Body Mass Index of Students at the Health Sciences Faculty of Prof Dr. Hamka Muhammadiyah University

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Abstract: Increased body fat to reach obesity can increase the risk of disease. Obesity is a worldwide problem in both developed and developing countries because of its increasing prevalence in adults and children. Not only obesity, malnutrition is also a health problem that often occurs. This can cause anemia and other diseases. It is necessary to monitor body weight regularly from an early age by measuring the body mass index (BMI). The aim of the research is as a first step in determining the right targets in a preventive effort to prevent non-communicable diseases by knowing the description of the body mass index of students of the Faculty of Health Sciences, University of Muhammadiyah Prof. Dr. Hamka. The research design used is descriptive with a cross-sectional approach. Sampling technique with random sampling method with a total of 159 respondents. The results showed the status of body mass index with a percentage of 45.3% in the normal category, 28.3% overweight, 17.6% underweight, and 8.8% obesity.

1 INTRODUCTION

A person's nutritional status can be determined and carried out at any time in a simple way, namely by measuring the Body Mass Index (BMI). Body mass index is measured based on body weight in kilograms divided by height in meters squared (kg/m2) (Nuttal F, 2015). The problem of obesity is currently a problem in various countries, including Indonesia. In 2018, 31% of Indonesian people aged over 15 years suffer from obesity with a BMI classification > 27 (RISKESDAS, 2018). There was a significant increase from the results of the previous measurement in 2013 which was only 26.6% (RISKESDAS, 2013).

The increasing prevalence of obesity that occurs in Asia, especially Indonesia, makes BMI play an important role in predicting obesity-related diseases (Rocha, 2017). Overweight and obesity are closely related to the risk of various non-communicable diseases (PTM), such as diabetes, high blood pressure, high cholesterol, asthma, arthritis, and low health status (Maftuhatul, 2019). Meanwhile, a low Body Mass Index (BMI) is closely related to increased mortality from chronic obstructive pulmonary disease (Guo *et al.*, 2016). Malnutrition is also a health problem that often occurs. This can cause anemia and other diseases. Low body weight is also associated with low quality of life related to health (Khasana, Kertia and Probosuseno, 2020).

There are differences in the perception of body weight in the sexes. In general, males tend to underestimate their body weight, while females tend to overestimate their body weight. Body mass index is a reflection of the relationship between adult body weight and height, used to judge body fat levels that are not influenced by gender (Wijaya, Muliarta and Permana, 2020). Appreciation of the reasons for these gender differences may assist health professionals to make appropriate decisions on weight control strategies. It was reported that female adolescents were motivated to adopt a variety of weight control behaviors by their body perception, rather than their actual body mass index (BMI). Women who perceived themselves to be overweight were more likely to exercise, restrict calorie intake, self-medicate, or purge. Weight control behavior in males is of less concern, in that they exercise or restrict calorie intake but do not self-medicate or purge (Utami, Juniartha and Suindrayasa, 2021).

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The aim of the research is as a first step in determining the right targets in a preventive effort to prevent non-communicable diseases by knowing the description of the body mass index of students of the Faculty of Health Sciences, University of Muhammadiyah Prof. Dr. Hamka. In addition, it can be used as a policy maker for routine activity programs and consulting activities for handling students who have problems with weight.

2 SUBJECT AND METHODS

The focus of this study was on the measurements of the weight and height of the UHAMKA Faculty of Health Sciences students. Data obtained by interviewing respondents through GForm. The population of this study were all students at the UHAMKA Faculty of Health Sciences. Samples were taken using the total sampling technique. All members of the population, as many as 159 students, who met the inclusion and exclusion criteria, were included in the study. The inclusion criteria recorded were students at the UHAMKA Faculty of Health Sciences. Those who did not want to be respondents were excluded from the population. Data analysis was performed using the Univariate test software SPSS.

3 RESULTS

Based on table 1 it was found that the average age of the respondents was 20.46 years, with a variation of 1.301 years. The youngest respondent is 18 years old and the oldest is 24 years old. The results of the analysis can be concluded that 95% believed that the average age of the respondents was between 20.26 – 20.66 years.

Table 1: Frequency Distribution of Respondents Based on the Age of Students at the Uhamka Fikes in 2023.

Variable	Mean	SD	Min - Max	95% CI
Age	20,46	1,301	18 – 24	20,26 – 20,66

Table 2: Frequency Distribution of Respondents Based on the Gender of Students at the Uhamka Fikes in 2023.

Gender	n	%
Male	21	13,2
Female	138	86,8
Total	159	100

Table 2 shows that the most respondents were female, namely 138 respondents (86.8%) and male, namely 21 respondents (13.2%).

Table 3 shows that 54.7% of the respondents had an abnormal body mass index with an overweight category of 28.3%, 17.6% of underweight and 8.8% of obesity.

Table 3: Frequency Distribution of Respondents Based on Student BMI Categories at the Uhamka Fikes in 2023.

BMI Category	n	%
Underweight	28	17,6
Normal weight	72	45,3
Overweight	45	28,3
Obesity	14	8,8
Total	159	100

Table 4 shows the Body Mass Index based on the age category of 159 respondents at the time the study was conducted, the body mass index for the underweight category was 57.1% at the age of less than 20 years, 51.1% for the overweight category at the age of less than 20 years, and the category obesity by 50%.

Table 4: Tabulation of BMI Categories for Student Fikes Uhamka Based on Age Categories.

BMI Category	Age				Total	
	≤ 20 years		>20 years			
	n	%	n	%	n	%
Underweigt	16	57,1	12	42,9	28	100
Normal weight	37	51,4	35	48,6	72	100
Overweight	23	51,1	22	48,9	45	100
Obesity	7	50	7	50	14	100
Total	83	52,2	76	47,8	159	100

Table 5 shows the Body Mass Index based on gender of the 159 respondents at the time the study was conducted, underweight and obesity were mostly female at 92.9%. 82.2% overweight in female.

Table 5: Tabulation of BMI Category of Uhamka Fikes Students by Gender.

BMI Category	Gender				Total	
	Male		Female			
	n	%	n	%	n	%
Underweigt	2	7,1	26	92,9	28	100
Normal weight	10	13,9	62	86,1	72	100
Overweight	8	17,8	37	82,2	45	100
Obesity	1	7,1	13	92,9	14	100
Total	21	13,2	138	86,8	159	100

4 DISCUSSION

This study shows an overview of the body mass index of respondents, in this case students, for early efforts to prevent non-communicable diseases from an early age. Respondents have different perceptions of their body mass index. BMI that is owned by a person certainly differs between each individual depending on the ratio of weight and height of each individual. The results showed that the dominant female respondents had an abnormal BMI in the categories of underweight, overweight and obesity. Gender may have an impact on how people perceive healthy lifestyles and make health-related decisions (Maruf, Akinpelu and Nwankwo, 2013).

Students are the younger generation who play an important role in the field of education. Students with monotonous and long physical activities tend to experience an increase in BMI so that it affects cardiovascular endurance (Febriyanti, Adiputra and Sutadarma, 2017). The cause of increased BMI is an energy imbalance between the food consumed and the energy expended. In general, there is a high intake of energy-dense foods high in fat and sugar, and low physical activity due to the sedentary nature of various jobs (Vaamonde and Álvarez-Món, 2020).

Increased BMI is a major risk factor for chronic diseases such as cardiovascular disease (heart and stroke), diabetes, bone and muscle disorders and malignancy (Lestari, Asnar and Suhartati, 2022). Obesity and low cardiovascular endurance contribute significantly to the increased prevalence of cardiovascular disease. Meanwhile, thin people with BMI <18.5 have a risk of osteoporosis seven times greater than normal or obese people (BMI≥18.5). This condition can occur because low BMI is associated with low peak bone mass attainment and high bone loss (Humaryanto and Syauqy, 2019).

5 CONCLUSIONS

Studies show that the body mass index category for overweight is 28.3%, underweight is 17.6%, and obesity is 8.8%. Studies also show that abnormal body mass index occurs in women, both underweight (92%), overweight (82.2%), and obese (92%). The age of the respondents who experienced an abnormal body mass index occurred at the age of less than 20 years.

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