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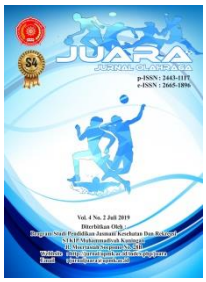

# *RELATIONSHIP BETWEEN THE LEVEL PHYSICAL FITNESS AND LEARNING ACHIEVEMENT OF STUDENTS*

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**Abstract**

*This research aims to explore the correlation and influence of students' physical fitness levels on their learning achievement in Physical Education, Sports, and Health (PESH) subjects. The study was conducted at SDN 1 Sidorejo and employed correlation methods using Pearson product-moment statistics. The research population consisted of 40 students from grades I to VI, with a sample of 32 students from grades III to VI, selected through purposive sampling. The data analysis process consisted of two main stages: (1) Verification of classical assumptions, such as normality testing using Shapiro-Wilk and linearity testing, and (2) Hypothesis testing through Pearson Product Moment correlation tests. Furthermore, simple linear regression analysis was conducted to assess the extent of the influence of physical fitness on student learning achievement. Findings from this study indicate a positive relationship between physical fitness levels and student learning achievement in Physical Education, Sports, and Health at SDN 1 Sidorejo. Support for these findings was obtained from Pearson Product Moment correlation test results, showing a significance value (2-tailed) of 0.000 < 0.05, and a correlation coefficient (r) value of 0.651, exceeding the critical value of 0.349. Additional analysis using simple regression testing also yielded a significance value (2-tailed) of 0.000 < 0.05 and a t-value of 4.696, exceeding the critical value of 2.042. Therefore, it can be concluded that physical fitness levels have an impact on student learning achievement in PESH subjects at SDN 1 Sidorejo.*



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## INTRODUCTION

Physical fitness pertains to an individual's capacity to reach peak performance levels in athletic endeavors (Pranata & Kumaat, 2022). his process involves physical activities that transform individuals holistically, promoting emotional, physical, and mental health (DIKDAS, 2021; Wisnu, 2022). Physical Education stands as a crucial element within the educational framework, aiming primarily to enhance physical health, mental balance, athletic prowess, and advocate for wholesome living. Furthermore, it holds significance in nurturing diverse facets including cognitive abilities, emotional resilience, and motor proficiency among students (Bukhari et al., 2019). According to (DIKDAS, 2021; Mustafa, 2022), Educational objectives encompass proficiency across these three dimensions, and the PESH educational journey should endeavor to realize these objectives, Meanwhile, according to (Mubarok et al., 2022) the aim of physical education in schools is to encourage students' physical growth and development. According to Bloom's Taxonomy Theory, students' educational progress can be assessed across three domains: cognitive, affective, and psychomotor. Teaching physical education, sports, and health necessitates stricter classroom management and the enforcement of stringent rules. This is because students tend to exhibit more emotional behavior in physical education, sports, and health classes compared to regular classroom settings, where the difference is significant (Hildan et al., 2022).

Learning outcomes mirror the accomplishments attained by students following the educational journey, typically assessed through evaluations administered by educators for each subject covered. They indicate the degree to which students have grasped the instructional content after undergoing an effective learning experience (Syafi'i et al., 2018; Wahid, 2018). Changes resulting from the learning process can be demonstrated in various forms, such as knowledge, attitudes, skills, behavior, habits, and other individual traits (Ramadan, 2022). Learning achievement holds significant meaning for students as it is an indicator of their learning success, indicating whether there has been positive improvement or not (Hidayah & Silaen, 2019). Based on data gathered from the Mid-Semester Assessment for the academic year 2023/2024, conducted by Physical Education instructors, learning outcome statistics were derived from a cohort of 32 students spanning grades III through VI. The results reveal that the majority of students failed to meet the predetermined threshold or Minimum Mastery Criteria. Among the 32 students assessed, only 8 (25%) attained scores surpassing the Minimum Mastery Criteria, while the remaining 24 students (75%) fell short of this benchmark. These findings underscore that a significant portion of students did not reach the established standards, as evidenced by the fact that only 25% of the total student population achieved scores exceeding the Minimum Mastery Criteria.

The attainment of academic success and learning excellence by students is shaped by a multitude of factors. These factors can be broadly categorized into two groups: internal factors encompassing physical elements such as health and fitness, as well as psychological facets including interest, focus, and aptitude; and external factors, which encompass the instructional methodologies employed by educators, curriculum design, school infrastructure, and various other environmental conditions within the educational institution, furthermore, teachers play a crucial role in the success of education (Salsabila & Puspitasari, 2020; Nasrulloh et al., 2022). The theories about these learning achievement factors are in line with the views presented by (Sutikno, 2019), who also differentiate between internal and external factors. Internal factors include physical fitness, health, psychology, and physical condition, while external factors involve family, community, and school environments. In this context, physical fitness can be seen as an internal factor that helps support students' learning activities' success, both in academic and non-academic aspects, especially in enhancing their learning achievement. Because of the significant role of physical fitness in determining students' learning achievement levels, it is important to gather data related to students' physical fitness levels. According to (Juniar et al., 2019), achieving the desired success in the learning process and reaching optimal performance can be influenced by various

factors, including psychological and physiological ones.

Physical fitness refers to the ability to engage in physical activities without feeling excessive fatigue afterward. According to (Suryana et al., 2022; Subekti, 2018), an individual's health and fitness level are often reflected through their physical condition. Students' motor skills are a crucial element in physical education learning (Shakty et al., 2022). Results from interviews with Physical Education teachers at SDN 1 Sidorejo indicate that regular monitoring of students' physical fitness levels has not been consistently conducted. This poses a challenge that needs to be addressed to test the theory of whether physical fitness plays a role as an internal factor supporting students' learning achievement or not.

Previous research findings indicate a correlation between these two variables, as supported by empirical evidence. Firstly, research conducted by (Aprilia & Januarto, 2022) Suggests a correlation between physical fitness and students' academic performance, underscoring the pivotal role of physical fitness in influencing learning outcomes within Physical Education disciplines. Second, (Lovita et al., 2023) found there is a notable correlation between the levels of physical fitness and students' academic performance, confirming a favorable association between them. Additionally, the study by (Al-Hafiz et al., 2024) also confirmed the findings of this study by showing strong correlations between variables. The researcher integrates these specific empirical findings to analyze the relevance of the correlation between the two variables in this particular topic.

In response to these challenges, researchers initiated a study aimed at investigating the correlation between levels of physical fitness, especially among elementary school students, and their learning achievement in the subject of physical education at SDN 1 Sidorejo, concerns were raised regarding PESH learning outcomes that have not yet reached the Minimum Mastery Criteria, and simultaneously, information about students' physical fitness levels has not been routinely monitored. Therefore, the school has not been able to confirm the relationship between the two variables above, because this lack of understanding prompted researchers to conduct research at SDN 1 Sidorejo.

## METHODS

This study employs a quantitative methodology utilizing a correlation model. As per (Sugiyono, 2017), quantitative research is a methodological approach for conducting scientific inquiries and testing hypotheses using statistical analysis. The correlation design method, as outlined by (Paramita, et al., 2021), is used to evaluate whether there is a correlation between two variables. In this context, the observed variables are learning achievement in the PESH subject and their level of physical fitness. The Indonesian student fitness test measures students' physical fitness, while learning achievement is assessed using evaluation data at the end of the odd semester of the 2023/2024 academic year. This search was carried out at SDN 1 Sidorejo which is located in Gadel, Sidorejo, Sukorejo, Ponorogo, East Java. This research took place over two days, on 16 and 21 February 2024, in Physical Education, Sports, and Health (PESH) class sessions.

Population refers to the entire individuals or elements with specific characteristics in a particular area that are then analyzed by researchers to conclude (Syahza, 2021). In the context of this research, the population includes all students enrolled in grades I-VI at SDN 1 Sidorejo, totaling 40 students. On the other hand, a sample is a smaller subset of the population selected to represent during the research. The sampling method applied is purposive sampling, characterized by intentional selection based on specific criteria and considerations (Semiawan, 2018). The sampling criteria in this study are students from grades III-VI who are currently participating in Physical Education classes with PESH teachers, totaling 32 students.

In this study, the method used involves test administration and measurement to collect data, particularly in assessing students' physical fitness levels from grades III, IV, V, and VI. The Indonesian Student Fitness Test Phase B is used for students in grades III and IV, while Phase C tests are used for students in grades V and VI.

Phase B test includes a series of tests such as the Sit and Reach Test, Half Up, Hand-Eye Coordination, T-test, and Around the World. Meanwhile, Phase C tests include tests such as Child Ball, Tok-Tok Ball, Move the Ball, Shuttle Run 8 x 10 m, and 600 m Run. Additionally, student learning achievement is evaluated based on the scores of the Mid-Semester Final Examination of the odd semester of the academic year 2023/2024.

In the context of this research, data analysis is conducted through two main stages. The first stage involves testing classical assumptions, which includes assessing data normality using the Shapiro-Wilk test and examining linearity using SPSS software version 26.00. Subsequently, hypothesis testing is performed using parametric statistical methods. Specifically, the Pearson product-moment correlation test is used to evaluate the relationship between physical fitness variables and learning achievement. Additionally, the analysis proceeds by applying simple linear regression tests to determine the extent to which the physical fitness variable influences students' achievements in the PESH subject.

## FINDINGS AND DISCUSSION

### Findings

1. Data Description

Data analysis is conducted based on the research findings, involving the collection of data from two variables according to the research plan that has been developed. Subsequently, the findings related to students' physical fitness variable (X) and students' learning achievement (Y) will be outlined as follows:

a. Statistic Descriptive Results of Physical Fitness (X)

Table 1 Statistical Descriptive Results of Physical Fitness

| Descriptive Statistics | |
|---|---|
| N | 32 |
| Mean | 16,91 |
| Standard Deviation | 2,54 |
| Highest Score | 22 |
| Lowest Score | 13 |

From the physical fitness data collected from 32 students in grades III, IV, V, and VI at SDN 1 Sidorejo, it can be observed that the highest score for physical fitness is 22, while the lowest score is 13. The average score is 16.91, with a standard deviation of 2.54.

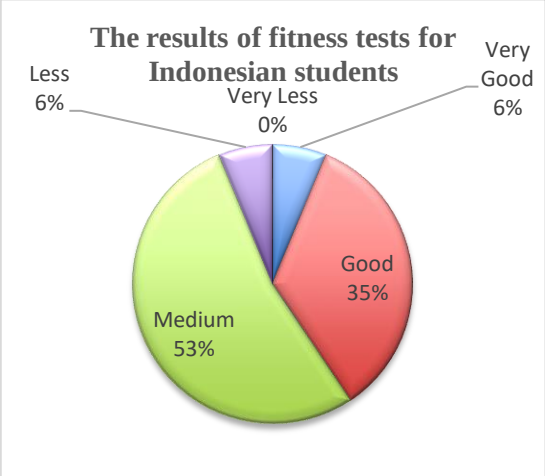


Diagram 1 Indonesian Students Fitness Test

Based on the provided graph, 32 students from grades III, IV, V, and VI at SDN 1 Sidorejo participated in the collection of physical fitness data. Out of these total students, 6% are rated as very good, 35% as good, 53% as fair, 6% as poor, and 6% as very poor. Therefore, the majority of students at SDN 1 Sidorejo, accounting for 53%, fall into the fair category for physical fitness.

b. Statistical Descriptive Results of Student Learning Achievement (Y)

Table 2 Descriptive Results of Learning Achievement Statistics

| Descriptive Statistics | |
|---|---|
| N | 32 |
| Mean | 74,72 |
| Standard Deviation | 3,56 |
| Highest Score | 82 |
| Lowest Score | 70 |

Based on the data presented in the table, there were 32 students in grades III to VI at SDN 1 Sidorejo who participated in collecting data on student learning achievement in the PESH subject. The highest score obtained by a student was 82, while the lowest score recorded was 70.

After conducting thorough data analysis, it was discovered that the average score of students was 74.72 with a standard deviation of 3.56.


Diagram 2. Learning Achievement

The data on learning achievement from 32 students consisting of grades III, IV, V, and VI at SDN 1 Sidorejo is reflected in the above diagram. It is evident that none of the students attained learning outcomes categorized as either good or very good. Thus, the majority of students at SDN 1 Sidorejo demonstrate learning achievement categorized as satisfactory, while the remaining 50% show less than satisfactory achievement.

2. Data Analysis

Before conducting the hypothesis testing, normality and linearity testing, which are prerequisites for data analysis, were conducted.

a. Normality Test of Data

This test used the Shapiro-Wilk test with the assistance of SPSS software version 26. The decision to use the Shapiro-Wilk test was based on the sample size being less than 50 students (Tyastirin & Hidayati, 2017). Below are the outcomes of the normality examination.

Table 3. Normality Test Results

| **Tests of Normality** | |
|---|---|
| | Shapiro-Wilk |
| | Sig. |
| Physical Fitness | .145 |
| Learning Achievement | .076 |

The significance result for physical fitness is 0.145, which is greater than 0.05, indicating that the residual distribution of physical fitness tends to be normal. Similarly, the significance value for academic achievement is 0.76, also exceeding 0.05, indicating that the distribution of academic achievement in the PESH subject tends to be normal. This conclusion was obtained from normality testing using the Shapiro-Wilk method and analyzed using SPSS software version 26. The determination was reached following the residual values criteria, wherein a distribution is deemed normal if the significance value exceeds 0.05, and considered non-normal if it falls below 0.05.

b. Linearity Test of Data

The data linearity test aims to compare two different regression models, namely linear and non-linear models, which are applied to the same data set, with a focus on testing whether there is a relationship between variables. The objective of this test is to ascertain if there exists a noteworthy linear correlation between the two variables. If the data does not meet the linearity criteria, then the regression test cannot be carried out (Sugiyono, 2018; Mahmoudi, 2019).

Table 4. Linearity Test Results

| Anova Table | | | | |
|---|---|---|---|---|
| | | | F | Sig. |
| Learning Achievement * Physical Fitness | Between Groups | (Combined) | 3.002 | .017 |
| | | Linearity | 20.769 | .000 |
| | | Deviation From Linearity | .781 | .624 |
| | | | | |
| | | | | |

The outcomes of the linearity examination using SPSS version 26 reveal a linear association between the two variables. The significance value obtained from the linearity deviation is 0.624, surpassing the 0.05 threshold. Additionally, the calculated F value is 0.781, which is lower than the tabulated F value of 2.40. Consequently, the analysis indicates that if the significance for the deviation from

linearity exceeds 0.05, a linear relationship between the two variables is affirmed. Conversely, if the significance of the deviation from linearity is below 0.05, it cannot be concluded that a significant relationship exists.

After verifying that all testing requirements have been met, hypothesis testing is carried out to determine the relationship between variables. Because all data shows a normal distribution based on the normality test, hypothesis testing can be carried out using parametric methods. The steps for testing hypotheses regarding the relationship between the two variables can be described as follows:

1). Correlation Test

Based on the significance value (Sig) at a two-tailed significance level, the presence of correlation between the variables under investigation is considered significant if the Sig value is less than 0.05. Conversely, if the Sig value exceeds 0.05, then the correlation is considered not significant. Furthermore, concerning the Pearson correlation coefficient (r) calculation, the association between variables is deemed noteworthy if the computed r value surpasses the tabulated r value. The test outcomes are depicted in the table provided below.

Table 5 Correlation Test Results

| **Correlations** | | | |
|---|---|---|---|
| | | Physical Fitness | learning achievement |
| Physical Fitness | Pearson Correlation | 1 | 0.651 |
| | Sig. (2-tailed) | | 0.000 |
| | N | 32 | 32 |
| learning achievement | Pearson Correlation | 0.651 | 1 |
| | Sig. (2-tailed) | 0.000 | |
| | N | 32 | 32 |

According to the findings, the interpretation of the correlation test is outlined as follows:

a). The two-tailed significance value for the correlation between physical fitness and learning achievement variables is 0.000, suggesting a substantial correlation between the two variables, aligning with the provided data.

b). The correlation between the two variables is apparent, indicated by a Pearson correlation coefficient of 0.651, which exceeds the tabulated r value of 0.349. Additionally, the positive value of r signifies a positive relationship between the two variables.

c). It can be argued that the relationship between the two variables is moderately strong due to the value of the calculated r = 0.651.

The results of the correlation analysis show that there is a significant relationship between the variables, so it can be concluded that the two variables show a strong correlation. Furthermore, from the linearity testing results, it is evident that the variables exhibit a linear and functional relationship, allowing for regression analysis in this study. Regression analysis is used to evaluate the level of correlation between dependent and independent variables (Paramita, et al., 2021). In this research context, simple linear regression analysis is utilized to assess the impact between these variables.

2). Simple Linear Regression Test

The simple linear regression method is employed to identify the linear connection between an independent variable and a dependent variable, to know the relationship between variables (Bazdaric et al., 2021; Harsiti et al., 2022).

Table 6 Simple Linear Regression Test Results

| **Coefficients[a]** | | | |
|---|---|---|---|
| Models | | t | Sig. |
| 1 | (Constant) | 17.855 | .000 |
| | PHYSICAL FITNESS | 4.696 | .000 |

Interpreting the results of the Simple Linear Regression Test conducted via SPSS version 26 yields the following analysis:

a). The physical fitness variable (X) significantly impacts the learning achievement variable (Y), indicated by a Sig value of 0.000, which is less than 0.05, as indicated in the table of Significance Coefficient values above.

b). The computed t value of 4.696 exceeds the tabulated t value of 2.042, suggesting a significant association between the physical fitness (X) and learning achievement (Y) variables.

**Discussion**

The physical fitness assessment refers to the guidelines outlined in the 2023 Indonesian Student Fitness Test, as determined by the Ministry of Education, Culture, Research and Technology. This examination is related to research findings which analyzed the level of physical fitness and its correlation with student learning achievement from grades III to VI at SDN 1 Sidorejo which is located in Sukorejo District, Ponorogo Regency. The average score for physical fitness reached 16.91, falling within the range of 14-17, placing students from grades III to VI in the moderate category according to the Indonesian Student Fitness Test standards. Based on the assessment of the learning achievement of students in grades III to VI of SDN 1 Sidorejo in the odd semester of the 2023/2024 academic year, the average score of the 32 selected students was classified as low with an average score of 74.72. This descriptive analysis results in the conclusion that learning achievement is classified as low, while physical fitness is classified as moderate.

Researchers used Pearson correlation analysis to test variable hypotheses. Previously, the data was checked to ensure classic assumptions were met, including linearity and normality checks. The outcomes of the normality test indicate that all data follows a normal distribution pattern, and the linearity test demonstrates the presence of a linear relationship between variables. Through correlation hypothesis testing, it was found that there is a hypothesis to be tested, the relationship between students learning achievement and physical fitness in the PESH subject at SDN 1 Sidorejo. The examination encompassed a sample of 32 students. Given that the significance value of the two-tailed correlation analysis, denoted by Sig 0.000, is less than 0.05, it indicates notable distinctions in the physical fitness and PESH learning achievement among students at SDN 1 Sidorejo. The calculated r shows a relationship between the two variables; 0.651> 0.391 as the r table. The analysis also showed a positive correlation, indicating that higher physical fitness correlates with better academic outcomes, and vice versa. Following the confirmation of a significant relationship between the two variables through a correlation test, a simple linear regression analysis is conducted to determine if these variables exert influence on each other beyond the observed significant relationship. The research results show that student learning achievement in the PESH subject is influenced by physical fitness, as evidenced by a significance value of 0.000 less than 0.05 obtained from simple linear regression analysis. Furthermore, the calculated t-value compared to the t-table value shows that the t-value of 4.696 exceeds the t-table value of 2.042, indicating that physical fitness influences students' learning achievement in the PESH subject.

Findings from previous research (Silitonga & Verawati, 2019) The research findings support the conclusion of a notable correlation between students' academic performance and their physical fitness, with a correlation coefficient of 32.3%. Another study was conducted by (Supariyadi et al., 2022). also indicates a positive relationship between learning achievement in the PESH subject. Findings from the research (Sulastri, 2015) concerning the influence of physical fitness on student learning outcomes, it is established that physical fitness significantly affects academic performance. However, findings from the study conducted by (Nawawi & Hidayat, 2021) indicate a feeble correlation, suggesting that factors related to physical fitness do not wield a significant influence on learning achievement.

According to recent research, academic achievement refers to students' ability to

understand the material taught, as reflected in test scores (Habsyi, 2020). Physical fitness is acknowledged as a pivotal factor that substantially contributes to attaining commendable academic performance (Agustin, 2017). Hence, based on the outcomes of this study, it can be inferred that an individual's physical condition and fitness are closely interrelated. Physical fitness encompasses the capacity to perform daily activities and acquire new knowledge without feeling excessively tired, indicating that one's body can bear the workload (Oktavani & Meirony, 2017).

According to the theory, it is concluded that students who have good physical condition tend to not easily feel tired, enabling them to engage in learning activities more effectively. Optimal physical fitness helps students maintain their focus on academic activities. Conversely, lack of physical fitness can cause students to quickly feel tired, which in turn can disrupt their psychological condition, making them feel sleepy and lethargic during the learning process (Abduh et al., 2020). Research findings show a correlation between students' physical fitness levels and their learning achievements, where higher levels of physical fitness are associated with better learning outcomes. This finding is also supported by other studies (Iqbal et al., 2024), These findings highlight the significant influence of physical fitness on student learning achievement; The higher the level of physical fitness of students, the greater their learning achievement. Thus, students in optimal physical condition will be more able to optimize their cognitive abilities in understanding various subjects taught, which ultimately can indirectly enhance their learning achievement. Fatigue and drowsiness are examples of how brain performance decreases when physical condition is not optimal. Therefore, students tend to be less motivated in the learning process, which can hinder their active participation and result in decreased learning achievement. maintaining physical fitness helps students in their learning efforts so that a significant relationship is established between variables in the PESH subject for students at SDN 1 Sidorejo.

## CONCLUSION

After examining the data and assessing the research results, it can be concluded that physical fitness plays an important role in shaping student learning achievement. The interrelationships between the variables show a strong relationship and influence each other. Therefore, students, parents, educators, and educational institutions need to pay greater attention to the aspect of students' physical fitness to enhance their learning achievement.

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