***Bravo's:* Jurnal Program Studi Pendidikan Jasmani dan Kesehatan**
Volume 11 Number 4, Desember 2023, pp: 381-388
E-ISSN: 2597-677X; P-ISSN: 2337-7674
DOI: http://dx.doi.org/10.32682/bravos.v11i4/3321

The Relationship Between Nutritional Status and College Student Learning Outcomes

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Abstract

The purpose of this study was to determine the relationship of nutritional status of students with learning outcomes, especially physical education at Semarang State University. The type of research used is correlational. The population of this study was 220 students. This study uses primary data obtained from the measurement of nutritional status of students and secondary data on learning outcomes of physical education students at Semarang State University. The data collection tool is a measurement of nutritional status based on body mass index. The Data were analyzed by correlational statistics through a computerized process using the SPSS program. The results showed a significant correlation between body mass index (BMI) and student achievement. By using anthropometric measurement methods, especially BMI, this study analyzed aspects of nutritional status and learning outcomes, revealing an interesting pattern between nutritional factors and academic achievement it can be concluded that there is a significant relationship between nutritional status and student learning outcomes.

Keywords: *Nutritional Status; Learning Outcomes; College Students.*

Received: 11 October 2023 Revised: 11 November 2023 Accepted: 21 November 2023 Published: 31 Desember 2023

INTRODUCTION

Energy intake and expenditure must be in balance for nutritional status to exist (Boukrim et al., 2021). Nutritional status is a gauge of how well the body uses the nutrients it receives (D'Angelo, 2019). The degree of intellect and college students' capacity to retain teachings can both be impacted by nutritional state (Cavuoto Petrizzo et al., 2021). On the other hand, students with less or more nutritional status will be less than optimal in capturing lessons and less good in learning outcomes (Kupolati et al., 2016). College students with good nutritional status can more easily receive lessons on campus and are able to get satisfactory and maximum learning outcomes.

Nutrition is one of the crucial intakes for the health of the human body, especially for early childhood, because nutrition plays a role in growth and development (Rahmi, 2019). Especially for pregnant mothers, nutrition will determine the physical and mental health of the fetus (Litaay et al., 2021). Nutrition also plays a significant role in supporting adolescent athletes' performance (Zahra & Muhlisin, 2020). Fruits and vegetables contain many nutrients and other compounds that strengthen the body's metabolic system (Naeem & Ugur, 2019). For

this reason, the body must be given proper nutrition because it has good benefits for the body and increases the human immune system (Ahsan et al., 2020).

The nutritional state of individuals is directly correlated with these three variables. Health issues are crucial to be aware of in daily life, this is a time when they are growing and developing in accordance with their age (Tariku et al., 2019). To comprehend the health issues affecting kids. The nutritional value of the food is one of the most important variables (Mbhatsani et al., 2017). The cornerstone of a life is good nutrition (Upadhyay et al., 2011). Without enough food, children may become malnourished because they cannot maintain their normal life processes (Soriano et al., 2018). A further indicator of the achievement of multi-sectoral development, including education, is the nutritional status.

The condition of or adequate nutritional status to build or make students passionate and enthusiastic about learning at school is not less important than the fulfillment of existing facilities and infrastructure in schools, the availability of teachers, or both (Li et al., 2019). It is important to have a balanced intake of nutrients in order to maintain good physical health so that you can study physical education in school (Verburgh et al., 2016). A balanced intake of nutrients means that the amount of energy and nutrients that enter the body is the same as that which is required by the body and is the same as that which is removed from the body. College students who will be participating in physical education lessons at school must eat healthfully (Lorente, 2017). It is recommended for a child to eat meals high in calories, such as carbohydrates, lipids, and proteins, before starting school. Consuming food deficient in nutrients might alter the brain's metabolism, which will impair learning capacity and focus (Narayanan & Rao, 2019). Therefore, malnutrition (either a lack of nutrition or an excess of nutrition) will have an impact on one's health.

Humans and other living things have a daily basic requirement for food and water. To survive, even the tiniest things like cells require food. The food that people eat affects their physical and mental development as well as their behavior (Kupolati et al., 2016). If delicious food is taken in excess or contains substances that are bad for the body, it can lead to several ailments. Balanced nutritional intake and good nutritional status are essential for one's health and learning achievement. Nutritional imbalances can negatively impact learning ability and overall health. Therefore, it is important to pay attention to a balanced nutritional intake and maintain a good nutritional status. This study presents a novelty with a focus on the deep linkage between nutritional status, food intake, and student achievement. This research opens further insights into how a balanced diet can make a real contribution to their physical well-being and academic ability.

METHOD

This study was conducted using observational analytic method with cross-sectional approach. The implementation of the study took place from December 2022 to March 2023, and the population of the research subjects was 220 college students. The main tool used to collect data is a closed questionnaire. The purpose of this study was to analyze the relationship between nutrient consumption and body mass index (BMI) and academic success of students (Wallhead et al., 2021). In this study, academic success was measured by grades or other numerical representations of what students learned in a formal educational setting. To analyze the data obtained, the researcher used two types of analysis, namely univariate and bivariate analysis. Univariate analysis was conducted to examine each variable from the results of the study and obtain a general understanding of each variable presented in the form of frequency distribution in accordance with the variables studied. Bivariate analysis is used to determine whether there is a relationship or association between the independent variable (nutrient consumption) and the dependent variable (BMI and academic success). Thus, this study will provide an overview of how nutrient consumption can affect BMI and academic success in the student population that was the subject of the study.

RESULTS

Anthropometric measurements can be performed as a method to assess nutritional problems such as lack of energy in college students. The following is an explanation of anthropometric measurements and body mass index (BMI) as a physical examination to diagnose nutritional deficits.

Table 1. Result Nutritional Status

Statistic	Mean	Standard Deviation	Minimum	Maximum	Normality Test	Homogeneity Test
Nutritional Status	20.90	4.15	16,20	24,50	0.001<0.05	0.000<0.05
Learning Outcomes	80.20	4,02	72	98	0.000<0.05	0.003<0.05

Based on the results of the average nutritional status in the category of "Normal". The average learning outcomes included in the category " AB " indicates that the average learning outcomes of participants fit into the category of good. After being described, researchers tested the normality and homogeneity test. Then proceed with the correlation test. The results of research using Spearman's Rho test in Table 2 showed that the probability value or error rate (p: 0.001) is significantly smaller than the standard (α: 0.05), so that the calculated is on the relationship between Body Mass Index and learning outcomes in students Unnes Semarang.

Table 2. Spearman Rho Correlation Test Results

Probability value (p)	0.001
Significance (α)	0.05

DISCUSSION

The results of this study revealed a significant relationship between body mass index (BMI) and student achievement at Semarang State University (Unnes). Using anthropometric measurement methods, specifically BMI, this study analyzed aspects of nutritional status and learning outcomes, revealing an interesting pattern between nutritional factors and academic achievement. Nutritional status is an important aspect of a person's overall health and wellbeing. The correlation between nutritional status and learning outcomes has been studied in various research projects. The value of the correlation coefficient of nutritional status on learning outcomes is an important indicator of the strength of the relationship between these two variables. Several studies have been conducted to investigate the relationship between nutritional status and health outcomes among students.

Moreover, a descriptive, observational, and cross-sectional study was conducted to analyze the association between cooking skills, overweight, and obesity in undergraduates. The study found that low cooking skills were associated with overweight and obesity among undergraduates. Nutritional status is an important factor that can affect a person's overall health and wellbeing, including their academic performance. Several studies have investigated the relationship between nutritional status and health outcomes among students, and the findings suggest that there is a correlation between these two variables.

Nutrition is the process by which food is normally eaten by an organism through the process of food metabolism and the expenditure of chemicals that are not useful to maintain life, grow, and perform organs normally, as well as to produce energy. We require energy to complete daily tasks, which comes from the food we eat (Mbhatsani et al., 2017). The body's overall energy requirements are used by the body to maintain its fundamental processes 60–70%, also known as basal metabolism (de Brauw et al., 2015),.

Often found when the age of the elderly, a person's cognitive level will decrease, and one of the factors is the lack of daily nutritional status (Sa'diyah et al., 2023). When the elderly lack nutrients, malnutrition will occur which makes their senses decrease and some even experience damage (Gultom, 2020). Nutrition is also needed for toddlers and adolescents because it is very important for growth and development (DiGirolamo et al., 2020). Because Nutrition has an important role for the body's metabolism (Spencer et al., 2017).

This indicates that the body needs very little energy when completely resting but not when sleeping. While this consumes more energy, other tasks like walking, working, digesting, and researching do not. The low knowledge of coaches and trainers about nutrition is a major factor, whereas this knowledge also affects, behavior, and performance (Astuti, 2020). Though good nutrition is one of the main lifestyle factors that can improve body composition and physical performance (Koehler & Drenowatz, 2019). But it must start from the baby because that's when the determinant of motoric and cognitive development, it is influenced by how much the mother knows about nutrition (Firdaus et al., 2021).

It is clear from the remark how crucial balanced nutrition is for one's development and level of physical health, particularly for students whose primary activity is learning. Their brain and physical fitness will increase thanks to a balanced diet. (Shi et al., 2014) statement that "the process of fostering a pattern or healthy lifestyle is with balanced nutrition, so that there is an integrated knowledge of values, attitudes, and real behavior" is like what we have said. Learning is a process that results in personal change. if a change in attitudes or beliefs is involved Learning outcomes, on the other hand, serve as benchmarks for assessing how well pupils have learned and comprehended a subject.

Learning outcomes are actions that "arise from not knowing to knowing, the emergence of new understanding, changes in attitudes, skills, and respect for the development of social, emotional, and physical characteristics," as described by (Grebener et al., 2021). This fact suggests that improving students' nutritional status does not necessarily translate into improved learning results, and conversely, declining students' learning outcomes do not always result in worsening their nutritional status.

Teachers and parents can improve students ' nutritional status by providing nutrition education, setting a good example in diet and physical activity, and working together in providing healthy meals at school and at home. This collaboration helps students develop balanced eating habits and a healthy lifestyle. Poor or unbalanced nutritional Status can also have a long-term impact on growth and physical development, as well as the general health of the individual. Therefore, maintaining a good nutritional status through a balanced diet and a healthy lifestyle is essential to support various aspects of well-being.

CONCLUSION

Based on the results of the study there is a relationship between nutritional status and learning outcomes of physical education students. Suggestions for future research could improve the performance and well-being of physical education students by raising awareness

of nutrition, organizing workshops, providing personalized guidance, and promoting good satisfaction after physical exercise. The results of the study are a collaboration with nutritionists, integrating nutrition in the curriculum, and providing long-term impact of good nutrition practices. Thus, students can have better performance and a more balanced lifestyle. In the future, research the relationship between nutrition and physical condition results.

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