

## Correlation between the Physical Activity, Eating Pattern, And Rest Pattern towards the Physical Fitness of Elementary School Students



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**ABSTRACT:** This research aims to determine the correlation between physical activities, diet, and rest patterns towards the physical fitness of elementary school students at SD Model (Model Elementary School), Sleman, Yogyakarta.

The research method used a quantitative approach. The research population was the senior students from SD Model Sleman totaling 256 students. The research sample was for about 149 students taken by using a sampling technique based on the Isaac and Michael Table formula with an error rate of 5%. The data collection used a questionnaire with item validation with expert consideration and empirical testing. The validity test and reliability test of the instrument used the product moment statistical test with IBM SPSS Statistic 25. The data analysis techniques used simple and multiple linear regression. Data assumption tests consisted of normality, linearity, and multicollinearity tests.

The results of the hypothesis test show that: (1) physical activity has a significant correlation with physical fitness of elementary school students with a significant value of  $0.000 < 0.05$ ; (2) eating pattern has a significant correlation to the physical fitness of elementary school Students with a significant value of  $0.001 < 0.05$ ; (3) rest pattern has a significant correlation to the physical fitness of elementary school students with a significant value of  $0.000 < 0.05$ .; (4) the results of the f test show that the significant value is  $0.000 < 0.05$  and the f-count value is greater than the f-table  $57.098 > 3.146$ , meaning that physical activity, eating pattern, and rest pattern have a simultaneous correlation towards the physical fitness of senior students of SD Model Sleman Yogyakarta.

**KEYWORDS:** Physical Activity, Eating Pattern, Rest Pattern, Physical Fitness

### I. INTRODUCTION

Physical fitness is an important aspect of learner development, especially in the context of primary school education. WHO recommends that children and adolescents aged 5-17 years should engage in at least 60 minutes of moderate to vigorous intensity physical activity, as well as muscle and bone strengthening activities at least three days per week (Bull et al., 2020). Physical activity is positively associated with cardiorespiratory and muscular fitness, bone and cardiometabolic health, and adiposity (Chaput et al., 2020). Previous research has shown a significant correlation between physical fitness levels and student learning outcomes, especially in physical education subjects. (Salamah & Setiawan, 2022) found that there is a significant relationship between the level of physical fitness and learning outcomes in physical education classes in junior high school students, which indicates a link between physical fitness and students' academic achievement. A similar study by (Satriawan et al., 2024) on primary school learners aged 10-11 years also highlighted the importance of physical activity in improving physical fitness and motor skills.

Furthermore, (Supriyanto et al., 2021) emphasized the importance of regular physical activity in improving learners' physical fitness. Physical activity is a complex behavioral variable that varies from day to day, in terms of intensity, frequency, and duration (Hayes et al., 2019). Structured and regular physical activity not only improves physical fitness but also supports learners' ability to carry out daily tasks effectively (Dewi et al., 2016). Low working memory will make it difficult to receive new information, leading to decreased learning achievement (Nadira & Daulay, 2022). In this context, (Aprilia & Januarto, 2022) assert that physical fitness has a close relationship with academic achievement, where students with good physical fitness tend to have better learning outcomes.

The current era of globalization has resulted in the development of science and technology. All the advances from technology make human life more enjoyable and easier, but conversely a drastic change has occurred from an active lifestyle to an inactive

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or sedentary lifestyle (Abdoellah, 2005). Most of the world's population is physically inactive, physical inactivity is considered a public health problem, not an individual problem (Kljajevic et al., 2022). Diet and physical activity directly affect the health status of adults and children (Kljajevic et al., 2022). A good diet is not only important to prevent nutritional problems, but also to support overall health, including dental health and obesity risk (Fadilah & Sefrina, 2022).

Obesity is a metabolic disease characterized by excessive fat accumulation (Sriwahyuni et al., 2021). Factors causing obesity in children and adolescents are multifactorial. Increased consumption of fast food, low physical activity, sleep quality, diet programs, genetic factors, age, gender, climate change, psychological factors, socioeconomic status, are factors that contribute to changes in energy balance and lead to obesity (Yuliani & Nugroho, 2022). Excessive use of smartphones will have a negative impact on the development of students, which is characterized by lazy students in doing movement activities and interacting (Ariyanto et al., 2020). Lack of movement activities causes students to easily experience fatigue during sports activities, overweight or obesity. This change in lifestyle results in changes in diet that refer to a diet high in calories, fat, and cholesterol but low in fiber, especially fast food, which has an impact on increasing obesity (Evert et al., 2019).

Another factor that can affect the fitness level of elementary school students is rest patterns. Sleep needs vary widely throughout human life. Primary school-age learners are advised to sleep with a sleep duration of 9 hours to 12 hours per day (Lim et al., 2021). A person who applies good quality rest/sleep and regularly will have a good level of fitness good physical fitness (Zaky & Wati, 2020). (Supardi, 2023) emphasized the importance of compliance in maintaining a balance between diet, sleep, work, and exercise for patients with diabetes mellitus.

Research by (Ha et al., 2021) emphasizes the importance of health-related fitness in primary school learners, suggesting the need for a comprehensive approach to meet the needs of learners, both low and high achievers, in improving their physical literacy. Research (Erry, 2023) proves that there is a significant relationship between physical activity and the physical fitness of students who take part in extracurricular volleyball at SMP Negeri 1 Sanden. By integrating structured physical education programs, promoting physical activity as early as possible, good diet, regular rest patterns and monitoring the impact of digital technology on learners' physical activity levels, educators and policy makers can work together to improve learners' physical fitness. This study aims to analyze the correlation of physical activity, diet, and rest patterns with Physical Fitness learning outcomes in upper grade students of Sleman Yogyakarta Model Elementary School.

### II. METHOD

The research conducted is a type of quantitative research. The research conducted has a population of upper grade students of SD Model Sleman Yogyakarta, totaling 256 students and the sample of this study was determined using the Isaac & Michael table with an error rate of 5% so that a sample of 149 students was obtained. Quantitative research was conducted by collecting data using a questionnaire given to 149 students. The data collected will be analyzed using simple linear regression analysis and multiple linear regression analysis. IBM SPSS Statistic 25 will be used to help the data analysis process.

### III. RESEARCH RESULT

Below is descriptive statistical data on physical activity, diet, and rest patterns presented in tabular form as follows Table 1. Description of statistical data

Variable		Physical Activity	Diet	Rest Pattern	Physical Fitness Learning Outcomes
N	Valid	149	149	149	149
	Missing	0	0	0	0
Mean		57,46	64,34	52,59	85,83
Median		57	60	53	86
Mode		59	64	53	85
Std. Deviation		9,047	11,814	7,912	1,505
Variance		81,845	139,579	62,608	2,267
Minimum		40	30	31	82
Maximum		84	85	71	89
Sum		8562	8999	7838	12788
Criterion Score		13112	13112	11324	14900

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Based on table 1 above, it is known that the results of the calculation of the physical activity variable obtained a maximum value of 84, a minimum value of 40, a mean of 57.46, a median of 57, a mode of 59, a variation of 81.845, and a standard deviation of 9.047, a total score of 8562, and a criterion score for the physical activity variable is 1311, then the value of the physical activity variable is analyzed using the percentage formula to determine the category.  $\text{Percentage} = (\text{Score obtained}) / (\text{Maximum Score}) \times 100 = 8562 / 13112 \times 100 = 65.30$  categorized as high. The results of the calculation of the Eating Pattern variable items obtained a maximum value of 85, a minimum value of 30, a mean of 64.34, a median of 60, a mode of 64, a variation of 139.579, and a standard deviation of 11.814, a total score of 8999, a criterion score for the eating pattern variable is 13112, then the value of the Eating Pattern variable is analyzed using the percentage formula to determine the category.  $\text{Percentage} = (\text{Score obtained}) / (\text{Maximum Score}) \times 100 = 8999 / 13112 \times 100 = 68.63$  high category. The results of the calculation of the rest pattern variable items obtained a maximum value of 71, a minimum value of 31, a mean of 52.59, a median of 53, a mode of 53, a variation of 62.608 and a standard deviation of 7.912, a total score of 7836, a criterion score for the rest pattern variable is 11324, then the rest pattern variable value is analyzed using the percentage formula to determine the category.  $\text{Percentage} = (\text{Score obtained}) / (\text{Maximum Score}) \times 100 = 7836 / 11324 \times 100 = 69.30$  high category. The results of the calculation of the Physical Fitness value data obtained a maximum value of 89, a minimum value of 82 mean of 85.83, a median of 86, a mode of 85, a variation of 2, 67, and a standard deviation of 1.51, a total score of 12,788, a criterion score for the physical fitness learning outcome variable of 14,900, then the value of the Physical Fitness variable is analyzed using the percentage formula to determine the category.  $\text{Percentage} = (\text{Score obtained}) / (\text{Maximum Score}) \times 100 = 12788 / 14900 \times 100 = 85, 81$  in the very high category.

**Table 2. Hypothesis testing with regression coefficients**

		Coefficients <sup>a</sup>				
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	
1	(Constant)	77.064	.680		113.412	.000
	Physical Activity	.073	.010	.438	6.968	.000
	Diet	.028	.008	.223	3.558	.001
	Rest Pattern	.054	.012	.286	4.354	.000

a. Dependent Variable: Physical Fitness Learning Outcomes

Testing the first hypothesis (H1). It is known that the Sig. value for the effect (Partial) X1 on Y is 0.000 < 0.05 and the t value is 6.968 > t table 1.655 so it can be concluded that H1 is accepted which means there is a correlation between Physical Activity (X1) and Physical Fitness Learning Outcomes (Y).

Testing the second hypothesis (H2). It is known that the Sig. value for the effect (Partial) X2 on Y is 0.001 < 0.05 and the t value is 3.558 > t table 1.655 so it can be concluded that H2 is accepted which means there is a correlation of Diet (X2) with Physical Fitness Learning Outcomes (Y).

Testing the third hypothesis (H3). It is known that the Sig. value for the effect (Partial) X3 on Y is 0.000 < 0.05 and the t value is 4.354 > t table 1.655 so it can be concluded that H3 is accepted which means there is a correlation of Rest Pattern (X2) with Physical Fitness Learning Outcomes (Y).

Testing the fourth hypothesis (H4) with the F test. To find out the H4 hypothesis, it can be seen in the following table of anova test results:

**Table 3. ANOVA test**

		ANOVA <sup>a</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	181.675	3	60.558	57.098	.000 <sup>b</sup>
	Residual	153.788	145	1.061		
	Total	335.463	148			

a. Dependent Variable: Physical Fitness

b. Predictors: (Constant), Rest Pattern, Diet, Physical Activity

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It is known that the Sig. value for the effect (Simultan) X1, X2, and X3 on Y is  $0.000 < 0.05$  and the calculated F value is  $57,098 > F$  table 3,146 so it can be concluded that H4 is accepted which means there is a correlation between Physical Activity (X1), Diet (X2), Rest Pattern (X3) simultaneously with Physical Fitness Learning Outcomes (Y)

### IV. CONCLUSIONS

#### Conclusion

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that; Physical Activity has a significant correlation with Physical Fitness Learning Outcomes of Elementary School Students; Diet has a significant correlation with Physical Fitness Learning Outcomes of Elementary School Students; Rest Pattern has a significant correlation with Physical Fitness Learning Outcomes of Elementary School Students; and the variables of Physical Activity (X1), Diet (X2), and Rest Pattern (X3) simultaneously have a significant correlation with Physical Fitness Learning Outcomes (Y) of Elementary School Students.

#### Suggestion

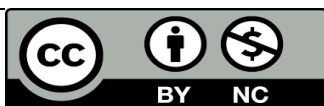
For further research, it is hoped that researchers in this study can add other independent variables, so that more variables that affect Physical Fitness Learning Outcomes can be identified and the results can be generalized.

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