MEDALION JOURNAL: Medical Research, Nursing, Health and Midwife Participation | ISSN(e): 2986-7754
Volumes 6 No. 3 (2025)

THE RELATIONSHIP BETWEEN STRESS LEVELS AND PHYSICAL ACTIVITY WITH THE NUTRITIONAL STATUS OF FINAL STUDENTS OF THE 2021 CLASSIFICATION AT THE FACULTY OF HEALTH SCIENCES, TEUKU UMAR UNIVERSITY

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Received	: 17 July 2025	Published	: 20 September 2025
Revised	: 30 July 2025	DOI	: https://doi.org/10.59733/medalion.v6i3.222
Accepted	: 16 August 2025	Publish Link	: https://medalionjournal.com/index.php/go

Abstract

Nutritional problems remain a significant public health challenge, encompassing both undernutrition and overnutrition, which affect quality of life and productivity. Stress levels and physical activity are factors that may influence nutritional status, particularly among final-year students who often face high academic pressure. This study aimed to analyze the relationship between stress levels and physical activity with nutritional status among final-year students of the 2021 cohort at the Faculty of Health Sciences, Teuku Umar University. This research employed an observational analytic design with a cross-sectional approach. A total of 142 respondents were selected using a simple random sampling technique from a population of 220 students. Stress levels were measured using the Depression Anxiety Stress Scale (DASS-42), physical activity using the Physical Activity Level (PAL), and nutritional status based on Body Mass Index (BMI). The data were analyzed using Spearman correlation with a significance level of $p<0.05$. The results showed that most respondents had normal nutritional status (64.1%), experienced severe stress (38%), and had light physical activity (35.2%). Statistical analysis revealed no significant relationship between stress levels and nutritional status ($r = -0.068$, $p = 0.425$), nor between physical activity and nutritional status ($r = 0.030$, $p = 0.722$). These findings suggest that nutritional status among students may be influenced by other factors beyond stress and physical activity. Therefore, it is recommended that students maintain healthy eating habits and balanced lifestyles despite academic pressures, while further research should explore additional determinants of student nutritional status.

Keywords: ***stress, physical activity, nutritional status, students, cross-sectional study***

INTRODUCTION

Nutritional problems remain a crucial issue in public health development, both in developing and developed countries. Imbalanced nutrition, whether in the form of nutrient deficiencies or excesses, can have serious impacts on quality of life, productivity, and the risk of non-communicable diseases. In Indonesia, the prevalence of nutritional problems remains quite high. Based on data from the 2018 Basic Health Research (Riskesdas), 2.4% of adolescents were severely underweight, 6.8% were underweight, 16% were obese in the 13–15 age group, and 13.5% were obese in the 16–18 age group. This fact indicates that nutritional problems are dual in nature: undernutrition and overnutrition, both of which have implications for long-term health. One important factor influencing nutritional status is physical activity. Physical activity encompasses any form of bodily movement that involves skeletal muscle contraction and increases energy expenditure. This activity plays a role in maintaining energy balance, body composition, and improving metabolic and mental health. College students, as a young age group, are in a developmental period that requires optimal physical activity to support academic productivity and health. However, in reality, final-year students tend to experience decreased physical activity due to increased academic workloads and more time spent studying in front of a computer. Previous research has shown a significant relationship between physical activity and nutritional status, with students with low physical activity having a higher risk of being overweight or obese (Alkaririn, Aji, & Afifah, 2022).

In addition to physical activity, psychological factors such as stress also contribute to nutritional status. Stress is the body's response to internal and external stressors, which can include academic, social, emotional, or financial pressure. For students, especially those in their final years, stress often arises from the demands of completing a thesis, the burden of exams, and preparing for the workforce. The stress experienced by students can affect the body's physiological balance, including the hormonal system associated with energy metabolism and eating patterns. Psychologically, stress can reduce appetite or even encourage overeating, ultimately impacting nutritional status.,The World Health Organization (WHO) reports that more than 350 million people worldwide experience stress, ranking it as the fourth leading cause of global health problems. The prevalence of stress among college students is also quite high, reaching 38–71% globally, 39.6–61.3% in Asia, and 36.7–71.6% in Indonesia. These high figures indicate that stress is a serious problem that deserves attention, especially among students who are in the transition to adulthood. Research by Zefanya et al. (2025) found a significant relationship between stress levels and nutritional status, where students with high stress levels have a greater tendency to experience overnutrition.

Initial interviews with several final-year students at Teuku Umar University's Faculty of Health Sciences also support this phenomenon. Most respondents reported experiencing moderate to severe stress due to their thesis writing, which has resulted in sleep disturbances, loss of appetite, and unhealthy fast food consumption. This condition can potentially lead to weight loss in some students, while in others, it can actually lead to weight gain due to irregular eating patterns. Based on the description above, it can be concluded that college students' nutritional status is influenced by a combination of internal factors (dietary patterns, physical activity, and stress levels) and external factors (social and academic environments). However, research on the relationship between stress and physical activity and nutritional status in final-year college students is still limited, particularly in the Aceh region. Therefore, this study was conducted to analyze the relationship between stress levels and physical activity and nutritional status in final-year college students, class of 2021, at the Faculty of Health Sciences, Teuku Umar University.

LITERATURE REVIEW

Nutritional status

Nutritional status is a person's health condition determined by the balance between nutrient intake and the body's needs. Body Mass Index (BMI) is often used as a simple indicator to assess nutritional status in adults. According to the Ministry of Health (2013), BMI categories include underweight (<18.5), normal (18.5–24.9), overweight (25.0–27.0), and obesity (>27). An unbalanced nutritional status can lead to multiple problems, both malnutrition and obesity, both of which risk reducing productivity and long-term health (Leviana & Agustina, 2024).Factors influencing nutritional status include food intake, infectious diseases, age, gender, physical activity, and stress. Additionally, external factors such as socioeconomic status, nutritional knowledge, food availability, and the social environment also play a role (Cicilia Sindar, Punuh, & Amisi, 2019).

Stres

Stress is defined as the body's response to psychosocial pressure that can affect an individual's physiological and psychological functioning. In college students, stress often arises from academic demands, family pressures, and socioeconomic issues. The World Health Organization (WHO) reports that more than 350 million people worldwide experience stress, and the prevalence among college students is quite high, at 36.7–71.6% in Indonesia. Stress can directly impact eating patterns and metabolism through hormonal mechanisms, particularly increased cortisol, which triggers changes in appetite. Research by Zefanya et al. (2025) showed a positive relationship between stress levels and nutritional status, with students with high stress levels tending to be overweight. However, Multazami (2022) found a different result, reporting no significant relationship between stress and nutritional status. This difference may be explained by differences in stress coping mechanisms among individuals.

Physical Activity

Physical activity is any form of bodily movement that involves muscle contraction and increases energy expenditure above resting levels. This activity is divided into three categories based on intensity: light, moderate, and vigorous (FAO, 2001). According to the WHO (2020), physical activity extends beyond formal exercise to include everyday activities such as walking, household chores, and recreational pursuits. Physical activity plays a crucial role in maintaining energy balance, body composition, metabolic health, and mental health. College

students with low levels of physical activity are at risk of weight gain and obesity. Research by Alkaririn, Aji, & Afifah (2022) found a significant relationship between physical activity and nutritional status in college students, with low levels of activity increasing the risk of being overweight. However, a study by Wenni et al. (2023) reported different results, with no significant relationship between physical activity and nutritional status, suggesting other factors may be at play.

METHOD

This study used an observational analytical design with a cross-sectional approach to analyze the relationship between stress levels and physical activity with the nutritional status of final-year students in the 2021 intake at the Faculty of Health Sciences, Teuku Umar University. The study population was all 220 students in the 2021 intake, with a sample of 142 respondents determined using the Slovin formula and simple random sampling techniques. Inclusion criteria were final-year students in their 7th or 8th semester who were willing to participate, while students who were on academic leave or withdrew were excluded. Stress levels were measured using the DASS-42 questionnaire, physical activity using the Physical Activity Level (PAL), and nutritional status using the Body Mass Index (BMI) based on weight and height measurements. Data were analyzed univariately to describe respondent characteristics, and bivariately using the Spearman correlation test with a significance level of $p<0.05$.

RESULTS AND DISCUSSION

Research result

Univariate Analysis

Table 1.
Frequency distribution analysis of stress levels and physical activity with nutritional status of final year students of the 2021 intake at the Faculty of

No	Variables	Amount	Percentage (%)
1	**Age**		
	20 years	7	4.9
	21 years	53	37.3
	22 years	59	41.5
	23 years	23	16.2
Total		**142**	**100.0**
2	**Gender**		
	Man	48	33.8
	Woman	94	66.2
Total		**142**	**100.0**
3	**Nutritional status**		
	Normal	91	64.1
	Thin (light)	8	5.6
	Thin (weight)	6	4.2
	Fat (light)	17	12
	Fat (weight)	20	14.1
Total		**142**	**100.0**
4	**Physical Activity**		
	Light	50	35.2
	Currently	47	33.1
	Heavy	45	31.7
Total		**142**	**100.0**
5	**Stress Level**		
	Normal	20	14.1
	Light	26	18.3
	Currently	42	29.6
	Critical	54	38.0
Total		**142**	**100.0**

Source: Primary data 2025

Based on Table 1, it shows that the majority of respondents are in the 22-year-old age group, as many as 59 respondents (41.5%). Based on nutritional status, the majority are in the normal category, as many as 91 respondents (64.1%). Based on physical activity, the majority are in the light category, as many as 50 respondents (35.2%). Based on stress levels, the majority are in the severe category, as many as 54 respondents (38%).

Bivariate Analysis

Based on the results of the bivariate analysis carried out using the Spearman test, it can be seen as follows.

1. The relationship between stress levels and nutritional status

Table 2. Spearman correlation test of stress level with nutritional status

Stress level	Nutritional status										r	P
	Heavy obesity		Light fat		Thin and heavy		Light weight		Normal			
	f	%	f	%	F	%	f	%	F	%		
Normal	2	10	2	10	1	5.0	0	0.0	15	70.0		
Critical	8	14.8	3	5.6	2	3.7	3	5.6	38	70.4		
Light	5	19.2	4	15.4	1	3.8	2	7.7	14	53.8	-0.068	0.425
Currently	5	11.9	8	19	2	4.8	3	7.1	24	57.1		
Total	**20**	**14.1**	**17**	**12.0**	**6**	**4.2**	**8**	**5.6**	**91**	**64.1**		

Source: primary data 2025

Table 2 shows that the stress level variable has a correlation coefficient value of -0.068 between the stress level variable and nutritional status, meaning that there is a very low correlation between stress level and nutritional status in a negative direction. To determine whether the HO is accepted or rejected, a hypothesis test is conducted by looking at the (*) or (**) signs in the correlation coefficient. Based on the test results in the table above, there are no (*) or (**) signs in the correlation coefficient. The significance value is 0.425, which is greater than the p-value (0.425> 0.05). This means there is no relationship between stress levels and the nutritional status of final year students.

2. The relationship between physical activity and nutritional status

Table 3. Spearman correlation test of physical activity with nutritional status

Physical activity	Nutritional status										r	*P*
	Heavy obesity		Light fat		Thin and heavy		Light weight		Normal			
	f	%	f	%	f	%	f	%	f	%		
Heavy	10	22.2	4	8.9	1	2.2	2	4.4	28	62.2		
Light	6	12.0	7	14.0	3	6.0	2	4.0	32	64.0	0.030	0.722
Currently	4	8.5	6	12.8	2	4.3	4	8.5	31	66.0		
Total	**20**	**14.1**	**17**	**12.0**	**6**	**4.2**	**8**	**5.6**	**91**	**64.1**		

Source: primary data 2025

Table 3 shows that the physical activity variable has a correlation coefficient value of 0.030 between the physical activity variable and nutritional status, meaning that there is a very low correlation between physical activity and nutritional status in a positive direction. To determine whether the HO is accepted or rejected, a hypothesis test is conducted by looking at the (*) or (**) signs in the correlation coefficient. Based on the test results in the table above, there are no (*) or (**) signs in the correlation coefficient. The significance value is 0.722, which is greater than the p-value (0.722> 0.05). This means there is no relationship between physical activity and the nutritional status of final year students.

DISCUSSION

The relationship between stress levels and nutritional status

Based on the analysis results, it was found that the stress level has a correlation coefficient value of -0.068 for the stress level variable with nutritional status, meaning there is a very low correlation between stress levels and nutritional status, with a negative direction. The resulting significance value of 0.425 is greater than the p-value (0.425>0.05). This means there is no relationship between stress levels and the nutritional status of final-year students. The results of this study align with those of Multazami (2022), who found that statistical analysis using the Chi-Square test demonstrated a relationship between stress and students' nutritional status, with a significance level of 0.263 > 0.05, indicating no relationship between stress and students' nutritional status. This study also confirms that stress is experienced by each student for different reasons, and the differences in results in this study are due to individual differences in their ability to adapt and cope with stress.

A person's ability to manage stress is influenced by their level of emotional maturity and life experiences. Therefore, individuals who are more emotionally mature tend to have more effective coping strategies when facing life's pressures. Psychologically, someone who is able to adapt coping mechanisms effectively, such as seeking social support or using relaxation techniques, will be better able to maintain a healthy diet despite facing stress. This is related to the individual's experience and awareness in recognizing and managing stress responses so that it does not significantly impact their nutritional status. Physiologically, the body's ability to maintain homeostasis also plays a role in maintaining stable nutritional status despite psychological stress (Haryanti et al., 2021).

The researcher's assumption is that the normal nutritional status of the majority of respondents at various levels of stress is due to the students' ability to adapt to academic pressure. Final-year students have better adaptation skills to academic pressure, such as through effective time management, social support, and increased awareness of the importance of maintaining health and diet. Therefore, the stress they experience does not directly negatively impact their nutritional status. Furthermore, students who already have knowledge about balanced nutritional intake find it easier to maintain regular nutritious food consumption even under stressful conditions.

The relationship between physical activity and nutritional status

Based on the analysis results, the correlation coefficient between physical activity and nutritional status was 0.030, indicating a very low positive correlation between physical activity and nutritional status. The significance value was 0.722, which is greater than the p-value (0.722 > 0.05). This means there is no relationship between physical activity and the nutritional status of final-year students. The results of this study are in line with the research of Wenni et al (2023) which shows that based on the results of statistical analysis with the chi-square test, a p value of 0.207> 0.05 was obtained, meaning there is no relationship between physical activity and the nutritional status of students.

A person's physical activity is influenced by motivation, habits, and physical and psychological conditions, so the intensity and frequency of activity can vary between individuals. Physiologically, physical activity plays a role in increasing metabolism and energy expenditure, which in theory can influence nutritional status through the balance between energy intake and expenditure (Bayu & Yuliastrid, 2022). The research assumes that final-year students have a more stable lifestyle, including maintaining a healthy diet. Although physical activity decreases due to increased sitting and focusing on scientific work, especially in places like cafes or libraries, they still maintain their energy intake by consuming regular meals and snacks. The habit of completing final assignments outside the home is often accompanied by the consumption of sugary drinks or snacks, which, while not always healthy, still provide adequate caloric intake.

CONCLUSION

Based on the results of the research and discussion entitled "The Relationship Between Stress Levels and Physical Activity with the Nutritional Status of Final Year Students of the 2021 Class at the Faculty of Health Sciences, Teuku Umar University", it is concluded that

1. There is no relationship between stress levels and nutritional status in final year students of the 21st class at the Faculty of Health Sciences, Teuku Umar University.
2. There is no relationship between physical activity and nutritional status in final year students of the 21st class at the Faculty of Health Sciences, Teuku Umar University.

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