

THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND PHYSICAL HEALTH LEVELS OF STUDENTS AT THE MODERN ISLAMIC BOARDING SCHOOL

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Abstract

The Education is a very important issue. In order to obtain a good education, fit, and healthy, human resources are needed. A student's physical condition affects physical health, and nutritional status along with motivation to learn is another important factor that can affect physical health. This study aims to determine whether there is a relationship between nutritional status and the level of physical health of the students of the Modern Darussalam Islamic Boarding School Stano Sengati Baru, Batanghari Regency. This type of research is correlational. The population in this study was all students of Madrasa Aliyah, which amounted to 68 people. The sampling technique used was total sampling. Data were collected by measuring the two variables. Data were analyzed using product-moment correlation. The results showed that there was a relationship between nutritional status and the level of physical health of the students of the Modern Darussalam Islamic Boarding School, Stano Sengati Baru, Batanghari Regency with a r_{count} of $-0.325 < r_{table}$ 0.166. Because the correlation coefficient = -0.325 then there is a significant relationship in the opposite direction or inversely proportional. Because it was found that students in the modern Islamic boarding school Darussalam stano sengakti, Batanghari district were sampled in this study who had good levels of physical health but had poor nutritional status and vice versa.

Keywords: Nutritional status, physical health, physical education, Islamic boarding school.

Introduction

To improve the quality of education, the Indonesian government has made many efforts, such as curriculum renewal, procurement of facilities and infrastructure, and improving the quality of teachers and activities that stimulate students' interest in learning. In Law No. 20 of 2003 concerning the national education system, it is stated that: "National Education functions to develop capabilities and shape the character and civilization of a dignified nation in the context of the intellectual life of the nation" (Peraturan Presiden Republik Indonesia, 2003). Among the education contained in the Education Unit Level Curriculum (KTSP) are physical education, sports, and health. Physical education, sports, and health are an integral part of overall education (Burhaein et al., 2022; Phytanza et al., 2022; Sulistianoro & Setyawan, 2021). Physical education, sports, and health aim to develop aspects of physical health, movement skills, critical thinking skills, social skills; reasoning, emotional stability, moral action,

and aspects of a healthy lifestyle and the introduction of a clean environment through selected physical, sports and health activities that are systematically planned to achieve national education goals (Burhaein et al., 2022; Festiawan et al., 2021; Ngadiman et al., 2021).

Based on the quote above, through physical education and health lessons taught to students at Islamic boarding schools, students can develop various skills, such as movement skills, critical thinking, and social skills. In addition, physical education learning is expected to stabilize emotional and moral actions for the better, as well as the application of a healthy lifestyle with the introduction of a clean and healthy living environment (Burhaein, Tarigan, Budiana, Hendrayana, Phytanza, Demirci, et al., 2021; S. Purwanto & Burhaein, 2021; Sibarani & Manurung, 2021). Furthermore, the important thing in the goal of physical health is to develop aspects of physical health (Ilham et al., 2021; Phytanza,

Purwanta, Hermanto, Burhaein, & Lourenço, 2021; Pramantik, 2021). Physical health for students is important for the development and growth of Islamic Boarding School students (Phytanza, Purwanta, Hermanto, Burhaein, & Demirci, 2021; Prasetya, 2021; Putra et al., 2021). Physical health that "a person's ability to carry out daily tasks easily, without feeling excessively fatigued to enjoy his spare time (Burhaein, Tarigan, Budiana, Hendrayana, Phytanza, Lourenço, et al., 2021; Widodo & Zainul, 2021). This means that the level of physical health in this study is the ability of students to complete tasks in daily life easily without experiencing significant fatigue, for example in completing learning tasks, both at school and at home or in activities such as play with peers and still be able to enjoy his free time or for other urgent needs (Burhaein, Demirci, Lourenço, Németh, & Phytanza, 2021; Catur & Mujiriah, 2021; Jannah et al., 2021). To obtain a good level of physical health, there are many factors that influence it, including nutritional status or those related to food factors, because some foods are needed by the body for energy sources, the development of body cells, bictalictors and food metabolism must be in accordance with the body quantitatively and qualitatively (Mumpuniarti et al., 2021; P. Purwanto, Lumintuarso, et al., 2021; Widodo & Zainul, 2021). Quantitative means that the ratio of the number of carbohydrates, fats, and proteins eaten must be adjusted to one's activities (Demirci & Phytanza, 2021; Nanda et al., 2021; P. Purwanto, Nopembri, et al., 2021). This means that the human body really needs nutrients to obtain energy to carry out daily physical activities, restore body processes and to grow and develop, especially for those who are still growing (Burhaein, Phytanza, et al., 2020; Burhaein, Tarigan, Budiana, Hendrayana, & Phytanza, 2021; Irawan & Prayoto, 2021).

Nutrition is one of the most important factors in improving physical health (Azizah & Sudarto, 2021; Phytanza & Burhaein, 2020; Saura et al., 2019). Nutritional conditions are said to be good or normal if there is a balance between the needs of life for nutrients and the food consumed, meaning that the amount of energy and nutrients consumed by the body is the same as that required by the body and the same as the energy released from the body (Baranauskas et al., 2015; Burhaein, Tarigan, et al., 2020; Widiyono & Mudiono, 2021). In addition, other factors that affect physical health, namely age and gender, student habits in physical activities such as sports exercises and playing activities, good facilities and infrastructure can influence students to be active in physical education learning which in the learning process is closely related to physical work (Burhaein, Ibrahim, et al., 2020; Piercy et al., 2018; Sutopo & Misno, 2021). A clean and comfortable environment, knowledge and education, parents' socioeconomic, adequate rest, and physical condition, all of these can affect the level of physical health of students (Nieman

& Wentz, 2019; Phytanza, Burhaein, & Pavlovic, 2021). Based on the observations of the author made in the field of students at the Modern Darussalam Islamic Boarding School, Stano Sengati Baru, Batanghari Regency, namely when participating in the physical education learning process, the authors assumed that the level of physical health of some students was still low or not so good at their physical health level. This can be seen from their appearance and attitude, especially in following and doing physical education learning materials, where it seems that students are lazy in doing sports activities, get tired quickly, lack enthusiasm and some have pale faces that seem unhealthy.

Islamic boarding school is basically a traditional Islamic education dormitory where the students (*santri*) live together under the guidance of a teacher or better known as kyai. The term, Islamic boarding school (*pesantren*) is intended as a form of institutionalized Islamic education in Indonesia. Islamic boarding schools in Indonesia have a very large role both for the progress of Islam itself and for the Indonesian nation. *Pondok* or dormitory is a place that has been provided for students to carry out teaching and learning activities and other activities. *Santri* is a term for students who study deeply about religion in Islamic boarding schools. Usually, the students live in boarding houses or boarding schools that have been provided, but there are also students who do not live in the provided places. *Santri* who do not live in the provided place are students who come from villages around the *pesantren* who do not live in the *pesantren* complex environment but after following the students they return home while students who live in dormitories who come from far away and settle in the *pesantren* environment.

The students every day have 24 hours to do activities and rest, where at dawn they do the dawn prayer in congregation, after praying they memorize the lessons to be learned, then they take a shower in the morning before entering class to continue Islamic lessons or often called the yellow book. Before entering the second hour the students take a break and then eat and so on, after the break they continue their lessons and finish before the midday prayer, after the midday prayer in congregation they take a break and have lunch. After that they continued general lessons and finished before Asr, after the Asr prayer the students carried out routine activities such as exercising and so on. Then they take a bath in the afternoon and wait for the time for the Maghrib prayer, after the Maghrib prayer the students read the Qur'an before entering the Isha prayer time. After praying the students went back to the dormitory and had dinner. After dinner, the students study again to prepare for tomorrow's study and start taking a break at 22.00 till dawn. From the facts that have been stated above, the author assumes that the level of physical health of the students at the Modern Darussalam Islamic Boarding School, Stano Sengati

Baru, Batanghari Regency is still low. The low level of physical health of these students may be caused by their poor nutritional status, poor and unhealthy living and school environments, students' habits in physical activity, inadequate facilities, and infrastructure so that students are lazy to exercise, limited time so that they can rest. It is sufficient because today's children prefer to hang out in an obscure way rather than playing in the field with their peers, the age difference, the physical condition of the students as well as the knowledge, education, and socio-economic status of the students' parents.

The remaining of this paper is organized as follows. Section 2 reviews all materials and methods. Section 3 presents the result. Section 4 presents the discussion about this study and finally Section 5 concludes with some direction for future work.

Methods

Research Methods

This research is a correlational study, which wants to investigate whether there is a relationship between the independent variable and the dependent variable (Fraenkel et al., 2012). The independent variable in this study is Nutritional Status (X) while the dependent variable is physical health (Y). The design used to describe the relationship between the independent variable and the dependent variable in this study is as follows in Figure 1.

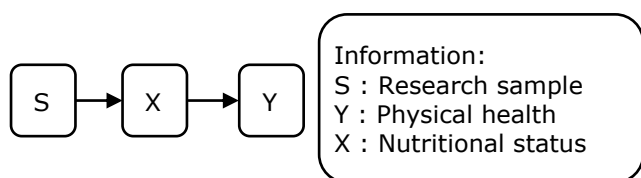


Figure 1. Research design

Participants

This research was carried out in the field of the Darussalam Modern Islamic Boarding School, Stano Sengakti Baru, Batanghari Regency. The study was conducted from January 2019 to March 2019.

The population in this study were all students of Madrasa Tsanawiyah Pondok Pesantren Modern Darussalam Stano Sengakti Baru, Batang Hari Regency, totaling 68 people, consisting of 39 male students and 29 female students. The following are the details of each of these classes: 27 students in class X, 21 in class XI, and 20 in class XII. More clearly the details of the population can be seen in Table 1.

Table 1. Research Population.

No	Grade	Male	Female	Number
1	X	16	11	27
2	XI	12	9	21
3	XII	11	9	20
	Total	39	29	68

The sample is part of the population that will be used as a source of data in a study. In this study the sample was taken by technique. Total sampling from a population of 68 people. According to Arikunto (2013), if the research subject is less than 100, then the determination of the sample can be taken from the total population. So the sample in this study was 68 people because the total of the population was less than 100.

Instruments

The instrument is a tool or facility used by researchers in collecting data so that their work is easier to process. In this study, the research instruments measured were the 50-meter run, the hanging elbow-bend test, lying down for 60 seconds, jumping upright and running the 800-meter test. Each test was repeated 3 times with the best results.

Results

This study was intended to determine the relationship between nutritional status and the level of physical health of students at the Darussalam Modern Islamic Boarding School Stano Sengati, Batanghari Regency. The results of the research on nutritional status variables with physical health levels can be described as follows in Table 2.

Table 2. Descriptive Statistics.

	N	Range	Min.	Max.	Mean		Std. Dev.	Variance
	Stats	Stats	Stats	Stats	Stats	Std. Error	Stats	Stats
BMI Physical	68	13.13	18.63	31.76	26.06	39.16782	3.23986	10.44
Fitness	68	8.00	12.00	20.00	14.9706	.23978	1.97726	3.910

Pre-test Group Freestyle Swimming Skills

Frequency Distribution of Students' Nutritional Status at the Modern Darussalam Islamic Boarding School Stano Sengakti, Batanghari Regency. The results of tests and measurements of BMI on 68 samples obtained an average of 26.06, the highest value of the sample group was 31.76, while the

lowest score was 13.13, then the standard deviation was 3.24, and the variance was 10.44. Furthermore, the data is arranged in a frequency distribution table using the body mass index classification in the interval class obtained from the table as follows in Table 3.

Table 3. Frequency Distribution of Male BMI.

No	BMI Male	Frequency		Classification
		Absolute	Relative	
1	< 18 Kg/ m ²	0	0%	Skinny
2	18 – 25 Kg/ m ²	20	51%	Normal
3	25 – 27 Kg/ m ²	11	28%	Fat
4	> 27 Kg/ m ²	8	21%	Obesity
Total		39	100%	

Based on the table above, 20 people (51%) had a BMI score of 18-25 Kg/m² in the Normal category, 11 people (28%) had a BMI score of 25-27 Kg/m² in the

Fat category, and 8 people (21 %) had a BMI score > 27 Kg/m² in the Obesity category.

Table 4. Frequency Distribution of Female BMI.

No	BMI Female	Frequency		Classification
		Absolute	Relative	
1	< 17 Kg/ m ²	0	0%	Skinny
2	17 – 23 Kg/ m ²	1	3%	Normal
3	23 – 27 Kg/ m ²	16	55%	Fat
4	> 27 Kg/ m ²	12	41%	Obesity
Jumlah		29	100%	

Based on the table above, it was found that 1 person (3%) had a BMI score <17 Kg/m² in the Normal category, 16 people (55%) had a BMI score of 17 – 23 Kg/m² in the Fat category, 12 people (41%) has a BMI score > 27 Kg/m² in the Obesity category.

From the results of data collection and analysis of the physical fitness test data for the students of the Modern Darussalam Islamic Boarding School, Stano

Sengati Baru, Batanghari Regency in the final test, an average of 14.97 was obtained, the highest score from the sample group was 20, the lowest score was 8, then the standard deviation was 1.977, and variance 3.91. Furthermore, the data is arranged in a frequency distribution table which is categorized into five interval classes. The calculation of the frequency distribution is as follows in Table 5.

Table 5. Frequency Distribution of Male physical fitness Data.

No	Male Physical Fitness Score	Frequency		Category
		Absolute	Relative	
1	5-9	0	0%	Less
2	10-13	5	13%	Not Enough
3	14-17	26	67%	Moderate
4	18-21	8	21%	Well
5	22-25	0	0%	Very Well
Total		39	100%	

Based on the table above, obtained as many as 5 people (13%) have a value of 10 – 13 with a not enough category, 26 people (67%) scored 18-21 with

moderate category. 8 people (21%) have a value of 18-21 with well category.

Table 6. Frequency Distribution of Female physical fitness Data.

No	Female Physical Fitness Score	Frequency		Categories
		Absolute	Relative	
1	5-9	0	0%	Less
2	10-13	14	48%	Not Enough
3	14-17	14	48%	Moderate
4	18-21	1	3%	Well
5	22-25	0	0%	Very Well
Jumlah		29	100%	

Based on the table above, obtained as many as 14 people (48%) have a score of 10-13 with a poor category, 14 people (48%) have a score of 14-17 with moderate, 1 person (3%) has a score of 18-21 well. The hypothesis of this research is "there is a positive and significant relationship between the nutritional status of the physical health level of the students of the modern Islamic boarding school Darussalam, Stano Sengati, Batanghari Regency". To test this hypothesis is accepted or rejected, the authors look for the relationship between the independent variable and the dependent variable by

using correlation analysis. Before being analyzed, the normality test and regression and linear equations were first tested.

The normality test used is the Kolmogorov-Smirnov test with the data criteria being normally distributed if $Asymp. Sig. (2-tailed) < 0.005$. Based on the results of the analysis obtained the $Asymp. Sig. (2-tailed)$ for the overall BMI and physical fitness data respectively 0.200:0.183. So based on this data analysis, it can be concluded that the data are normally distributed as a whole as shown in the following table:

Table 7. Normality Test of BMI and Physical Fitness data.

No	Data	N	Asymp. Sig. (2-tailed)	Sig.	Information
1	IMT	68	0.200	0.05	Normal
2	Physical Fitness	68	0.183		Normal

$Sig. < 0.05$. In general, the formula for the simple linearity regression equation is $Y=a+bx$. Meanwhile, to find out the value of the regression coefficient, it

can be guided by the output that is in the following coefficients table.

Table 8. Linearity regression test.

Model		Coefficients ^a				T	Sig.
		Unstandardized Coefficients		Standardized Coefficients	Beta		
		B	Std. Error				
1	(Constant)	3401.818	287.079			11.850	.000
	Physical Fitness	-53.135	19.014	-.325		-2.795	.007
Dependent		Variable				BMI	

Based on the table of coefficients above, we get $a = 3401.88$ and $b = -53.135$. Thus, the regression equation $Y = 18416.397 + 741.084 X$. The hypothesis test used in this study is a simple

correlation test. $Asymp$ value decision making criteria. $Sig. < 0.05$ then H_a is accepted with the provision of significant data. The t-tested hypotheses are as follows in Table 9.

Table 9. Hypothesis Test.

Variabel	R	R Square	Sig. (2-tailed)
X - Y	-0,325	0.166	0.05

From the results obtained, the value of $Asymp. Sig. > 0.05$ then H_a is accepted, it means that there is a relationship between nutritional status and physical health level. Because the correlation coefficient = -0.325 there is a significant relationship that is opposite or inversely proportional.

Discussions

Based on the results of the study obtained data that 20 students (51%) had a BMI score of 18-25 Kg/m^2 in the Normal category, 11 people (28%) had a BMI score of 25-27 Kg/m^2 in the Fat category, and 8 people (21%) had a BMI score $> 27 Kg/m^2$ in the Obesity category. Meanwhile, for students, the data obtained was 1 person (3%) who had a BMI score $< 17 Kg/m^2$ in the Normal category, 16 people (55%) had a BMI score of 17 - 23 Kg/m^2 in the Fat category, 12 people (41%) has a BMI score $> 27 Kg/m^2$ in the Obesity category. And for the Indonesian physical health test for students, as many

as 5 people (13%) have a score of 10 - 13 in the less category once, 26 people (67%) scored 18-21 well. Whereas for students obtained as many as 14 people (48%) have a value of 10 - 13 with the category less, 14 people (48%) have a score of 14-17 with moderate, 1 person (3%) has a score of 18-21 well. From the results of the normality test of the data using the Kolmogorov-Smirnov test with the criteria for the data to be normally distributed if $Asymp. Sig. (2-tailed) < 0.005$. Based on the results of the analysis obtained the $Asymp$ value. $Sig. (2-tailed)$ for the overall BMI and physical fitness data respectively 0.200 : 0.183.

So based on this data analysis, it can be concluded that the data is normally distributed. In the linearity test, the results of the data analysis showed that $a = 3401.88$ and $b = -53.135$. Thus, the regression equation $Y = 18416.397 + 741.084 X$. For the correlation test, this study uses a simple correlation test which shows that there is a relationship between nutritional status and physical health level. Because the correlation coefficient = -0.325 there is a significant relationship that is opposite or inversely

proportional. From the findings above, it can be interpreted that there is a significant opposite or inverse relationship, because it was found that students at the modern Islamic boarding school Darussalam stano sangkati, Batanghari district, were sampled in this study who had good levels of physical health but had poor nutritional status and vice versa. Nutritional status is more determined by healthy living behavior, nutritious food and can be interpreted as the amount and food consumed by a person which is an indicator of their nutritional status (El Harake et al., 2018). The energy needed for physical performance is obtained from the metabolism of foodstuffs consumed daily, so that food or nutrients are one of the determinants of the quality of one's physical performance and growth (Gielen et al., 2021).

Good physical health will affect student learning activities, students will be more enthusiastic about participating in the learning process and always ready to accept the material provided by the teacher (Kristiyanto et al., 2020). Someone who has physical health means the capacity to study or work becomes better. All activities or physical activities carried out by students affect the level of physical health they have. With a person's health, his mindset can develop well, and can stimulate the brain well too, because the motor nerves function optimally.

According to Wan et al. (2019), the factors that affect physical health, one of which is nutrition or food. With regard to nutritional status which includes the fulfillment of food nutrition with the ability to carry out daily tasks that require physical health, it can be said that nutritional status has a relationship with physical health. In this regard, the relevance of which is very visible from the value of nutritional adequacy for the body, then based on the usefulness that can be obtained from food nutrients is to fulfill nutrients for the body, namely as a source of energy, building material and regulatory material (Nasrulloh et al., 2021).

Conclusion

Based on data analysis and discussion of this study, it can be concluded that there is a significant opposite or contradictory relationship between nutritional status and the level of physical health of the students of the modern Islamic boarding school Darussalam, Stano Sengati Baru, Batanghari Regency.

Based on the results of the conclusions above, the suggestions that researchers propose to P.E. teacher is to provide students understanding about the importance of nutritional status, because nutritional status can affect the level of physical health. Then, P.E. teacher need to provide physical education learning materials in the form of games so that students actively practice and play, because this can improve their physical health. In addition, the school needs to provide socialization to parents or guardians of students about knowledge of nutrition science in collaboration with relevant agencies. Moreover, students must be more diligent and serious in physical activities such as exercising and playing with peers, so that the level of physical health becomes better. Lastly, parents/guardians should pay attention to the nutritional needs of their children and give them the freedom to play because this can affect their level of physical health.

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Conflict of Interests

Researchers said there was no conflict of interest in the study. Researchers said there was no conflict of interest in the study.

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