciences.

2. RESEARCH METHODOLOGY

2.1. Time and Place

The research was carried out at the Dirgahayu Samarinda College of Health Sciences Campus, East Kalimantan Province from May 2023 to March 2024.

2.2. Research Design

The research design used is a descriptive type of research with the object being students who are pre-obese.

2.3. Research Activities

The research activities carried out include preparation, literature study, sample determination, data collection, data analysis, drawing conclusions, and preparing reports.

2.4. Population and Sample

The research population was 197 Diploma III Nursing students at STIKES Dirgahayu Samarinda. The number of samples in this study was determined using the Slovin formula (Sugiyono, 2019):

$$n = \frac{N}{1 + Ne^2}$$

Information: n = number of sample respondents taken; N = total population of 197 people; and e^2 = 15% precision value

Based on the calculations above, it is known that the number of respondents will be able to represent the entire population of 67 respondents. Determining the sample of respondents using the purposive sampling method.

2.5. Data Collection

Data collection consists of (1) primary data obtained from observations and interviews with respondents with the help of questionnaires; and (2) secondary data obtained from documents related to research activities.

2.6. Data Analysis

The data analysis carried out consisted of validity test, reliability test and univariat test.

2.6.1 Validity and Reliability Test

The validity test is a part that shows the research instrument used is suitable for measuring data accuracy. The principle of validity is measurement and observation which means the principle of instrument reliability in data collection. Instruments must be able to measure what they should measure (Nursalam, 2017; Heryuditasari 2018).

A reliability test is a test used to see whether the results of measurements or observations remain the same if done many times at different times (Nursalam, 2017; Heryuditasari 2018). This reliability test uses Cronbach's Alpha formula using a computer or laptop using SPSS software.

2.6.2. Univariate Test

Univariate analysis aims to explain or describe the characteristics of each research variable (Notoatmodjo, 2018). After the data is collected, the data is processed using a frequency distribution and then the percentage is determined according to the questionnaire data. The results of data processing are interpreted using a nominal scale, namely: 1 = always; 2= often; 3= sometimes; and 4= never. The scores obtained from each data analysis are added up to get a picture of the eating patterns of pre-obese students at STIKES Dirgahayu Samarinda.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1. Respondent characteristics

The characteristics of the respondent data in this study consisted of gender, age, education level, height, and weight. The frequency distribution of respondent characteristics based on gender and age is presented in Tables 1 and 2.

Table 1. Frequency Distribution of Respondent Characteristics Based on Gender

Gender	Frequency	Percentage
Male	3	4.5%
Female	64	95.5%
Total	**67**	**100%**

Source: Processed Primary Data (2023)

Based on Table 1 above, it shows that of the 67 respondents, the majority were 64 women (95.5%) and only 3 were men (4.5%).

Table 2. Frequency Distribution of Respondents Based on Age

Age	Frequency	Percentage
19-20	50	25.5%
21-22	17	74.5%
Total	**67**	**100%**

Source: Processed Primary Data (2023)

Based on Table 2 above, it shows that the majority of respondents were in the 19-20 age group, 50 people (74.5%) and 17 respondents in the 21-22 age group (25.5%).

The frequency distribution of respondent characteristics based on weight, height, and eating patterns is presented in Tables 3, 4, and 5.

Table 3. Frequency Distribution of Respondents based on Body Weight

Body Weight	Frequency	Percentage
56 - 60 kg	52	77,6%
61 - 63 kg	15	22,4%
Total	**67**	**100%**

Source: Processed Primary Data (2023).

Based on Table 3 above, shows that the most common weight group is an average body weight of 56-60 kg in as many as 52 people (77.6%), and a body weight of 61-63 kg in as many as 15 people (22.4%).

Table 4. Frequency Distribution of Respondents Based on Body Height

Body Height badan	Frequency	Percentage
152-155 cm	8	12.0%
156-160 cm	51	76.2%
162-165 cm	8	12.0%
Total	**67**	**100%**

Source: Processed Primary Data (2023).

Based on Table 4 above, it shows that the average percentage of height 156-160 cm is 51 people (76.2%) and height 162-165 cm is 8 people (12.0%).

Table 5. Frequency Distribution of Respondents Based on Frequency of Dietary Patterns

Dietary Pattern	Frequency	Percentage
Less	3	4.5%
Normal	20	29.9%
Over	44	65.7%
Total	**67**	**100%**

Source: Processed Primary Data (2023).

Based on Table 5 above, it shows that of the 67 students, 44 people (65.7%) had excessive eating patterns, 20 people (29.9%) had normal eating patterns, and only 3 people (4.5%) had normal eating patterns. eat less.

3.2. DISCUSSION

3.2.1. Gender

The distribution of respondent characteristics in Table 1 shows that 64 respondents were female (95.5%) and 3 male respondents (4.5%). The situation shows that the prevalence of overweight occurs mostly in women. As stated by Rachmi and Baur (2017), Rachmi et al explained that the prevalence of obesity in children is higher in boys than in girls, while in adolescents the prevalence of obesity is higher in girls than in boys. The prevalence of obesity in adults is higher in women than in men. According to data from Basic Health Research Indonesian Ministry of Health (2018), the prevalence of overweight in women is higher (32.9%) compared to men, namely (19.7%). Furthermore, Mustafa (2021) stated that women are taller than men due to differences in hormonal factors, in women's bodies, more fat is stored than men. Meanwhile, men have more muscle because they produce higher levels of the testosterone hormone than women. Because they have a lot of muscle mass, men need more calories. When men eat a lot, the calories will be absorbed by the muscles and not stored so they don't get fat quickly. In contrast to women who have less muscle mass, the body will more easily accumulate calories. And the accumulation of calories turns into fat, making women more susceptible to weight gain.

From these results, researchers can state that there are more gender respondents due to differences in variations in risk factors such as food consumption factors, lack of physical activity, and genetic factors) between men and women, as well as cultural factors, behavioral factors, and psychosocial factors. And because of differences in hormonal factors in women's bodies, more fat is stored than in men. Because men produce higher levels of the testosterone hormone than women, this makes women more susceptible to weight gain.

3.2.2. Age

Table 2 shows that the majority of respondents were in the 19-20 year age group, 50 people (74.5%), and 17 respondents in the 21-22 year age group (25.5%). The situation shows that the prevalence of overweight occurs mostly in the 19-20 year age group. Based on data from Basic Health Research Indonesian Ministry of Health (2018), the prevalence of overweight in people over 18 years old increased from 11.7% to 21.8%. The research results of Sudikno, et al (2015) show that there is a relationship between the age of the respondent and the prevalence of overweight. The prevalence of overweight tends to increase up to the age group 45-54 years and tends to decrease at the age of 55 years and over. Furthermore, it was stated by Setiyo, et al. (2020) that food consumption patterns and needs are closely related to age because as you age, body composition changes in meeting nutritional needs. The risk of being overweight occurs in early adolescence because relatively young teenagers are more at risk.

3.2.3. Body Height and Body Weight

Based on Tables 3 and 4, shows that the body weight and height of the majority of respondents weighed 56-60 kg as much as 77.6% with an average height of 156-160 cm as much as 76.2% with a Body Mass Index (BMI) of 24-25. Supariasa (2013) stated that BMI is a simple tool or way to classify nutritional status, especially those related to underweight and overweight. Irian to (2017) states that BMI or Body Mass Index (BMI) is defined as a person's weight in kilograms divided by their height in meters (kg/m2). Based on data from Basic Health Research Indonesian Ministry of Health (2018) the individual criteria for a person are underweight if (< 18.5 kg m2), ideal body weight (18.5 - 23.9 kg/ m2), and overweight or overweight (24- 24.9 kg/m2). The obesity category here is further divided into obesity class I (25-29.9 kg/m2) and class II (>30kg/m2). Based on these criteria, it can be stated that the majority of respondents are classified as overweight.

Arisman (2014) states that the factors that influence each individual's BMI are different, including; nutritional intake, infectious diseases, age, gender, diet, physical activity, economic level, and environment.

3.2.4. Dietary habit

The research results in Table 4 show that the majority of respondents had an over-eating pattern of 65.7% and 29.9% had a normal diet, and only a small portion of respondents had an under-eating pattern, namely 4.5%. This pattern of overeating is caused by respondents sometimes eating more than 3 times a day, often consuming fast food, often eating snacks after a heavy meal, and often consuming sweets and fatty foods, and some students rarely (sometimes) consume fruit and vegetables. The research results in Table 4 show that the majority of respondents had an over-eating pattern of 65.7% 29.9% had a normal diet, and only a small portion of respondents had an under-eating pattern, namely 4.5%. This pattern of overeating is caused by respondents sometimes eating more than 3 times a day, often consuming fast food, often eating snacks after a heavy meal, and often consuming sweets and fatty foods, and some students rarely (sometimes)) consume fruit and vegetables. By the results of research by Alfora, Saori, and Fajriah (2023), there are factors that influence teenagers' passion for consuming fast food. The factors that influence teenagers' behavior in consuming fast food are knowledge, the influence of peers, comfortable place to gather, good taste, fast and practical, pocket money, cheap prices, and the brand of the fast food itself. Furthermore, Abramowitz stated in Prada (2014) that fast food can influence an increase in a person's BMI, this is caused by the high fat and sugar content in fast food. Increasing portions and frequency of eating affect BMI. People who consume foods high in fat will become overweight more quickly compared to people who consume foods high in carbohydrates with the same number of calories.

According to Jackson (2015), the consumption of junk food is also thought to be one of the factors that contribute most to the increase in the incidence of obesity because it has little nutritional content, such as high fat but low fiber, contains lots of salt, sugar, additives, calories, low in nutrition, low in vitamins, and low in minerals.

Eating frequency also greatly influences the incidence of obesity because the body's ability to store food in the form of carbohydrates and protein is limited. If you consume junk food that has a high glyme index, some of the carbohydrates will be stored as glycogen and the rest will become fat, protein will be formed as body protein and the rest will be fat, and the energy source used comes from carbohydrate storage glycogen so that the accumulated fat is not used (Sapna, 2014).

Based on data from Basic Health Research Indonesian Ministry of Health (2018), fruit and vegetable consumption in Indonesia is still relatively low, on average 83.64% of teenagers in Indonesia, 40.7% consume fatty foods, 53.1% consume sweet foods, 93.5% consume less vegetables and fruit, and 26.1% less physical activity. Fruits and vegetables are sources of various vitamins, minerals, and dietary fiber which act as antioxidants.

Excessive eating patterns can also be a risk factor for obesity. The risk of obesity occurs if a person consumes more calories than the number of calories burned. However, to maintain body weight there is a need for energy balance which can lead to excess weight and the risk of obesity. A small number of respondents have a low diet, a low diet does not mean it cannot cause the risk of obesity, this proves that a low diet will cause a risk of obesity because the respondent's eating pattern is irregular and the respondent does not do enough exercise so that fat is in the body. does not burn (Indonesian Ministry of Health, 2018).

4. CONCLUSION

Based on the results of the research and discussion, it can be concluded as follows:

1. Most of the prevalence of overweight occurs in student respondents who are female (95.5%), aged 19-20 years (74.5%), have a body height of 156-160 cm (76.2%) and a body weight of 56- 60 kg (77.6%).
2. Most of the prevalence of overweight occurs in students who have more eating patterns of 65.7%,

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