



The Relationship between Physical Literacy Level and Physical Activity among Junior High School Students

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History Article

Received February 2026
Approved February 2026
Published vol 13 no 1 2026

Keywords

Physical Literacy; Physical Education; Physical Activity

Abstract

Physical inactivity among adolescents has become an increasingly worrying problem, highlighting the importance of physical education in fostering lifelong active behavior through the development of physical literacy. This study examines the relationship between physical literacy and physical activity levels among junior high school students in the context of school based physical education. A quantitative correlational design was used, involving 60 eighth grade students from a public junior high school in Bandung, Indonesia, who were selected using total sampling techniques. Physical literacy was measured using a validated questionnaire covering motor skills, motivation, knowledge, and self confidence, while physical activity levels were measured using the Physical Activity Questionnaire for Adolescents (PAQ-A). The data were analyzed using Pearson's product moment correlation and simple linear regression, after testing for normality and linearity. The results of the analysis showed a positive and statistically significant relationship between physical literacy and physical activity levels ($p = 0.006$; $B = 0.467$), indicating that students with higher physical literacy tended to be more active in participating in physical activities. These findings highlight the important role of physical education in developing physical literacy, which in turn contributes to increased participation in physical activity among adolescents. Strengthening physical literacy through structured and meaningful physical education learning is therefore essential for promoting active and sustainable lifestyles among junior high school students.

How to Cite

Alfath, M., Hendrayana, Y., & Mudjianto, S. (2026). The Relationship between Physical Literacy Level and Physical Activity among Junior High School Students. *Journal of Physical Education, Health and Sport*, 13 (1), 25-31.

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INTRODUCTION

Physical literacy is a fundamental concept in modern physical education that emphasizes the development of movement skills, motivation, knowledge, and self confidence to support lifelong participation in physical activities (Febria Friskawati et al., 2023). Through physical literacy, physical education not only serves as a means to improve physical fitness, but also as an educational process that fosters a healthy, active, and sustainable lifestyle from an early age (Liu S., 2021). This concept highlights that individuals with adequate physical literacy are more likely to actively and consistently participate in various forms of physical activity throughout their lives (Edwards et al., 2018).

In Indonesia, the implementation of physical literacy in school based physical education has not been fully optimized, especially at the junior high school level. Several studies show that adolescents tend to experience a decline in participation in physical activities during this stage of development, which can have a negative impact on their physical fitness and overall well being (Melby et al., 2023). This condition indicates that junior high school is a critical period for strengthening physical literacy as a foundation for maintaining active behavior during adolescence and beyond (Yan et al., 2022).

Similar conditions were also found at Bandung Junior High School 35. Based on initial observations conducted in 2024, most students showed low levels of physical activity outside of physical education classes, with limited participation in structured and unstructured physical activities after school hours. Factors such as inadequate sports facilities, busy academic schedules, and students preference for screen based activities were reported as major barriers to physical activity participation. Physical education teachers at the school also reported challenges in fostering students motivation and interest in movement based activities that emphasize the principles of physical literacy (Hayudi & Sutresna, 2024).

Previous empirical studies have consistently shown that physical literacy is closely related to the level of physical activity in children and adolescents. A meta-analysis by (Jiang et al., 2025) reported a significant positive relationship between physical literacy and cardiovascular fitness, indicating that students with higher physical literacy tend to be more physically active. Similarly, (Choi et al., 2018) found that adolescents with higher physical literacy engage

in physical activity more frequently and intensely. These findings suggest that physical literacy plays a crucial role in shaping adolescents active behavior.

Additional evidence also highlights the psychosocial benefits of physical literacy. Research by Melby et al., (2023) shows that physical literacy contributes positively to adolescents psychological well being and their participation in sports activities. Furthermore, Chen et al., (2024) emphasize that intrinsic motivation and interpersonal support strengthen the relationship between physical literacy and physical activity, underscoring the importance of a supportive learning environment in the context of physical education.

Despite growing international evidence, research on physical literacy in Indonesia remains limited, especially at the junior high school level. Existing national studies are mostly descriptive and emphasize theoretical discussion rather than empirically testing the relationship between physical literacy and students' physical activity using standard measurement tools (Hayudi & Sutresna, 2024). In addition, Friskawati (2024) highlights that teachers' limited understanding of physical literacy can hinder its effective implementation in school-based physical education. To address this gap, this study offers new empirical evidence by quantitatively analyzing the relationship between physical literacy and physical activity among Indonesian junior high school students using validated instruments, thereby providing context-specific data to the international literature on physical literacy.

Therefore, researching the relationship between physical literacy and physical activity among junior high school students is highly relevant. Junior High School 35 Bandung was chosen as the research location because it represents an urban junior high school that faces challenges related to students lack of physical activity and limited physical education resources. This study aims to analyze the relationship between physical literacy and physical activity levels among students at Junior High School 35 Bandung, as well as to examine the contribution of physical education learning based on physical literacy in increasing student participation and physical fitness (Mardiyah et al., 2024). Based on Self-Determination Theory and the Social Ecological Model, this study hypothesizes that higher levels of physical literacy are associated with higher levels of physical activity among junior high school students (Chen et al., 2024).

METHOD

This study uses a quantitative approach with a correlational research design to analyze the relationship between physical literacy and physical activity among students at Bandung 35 Junior High School. The correlation method was chosen because it allows researchers to statistically identify the strength and direction of the relationship between two or more variables (Sugiyono, 2019). This design is considered appropriate for analyzing how physical literacy contributes to students physical activity behavior in the context of school based physical education.

The participants in this study were 60 eighth grade students at Junior High School 35 Bandung who actively participated in Physical Education, Sports, and Health (PE) classes. Junior High School 35 Bandung was chosen as the location for this study because it represents junior high schools in the city with diverse student characteristics and unique challenges related to adolescent physical activity participation. Data collection was conducted during Physical Education learning activities to ensure that students' responses reflected their physical activity behavior in the school context.

Data were collected using a standardized questionnaire consisting of the Physical Activity Questionnaire for Adolescents (PAQ-A) to measure students physical activity levels and a physical literacy questionnaire covering four indicators motivation, knowledge, motor skills, and self-confidence (Andika et al., 2025). Both instruments were administered in the form of closed ended questionnaires using a five point Likert scale. The PAQ-A instrument has been adapted into Indonesian and has been proven to have acceptable validity and reliability for junior high school students, with item total correlation values ranging from 0.338 to 0.737 and a Cronbach's Alpha coefficient of 0.740 (Andriyani et al., 2024).

The collected data were analyzed using IBM SPSS Statistics version 25. Descriptive statistical analysis was performed to describe the students physical literacy and physical activity levels, while inferential statistical analysis was performed to test the relationship between variables. Pearson's product moment correlation was used to determine the strength and direction of the relationship between physical literacy and physical activity at a significance level of 0.05. To better understand the contribution of physical literacy to physical activity, simple linear regression analysis was applied, following the analytical procedures recommended in previous quantitative

studies in the field of physical education (Ihsan et al., 2024).

RESULTS AND DISCUSSION

The normality tests were conducted to determine whether the residuals in the regression model were normally distributed, which is a critical assumption for parametric tests such as the T test and F test (Demir et al., 2022). The Kolmogorov Smirnov (K-S) test was applied as a measure of model fit. The results, presented in **Table 1**, show that the significance value (Sig.) is 0.370, which is greater than 0.05, confirming that the residuals are normally distributed and the data are suitable for parametric analysis.

Table 1. Normality Test (Kolmogorov–Smirnov)

Exact Sig. (2-tailed)	Unstandardized Residual
	0.370

Based on the results of the Normality Test (Kolmogorov–Smirnov) in Table 1, it is known that the significance value (Sig.) is $0.370 > 0.05$, so that the residual data is normally distributed. Thus, the research data meets the assumption of normality and can be used for further parametric analysis, such as simple linear regression.

These results are in line with Demir, (2022) research in the International Journal of Assessment Tools in Education, which shows that the Kolmogorov–Smirnov test is relatively stable in terms of sample size and is able to effectively detect normal distribution when the skewness and kurtosis values are close to zero. Therefore, with a sample size of 60 and a Sig. test result of 0.370, it can be concluded that the data in this study has a normal distribution.

Table 2. Linearity Test Results

			Sum of Squares	df	Mean Square	F	Sig.
Y * X	Between Groups	(Combined)	659.150	14	47.082	1.575	0.124
		Linearity	249.680	1	249.680	8.353	0.006
		Deviation from Linearity	409.470	13	31.498	1.054	0.421

Based on the results of the **Table 2.** Linearity Test Results, the linear relationship between physical literacy (Independent Variable) and physical activity (Dependent Variable) was evaluated using ANOVA. Table 2 shows that the significance value of Deviation from Linearity is 0.421 (>0.05), indicating a linear relationship between the variables. The F value for Linearity is 8.353 with Sig. 0.006, confirming a significant linear relationship suitable for regression analysis.

Table 3. Validity Test for Physical Literacy

r Table	r Calculated	Description
0.254	0.377	Valid
0.254	0.682	Valid
0.254	0.547	Valid
0.254	0.468	Valid
0.254	0.553	Valid
0.254	0.493	Valid
0.254	0.440	Valid
0.254	0.468	Valid
0.254	0.388	Valid
0.254	0.682	Valid
0.254	0.452	Valid
0.254	0.456	Valid
0.254	0.455	Valid
0.254	0.507	Valid
0.254	0.384	Valid
0.254	0.377	Valid
0.254	0.377	Valid
0.254	0.391	Valid
0.254	0.380	Valid
0,254	0,682	Valid

Based on the results of the Physical Literacy Validity Test **Table 3**, it was found that all 20 statement items had calculated r values > r table (0.254), so all statement items were declared valid and could be used in the study.

Table 4. Validity Test for Physical Activity

r Table	r Calculation	Description
0,254	-0,036	Invalid
0,254	0,655	Valid
0,254	0,656	Valid
0,254	0,733	Valid
0,254	0,51	Valid
0,254	0,689	Valid
0,254	0,423	Valid
0,254	0,565	Valid
0,254	0,612	Valid

Table 5. Descriptive Statistics of Respondents

	N	Mean	Std. Deviation
Age	60	14.10	0.730
Weight	60	47.75	10.359
Height	60	254.62	358.939
BMI	60	1873.08	356.698
Frequency of physical activity during leisure time	60	2.80	0.953

Physical activity in physical education classes	60	4.30	0.591
Activity during recess	60	4.28	0.691
Physical activity after school	60	4.22	0.613
Physical activity in the afternoon	60	4.17	0.642
Physical activity on weekends	60	4.02	0.725
Perception of physical activity level	60	4.13	0.623
Daily frequency of physical activity	60	4.17	0.615
Barriers to physical activity	60	4.08	0.720
TOTAL	60	36.17	3.889

Based on the results of **Table 5**. Descriptive Statistics of Respondents, this data provides an overview of the characteristics of respondents and their activity levels. Data on age, weight, height, Body Mass Index (BMI), and PAQ-A scores are shown in Table 6 for physical activity based on PAQ-A. The average total score is 36.17 with a standard deviation of 3.889, indicating that the level of physical activity is in the moderate to high category.

Table 6. Simple Linear Regression F&t

	Sum of Squares	df	Mean Square	F	Sig.
Regression	249.680	1	249.680	8.254	0.006
Residual	1754.504	58	30.250		
Total	2004.183	59			

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
(Constant)	18.239	2.553		7.144 0.000
Literasi Fisik	0.467	0.163	0.353	2.873 0.006

Based on the results of **Table 6**. Regression analysis, the effect of physical literacy on physical activity has been determined. The F test (simultaneous) produced F = 8.254, Sig. = 0.006, confirming a significant model. The t-test for the independent variable shows t = 2.873, Sig. = 0.006, with B = 0.467, indicating that higher physical literacy predicts higher physical activity.

This study aims to analyze the relationship between physical literacy and physical activity among students at Bandung Junior High School 35. Based on data analysis involving 60 eighth grade students, the results of the study generally show that physical literacy has a positive and significant relationship with students' physical activity. This is evidenced by a series of prerequi-

site tests and hypothesis tests that show that the analysis model used has met statistical assumptions and produced empirically meaningful relationships.

Based on the results of the normality test using Kolmogorov Smirnov, the significance value was 0.370 (> 0.05), indicating that the residual data was normally distributed. In addition, the linearity test through ANOVA analysis shows a significance value of deviation from linearity of 0.421 (> 0.05), so it can be concluded that the relationship between physical literacy and physical activity is linear. The fulfillment of these two assumptions confirms that simple linear regression analysis is appropriate for testing the relationship between variables in this study.

The research tools used also demonstrated good measurement quality. The validity test results for the physical activity variable (Independent) showed that 8 of the 9 PAQ-A items were valid, with item-total correlation values (calculated r) greater than the table r (0.254), except for one item that was declared invalid and was not used in further analysis. Meanwhile, all 20 items on the physical literacy instrument (dependent) were declared valid. Reliability tests reinforced these findings, with Cronbach's Alpha values of 0.876 for physical literacy and 0.803 for physical activity, both above the minimum threshold of 0.70. This indicates that the instruments used had good internal consistency and were suitable for use in this study.

Based on the regression test results, physical literacy has a significant effect on students' physical activity. Based on the F test, a significance value of 0.006 (< 0.05) was obtained, indicating that physical literacy simultaneously affects physical activity. The t-test also showed consistent results, with a significance value of 0.006 and a positive regression coefficient ($B = 0.467$). These findings indicate that every increase in physical literacy will be followed by an increase in students' physical activity. Therefore, the research hypothesis stating that there is a positive relationship between physical literacy and students' physical activity can be accepted.

These findings are in line with the Physical Literacy Framework proposed by Cairney et al., (2016), which emphasizes that physical literacy is a multidimensional construct that encompasses physical, affective, cognitive, and social aspects, and plays an important role in encouraging individuals to engage in physical activity throughout their lives. Students with good physical literacy tend to have better motor skills, self-confidence, and understanding of physical activity, thus being

more motivated to actively participate in various forms of physical activity both in and outside of school.

These results can also be explained through Self-Determination Theory in the context of physical education. White et al., (2021) emphasize that the fulfillment of basic psychological needs, namely autonomy, competence, and social relationships, plays an important role in increasing students' intrinsic motivation to participate in physical activities. Good physical literacy enables students to feel competent in performing movements, understand the benefits of physical activity, and feel comfortable and confident in a physical learning environment, which ultimately increases sustained participation in physical activity.

These findings are supported by previous studies showing a positive relationship between physical literacy and physical activity in adolescents. Choi et al., (2018) found that higher levels of physical literacy were significantly associated with higher levels of physical activity among secondary school adolescents in Hong Kong. Similar results were also reported by (Clark et al., 2022), who stated that physical literacy is a significant predictor of physical activity and sedentary behavior in children and adolescents. In addition, Caldwell et al., (2020) emphasized that physical literacy contributes to increased participation in physical activity and health indicators in school-age children.

In the context of physical education in schools, the results of this study indicate that learning oriented towards the development of physical literacy has important practical implications. Physical education programs that not only focus on mastering techniques but also emphasize motivation, understanding, and meaningful movement experiences have the potential to significantly increase students' physical activity (Castelli et al., 2014). Research in Indonesia also shows consistent results, where physical literacy is positively related to the physical activity and fitness of secondary school students (Haris et al., 2024).

Overall, the findings of this study indicate that the increase in physical activity among students at Junior High School 35 Bandung cannot be separated from the development of comprehensive physical literacy. Physical literacy is not an ability that is formed instantly, but rather the result of a planned, continuous, and student-oriented physical education learning process. Therefore, the development of physical literacy needs to be the main focus in physical education learning.

ning at the junior high school level as a strategic effort to increase participation in physical activity and shape an active lifestyle from an early age.

CONCLUSION

Based on the results of this study, it can be concluded that physical literacy has a positive relationship with the level of physical activity among junior high school students. Overall, students showed moderate to high levels of physical activity, which was closely related to their level of physical literacy. Statistical analysis proves that physical literacy sig positive influences physical activity, as shown by the regression results with a significance value of 0.006 ($p < 0.05$) and a positive regression coefficient ($B = 0.467$). These findings indicate that students with higher levels of physical literacy tend to be more actively involved in physical activities both during and outside of physical education classes. Further prerequisite tests support the reliability of these findings, as the data is normally distributed and the relationship between variables is linear, allowing for valid parametric analysis. Instrument testing also demonstrated strong measurement quality, with all physical literacy items and most physical activity items proving valid, and both instruments showing high reliability. In line with the Physical Literacy Framework and Self-Determination Theory, these findings suggest that motor competence, self-confidence, motivation, and knowledge play an important role in promoting sustained participation in physical activity. Overall, this study highlights that strengthening physical literacy through structured and meaningful physical education learning is a key factor in promoting active lifestyles among junior high school students and should be prioritized as a strategic foundation for long-term engagement in physical activity.

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