

The Relationship of Physical Activity and Nutritional Status to Physical Fitness of Students of SDN 2 Klepu, Sooko, Ponorogo Regency in the Covid-19 Pandemic

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Abstract

This study aims to examine the relationship between physical activity and nutritional status of SDN 2 Klepu students during the Covid-19 pandemic. Nutritional status and physical activity are both important factors in achieving optimal health, during a pandemic. This research uses multivariate correlational research. The purpose of correlational research is to determine the relationship between two or more variables, using purposive sampling technique, namely the technique of determining the sample with certain considerations, then the number of samples used is 36 students consisting of 14 students in class IV (four), 11 students in class V (five) and 11 students of class VI (six). As well as physical fitness tests using the Indonesian Physical Fitness Test (TKJI). The research instrument used in this study was the Physical Activity Questionnaire Children (PAQ-C) questionnaire. The data analysis technique in this quantitative study uses quantitative descriptive methods aligned with research variables that focus on actual problems and phenomena that occur at the present time. Based on the results of the analysis of the price of $r_{count} = -1.761$ with $r_{(table)} = 0.3338$ these results mean that there is a significant relationship between physical activity and the level of physical fitness of students, the analysis of the price of $r_{count} = 1.948$ with $r_{(table)} = 0.3338$, can mean that there is a significant relationship between nutritional status and the level of physical fitness of students, the results of multiple regression analysis were carried out by consulting the price of $F_{count} 3,568 > F_{table} 3,27$ at a significance level of 5% and $R_{count} = 0.401 > R_{table} = 0.3338$, meaning the correlation coefficient it is significant. H_a which reads "There is a significant relationship between physical activity and nutritional status with the level of physical fitness of SDN 2 Klepu students" is accepted. Other variables that can have an effect on supporting a person's physical activity such as: a healthy lifestyle, a healthy diet, regular exercise and gender, which in this study were not further elaborated because they only focused on variables of nutritional status and physical activity.

Keywords

physical activity;
nutritional status;
physical fitness



I. Introduction

Today, the Corona Virus Disease (COVID-19) pandemic has taken the world by storm. The problem is applying gas and brake policy with stricter social restrictions when the Covid19 pandemic increases (Wijaya, 2021). The problems posed by the Covid-19 pandemic which have become a global problem have the potential to trigger a new social

order or reconstruction (Bara, 2021). Batubara (2021) state that Education is one way to produce quality Human Resources (HR) with experience changes in knowledge, skills and attitudes. These changes can be a capital to improve selfcompetence in facing the era of globalization that always undergoes the change (Sitorus et al, 2019). Starting from the beginning of 2020, the world was shocked by the outbreak of the Corona virus (COVID-19) which has infected almost all countries in the world. This virus was first detected in China in early December 2019. Initially, a number of patients came to the hospital in Wuhan City with symptoms of an unknown disease. Then, Dr. Li Wenliang spread the news about the mysterious virus on social media (Yasmin, Puti. 2020). Once identified, COVID-19 progressed very rapidly to countries around the world. According to the World Health Organization (WHO), as of August 14, 2020, there were 20,439,814 people around the world who were positive for COVID-19 and of them 744,385 people died. The Ponorogo Regency Government through the Ponorogo Regent Circular Number: 420/1060/405.01/2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of the Coronavirus Disease (COVID-19), the implementation of teaching and learning activities is carried out at their respective homes for students at all levels and types of education starting on March 17, 2020. It has been 9 months since students have been conducting online teaching and learning activities (KBM). In November there were already signs of a return to face-to-face learning, because there were instructions from the Minister of Education, the Governor of East Java and the Regent of Ponorogo to carry out a pilot test. However, at the end of December, everything was stopped and at the beginning of the even semester of the 2020/2021 school year, online teaching and learning returned.

According to Jannah and Utami (2018), physical activity is the most dominant factor in influencing obesity. Based on the observations of researchers as teachers of PJOK subjects at SDN 2 Klepu, Sooko District, Ponorogo Regency, the majority of students have greatly reduced physical activity. Before the pandemic occurred, they learned PJOK optimally, before they could play freely outside the house, now they are limited to only indoors and can go out if there is something needed. A person's level of health is influenced by several factors including being free from disease or disability, good socioeconomic conditions, good environmental conditions, and good nutritional status. People who have good nutritional status are not susceptible to disease, both infectious and degenerative diseases. Nutritional status is one of the important factors in achieving optimal health status. According to Almatsier (in Thamaria 2017), wrong eating habits are one of the premier factors that affect the utilization of nutrients by the body. Especially during the COVID-19 pandemic, children cannot control their eating patterns. The Covid-19 pandemic caused everyone to behave beyond normal limits as usual (Sihombing, 2020). The result is a drastic increase in body weight. This can be seen in the learning assignments sent by students in the form of photos or videos. In the photo or video some of the students who look very changed become fatter than usual.

Based on this description, the researchers conducted research on the relationship between Physical Activity and Nutritional Status on the Physical Fitness of SDN 2 Klepu Students, Sooko District, Ponorogo Regency during the COVID-19 Pandemic Period.

The purpose of this study was to determine the relationship between physical activity and student fitness, the relationship between nutritional status and student fitness and to determine the relationship between physical activity and nutritional status, together with student fitness at SDN 2 Klepu, Sooko District, Ponorogo Regency during the Pandemic Period.

II. Research Methods

The type of research used in this research is multivariate correlation. According to Sutedi (2010), the purpose of correlational research is to find out the relationship between two or more variables. Because this research has 3 variables being compared, it is called multivariate. The research design was cross sectional. According to Notoatmodjo (2002), cross sectional is a study to study a dynamic correlation between risk factors and effects, and with an approach, observation or data collection at a certain time (point time approach). In addition, there are also those who say that cross sectional is a design that is momentary or only at a time (Bernard Roser, 1988 in Ibnu Hadjar 1996). Meanwhile, the population in this study amounted to 58 students who were obtained from all grades I (one) to grade VI (six) SD Negeri 2 Klepu, Sooko District, Ponorogo Regency.

Table 1. Number of Populations by Class and Gender

Class	Male	Female	Amount
I	4	1	5
II	2	5	7
III	4	6	10
IV	9	5	14
V	11	0	11
VI	4	7	11
AMOUNT			58

After obtaining the research population, the authors formulate the research sample using purposive sampling technique, namely the technique of determining the sample with certain considerations. So the researchers determined that the samples used were students in grades IV (four), V (five) and VI (six). This is based on readiness in filling out test instruments, both physical activity test instruments and physical fitness tests. Based on table 1, the number of samples used is 36 students consisting of 14 students in class IV (four), 11 students in class V (five) and 11 students in class VI (six). Based on gender, there are 24 sons and 12 daughters.

The variables in this study consisted of independent and dependent variables. The independent variables (independent variables) were physical activity and nutritional status. The dependent variable (dependent variable) is the students' physical fitness. Data on physical activity of students as respondents in this study were obtained through questionnaires filled out by students regarding physical activity carried out over a period of seven days or one week. Physical activity levels were assessed using the Physical Activity Questionnaire Children (PAQ-C) questionnaire. Nutritional status in this study was assessed using measurements of BMI/U or Body Mass Index according to age, namely the result of dividing weight (kg) by the square of height (m²). It is useful to know how the nutritional status of each research subject is. The level of physical fitness in this study focused on cardiovascular endurance or VO₂ Max, students as research respondents were measured by measuring the level of physical fitness using the Indonesian Physical Fitness Test (TKJI) for children aged 10-12 years. The selection of this test is because this test has been commonly used and applies to all regions of Indonesia. In addition, this test is relatively easy to do with instruments that have been tested for validity and reliability so that they are feasible to use for research data collection.

The time and place of this research was carried out in Putuk Dukuh Dalangan Field, Sooko Village, Sooko District, Ponorogo Regency. The study began with the collection of student body mass index data which was measured using an instrument that had been

calibrated. Questionnaires are filled out by students. After filling out the questionnaire, a physical fitness test using the Indonesian Physical Fitness Test (TKJI) was carried out on Friday, June 11, 2021, from 06.00 to 11.00 WIB.

This study collects student body mass index data which is measured using a tool that has been calibrated. After that, the writer explained the PAQ-C questionnaire to the students. Questionnaires were filled out by students for 7 days. After that, a physical fitness test was carried out using the Indonesian Physical Fitness Test (TKJI). The level of physical fitness of children cannot be assessed directly based on the achievements that have been achieved, because the units of measure used for each test item are not the same, namely: minutes and seconds). 2. For the lying down test item, the unit for the number of motion repetitions is used (how many times). 3. For the vertical jump test item, use the unit of measurement for height (centimeter). The sum is the basis for determining the category of students' physical fitness levels using the Indonesian physical fitness test norm table. TKJI's validity and reliability values are 0.884 and 0.911 (Ministry of National Education, 2003:3). Data analysis used the Kolmogorov Smirnov test technique with the criteria that the data were normally distributed if the significance value was greater than 0.05. On the other hand, if the significance value is less than 0.05, then the data is not normally distributed. descriptive statistics, normality test, homogeneity test, hypothesis testing and analyzed with the help of SPSS (Statistical Program For Social Science) computer program.

III. Results and Discussion

The following are the results of taking physical activity data using the Physical Activity Questionnaire Children (PAQ-C) questionnaire, nutritional status using the body mass index based on age (BMI/U) and physical fitness using the Indonesian Physical Fitness Test (TKJI). The data obtained was entered in the Microsoft Excel program and analyzed using the Statistical Product and Service Solution (SPSS) program.

3.1 Description of Research Result

a. Description of Physical Activity Variable

The results of descriptive statistical analysis for the physical activity variables of SDN 2 Klepu students overall obtained maximum value = 3.48, minimum value = 1.51, average (mean) = 2.43, median = 2.00, mode = 3 ,05; standard deviation = 0.53. The description of the results of the research on the physical activity of SDN 2 Klepu students can be seen in the physical activity table.

Table 2. Physical Activity of SDN 2 Klepu Students

Interval Class	Category	Frequency	Percentage
4,1 – 5,0	Very High (VH)	0	0
3,1 – 4,0	High (H)	4	11,11
2,1 – 3,0	Currently(C)	18	50
1,1 – 2,0	Low (L)	14	38,89
0,0 – 1,0	Very Low (VL)	0	0
amount		36	100

Based on the results of the data obtained in table 4.1, it is known that the physical activity of students at SDN 2 Klepu, Sooko, Ponorogo Regency is mostly in the moderate category as much as 50%, in the low category by 38.89%, in the high category by 11.11%, in the very low category by 0 % and in the very high category by 0%.

b. Description of The Variable Nutritional Status

The results of descriptive statistical analysis for the nutritional status variables of SDN 2 Klepu students overall obtained maximum value = 26.74, minimum value = 12.43, average (mean) = 18.00, median = 17, mode = 15.04; standard deviation = 3.60.

Table 3. The Results of Descriptive Statistical Analysis for Nutritional Status Variable

Interval class	Category	Frequency	Percentage
< -3 SD	Malnutrition	2	5,56
-3 SD up to <-2 SD	Malnutrition	3	8,33
-2 SD up to 1 SD	Good nutrition	24	66,67
> 1SD up to 2 SD	More nutrition	1	2,78
> 2 SD	Obesity	6	16,67
amount		36	100

Based on the results of the study above, it is known that the nutritional status of students at SDN 2 Klepu, Sooko District, Ponorogo Regency, mostly in the good nutrition category as much as 66.67%, in the obesity category by 16.67%, in the malnutrition category by 8.33%, in the poor nutrition category by 5 .56% and 2.78% in the over nutrition category.

c. Description of Physical Fitness Variables

The results of descriptive statistical analysis for the physical fitness variables of SDN 2 Klepu students as a whole obtained maximum value = 18.00, minimum value = 6.00, average (mean) = 10.94, median = 11, mode = 10; standard deviation = 2.72.

Table 4. The Results of Descriptive Statistical Analysis for Physical Fitness Variables

Category	Frequency	Percentage
Very poor	10	27,78
poor	20	55,56
fair	5	13,89
good	1	2,78
excellent	0	0
amount	36	100

Based on the results of the data obtained, it is known that the physical fitness of the students of SDN 2 Klepu, Sooko District, Ponorogo Regency, mostly in the poor category

as much as 55.56%, in the very poor category by 27.78%, in the medium category by 13.89%, in the good category by 2, 78% and 0% in the over nutrition category.

3.2 Condition Hipotesis Test

After describing the research data, the next step before testing the hypothesis is to test for normality and test for homogeneity. The aim is to find out whether the data is normally distributed and homogeneous.

a. Normalitas Test

The normality test in this study was used to determine whether a distribution was normal or not. The normality test in this study used the Kolmogorov-Smirnof test. The criteria used to determine whether a distribution is normal or not is if $p > 0.05$ (5%) the distribution is declared normal, and if $p < 0.05$ (5%) the distribution is said to be abnormal.

Table 5. Normalitas Test

Variable	Z	P	Sig 5 %	Keterangan
Nutritional status	1.284	0.074	0,05	Normal
Physical Activity	0.849	0.466	0,05	Normal
Physical Fitness	0.785	0.569	0,05	Normal

Based on the results in the table above, it is known that the data obtained $p > 0.05$. So, it can be concluded that the data in this study are normally distributed.

b. Linearitas Test

The purpose of linearity test is to determine the relationship between the independent variable and the dependent variable is linear or not. The linearity test criterion is if the value of $F_{count} < F_{table}$, then the relationship between the independent variable and the dependent variable is linear. On the other hand, if the value of $F_{count} > F_{table}$ the table is declared non-linear. The summary results of the linearity test are presented in the following table:

Table 6. Linearitas Test

Connection	Df	F hit	F table	P	sig 5 %	descrip
Physical Activity (X_1) with Physical fitness (Y)	23:11	1,408	2,24	0.283	0,05	Linier
Nutrition Status (X_2) with Physical Fitness (Y)	33:1	0,379	4,14	0,886	0,05	Linier

The results of the linearity test between X_1 and Y above can be seen that the value of F_{count} (1.408) $<$ F_{table} (2.24) with a significance value of $p > 0.05$, which means that the relationship between the independent variable and the dependent variable is linear. The results of the linearity test between X_2 and Y above can be seen that the value of F_{count}

$(0.379) < F_{\text{table}} (4.14)$ with a significance value of $p > 0.05$, which means that the relationship between the independent variable and the dependent variable is linear.

c. Hipotesis Test

Analysis of research data used to test the hypothesis consists of simple regression analysis and multiple regression. The results of simple regression analysis are as follows:

Table 7. Hipotesis Test

Variabel	r count	r table	p
Physical Activity (X ₁) with Physical fitness (Y)	-1,761	0,3338	0,000
Nutrition Status (X ₂) with Physical Fitness (Y)	1,948	0,3338	0,000

The effect of the independent variables on the dependent variable is known through the following simple regression analysis.

- 1) The Relationship Between Physical Activity (X₁) With Physical Fitness Levels Of Students In SDN 2 Klepu Class (Y)

Based on the results of the analysis above, it is known that $r_{\text{count}} > r_{\text{table}}$. The test results are carried out by consulting the price of $r_{\text{count}} = -1.761$ with $r(\text{table}) = 0.3338$. Based on these results, it means that there is a significant relationship between physical activity and the level of physical fitness of students at SDN 2 Klepu, Sooko District, Ponorogo Regency.

- 2) The Relationship Between Nutritional Status (X₂) and Physical Fitness Levels of Students at SDN 2 Klepu (Y)

Based on the results of the analysis above, it is known that $r_{\text{count}} > r_{\text{table}}$. The test results are carried out by consulting the price of $r_{\text{count}} = 1.948$ with $r(\text{table}) = 0.3338$. Based on these results, it means that there is a significant relationship between nutritional status and the level of physical fitness of students at SDN 2 Klepu, Sooko District, Ponorogo Regency.

- 3) The Relationship Between Physical Activity (X₁) and Nutritional Status (X₂) with Physical Fitness Levels of Students at SDN 2 Klepu (Y)

The results of testing this hypothesis using multiple regression analysis can be seen in the following table:

Table 8. The Results of Testing this Hypothesis Using Multiple Regression Analysis

Variabel	Koefisien Regresi	F _{hitung}	F _{tabel}	R _{hitung}	R _{tabel}	p
Konstanta (a)	7,152					
Physical activity (X ₁)	0,053	3,568	3,27	0,401	0,3338	0,001
Nutrition status (X ₂)	0,319					

The test results were carried out by consulting the price of F arithmetic $3,568 > F$ table 3.27 at a significance level of 5% and $R_{count} = 0.401 > R_{table} = 0.3338$, meaning the correlation coefficient is significant. H_a which reads "There is a significant relationship between physical activity and nutritional status with the level of physical fitness of SDN 2 Klepu students" is accepted.

IV. Conclusion

Physical fitness is influenced by various factors including eating, resting and exercising. Nutritional status and physical activity carried out every day affect the level of physical fitness. Physical fitness has four basic components, namely muscle strength and endurance, flexibility, body composition, and heart and lung endurance, good heart and lung endurance allows a person to perform physical activities with higher intensity without experiencing fatigue.

The results of this study at SDN 2 Klepu showed that there was a significant relationship between physical activity and physical fitness as evidenced by a significance value of $p = 0.466 > 0.05$ and evidenced by the results of p nutritional status with physical fitness with a qualification value of $0.074 > 0.05$. And the relationship between physical activity and nutritional status on physical fitness has a qualifying p value as follows $0.569 > 0.05$. These results mean that physical activity and nutritional status significantly affect the level of physical fitness of students, from the following results as expressed by Irianto (2004:7) The food consumed also affects physical fitness, this is in line with one of the components of physical fitness, namely composition. body. Food intake consumed every day must be balanced with calorie burning through physical activity so that body composition and nutritional status remain in normal conditions and do not cause obesity or overweight. Through well-maintained nutritional status and by doing regular physical activity, a person will have good physical fitness so that he can carry out various daily activities without experiencing significant fatigue, and still have energy reserves to fill his spare time and carry out activities. sudden one.

Good physical activity will greatly affect physical fitness, physical fitness is the level of a person's physical ability so that the body does not easily feel tired in carrying out daily physical activities. If the physical fitness is good, the hope will also have a good degree of health.

Nutritional status is a health condition that is influenced by a balanced intake of nutrients. For elementary school-age children, they still experience a lot of growth and development that is influenced by nutritional intake. Good nutritional status is very necessary to maintain fitness and health degrees, help growth for children, and support the development of athlete achievement to determine the nutritional status of children aged 5-18 years with using indicators of TB/U and BMI/U. The state of a balanced body will affect the physical condition, which will affect a person's physical fitness. Students who have good nutritional status (normal) will of course have good physical fitness, because this nutritional status supports students to carry out physical activities well, so they will get good abilities in activities. Nutritional status in this study was measured based on the height and weight of students. Students who have ideal height and weight will have agile movements and are more active than others. Students who have a thin or fat nutritional status tend to get tired easily / physically weak, due to the condition of the body the students become less agile.

Nutritional status, physical activity and physical fitness have a relationship with one another. Good nutritional status (normal) will support good body health, support students to have healthy physical activities every day. Normal nutritional status supports ideal

physical conditions making students easy to move, so students will tend to be more active in their daily activities compared to students who have thin and obese physical conditions.

Based on these results, of course, the level of nutritional status and physical activity is not the main factor that supports students' physical activity. Other variables that can have an effect on supporting a person's physical activity such as: a healthy lifestyle, a healthy diet, regular exercise and gender, which in this study were not further elaborated because they only focused on variables of nutritional status and physical activity.

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