Body Image and Nutritional Knowledge with Nutritional Status Among Adolescent Girls in SMA Negeri I Bandar, Bener Meriah District, Aceh Province

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Abstract: Dissatisfaction of body image often makes women unhappy and even leads to various conditions and disorders such as decreased nutritional status, anxiety, and eating disorders. The current research aims to find out the relationship between body image and nutritional knowledge with nutritional status. Analytical Cross-sectional study was conducted to adolescent girls aged 16-18 years in SMA Negeri 1 Bandar in August 2018 with a total sample of 161 people. The samples are selected using proportional stratified random sampling. Data were collected using the Body Shape Questionnaire (BSQ) and nutritional knowledge questionnaire. Chi-Square test and linear regression tests were used with a confidence level of 95% at ($\alpha = 0.05$). Nutritional status was significantly related to body image and nutritional knowledge ($p < 0.005$). Linear regression analysis showed that the correlation between body image, nutritional knowledge, and nutritional status is quite strong ($R = 0.438$) with a coefficient of determination of 19.2% ($p < 0.001$). The result shows a significant relationship between body image and nutritional knowledge with nutritional status. It is suggested that nutritional education is needed so that adolescents girls have nutritional knowledge, and their body image distortion can be prevented.

Keywords: Body Image, Nutritional Knowledge, Nutritional Status

1 Introduction

Teenagers are a transition from childhood to adulthood called puberty. At this age, they begin to determine the foods that they like without taking into account the nutritional aspects. Teenagers have a lot of activities outside the home. So, they tend to choose the food that they like rather than what they need.

Central Statistics Agency (BPS) project that the population of teenagers in 2016 aged 15-19 years for men as much as 11.4 million (4.3%) and women as much as 10.8 million (4.1%) of the population of 258.7 million people. In 2018, adolescents aged 15-19 years for men at 11.3 million

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(4.2%) and women at 10.8 million (4.0%) of the population of 265.1 million people [1]. In 2016, the population of adolescents aged 10-24 years was 66.3 million people or 25.62% of the total population of 258.7 million people [2].

The huge number of adolescent will greatly affect the quality of the population in the future. Adolescent health at this time will be a capital for the development of the health level of future generations. Adolescent health can be identified from nutritional problems in adolescents.

The most common nutritional problem in adolescents is the lack of nutritional intake, which results in malnutrition that is too thin and can be affected by anemia due to iron deficiency [3]. Poor nutritional intake due to incorrect eating behaviors is common in young women. Healthy young women are reflected in the healthy character of nutrition. One of the main characteristics is nutrition, which includes body image, nutritional knowledge, eating behavior, and nutritional status [4].

Basic Health Research (RISKESDAS) Ministry of Health of the Republic of Indonesia 2013 based on Body Mass Index by Age (BMI / U), the prevalence of thinness in adolescents aged 13-15 years is 11.1% consisting of 3.3% very thin and 7, 8% thin. Seventeen provinces with a prevalence of very thin children (BMI / U) above the national prevalence rate, Aceh was in the second rank. The prevalence of thinness in adolescents aged 16-18 years nationally is 9.4% (1.9% very thin and 7.5% thin). Eleven provinces with a prevalence of thinness above the national rate, the first position is Aceh province [5]. Nutrition Status Monitoring Survey Results (PSG) 2017 in Aceh, based on BMI / U indicators, reported that for children aged 5-18, 7.7% of school-age children were very thin, and 29.7% were fat [6].

Nutritional knowledge is one of the factors influencing the wrong body image of that person. Nutrition knowledge comes from the environment, education, parents, or the mass media. The economic status will determine the availability of facilities needed for certain activities so that socioeconomic status will affect his/her knowledge [7].

Body Image is a perception of the body, including thoughts, perceptions of feelings, emotions, imagination, judgment, physical sensations, awareness, and behavior regarding the appearance and shape of his body influenced by the idealization of body imaging in society and social interactions in their environment. The understanding of body image is divided into two, underestimate and overestimate. The underestimate occurs when someone perceives his body thinner than the actual size. Overestimate occurs when a person perceives that his body is fatter than the actual size. Body image dissatisfaction is the feeling that arises when someone has a negative view of herself [8], [9]

High dissatisfaction with body shape in adolescent girls experiencing an increase in the amount of fat tissue, as many as 7.6% of girls will consume food laxatives or regurgitate the food they eat to reduce body weight to make it look slim [10]. The wrong perception of body image will affect one's life behavior. Changes in eating behavior will be done in the hope that they will get and maintain the body shape that they want.

2 Method

Analytical Cross-sectional study was undertaken among adolescent girls aged 16-18 years in SMA Negeri 1 Bandar on August 2018 with a total sample of 161 students using proportional stratified random sampling

Data collection was done through questionnaires and direct measurements. The dependent variable was body image. The questionnaire used the Body Shape Questionnaire (BSQ) [11]. BSQ consists of 34 question questions, scale 1 for 'never', scale 2 for' rare', scale 3 for 'sometimes', scale 4 for 'often', scale 5 for 'very often' and scale 6 for ' always', with a range of total scores 34 - 204.

The main independent variables were nutritional knowledge and nutritional status. Nutrition knowledge data was obtained through filling nutritional knowledge questionnaires consisting of 20 multiple-choice questions. Each sample is scored, 0 for an incorrect answer, and 1 for the correct answer. Data on adolescent nutritional status is obtained by measuring weight and height. Bodyweight measurements using a digital weight scale with accuracy to 0.1 kg. Height measurements using microtoise with the accuracy of 0.1 cm

To see an overview of the main characteristics and independent variables, univariate analysis of categorical data was carried out by presenting numbers and percentages. Bivariate and Multivariate analysis was performed by using the Chi-Square test and linear regression test with a confidence level of 95% at ($\alpha = 0.05$).

3 Result

Based on body image assessment using BSQ, 91 students (56.6%) had a positive body image, and 70 (43.5%) students had a negative body image. Assessment of nutritional status is determined using the BMI index by age to describe body proportions. Of 161 female students, 72% have normal nutritional status.

Table 1 showed the results of a bivariate analysis between body image and nutritional knowledge with nutritional status at SMA Negeri I Bandar. Nutritional status was significantly related to body image ($p = 0.001$) and nutritional knowledge ($p = 0.01$)

Table 1. Results of Analysis of the Relationship between Body Image and Nutritional Knowledge with Nutritional Status

	Nutritional Status						Total		*Sig*
	Underweight		Normal weight		Overweight				
	F	%	f	%	F	%	f	%	
Body Image									
Positive	20	12	68	42	3	2	91	56,5	0,001
Negative	4	3	48	29	18	12	70	43,5	
Total	**24**	**15**	**116**	**71**	**21**	**14**	**161**	**100,0**	
Nutritional Knowledge									
High and Moderate	7	4,3	71	44,1	14	8,7	92	57,1	0,01
Low	17	10,6	45	28	7	4,3	69	42,9	
Total	**24**	**14,9**	**116**	**72,1**	**21**	**13,0**	**161**	**100,0**	

Table 2 showed the results of the linear regression analysis of the nutritional status, body image, and nutritional knowledge. Linear regression analysis showed that the correlation between body image, nutritional knowledge, and nutritional status is quite strong (R = 0.438) with a coefficient of determination of 19.2% (p <0.001). From the coefficient of determination of regression of 0.192 shows that changes in body image and nutritional knowledge variables can explain changes in nutritional status by 19.2%, the remaining 80.8% is explained by other variables that affect nutritional status.

Table 2. Linear Regression Model for Nutritional Knowledge Body Image, and Nutritional Status

Model	R	R Square	Adj R Square	Sig
1 (Nutritional Knowledge and Body Image)	0,438	0,192	0,182	0,00

4 Discussion

4.1 Body Image

The results of the analysis of the relationship of body image with the nutritional status of teenage girls of SMA Negeri 1 Bandar obtained 91 positive body image data of 56 students and positive body image of normal nutritional status of 68 female students (42%). It can also be a negative body image of 70 female students of 43.5% and a negative body image of the normal nutritional status of 48 female students (29%).

The Chi-Square test shows the p-value of significance is 0,000 (p = 0,000), which means there is a meaningful relationship between body image and the nutritional status of female teenagers at SMA Negeri 1 Bandar. It indicates the better perception of the body image of young women, the better the nutritional status they have.

The result of the current research is in line with Syahrir's research. He reported 24 people (33.8%) respondents who had a negative body image perception (experiencing dissatisfaction with their body shape) was not only occur in overweight respondents (overweight and obese), but also for respondents with normal nutritional status of 12 people (50%). Using the chi-square analysis test, the research showed a p-value 0.001 smaller than $\alpha = 0.05$, which indicated a relationship between body image and nutritional status (BMI / U) of respondents at the Athirah Islamic High School in Makassar in 2013 [12].

The results of the current study are also in line with research by Widianti (2015). The research shows body image measurements through the Body Shape Questionnaire (BSQ). 59.7% respondents were satisfied with their body shape, and 40.3% respondents feel dissatisfied with their body shape. She also reported 9 subjects (12.5%) with normal nutritional status but were not satisfied with their body shape. The results of the bivariate analysis showed that body image associated with nutritional status with r = 0.482, p = 0,000 [13].

Body image dissatisfaction in young women occurs due to the mismatch of body shape with the expected body shape. Puberty in adolescent girls is accompanied by an increase in body fat [14]. Cause they often feel dissatisfied with their body shape because the changes that occur are not necessarily in accordance with their wishes.

Body image is one of the factors that influence food selection. Food is needed by humans to support growth, maintain life, and carry out physical activity. If food consumption is less than the body's needs, then food reserves contained in the body that is stored in muscle and fat will be used [15].

Body Image is generally experienced by those who think that appearance is the most important factor in life. It is especially true in adolescents [9]. It is also comparable to the results of the study as well as the thin nutritional status of 15%, positive perception of 12%, and a negative perception of 3%. In the nutritional status of 14% fat, positive perception is 2%, and negative perception is 12%. It indicated that young women like lean body shape than fat body shape without having to have nutritional status.

Fear of fatness is a term to describe the rejection of being overweight or obese, accompanied by weight loss efforts that have nothing to do with body size. Fear of fatness had the characteristic that many people affected by problems with body dissatisfaction (perceive themselves as fatter than they are). In contrast, others continue to maintain a thin body even though they admit that they are not overweight [8].

This situation results in inappropriate control of body shape in people whose weight is normal or even less. Misperceptions in seeing a teenager's self-change causes them not to pay attention to nutritious food intake. Though nutritious food is very important to offset the very rapid changes, both physically, psychologically, and socially in the adolescent growth spurt period. Weight loss will cause malnutrition, which will result in stunted growth and development processes.

Other impacts that can arise a person easily infected with infectious diseases and decreased academic achievement. This intake deficiency if it lasts for a long time it will result in weight loss and other nutritional deficiencies. The pattern of consumption and food selection by young women is also influenced by many other factors, socioeconomic factors, nutritional knowledge, and infectious diseases. But food choices by teenagers are more based on the assumptions of friends. Therefore, the perception of the body image of young women must be considered

4.2 Nutritional Knowledge

Based on the data, a relationship analysis was also conducted to determine the relationship between the variables studied, namely nutritional knowledge as an independent variable and nutritional status as the dependent variable using the Chi-Square test. The significance value is 0.010 ($p = 0.010$), and H0 is rejected. It means there is a significant relationship between nutritional knowledge and nutritional status. It appears that the lower the nutritional knowledge of adolescent girls, the more likely it is to have a nutritional status of thin or fat.

This research is in line with Agnes's research which states that the relationship between knowledge and nutritional status shows that the lower the knowledge of students about nutrition, the more likely it is to have thin or fat nutritional status. Based on the Chi-Square test, the calculated value = 35.04> 30.98, which means there is a significant relationship between nutritional knowledge and nutritional status. From sufficient nutritional knowledge 50.6% normal nutritional status 44.3% while low nutritional knowledge 40.5% normal nutritional status 8.9%.

This result is also consistent with Sefaya's research (2017) which states that there is a significant relationship between nutritional knowledge and nutritional status based on the results of the Pearson correlation analysis statistical test ($p <0.05$). Most respondents (95.2%) had normal nutritional status and nutritional knowledge, 28.6% were in a good category [16].

Nutrition knowledge is very important in determining a person's behavior in determining the type of food chosen. The better the knowledge of a person's nutrition, the better it is in determining the type and amount of food needed for the body. It also includes the quality, variety, and way of serving food. For example, the concept of food is related to physical needs, whether eating from the origin of satiety or meeting the needs of the body [17]. If the nutritional needs are met, then the person tends to get a good nutritional status.

Nutrition knowledge includes knowledge about food selection and daily consumption properly and provides all the nutrients needed for the normal functioning of the body. The choice and consumption of food affect the nutritional status of a person. Good or optimal nutritional status occurs when the body gets enough nutrients the body needs. Poor nutritional status occurs when the body experiences a deficiency of one or more essential nutrients. Over nutritional status occurs when the body obtains excessive amounts of nutrients, causing harmful effects [7].

Inadequate knowledge of adolescent nutrition, lack of understanding of good eating habits, and lack of understanding of the nutritional contribution of various types of food will lead to problems of intelligence and productivity [14]. It was concluded that the nutritional knowledge of teenage girls at SMA Negeri 1 Bandar is related to nutritional status. A Growing attitude begins with the

knowledge that is perceived as a good thing or not good, then interpreted into him. Nutrition education can be done with nutrition education programs conducted by the government. The nutrition education program is expected to be able to influence the knowledge, attitudes, and behavior of adolescents on the choice of food types and eating habits [18].

5 Conclusion

There was a significant relationship between body image and nutritional knowledge with nutritional status. The increasing understanding of positive body image among adolescents needs to be considered. The body image should not affect the wrong eating patterns in adolescents. The continuous weight loss will cause a state of malnutrition, which results in stunted growth and development.

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