



Analysis of the relationship between body image, physical activity, and nutritional status in Poltekkes Kemenkes Bengkulu students

Analisis hubungan body image, aktivitas fisik dan status gizi mahasiswa Poltekkes Kemenkes Bengkulu

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Abstract

Adolescence is a vulnerable period for malnutrition, whether overnutrition or undernutrition. Factors related to nutritional status included physical activity and body image. This study aimed to analyze the relationship between body image, physical activity, and nutritional status among Poltekkes Kemenkes Bengkulu students. The research design used an analytical observational approach with a cross-sectional method, and the research sample was taken comprehensively using a total sampling technique and consisted of 98 first-year students. The research was conducted at the Nutrition Department of Poltekkes Kemenkes Bengkulu and took place in April 2024. Body image data were collected using the Multidimensional Body-Self Relations Questionnaire Appearance Scale (MBSRQ-AS), physical activity data were collected using the Global Physical Activity Questionnaire (GPAQ), and nutritional status data were collected using the Body Mass Index (BMI) by converting weight and height. Statistical analyses were performed using the chi-square test. The results showed a relationship between body image ($p=0,002$), physical activity ($p=0,001$), and the nutritional status of students at Poltekkes Kemenkes Bengkulu. In conclusion, these findings indicate that negative body image is associated with abnormal nutritional status, low physical activity can lead to overweight, and excessive physical activity can cause underweight.

Keywords: Body image, malnutrition, teenagers

Abstrak

Usia remaja termasuk periode rentan mengalami malnutrisi baik gizi lebih ataupun gizi kurang. Beberapa faktor yang terkait dengan status gizi di antaranya aktivitas fisik dan *body image*. Penelitian bertujuan menganalisis hubungan antara *body image* dan aktivitas fisik dengan status gizi pada mahasiswa Poltekkes Kemenkes Bengkulu. Desain penelitian yang digunakan yaitu observasional analitik dengan pendekatan *cross sectional* dan sampel penelitian diambil secara total sampling yaitu 98 orang mahasiswa tingkat 1. Penelitian dilaksanakan di Jurusan Gizi Poltekkes Kemenkes Bengkulu pada bulan April 2024. Data *body image* dikumpulkan menggunakan kuesioner *multidimensional body-self relations questionnaire appearance scale* (MBSRQ-AS), data aktivitas fisik menggunakan kuesioner *global physical activity questionnaire* (GPAQ), serta data status gizi menggunakan indeks massa tubuh (IMT) dengan mengonversi berat dan tinggi badan. Analisis statistik menggunakan uji chi-kuadrat. Hasil, menunjukkan ada hubungan *body image* ($p=0,002$) dan aktivitas fisik ($p=0,001$) dengan status gizi mahasiswa Poltekkes Kemenkes Bengkulu. Kesimpulan, temuan ini mengindikasikan bahwa *body image* negatif berhubungan dengan terjadinya status gizi tidak normal, aktivitas fisik yang rendah bisa berdampak pada overweight, aktivitas fisik yang berlebihan dapat menyebabkan underweight

Kata Kunci: *Body image*, malnutrisi, remaja

Introduction

In general, around 2 billion suffer from obesity problems and more than 500 million people are overweight (PPN/Bappenas., 2019). The nutritional status of residents aged >18 years according to Bengkulu Province recorded nutritional status as thin (5,86%), normal (54,23%), over-nourished (12,85%), and obese (24,73%) (Risksdas Bengkulu, 2018). Meanwhile, the prevalence of nutritional status for those aged >18 years according to the 2023 Indonesian Health Survey in Bengkulu City recorded underweight (6,9%), normal (57,9%), overweight (14,4%), and obese (19,4%) nutritional status (Survei Kesehatan Indonesia, 2023).

Ripta et al. (2023) stated that the rapid physical and mental growth of adolescents is very dependent on adequate nutrition. Adequate intake of protein, vitamins and minerals is very important to support adolescent growth and development. Septica (2023) stated that body image is a component that influences nutritional status. Body image is adolescents' perception of their body size and shape, as well as the way they look and assess their body shape or appearance based on other people's assessments of themselves. Teenagers with a positive body image usually feel confident about their physical appearance. This feeling of self-confidence is often accompanied by a healthy, balanced diet. Meanwhile, teenagers with negative body image often tend to have unhealthy eating habits. They may skip meals or overeat, not out of physical need, but as a response to psychological or social pressure. This affects nutritional health.

Research by Cynthia & Simanungkalit, (2023) showed that of the 110 students studied, 80 people (79,2%) had a negative body image. These results indicate that many students have a negative body image. A negative body image influences a person's efforts to lose weight, including unhealthy eating patterns that can cause eating disorders, excessive physical activity, and the use of slimming products. A person with consistently negative body image experiences disturbed thinking, hopelessness, and decreased self-esteem.

Physical activity is an additional component that influences adolescents' nutritional status. Widiastuti (2023) showed

that a person's level of physical activity can affect their health. The less routine activities they perform and the more food they consume during their activities, the greater their risk of developing obesity. Study Winarto & Werdiharini (2023) said that students with a high BMI tend to do light physical activity compared to students with a normal BMI, because many teenagers do light and moderate activities, so the less exercise these teenagers do makes them more at risk of becoming obese.

The results of a preliminary survey conducted on students of the Applied Nutrition and Dietetics Undergraduate Study Program in 2023, at the Poltekkes Kemenkes Bengkulu, showed that of the 20 respondents aged 18 years, 20% of the participants had underweight nutritional status, 30% were normal, 20% were at risk of being overweight, 20% were obese I, and 10% were obese II. In an initial survey regarding body image from 20 samples, 65% of students showed a negative body image, whereas 35% had a positive body image. Based on the same physical activity survey, 25% of the students had light activity, 60% had moderate activity, and 15% had heavy activity. Based on the problems described above, this research aimed to determine the relationship between body image, physical activity, and nutritional status among Poltekkes Kemenkes Bengkulu students in 2024.

Methods

This research is a quantitative research using a cross-sectional design, starting with processing research ethics to the ethics commission after conducting a proposal examination. The research was carried out at the Nutrition Department of the Poltekkes Kemenkes Bengkulu students, in April 2024. The research sample was taken as a whole using a total sampling technique, where the number of samples was the same as the population, that is, 98 people. The inclusion criteria for this research were all active students at level 1 of STR Nutrition and Dietetics who were aged 18-20 years and willing to be interviewed.

Body image data was collected using the multidimensional body-self relations questionnaire appearance scale (MBSRQ-AS) consisting of 20 questions. This instrument

uses a Likert scale with five response options: strongly agree, agree, sometimes disagree, and strongly disagree. The score results if <69 is in the positive category and the score is ≥ 69 in the negative body image category (Al Vianita et al., 2020). Physical activity was measured using the Global Physical Activity Questionnaire (GPAQ), which consists of 16 items about physical activity that were collected seven days a week and then converted into minutes. Physical activity was categorized as heavy if ≥ 3000 , moderate if ≥ 600 , and light if <600 , and the respondent's nutritional status data were measured using digital scales and microtoises. Then the body mass index formula is used to calculate the measurement results and is categorized as normal if the Body Mass Index (BMI) is (18,5-22,9 kg/m²) and overweight (23-24,9 kg/m²) and obese (≥ 25 kg/m²). This GPAQ questionnaire has also been used in several studies in Indonesia and adapted based on the research objectives. Secondary data were the number of active STR Nutrition and Dietetics students for the 2024 academic year obtained from the Poltekkes Kemenkes Bengkulu campus, Nutrition Department.

Data analysis was a univariate analysis of the frequency distribution and population of independent and dependent variables. Bivariate analysis is the relationship between independent variables (body image and physical activity) and the dependent variable (nutritional status). Statistical tests were performed using the chi-square test with a significance level of 95% CI. The research has received ethical approval No: KEPK.BKL/223/05/2024 from the Health Research Ethics Committee of the Poltekkes Kemenkes Bengkulu. All respondents agreed to participate and signed the consent form.

Result and Discussion

Body Image, Physical Activity, Nutritional Status

Table 1 shows that the majority of Poltekkes Kemenkes Bengkulu students (51,0%) had a positive body image, most of the students (48,0%) had moderate physical activity, and the majority (52,0%) had abnormal nutritional status.

These results showed that of the 98 students, the majority (51,0%) had a positive

body image. From the results of the questionnaire, it was found that some students had a positive body image because they could think logically to evaluate their body shape and appearance from a good perspective; thus, teenagers with positive body perception had high self-confidence and good appearance. Students have good self-confidence, which is supported by statements found in questionnaires that discuss elements or dimensions of body image such as not feeling inferior about their appearance, feeling confident about their appearance, rarely comparing their appearance with other people's appearances, liking their appearance as it is, and not listening too much to other people's opinions about their appearance.

Table 1. Frequency distribution of body image, physical activity, and nutritional status

Characteristics	n	%
Body Image	48	49,0
Negative	50	51,0
Positive		
Physical Activity	32	32,7
Heavy	47	48,0
Currently	19	19,3
Light		
Nutritional Status	51	52,0
Abnormal	47	48,0
Normal		
Amount	98	100

In line with the findings Ripta et al. (2023) The results show that the majority have a positive body image. It was shown that they were satisfied with their bodies, confident about their bodies, and unworried about getting fat. In line with research Nurrahim & Pranata, (2024) most of the people who answered the questionnaire had a positive body image. Teenagers with good body perception are more confident, better able to adapt to body changes, and better able to overcome social pressure and unrealistic beauty standards. They are more likely to accept their bodies as they are by recognizing that they are unique and building positive social relationships and consuming a balanced diet (Nurrahim & Pranata, 2024). These results are consistent with research (Apriyani et al., 2024) It was found that the majority of subjects had a positive body image. This positive body image comes from self-confidence, optimism, higher education, and

better perception of teenagers' academic success. All these factors give teenagers appreciation and satisfaction for themselves (Apriyani et al., 2024).

Based on the level of physical activity, the majority of the students (48,0%) had moderate physical activity. The results of the interviews showed that some students had a moderate level of activity, such as carrying or lifting light loads, cleaning (sweeping, mopping), washing clothes/carpets by hand for 60 min, brisk walking, playing badminton,

playing volleyball, and swimming. In line with research Prisilia & Malinti (2023) the majority of respondents were in the moderate physical activity range. Moderate activity level and little time for physical activity and study habits, such as sitting or staring on a screen. In line with research Mufidah & Soeyono (2021) Most students fall into the moderate category, which means they tend to do physical activity for 20 minutes or 30 minutes every day for at least three days, or a combination of both for about 600 minutes every week.

The Relationship between Body Image and Nutritional Status

Table 2. Relationship between body image and nutritional status

Body Image	Nutritional Status				p-value	CI	OR
	Abnormal		Normal				
	n	%	n	%			
Negative	33	68,8	15	31,3	0,002	1,69-9,06	3,9
Positive	18	36	32	64			

The results showed that 68,8% of students experienced negative body image and abnormal nutritional status, while 36% of students experienced positive body image and abnormal nutritional status. The results of the analysis showed that there is a significant relationship between body image and nutritional status among the Poltekkes Kemenkes Bengkulu students in 2024 ($p = 0,002$). The OR test results showed that students who had a negative body image were 3,9 times more likely to have abnormal nutritional status than those who had a positive body image. Thus, it can be seen that not all respondents who have a negative body image have a good nutritional status, but there are still many respondents who have a negative body image and whose nutritional status is not normal (underweight or overweight). This shows that there were still many respondents who did not care about their nutritional status even though they felt dissatisfied with their own body image. This indifference can be explained by the fact that the majority of respondents were boarding school students, who tended to pay less attention to their food intake.

A person's perception of body image has a significant influence on eating behavior and nutritional status. A positive body image encourages someone to behave healthily, and a negative body image encourages someone to restrict eating and vomit intentionally. Body image assessment influences a person to

maintain and change a person's nutritional status to normal, underweight or overweight or even obese (Grogan, 2021). This finding is also supported by the results Damayanti et al., (2023). There was a significant relationship between body image and nutritional status. Both excess and underweight are often considered unfavorable because they do not comply with applicable beauty standards. Body image can affect a person's nutritional health, because it can directly influence what they eat. Teenagers, especially girls, can be influenced by a negative body image, which can cause them to do many things to achieve their desired weight. Their nutritional status will be affected if this action is carried out without sufficient nutritional knowledge (Damayanti et al., 2023). These findings are also supported by research Yulisma & Aulia Pratiwi, (2022), concluded that there is a relationship between body image and the nutritional status of adolescents. This was proven by the respondents who were malnourished and had a negative body image. Dissatisfaction with body image encourages most teenagers to adopt an unbalanced diet, resulting in malnutrition.

The Relationship between Physical Activity and Nutritional Status

The results of the study found that 75% of the students studied had heavy physical activity but

their nutritional status was not normal, and 34% of students had moderate physical activity and abnormal nutritional status, in addition to that, 57,9% of students had light physical activity and

abnormal nutritional status. The results of data analysis showed a significant relationship between physical activity and nutritional status ($p= 0,001$).

Table 3. The relationship between physical activity and nutritional status

Physical Activity	Nutritional status				p-value	CI	OR
	Abnormal		Normal				
	n	%	n	%			
Heavy	24	75	8	25	0,001	0,94-2,99	1,68
Currently	16	34	31	66			
Light	11	57,9	8	42,1			

The results of this study are in line with research Serly & Sofian, (2021) stated that there was a significant relationship between physical activity and nutritional status. The results of this study showed that students who carried out heavy physical activity had been actively doing activities on or off campus during the last week. Most students carry out activities at home for a long duration, such as mopping, washing clothes, sweeping, and ironing clothes, while activities on campus include gymnastics activities with a duration of 60 minutes; activities carried out outside the campus include playing basketball, badminton, swimming, and jogging/running at a frequency of 1-2 times/week with a duration of 60-120 minutes. Regular physical activity, such as that described above, can reduce fat accumulation, thereby reducing a person's risk of being overweight.

Moderate physical activity can cause an abnormal nutritional status. A student's lifestyle is flat or involves minimal physical activity and is mostly sitting or lying down. Usually, moderate physical activity can increase the body's basal metabolism by burning calories in the body because the body burns calories while at rest. This finding is also supported by research Sukianto et al. (2020) that there is a relationship between physical activity and nutritional status. His research shows that the value of a person's nutritional status is greater with a lighter level of physical activity, and conversely, the value of a person's nutritional status is lower if they engage in a lot of physical activity.

In line with Nisa et al. (2021), there is a relationship between physical activity and the nutritional status of adolescents. The required energy increases with an individual's level of physical activity. Someone who is overweight

needs more energy to engage in physical activity than someone who has a thin nutritional status, and will burn more energy to help lose weight.

Conclusion

Most students experienced a positive body image and moderate physical activity. In addition, they had an abnormal nutritional status. There is a relationship between body image, physical activity, and nutritional status among Poltekkes Kemenkes Bengkulu students by 2024. Students who have a negative body image are 3,9 times more likely to have abnormal nutritional status than those who have a positive body image. Female students with normal nutritional status should be able to maintain their body condition, and respondents with abnormal nutritional status can improve their healthy lifestyle by exercising and managing balanced nutritional intake.

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