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The Relationship Between Body Mass Index (BMI) And Physical Fitness Of Students At SD N 1 Labuhan Ratu Bandar Lampung Post-Pandemic Covid-19

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Abstrak

This study aims to determine the magnitude of the relationship between body mass index (BMI) and the physical fitness of students of SD N 1 Labuhan Ratu, Bandar Lampung City. This research uses a survey method with a correlational quantitative approach. The population used is class V with a total of 40 students. The sampling technique used total sampling consisting of 23 sons and 17 daughters. Body mass index (BMI) instruments, namely digital scales and height measuring devices, then physical fitness used the TKJI test for ages 10-12 years. Data analysis used the product moment correlation test. The results of this study indicate that there is a relationship between body mass index (BMI) and the physical fitness of SD N 1 Labuhan Ratu students in Bandar Lampung city which can be seen from the interpretation criteria for the correlation coefficient r, namely the value rx.y = 0.768 is strong for boys and rx.y = 0.562 is for women. Moderate results for women because their level of physical fitness is low and for men their level of physical fitness is strong. These results are because gender is a factor that affects physical fitness. So the conclusion is that there is a relationship between body mass index (BMI) and physical fitness for both boys and girls, but for male students the relationship is stronger while for female students the relationship is moderate.

Keywords: *body mass index, physical fitness*

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INTRODUCTION

Physical education is an integral part of education as a whole through movement experiences that encourage physical abilities, motor skills, cognitive development, social-emotional and spiritual development (Bayu Nugraha, 2015). Through physical activity children gain various kinds of experiences that are valuable for life such as intelligence, emotion, attention, cooperation, skills, etc. Physical activity for physical education can be through sports or non-sports (AM Bandi Utama, 2011). The hallmark of physical education is learning through motion experience to achieve teaching goals through implementation, physical activity, playing and sports. In simple terms, the purpose of physical education is to provide opportunities for students to: 1. Develop knowledge and skills related to physical activity, aesthetic development, and social development. 2. Develop self-confidence and the ability to master basic movement skills that will

encourage participation in various physical activities. 3. Obtain and maintain an optimal degree of physical fitness to carry out daily tasks efficiently and under control. 4. Develop personal values and attitudes through participation in physical activities both in groups and individually. 5. Participating in physical activities that can develop social skills that enable students to function effectively in relationships between people. 6. Enjoying fun and joy through physical activity, including sports games. Physical education aims to form children, namely attitudes or values, intelligence, physique, and (psychomotor) skills, so that students will be mature and independent, which can later be used in everyday life. In addition to developing aspects of physical fitness, movement skills, critical thinking skills, social skills, reasoning, emotional stability, healthy lifestyles and introduction to a clean environment through selected physical activities that are planned systematically in order to achieve national education goals.

The Covid-19 pandemic has had a significant impact on learning, one of which is physical education. This results in a decrease in the physical abilities of students, especially the level of physical fitness because physical ability is having the ability to do work without experiencing significant fatigue. Physical fitness shows a person's ability to do tasks physically at a moderate level without excessive fatigue (Ibnu Darmawan, 2017). The degree of a person's physical fitness greatly determines his physical ability to carry out his daily tasks. The higher a person's physical fitness, the higher his physical work ability. In other words, his work is more productive when his physical fitness increases (Zainul Arifin, 2018). There are three types of fitness, namely: 1) Static fitness is a state of the body that is free from disease and disability. 2) dynamic fitness is a person's ability to perform activities that do not require special skills, such as walking, running, jumping and lifting. And 3) motor fitness is defined as a person's ability to carry out activities that are required to be able to have a special skill

Then the independent learning curriculum in PJOK learning, one of which is letting students move according to their pleasure using the facilities prepared and deliberately designed by the teacher to shape students' attitudes, knowledge, and skills. Indeed, it will seem that there is neglect in learning activities, as if students are freed to carry out various learning activities by themselves. To control this, the teacher's role must be strengthened on the monitoring side by using various appropriate strategies so that student activities are in accordance with the flow to achieve the learning objectives that have been formulated. Where performance when students have good

physical fitness can be seen when at school as an example of easy response in the learning process, if called by the teacher or other students come quickly, don't yawn during the learning process

A person can be said to have a good physical fitness status, if the components of a person's fitness are also in good condition. In order to have good fitness one must fulfill 3 elements, including: intake (eating), rest, and exercise. One way to determine a person's level of physical fitness is to provide tests that can measure these components. One well-known test to measure physical fitness is the TKJI (Indonesian Physical Fitness Test) aged 10-12 years. The Indonesian physical fitness test consists of five namely: Fast Running (40 meters), Hanging Elbows Bending 60 seconds, Sitting down (30 seconds sit-ups), Vertical jump and Long run (600 Meters).

Physical fitness is also influenced by nutritional status obtained from body composition. The human body is composed of many different elements, all required by the body, namely water, muscle, bone, and fat. Fat is an important part of the human body which is required as energy for low-intensity movement as well as defense against cold and protection of vital organs. Fat Often described as an element that must be removed because excess fat makes the appearance unsightly. The body is a balanced (proportional) comparison between a person's height and weight. The more balanced (proportional) the ratio of a person's height and weight is, it is possible to have good physical fitness as well. The way to determine body composition is by using Body Mass Index (BMI) measurements. The measurement only requires two things, namely weight and height, which can then be calculated using the BMI formula to obtain measurement results that can be matched with nutritional status norms. Body Mass Index (BMI) or Body Mass Index (BMI) is used to monitor the nutritional status of adults, especially with regard to underweight and overweight. Body Mass Index (BMI) is a reliable indicator of body fat in children and adolescents. The value taken for body mass index is a calculation of the quotient between body weight (BB) in kilograms and the square of height (TB) in meters (Dhara & Chatterjee, 2015). BMI is determined by measuring weight and height separately then the weight and height values are divided to get the BMI value in units of kg/m2 (Situmorang, 2015: 102). BMI does not measure body fat directly, but research shows that BMI correlates with direct measurements of body fat such as underwater weighing and dual energy x-ray absorptiometry (Grummer & Strawn, 2002: 23). Everyone's Body Mass Index (BMI) is different, factors that affect Body Mass Index (BMI) are age, diet, physical activity, gender (Imam Mahfud, Aditya G, and Eko Bagus F, 2020). The greater the body mass

index value, the higher the workload of breathing. The workload of breathing in obesity increases by 60%, severe obesity by 25%. BMI also has an impact on vital capacity (KV), inspiratory reserve volume (VCI), inspiratory capacity (IC) and forced vital capacity (FVC). The higher the body mass index, the lower the lung capacity so that the amount of energy in obesity is inversely proportional to the amount of oxygen that enters the body.

The impact of the Covid-19 pandemic has reduced the physical abilities of everyone without exception, namely elementary school children in Bandar Lampung, especially at SD Negeri 1 Labuhan Ratu. Some students do not pay attention to what food is consumed where food itself is one of the factors that affects a person's nutritional status which can later improve the development process and support students to increase achievement. Some students are unbalanced because they are fat, this is due to lack of movement or exercise due to the impact of the covid-19 pandemic, then in this elementary school there has never been a measurement of body mass index and physical fitness. This is also a factor in wanting to know how the results of BMI and physical fitness of students at SD N 1 Labuhan Ratu are

METHOD

This research is a correlational study, which was conducted to determine whether there is a relationship between two or several variables. The object of study is the relationship between body mass index and physical fitness. The independent variable in this study is body mass index, the dependent variable in this study is physical fitness. The subjects in this study used a total sampling of 40 Class V students with a total of 40 students consisting of 23 boys and 17 girls. The research location is at SD N 1 Labuhan Ratu which is located at Labuhan Ratu, Labuhan Ratu sub-district, Bandar Lampung city, Lampung province. And when the research was carried out in January.

The instruments used in this study used tests and measurements for data collection, namely (1) Body Mass Index, namely by dividing body weight (kg) and the square of height (m). (2) Physical Fitness, namely by doing the Indonesian Physical Fitness Test (TKJI) which consists of running 40 meters, hanging your elbows for 60 seconds, lying down for 30 seconds, jumping straight up, and running 60 meters long. Analysis of the data used is statistical analysis of

correlation studies with the following steps: prerequisite test includes normality test and homogeneity test and hypothesis test. Test the hypothesis using the product moment formula.

RESULTS AND DISCUSSION

The research data analyzed in this study is that there is one independent variable, namely body mass index and there is one dependent variable, namely physical fitness. The results of the data description are written in tabular form as follows:

Tabel 1. Description of Body Mass Index and Physical Fitness Results Data

Statistik	Body Mass Index (BMI)		Physical fitness	
	Male	Female	Male	Female
N	23	17	23	17
Mean	20,3	19,9	14,8	14,8
Std. Deviation	2,9	2,7	2,9	2,3
Minimun	16,6	17,0	10,0	11,0
Maximum	27,0	26,2	20,0	19,0

When displayed in the form of a frequency distribution, body mass index and physical fitness of male and female students at SD N 1 Labuhan Ratu, Bandar Lampung City, are presented in tables 2 and 3 as follows:

Tabel 2. Distribution of Body Mass Index Frequency of Male and Female Students

No	BMI	Category	Male	Female
1	< 17,0	Skinny Weight	1	-
2	17,0 – 18,4	Light Skinny	6	5
3	18,5 – 25,0	Normal	12	10
4	25,1 – 27,0	Light Fat	3	2
5	> 27,0	Heavy Fat	1	-
Jumlah			**23**	**17**

Tabel 3. Physical Fitness Frequency Distribution of Male and Female Students

No	Physical Fitness	Category	Male	Female
1	22 – 25	Very well	-	-
2	18 – 21	Good	6	3
3	14 – 17	Currently	9	9
4	10 – 13	Not enough	8	5
5	5 – 9	Less Once	-	-

Jumlah	**23**	**17**

Furthermore, prerequisite tests were carried out, namely the normality test and homogeneity test. The results of the normality test were carried out to find out whether the data for each variable were normally distributed and the homogeneity test was aimed at whether the two sample groups had homogeneous variances or not.

Tabel 4. Normality Test Results

Variabel	Gender	L Value	L Table	Conclusion
Body Mass Index	Male	0,173	0,180	Normal
	Female	0,201	0,206	Normal
Physical Fitness	Male	0,172	0,180	Normal
	Female	0,166	0,206	Normal

Tabel 5. Homogeneity Results

Data	F Value	F Table	Conclusion
Men's Body Mass Index and Physical Fitness	1,025	2,048	Homogen
Women's Body Mass Index and Physical Fitness	0,874	2,048	Homogen

To find out which variables have the same variance, the test is carried out by comparing the largest variance and the smallest variance of each group so that the calculated F value is obtained with the test criteria if the calculated F value < F table then both data are homogeneous or derived of the same variance. It turned out that the test results obtained Fcount <Ftable, so the two variances were homogeneous.

After it is known that the data is normally distributed and the sample has a homogeneous variance, then to find out how much the body mass index is related to physical fitness, it can be seen from the calculation results with the product moment

Tabel 6. Test r/Relationship of Body Mass Index with Physical Fitness

Correlation	r value	r table	Conclusion
Body Mass Index with Physical Fitness	0,562	0,482	Signifikan

The relationship between body mass index and physical fitness has an r count value of 0.562 with an r table of 0.482, the relationship between the two is positive, that is, the better the body mass index, the better the physical fitness. The value of r count > r table = 0.562 > 0.482, this means that there is a relationship between body mass index and physical fitness. Then the results of calculating how much the body mass index correlation coefficient with physical fitness partially, namely male and female students is as follows:

Tabel 7. Correlation Coefficient of Body Mass Index with Physical Fitness of Male Students at SD Negeri 1 Labuhan Ratu

Correlation X. Y	r value	r table	Conclusion
Male	0,768	0,413	Signifikan
Female	0,562	0,482	Signifikan

Based on the results of the analysis above, the correlation coefficient between the body mass index and the physical fitness of male students is 0.768 (positive value), meaning that the better the student's body mass index, the better the physical fitness. The correlation coefficient value of 0.768 is included in the strong and high category. The significance test of the correlation coefficient was carried out by consulting the value of r count with r table, at α = 5% with N = 23, an r table of 0.413 was obtained. The correlation coefficient between rx.y = 0.768 > r (0.05)(23) = 0.413 means that the correlation is significant. Ha which reads "There is a significant relationship between body mass index and the physical fitness of male students at SD Negeri 1 Labuhan Ratu"

While the correlation coefficient between the body mass index and the physical fitness of female students is 0.562 (positive value), meaning that the better the student's body mass index, the better the physical fitness. The correlation coefficient value of 0.562 is included in the medium category. The significance test of the correlation coefficient was carried out by consulting the value of r count with r table, at α = 5% with N = 17 obtained r table of 0.482. The correlation coefficient between rx.y = 0.562 > r (0.05) (17) = 0.482 means that the correlation is significant. Ha which reads "There is a significant relationship between body mass index and the physical fitness of female students at SD Negeri 1 Labuhan Ratu”

Discussion

Based on the results of the study, it showed that there was a significant relationship between body mass index and the physical fitness of SD Negeri 1 Labuhan Ratu students. But in the son the relationship is strong while in the daughter the relationship is moderate. These results can be interpreted that the body mass index is one component that affects a person's physical fitness. Other factors that affect a person's physical fitness include age, gender, heredity, intake, habits, exercise, physical activity and body fat. Fat accumulation can reduce physical fitness. Fat tissue is a tissue that is not directly involved in the energy formation process. Directly involved in the formation of energy is muscle tissue. Obese people have more fat tissue than muscle tissue so they have little ability to produce energy. Physical fitness will be better for someone who has more active networks than someone who has little active network (Lubis, Sulastri, & Afriwardi, 2017: 145).

Children with obesity tend to have a lower level of physical fitness compared to children with a normal body mass index (Pratiwi & Muliarta, 2017). An increase in the amount of lean body mass is associated with a maximal oxygen consumption rate. In obesity, there is an accumulation of excess fat in the body's tissues so that oxygen consumption becomes less than optimal, this of course will reduce the level of physical fitness. Children with obesity also tend to have limited physical activity. This is what causes low physical fitness in children with obesity

The Relationship Between Body Mass Index (BMI) and Physical Fitness of Students of SD N 1 Labuhan Ratu Bandar Lampung After the Covid-19 Pandemic. The results of the calculation show that the r count is 0.562 with r table 0.482, the relationship between the two is positive, that is, the better the body mass index, the better the physical fitness. The value of r count > r table = 0.562 > 0.482, this means that there is a relationship between body mass index and physical fitness. The more ideal the body mass index is, the higher the level of physical fitness of students. The condition of students if they have a body mass index and a good level of physical fitness have a more active attitude. Students who have a body mass index and level of physical fitness that are still low or even higher than the normal number of students tend to have lazy behavior, are inactive, weak, easily tired.

So in this study the researchers concluded that the lower the body mass index (BMI) possessed, the lower the possibility of physical fitness carried out by students. The more ideal the Body Mass Index is, the higher the level of physical fitness of students. If students have a good body mass index and a good level of physical fitness, they have a more active attitude. Students who have a Body Mass Index and a level of physical fitness that are still low or even higher than the normal rate tend to have lazy, inactive, weak, easily tired behavior.

CONCLUSSION

Based on the results of the study, it was found that there was a relationship between body mass index (BMI) and physical fitness of SD N 1 Labuhan Ratu Bandar Lampung students after the Covid-19 pandemic. that affects physical fitness is body mass index. So that the important role of this element is needed in physical fitness

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