

The Relationship Between the Thickness of the Skinfold in the Triceps Skinfold Thickness to the Learning Achievement Level in Elementary School Students in Class 4 and 5 Sdn Wotsogo I, Coastal Region of Tuban

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Abstract: *To reach the optimal growth and development, including cognitive function required adequate nutrition. Nutritional status can be measured by anthropometry. One of them is triceps skinfold thickness. In this study, researcher will examine the relationship between triceps skinfold thickness with student achievement. This research introducing measurements of skinfold thickness as a screening of nutritional status, and examines the relationship between triceps skinfold thickness with student achievement. This study is an observational study. Triceps skinfold of each student was measured and compared with student achievement as seen from the students' total grades for the second semester. The results of this study was no association between triceps skinfold thickness with student achievement. This is due to academic achievement is influenced by internal factors and external factors of the students.*

Keywords: Triceps Skinfold, Students in the coastal area, Student Achievement

1. Introduction

Learning achievement is the result achieved as well as possible according to the child's ability at a certain time to the things that are done or done. So learning achievement is learning outcomes that have been achieved according to their abilities and are characterized by the development and changes in behavior in a person required from studying with a certain time, this learning achievement can be expressed in the form of scores and results of tests or exams (WJS Poerwadarminta, 1987). There are several factors that influence performance, both those that tend to encourage and hinder. Factors that affect student achievement consist of internal factors and external factors. Internal factors are factors that come from within students for example intelligence factors, interest factors, physical and psychological state factors. While external factors are factors from outside the students, such as teacher factors, family environment, learning resources factors. Learning resources can be in the form of media / learning aids as well as supporting raw materials (Ahmadi, 1998).

Skinfold thickness is the most commonly used measurement method to measure a person's sub-cutaneous fat content. The thickness of the skinfold measurement is highly dependent on the amount of fat deposited in the sub-cutaneous in the region being measured. So the measurement of skinfold thickness can be used to estimate the amount of energy reserves stored in the form of sub-cutaneous fat. In this case, the most frequently used is the skin fold on the triceps muscle or triceps skinfold thickness (YK. Joshi, 2008).

Because fat is an important nutrient for children's growth and development, including children's cognitive function,

and based on the description above, the researchers are interested in examining whether there is a relationship between the results of the triceps skinfold thickness measurement and achievement level. learning elementary school age children.

2. Methods

Population and Sample

The population in this study was elementary school children in coastal areas. The sample of this study was elementary school children in grades 4 and 5 at Elementary School Wotsogo I. This study consisted of 111 students consisting of 59 male students and 52 female students. The sampling technique used a purposive technique, namely sampling based on certain criteria determined by the researcher: the primary schools used were elementary schools located in coastal areas. The Elementary School used must represent the surrounding area in its achievements because in this study we will look at learning achievements in this area. The study was conducted in January-July 2012.

Sampling Technique

The triceps skin fold was measured at the midpoint mark of the upper arm on the posterior surface of the right upper arm. The procedure for measuring the skinfold of the triceps muscle is as follows (National Health and Nutrition Examination Survey (NHANES) /CDC):

1. Patients Position

Ask the patient to turn around so that the examiner is standing behind the patient's right side. Have the patient

stand straight with weight evenly distributed on both legs, shoulders relaxed, and arms hanging loosely at either side. Bending or tightening the arm muscles will result in inaccurate measurements.

2. Hold the fold of skin

Using your thumb and forefinger, grasp the folds of skin and subcutaneous fat about 2.0 cm above the mid-arm circumference mark. If you have trouble separating the skin fold from the triceps muscle, start at the elbow where the tissue tends to be looser and work your way up to the mark. Make sure that the skin fold is double thickness and is parallel to the long axis of the arm.

3. Caliper position

Hold the skin fold 2.0 cm above the circumference; place the tip of the caliper clip over the skin fold. Make sure that the mark remains centered between the ends of the clothespin and is perpendicular to the length of the skin fold.

4. Measurement

Continue holding the skin fold in place then release the caliper grip to exert full tension on the skin fold. Wait 3 seconds for the needle on the caliper dial to settle on an accurate measurement.

The indicator used in measuring learning achievement in this study is the number of report cards of each student.

Data Analysis

Spearman's Rho technique data analysis will be carried out using the help of the Statistical Program for Social Science (SPSS) for Windows version 13 program.

3.Results

Description of Respondents by Age

Respondents, who were measured in both grade 4 and grade 5, had varying ages. The age of the respondents can be seen in table 1.

Table 1: Description of Respondents by Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9	2	1.8	1.8	1.8
	10	53	47.7	47.7	49.5
	11	51	45.9	45.9	95.5
	12	5	4.5	4.5	100.0
Total		111	100.0	100.0	

Description of Respondents by Class

Respondents who were measured were divided into 2 groups according to the level of education. A total of 50

students sit in grade 4 and as many as 61 students sit in grade 5. For more details, see table 2.

Table 2: Description of Respondents by Class

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Kelas 4	50	45.0	45.0	45.0
	Kelas 5	61	55.0	55.0	100.0
Total		111	100.0	100.0	

Description of Respondents by Gender

Respondents studied also consisted of men and women. There were 59 boys and 52 girls from all 4th and 5th

grade students who were measured and can be seen in full in table 3.

Table 3: Description of Respondents by Genders

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Laki-laki	59	53.2	53.2	53.2
	Perempuan	52	46.8	46.8	100.0
	Total	111	100.0	100.0	

Description of Respondents based on Total Score and Skinfold Triceps

The table below describes the total values, triceps skinfold. There are also the results of the calculation of the average value, median and other statistical indices. More details can be seen in table 4.

Table 4: Results of Triceps Skinfold Counting and Total Grades 4 and 5 Grades

		Total score	TSF (mm)
N	Valid	111	111
	Missing	0	0
Mean		756.41	9.838
Median		748.00	8.500
Std. Deviation		60.269	4.3081
Minimum		633	5.0
Maximum		875	25.0
Percentiles	25	707.00	6.500
	50	748.00	8.500
	75	803.00	12.000

In the table above, the average value of all students measured is 756.41 with a standard deviation of 60.269. Meanwhile, the average triceps skinfold (TSF) of students measured was 9.838. The minimum score of students studied was 633, while the maximum score was 875. The minimum triceps skinfold of students measured was 5mm, while the maximum triceps skinfold of students measured was 25 mm.

Hubungan antara Triseps Skinfold dan Total Nilai

Because the triceps skinfold is not normally distributed, non-parametric statistics (Spearman correlation) will be used to see the relationship between the triceps skinfold and the total value, which can be seen in table 5.

Table 5: Spearman Correlation

		Total Score	TSF (mm)
Spearman's rho	Total Nilai	Correlation Coefficient	1.000
		Sig. (2-tailed)	.539
		N	111
	TSF (mm)	Correlation Coefficient	.059
		Sig. (2-tailed)	.539
		N	111

4. Discussion

This study aims to see whether there is a relationship between the thickness of the skinfold in the triceps muscle (triceps skinfold) and learning achievement as seen from the number of report cards.

From the data obtained, the average triceps skinfold value is 9, 838 millimeters. If this value is compared with the average value of the results of a survey conducted in the United States in all races except for the black race and white race of the same age group, it can be concluded that the nutritional status of children in grades 4 and 5 Elementary School Wotsogo I, Tuban still below the nutritional status of children of all races except black and white in the United States.

Based on the data obtained, after being processed using the Spearman correlation statistical method, it turned out that there was no relationship between the thickness of the skin folds in the triceps muscle and the number of report cards for grade 4 and 5 students at Elementary School Wotsogo I, Tuban.

According to Ahmadi, learning achievement is influenced by internal and external factors. Internal factors consist of intelligence factors that can be measured by an IQ test, and the student's own interest factor, which can be tested with an interest and aptitude test, and there are also psychological and physical factors. Nutritional intake mainly affects a child's cognitive development (intelligence), as well as a person's physical and psychological state (mood and health) as stated by Nirmala Devi. Especially considering that the economic

abilities and family circumstances of each student are not the same and this will certainly affect the results of this study.

While external factors consist of teacher factors, family environmental factors, and learning resources factors. The external factors mentioned above of course vary between students. Teacher factor, in this study there were three classes with different teachers (grade 4, grade 5A, and grade 5B). Each student's family environment factors are also different (both economically, and the relationship between fellow family members). The learning resources of each student are also different. For example, there are those who like to study through the internet because there is internet available at their homes, there are also those who prefer to study in the library, and so on.

This can affect the results of research, because in carrying out assignments, children may get help from other people, so the values listed are not purely from the results of students' abilities in learning, but also from other tasks which in the process can be assisted by other people.

5. Conclusion

There is no relationship between triceps skinfold and the level of student achievement in grades 4 and 5 in the north coast of East Java. This is due to several other factors that affect school achievement.

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