Portrait of Knowledge About Nutritional Needs and Nutritional Status Among Fashion Students at Universitas Negeri Medan

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Abstract. Nutritional issues among university students remain a serious concern as they affect health, learning concentration, and productivity. Many students face nutrient imbalances due to irregular eating patterns, and limited knowledge of daily nutritional needs. This study aimed to describe nutrition knowledge and nutritional status among fashion students at Universitas Negeri Medan. Using a descriptive quantitative design, 60 students were selected by purposive sampling. Nutrition knowledge was assessed through a structured questionnaire, and nutritional status was determined by Body Mass Index (BMI). Results showed that 28.3% of students had low knowledge, 71.7% moderate, and none had good knowledge. Regarding nutritional status, 56.7% had normal BMI, 20% were underweight, and 23.3% overweight. Targeted nutrition education is therefore essential to enhance students' understanding and promote healthy lifestyles and academic performance.

Keywords: nutritional needs; knowledge; nutritional status.

1 Introduction

Nutritional needs are a crucial aspect of maintaining health and preventing various diseases, particularly among late adolescents and young adults, such as university students. Inadequate nutritional needs make students vulnerable to nutritional problems such as obesity, Chronic Energy Deficiency (CED), micronutrient deficiencies, and anemia. A study shows that 88.8% of adolescents with anemia are obese [1]. One way to break the chain of nutritional problems is to improve nutritional status. Optimal nutritional status supports good growth and development, optimal academic performance, and improves quality of life. However, poor nutritional status can lower immunity, worsen health disorders, and affect students' academic productivity. Indonesia faces a double nutritional problem, namely overnutrition, which is a risk factor for non-communicable diseases such as cardiovascular disease, cancer, and metabolic syndrome, and undernutrition, which causes energy deficiency and reduced productivity [2].

ICIESC 2025, September 16, Medan, Indonesia

DOI 10.4108/eai.16-9-2025.2361105

In North Sumatra, among people aged >18 years, the prevalence of obesity is 24.3%, overweight 16.6%, and wasting 3.8%. These figures exceed the national prevalence of nutritional problems among people aged >18 years, which is obesity 23.4%, overweight 14.4%, and wasting 7.8% [3]. Research by Tumanggor shows that 92.3% of students at the North Sumatra Health Institute have abnormal nutritional status [4]. Research conducted at other universities shows that 29,2% of students have abnormal nutritional status, namely obesity [5].

Nutritional status is a condition determined by the physical need for nutrients obtained from food that can be physically measured [6]. Many factors influence nutritional status, including income, parental education, parental employment, and knowledge [7], [8]. One important factor that deserves attention is knowledge. Nutrition knowledge among adolescents in Indonesia is still relatively low, often resulting in unhealthy consumption behaviours, such as skipping breakfast, excessive consumption of fast food, and low intake of fruits and vegetables [9]. Research by Kanah shows that many students still have poor nutritional knowledge (40.50%) and adequate nutritional knowledge (50.64%), with only 8.86% of students having good nutritional knowledge [10]. Preventing nutritional problems requires an understanding and practice of a healthy lifestyle, especially by applying a balanced diet [11]. Good knowledge supports good nutritional intake, which in turn determines good nutritional status. Most students with good balanced nutrition knowledge have a normal Body Mass Index (43%), and only a small portion have an abnormal BMI [12].

Nutrition knowledge is an asset for students in determining their food choices and understanding that food is closely related to health. If students consume food that does not meet their daily nutritional needs and follow excessive diets, this will affect their physical development and learning process [13]. Knowledge has a significant relationship with the adequacy of nutrient intake, including energy, carbohydrates, protein, and fat [14]. Research by Aulia also shows that knowledge and attitudes about nutrition in choosing food will affect the food intake consumed [15]. During this age period, nutritional needs increase and are accompanied by changes in eating habits, making students vulnerable to nutritional problems if not balanced with good nutritional knowledge. Based on this background, this study aims to examine the knowledge of nutritional needs and the frequency distribution of the nutritional status of students in the Fashion Design Study Program at Universitas Negeri Medan.

2 Methods

This type of research is a descriptive study with a quantitative approach. The design used is cross-sectional. This research was conducted at the Fashion Design Study Program, Medan State University. The research activities were carried out from March to November 2025. The population in this study was all active students in the Fashion Design Study Program. The sample size in this study was 60 respondents. The sampling technique used was purposive sampling with inclusion and exclusion criteria. The inclusion criteria were active students in the Fashion Design Program, in good health, and willing to be respondents, as evidenced by informed consent. The exclusion criteria were having bone or physical abnormalities that could hinder nutritional status measurements and being unable to use a cell phone.

The instruments used in this study were questionnaires and anthropometric tools. Questionnaires were used to determine the identity of respondents and their knowledge of daily nutritional needs. Anthropometric tools included digital scales to measure weight and microtoises to measure the height of adolescents. The weight measuring device had an accuracy of 0.1 kg, and the height measuring device had an accuracy of 0.1 cm. The interpretation of knowledge measurement results is categorized into three categories: Poor (<60), Moderate (60-80), and Good (>80) [16]. Nutritional status categories based on BMI are divided into three categories by World Health Organization: malnutrition (<18.5), normal nutrition (18.5-22.9), and overnutrition (>22.9). All respondents were asked to sign informed consent after receiving an explanation of the study's purpose and procedures. The confidentiality of respondents' personal data was maintained and used only for research purposes. This research received a research ethics committee from the Faculty of Medicine, University of Muhammadiyah Sumatera Utara with a decision letter No: 1531/KEPK/FKUMSU/2025 on June 16, 2025. Data analysis using univariate methods.

3 Results And Discussion

Data on the characteristics of respondents were obtained from filling out a questionnaire which included gender, age, parents' education and family income. Data on characteristics were analyzed using frequency distribution. Data on the results of respondent characteristics can be seen in Table 1.

Table 1. Characteristics of Respondents

Variable	Category	N	(%)
Gender	Male	3	5.0
	Female	57	95.0
Age	19 years old	15	25.0
	> 19 years old	45	75.0
Father's Education	No Formal Education	2	3.3
	Elementary School	8	13.3
	Junior High School	6	10.0
	Senior High School	31	51.7
	College	13	21.7
Mother's Education	No Formal Education	2	3.3
	Elementary School	8	13.3
	Junior High School	7	11.7
	Senior High School	30	50.0
	College	13	21.7
Parents' Income	<Rp. 1.500.000/month	12	20.0
	Rp. 1.500.000-2.500.000/month	28	46.7
	Rp. 2.500.001-3.000.000/month	8	13.3
	>Rp. 3.000.000/month	12	20.0

Characteristic data showed that most respondents were female (95.0%), while only 5.0% were male. The dominance of female respondents is likely because this study was conducted among fashion design students, where the majority of students who enrol and are interested in fashion

are female. Another possible factor is that participants who have an interest and concern in nutrition are female. This is in line with previous studies showing that women have a more serious perception of health than men [17]. In terms of age, the majority of respondents were aged >19 years (75.0%), while the rest were aged 19 years (25.0%). This explains that the respondents were in the late adolescence to early adulthood phase, which is an important period for developing healthy eating behaviours and good nutritional knowledge in order to meet daily nutritional needs and achieve optimal nutritional status [18].

The education level of fathers was dominated by high school graduates (51.7%) and college graduates (21.7%), as was the education level of mothers, with 50.0% being high school graduates and 21.7% being college graduates. This is important because the level of parental education is often associated with nutritional parenting patterns, food provision, and influence on children's nutritional status. The relatively high level of education among mothers (50% high school and 21.7% college) is a potential factor in supporting the respondents' nutritional knowledge and behavior. However, there are still around 16.6% of parents (fathers or mothers) with low education (no schooling or elementary school) who may have limited nutritional knowledge in the family. Research results show that the higher a person's education, the higher their knowledge [19]. In addition, a study conducted in the city of Bandung shows that good feeding practices are mostly carried out by people with higher levels of education [20].

Nearly half of families have an income of IDR 1,500,000–IDR 2,500,000 (46.7%), followed by the income category of <IDR 1,500,000 (20.0%) and >IDR 3,000,000 (20.0%). These data indicate limited purchasing power in meeting balanced nutritional needs. This could be one of the causes of the variation in nutritional status found, both malnutrition and overnutrition, because economic limitations often affect purchasing power and the quality and quantity of food consumed. There is a relationship between family income and the nutritional status of family members, such as the incidence of obesity [21].

This study highlights the level of knowledge that students have and the nutritional status categories to which students are categorized. Data on respondents' nutritional needs and nutritional status can be seen in Table 2.

Table 2. The Frequency Distribution of Knowledge About Nutritional Needs and Nutritional Status

Variable	Category	N	(%)
Knowledge	Poor	17	28.3
	Moderate	43	71.7
	Good	0	0
Nutritional status	Underweight	12	20.0
	Normal	34	56.7
	Overweight	14	23.3

Based on Table 2, The respondents' level of knowledge about nutritional needs was mostly in the moderate category (71.7%), with 28.3% in the poor category and none in the good category. The data in the frequency distribution table of the research variables shows that the respondents' level of knowledge about nutritional needs is mostly in the moderate category (71.7%), and 28.3% are in the poor category, with none having good knowledge. This condition shows that

the respondents have a basic understanding of nutrition, but it is not deep enough to be optimally applied in their daily lives. Limited nutritional knowledge has the potential to influence food choices and consumption patterns, ultimately impacting nutritional status. Previous studies have also confirmed that nutritional knowledge is significantly related to adolescent eating behaviors and nutritional status. The lower the nutritional knowledge, the greater the likelihood of being underweight or overweight [10]. Individuals with low knowledge tend to consume fast food and low-fiber foods, which can increase the risk of malnutrition or obesity. Conversely, those with good nutrition knowledge can maintain a balanced intake so that their nutritional status is more optimal.

The nutritional status of respondents varied, with the majority having normal nutritional status (56.7%), while 20.0% were classified as malnourished, and 23.3% were overweight. These figures reveal the existence of a double burden of malnutrition, namely the simultaneous occurrence of undernutrition and overnutrition. This phenomenon often occurs in developing countries, including Indonesia, due to the nutritional transition. On the one hand, there are still problems of undernutrition due to limited intake, while on the other hand, there is an increase in overnutrition due to the consumption of foods high in energy, fat, and sugar. A UNICEF landscape analysis based on the 2023 Indonesian Health Survey shows an increasing trend of overweight/obesity in young age groups alongside undernutrition, as well as differences according to gender and socioeconomic factors [3], [22]. Poor nutritional status will have many negative impacts on students, such as illness, decreased concentration in learning, decreased productivity, and disruption of academic life. Previous studies have shown a significant relationship between nutritional status and academic achievement [23]. Individuals with poor nutritional status are also 6.273 times more likely to experience anemia [1].

4 Conclusions

The study results showed that the respondents' nutritional knowledge is mostly in the moderate category, while the rest is in the poor category, and none of the respondents reached the good category. This condition has implications for the respondents' nutritional status, where most of them have normal nutritional status, but there are still cases of malnutrition and overnutrition. These findings confirm the existence of dual nutrition problems in the younger age group, which are likely influenced by limited nutrition literacy and family socio-economic factors. An integrated nutrition education program is needed on campus so that students have a better understanding of nutritional needs. Students are also expected to be able to apply healthy eating patterns in their daily lives.

Acknowledgment

The research team would like to thank all respondents who have been willing to participate in this study. Especially thank you to LPPM UNIMED for providing funds for this research, so that the research can be carried out well and according to plan. Thank you to all those who have been involved in this research.

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