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Relationship Between Physical Activity and Learning Outcomes in Physical Education for Eighth Grade Students at Junior High School 1 Japah

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Abstract

Physical exercise is a key in physical fitness and also helps the physical education learning to succeed. However, with the digitized era and adolescents' lifestyle changes, there has been a decrease in physical activity among students that could likely have an impact on their learning outcome in physical education. The purpose of this study is to identify the physical activity status, describe the Character Physical Education learning achievement and investigate their relationship toward physical activity among 8th grade students at Junior High School 1 Japah. This research used the quantitative correlational design. The participants included 120 eighth-grade students. Physical activity data were collected from Physical Activity Questionnaire for Adolescents (PAQ-A), and physical education learning outcome data included the administrative documentation of odd-semester report card scores. Data was analysed using descriptive and inferential statistics (normality tests, linearity tests and correlation analysis). The findings indicated that the physical activity levels of students were mostly in the 41-80th percentiles, and their learning outcomes achieved for physical education fell within the fair level for low-income populations. There was a strong significant positive relationship by correlation (r =) (0.609, $p < 0.05$). These results highlight the need to promote physical activity of students in order to contribute positively towards learning achievement in physical education.

How to Cite

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INTRODUCTION

Human resources are the main factor of sustainable national development. Education is a strategic tool to generate solid people with good character and competitive (Sudarma, 2022). In education, learners are expected to do more than just learn they are also meant to become capable across cognitive, affective and psychomotor domains of behaviour (Rees, 2021). Good education must be capable to generate the man or women who is qualified skills, attitudes and behaviors in accordance with values of social life (Hidayat, 2021).

Physical education is an essential part of students' all-round development in the formal school setting. Physical education is not only aimed at the achievement of motor learning but also character building, physical fitness enhancement, and development of values such as sportsmanship, discipline, and cooperation (Pangestuti & Raharjo, 2017). By doing so, students experience learning that occurs through direct relationship between the body, environment and materials of learning which resulting in meaningful learning process (Angga & Sari, 2025).

Advancement of digital in the era of industrial revolution 4.0 digitally has grown rapidly that brings new challenges for the education sector (including physical education) (Syafruddin, 2023). One such common trend now is that childrens inclination towards physical activity is decreasing because of the excessive reliance on gadgets and digital media. Sedentary lifestyle associated with reduced physical activity is a serious problem, especially for adolescents as it affects both their bodily fitness and preparedness for physical education at school. The less amount of physical exercise manifest with learning condition (Rohman & Affandi, 2025). As one is hardly every physically active, the physical condition deteriorates, and as a consequence there is suboptimal provision of oxygen and nutrients to the brain. This may interfere with focus, preparedness to learn and learner performance. Low levels of physical activity can lead to blood circulation problems, decreased heart performance and a greater likelihood of the accumulation of fat in the body with negative effects on overall health (Cristanto et al., 2021).

It is important to ensure that students are physically active, as this contributes greatly towards their physical and mental well-being. It has been found that it could improve the fitness, motor skills and psychological readiness for learning of students (Sahgal, 2024). Physical inactivity is ranked as the fourth leading risk factor for global mortality by the World Health Organization (WHO) and contributes to 6% of all deaths worldwide. This places air pollution behind only high blood pressure (13%), tobacco use (9%) and high blood glucose levels (6%). Obesity and overweight account for 5% of all-cause global mortality. Exercise important element of students› academic success Exercise is a key factor in assisting students with academic achievement.

Previous research has shown a positive relationship between physical activity, physical fitness, and physical education learning outcomes, where students with better physical fitness tend to have higher physical education learning outcomes, and regular physical activity can improve motor skills, learning readiness, and student motivation in participating in physical education learning (Sobarna et al., 2020). Conversely, when someone rarely engages in physical activity, it results in an untrained heart and stiff blood vessels, poor blood circulation, and obesity due to fat accumulation (Cristanto et al., 2021).

In addition to physical factors, learning motivation is a psychological factor that plays an important role in encouraging student participation in physical education (Nugroho et al, 2023). High motivation makes students more enthusiastic, active, and consistent in participating in physical activities given by teachers. Physical activities packaged in an engaging, varied, and student-interest-aligned manner can increase learning motivation, thereby positively impacting physical education learning outcomes (Icuk Sugiarto et al., 2023).

This research is highly urgent given the declining levels of physical activity among junior high school students, driven by the development of digital technology and lifestyle changes that affect physical fitness, learning motivation, and physical education outcomes. This condition has the potential to hinder the achievement of physical education learning objectives, which emphasize the comprehensive development of students› physical, cognitive, and affective domains, especially among junior high school students in the early stages of adolescence. Therefore, the objectives of this study are to determine the level of students› physical activity, describe the learning outcomes of physical education, and analyze the relationship between physical activity and these outcomes. The novelty

of this study lies in presenting concrete evidence on the relationship between physical activity and physical education learning outcomes among junior high school students in rural areas in the post-pandemic era. This topic has rarely been studied. The results of this study provide a basis for developing more effective physical education learning strategies and for encouraging an active, healthy lifestyle among the younger generation.

METHOD

This study used a quantitative correlational design to determine the relationship between physical activity (X) and physical education learning outcomes (Y). The study was conducted at Junior High School 1 Japah, Blora Regency, Central Java, in November 2025. The study population was all students at Junior High School 1 Japah. The sample size was 120 students from all eight-grade students. The physical activity instrument used was the Physical Activity Questionnaire for Adolescents (PAQ-A), adapted to local culture and the types of physical activity students engage in in the Japah area of Blora. Physical education learning outcome data were obtained by recording grades from the odd-semester physical education report cards implemented at the school. This data was collected from the school to maintain objectivity and academic accountability.

Physical activity (PA) data were obtained by administering the PAQ-A questionnaire to students in class with the assistance of the researcher, allowing them to understand and answer the questions appropriately. The data were then compiled and categorized according to PAQ-A assessment standards. Before analyzing the relationship, the data were first analyzed descriptively, followed by prerequisite tests: normality and linearity tests using SPSS 25. After the assumptions were met, the Pearson Product-Moment correlation coefficient was used to test the direction, strength, and significance of the relationship between physical activity and physical education learning outcomes. This determination was based on the P-value ($\alpha = 0.05$) and the correlation coefficient, ensuring that the results obtained from the study presented an accurate, measurable, and applicable situation regarding the relationship between physical activity and students' physical education learning outcomes.

RESULTS AND DISCUSSION

Statistical data analysis on a sample of 120 students consisting of 75 males and 73 females is presented in **Table 1.**

Table 1. Descriptive Statistics of Research Variables

Variable	N	Min	Max	Mean	Std. Deviation	Description
Physical Activity	120	10	29	18.58	4.172	Low
Physical Education Score	120	22	88	62.57	14.025	Fair

According to **Table 1**, the descriptive characteristics of our physical activity and PA level differed between subjects (n=120) ranged from 10 to 29 with a mean±SD value is 18.58 ±4.172. This mean value means that the students are in low condition, on average, with little fluctuation, it means that some of the difference exists between students when it comes to physical activity levels, but within a certain range. The variable "physical education score" of 120 students is conduit from 22 to 88 and mean and standard deviation as follows are study table Mean =62.57, SD =14.025. These findings suggest that students' learning outcomes as a whole are meeting the criteria well, but have varied responses based on individual abilities and achievements.

Table 2. Frequency Distribution of Physical Activity of Grade VIII Students at Junior High School 1 Japah

Interval	Category	Frequency	Percentage
4,21-5,00	Very High	0	0 %
3,41-4,20	High	4	3,3 %
2,61-3,40	Medium	38	31,7 %
1,81-2,60	Low	64	53,3 %
1,00-1,80	Very Low	14	11,7 %
Total		120	100%

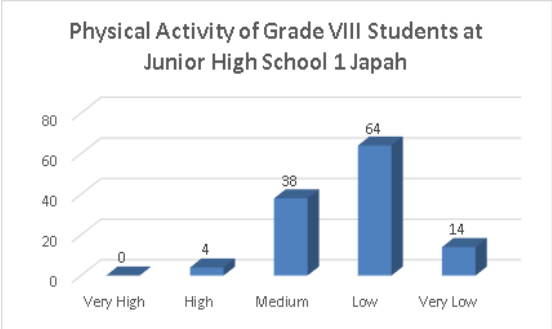

Figure 1. Distribution of Physical Activity

The physical activity distribution of the eighth grade students in Junior High School 1 Japah can be seen that most students are in low category, total up to 64 students (53.3%). Moreover, there are 38 (31.7%) students in the moderate category which is a positive indicator of some level among them who has practiced physical activity somewhat effectively. The very low was

observed in 14 students (11.7%) and high in just 4 students (3.3%). No students were in the very high category (0%). These findings indicate that, in general, the level of physical activity among eighth-grade students at Junior High School 1 Japah remains relatively low, underscoring the need to increase physical activity through physical education learning and extracurricular activities.

Table 3. Frequency Distribution of Physical Education Scores of Grade VIII Students at Junior High School 1 Japah

Interval	Category	Frequency	Percentage
≥ 90	Very Good	0	0,0 %
76 – 89	Good	23	19,2 %
61 – 75	Fair	47	39,2 %
≤ 60	Less	50	41,7 %

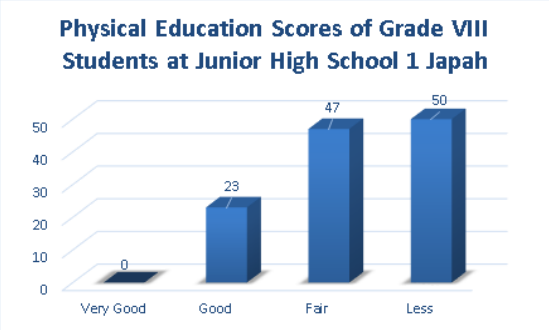

Figure 2. Distribution of Physical Education Scores

Based on the **Table 3.** Frequency distribution of physical education scores for eighth-grade students at Junior High School 1 Japah, it shows that most students are in the poor category, namely 50 students (41.7%). Furthermore, the adequate category is occupied by 47 students (39.2%), which indicates that almost half of the students have moderate learning outcomes. The good category is recorded by 23 students (19.2%), while no students reached the excellent category (0.0%). These results indicate that the physical education scores of eighth-grade students at Junior High School 1 Japah are still relatively low.

Table 4. Prerequisite Test

Variable	Sig.	Description
Normality	.200	Normal
Linearity	.090	Linear

Based on the results **Table 4** of the prerequisite test, it shows that the research data has met the assumptions for further statistical analysis. The normality test produced a significance value of 0.200, which is greater than 0.05, so it can be concluded that the data is normally distributed. Furthermore, the linearity test shows a significance value of 0.090, which is also greater than 0.05, so that the relationship between physical activity variables and physical education learning outcomes is linear. With the fulfillment of the assumptions of normality and linearity, Pearson's correlation analysis can be used appropriately to test the relationship between variables in this study.

Table 5. Paired Sample t Test

Variable	N	Pearson Correlation	Sig.	Description
Physical Activity - Physical Education Score	120	0.609	0.000	Significant

Based on **Table 5**, the test results show a significant relationship between physical activity and students' physical education scores. The Pearson Correlation value of 0.609 indicates that the relationship between the two variables is strong and positive, meaning that the higher the level of physical activity of students, the higher their physical education scores tend to be. In addition to , the significance value of 0.000 ($p < 0.05$) indicates that the relationship is statistically significant. Thus, it can be concluded that physical activity has a meaningful relationship with students' physical education learning outcomes.

The results of this study indicate that the level of physical activity among eighth-grade students at Junior High School 1 Japah is generally low. One factor is that advances in digital technology and changes in adolescents' lifestyles have led to a decline in student participation in daily physical activities. The low level of physical activity among most students reflects a tendency toward a less active lifestyle, in which free time is spent more on passive activities such as using gadgets and social media than on physical activities.

The distribution of physical education scores shows that most students are in the poor and fair categories, and no students have achieved the excellent category. This condition indicates that the learning outcomes of physical education for eighth-grade students at Junior High School 1 Japah remain suboptimal. This finding reinforces the view that low student involvement in physical activities can affect mastery of motor skills, physical fitness, and understanding of physical education material, ultimately reflected in low academic scores in physical education (Adjie et al., 2024).

Statistically, the Pearson correlation ana-

lysis demonstrate that there is a positive moderate to strong significant relationship between physical activity and physical education learning objectives with correlation coefficient (0.609). This is a positive relation, which represents that with an increase in students' physical activity the schools are likely to achieve their physical education learning results. Physical education learning successes, skills, fitness and student's readiness to learn are related with physical activity as a part of it (Sari et al., 2024).

The results of this study support the findings by Elza et al., (2023) that fitness level is significantly related to junior high school students' physical education learning outcomes. Students who are in good physical condition generate the ability to optimally follow what is being taught, have better motor performance and appropriate physical effort at various stages of learning. This demonstrates that sufficient physical activity is a necessary precondition in promoting achievement of physical education competencies.

Physical activity has been shown to enhance motor skills, readiness to learn and motivation in physical education (Juhanis et al., 2025). Physical exercise makes contribution not only to the improvement of physical quality but also students' psychological Well-being, including self-confidence and learning enthusiasm, which enable for improving the effect on physical education learning outcome.

Physiologically, this finding that higher levels of physical activity could lead to better physical education learning outcomes can be due to better cardiovascular function and circulation by regular physical activity. Physical exercise triggers the flow of oxygen and nutrients to the brain, which keeps students' cognitive functions along with concentration processed in learning (Hizbulloh & Resita, 2023). On the contrary, lack of physical activity contributes to decreased fitness, poor circulation and a higher probability of fat deposition in the body, all of which would negatively impact preparation for school.

The motivation could be considered as a fifth dimension of the relationship between physical activity and physical education learning outcomes, beyond the four dimensions for which a significant association was shown. Physical activities, provided in an enjoyable and diverse way, can increase students intrinsic motivation to actively engage in the learning process. These results were consistent with the study of Siddik et al., (2024) and stated that learning motivation is significantly influential toward stimulating student participation and enhancing physical education achievement.

The rural location of this study is a significant contribution to the literature, which was predominantly developed in urban settings. The findings suggest that although there are higher amounts of open space in rural settings, children's overall activity patterns do not significantly rise. This suggests that the environmental domain is not in and of itself able to motivate students to engage in physical activity if an engaging learning program, school policy and teachers, who encourage students to be active, are lacking.

The implication from these results is that physical education teachers should develop the innovative and context-based learning strategies by some enjoyable and challengable activities closely associated with the interest of students. Moreover, school also should promote after-school sports clubs and daily physical activity programs to improve student's physical activity levels.

CONCLUSION

The results of this study showed that eighth-grade students' physical activity in Junior High School 1 Japah was low in general, with fair learning outcomes of physical education among people with a lower income. A statistical review revealed a powerful link between engaging in physical activity and the results of physical education, suggesting that students who participate more in physical activities tend to achieve better results in physical education studies. The results suggest that physical activity is crucial for promoting motor skills, learning readiness, student motivation to participate in physical education and maintaining student physical fitness. A sedentary lifestyle, conditioned by changes in habits and developments of technology can undermine the fulfillment of physical education expectations, taking into account that students are in early adolescence. Accordingly, teachers and schools should have a strategic approach to increase students' physical activity in the context of innovative, diverse, and situationally relevant physical education learning; this can also be supported from extra-curricular programs or daily physical activity behaviors that can take effects on desirable learning outcomes while influencing the creation of active lifestyle as well as healthy lifestyle among students.

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