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The Role of Physical Literacy in Supporting Physical Fitness Levels: A Holistic Approach to Student Development in Physical Education

Ari Purnomo[1], Hidayat[2]✉, Nurlan Kusmaedi[3], Amung Ma'mun[4] , Nuryadi[5], Sandey Tantra Paramitha[6]

Study Program of Sport Education, School of Postgraduates Studies, Universitas Pendidikan Indonesia, Bandung, West Java, Indonesia[1245]
State Junior High School 2 Leles & Darul Fitri Islamic Junior High School, Garut, West Jawa, Indonesia[2]
Faculty of Sports and Health Education, Universitas Pendidikan Indonesia, Bandung, West Java, Indonesia[36]

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Abstract

This study aims to examine the relationship between physical literacy and the physical fitness levels of ninth-grade students in junior high schools across Garut Regency. This study employed a quantitative design with a cross-sectional approach. Physical literacy refers to the integration of motivation, confidence, knowledge, and understanding that enable individuals to engage in lifelong physical activity. Data were collected through the APLQ questionnaire and the Indonesian Physical Fitness Test (TKJI), employing a survey and physical assessment method with 127 participants. The findings revealed a significant correlation between physical literacy and physical fitness, with a significance value of $p = 0.013$, indicating that physical literacy plays a role in supporting fitness levels. The conclusion that students with higher levels of physical literacy tend to achieve better physical fitness, while lower levels of physical literacy are often associated with poorer fitness outcomes. This study emphasizes the importance of fostering physical literacy as a means to promote active and healthy lifestyles among students.

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✉ Correspondence address :
E-mail: hidayatpendor@gmail.com

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INTRODUCTION

Physical education and sports have long been recognized as vital components in the lives of young people, not only for fostering physical abilities but also for enhancing their emotional, social, and psychological well-being. Well-designed physical education programs play a crucial role in helping students develop essential life skills such as teamwork, discipline, and critical decision-making, all of which are fundamental for maintaining a healthy and active lifestyle throughout life (Hidayat et al., 2020; Dudley et al., 2022; Malete, 2022). In addition, well-structured sport-based approaches, such as Positive Youth Development (PYD) programs, demonstrate that safe and inclusive participation in sports can have a significant impact on enhancing self-confidence and interpersonal skills (Rianti da Rego et al., 2024). However, physical education and sports are not solely concerned with physical abilities; they also aim to cultivate the skills and capacities necessary for young people to lead active and healthy lives. Thus, physical education serves not only as a means of promoting physical health but also as an educational medium that integrates character development and the holistic well-being of students.

In this context, physical literacy emerges as a complementary and essential element. It encompasses not only motor skills and physical activity but also the social and emotional competencies that are fundamental to the health and well-being of adolescents (Whitehead, 2019). However, in Indonesia, awareness and attention toward physical literacy remain relatively limited, which may restrict adolescents' opportunities to achieve optimal development. Numerous studies have highlighted the positive association between participation in physical activity and various developmental outcomes, including improvements in mental and social health. Therefore, it is essential to explore how physical education and sport programs can be designed to strengthen physical literacy among adolescents, particularly within the school context.

Furthermore, the concept of physical literacy has been increasingly emphasized in physical education as a foundation for helping students develop the knowledge and ability to use movement as a means to achieve a healthy and active lifestyle across the lifespan. Physical literacy integrates four key domains physical, cognitive, emotional, and social within a holistic approach that enables individuals not only to acquire physical competence but also to build confidence and motivation to engage in meaningful physical activity (Cairney et al., 2019; Whitehead, 2019). Research indicates that physical literacy can support students in developing a positive relationship with physical activity, enhancing critical thinking skills, and strengthening emotional well-being through learner-centered educational experiences (Bulqini et al., 2021). In addition, the Positive Youth Development (PYD) approach through sports has been increasingly applied to foster social and emotional skills such as autonomy, resilience, and leadership. Within underserved communities, sport-based PYD programs have proven effective in enhancing self-confidence, cultivating entrepreneurial skills, and creating opportunities for adolescents to contribute to their communities (Malete, 2022; Santos et al., 2022). By integrating physical literacy with the Positive Youth Development (PYD) approach, physical education can serve as a powerful platform for shaping individuals who are healthy, resilient, and actively engaged in society. Within the educational context, student-centered teaching that incorporates social values such as equity and inclusive participation provides an effective framework for fostering physical literacy and empowering young people to navigate complex socio-economic challenges (Dudley et al., 2022).

Although physical education and sports are widely acknowledged as essential tools for promoting students' physical health and overall well-being, many educational institutions continue to face challenges in integrating holistic approaches such as physical literacy and Positive Youth Development (PYD). A major concern lies in the limited understanding and implementation of physical literacy within instructional practices, which prevents students from fully benefiting from physical activity. Research has shown that physical literacy is often overlooked in the design of physical education curricula, leading to students being less confident and less motivated to engage in lifelong physical activity (Cairney et al., 2019; Whitehead, 2019). On the other hand, the implementation of sport-based Positive Youth Development (PYD) also faces significant challenges, particularly in underserved communities. Limited resources, a shortage of well-trained coaches, and insufficient policy support remain major obstacles to utilizing sports as a medium for cultivating life skills such as resilience, leadership, and entrepreneurship (Malete, 2022; Santos et al., 2022). In addition, many physical education programs remain primarily focused on physical achievement alone, without integrating social and emotional dimensions that are equally essen-

tial for shaping well-rounded individuals (Dudley et al., 2022). These challenges highlight the need for a more strategic and inclusive approach in physical education. By recognizing and addressing these barriers, physical education can be optimized to sustainably support students physical, emotional, social, and cognitive development.

One of the key issues that arises is that both students and teachers have not yet fully understood the concept of physical literacy or how it contributes to participation in physical activity. In fact, a solid understanding of physical literacy is crucial for enhancing students' motivation and engagement in physical activity (Gita & Mesa, 2021). There is a need to evaluate the effectiveness of various interventions designed to enhance physical literacy among adolescents. Systematic observations have shown that interventions focusing on physical literacy have a significant positive impact on multiple outcomes, including physical competence and motivation (Carl et al., 2022). Adolescents often face difficulties in developing physical literacy and engaging in physical activity. Research suggests that factors such as limited motivation, inadequate skills, and insufficient knowledge can hinder their participation in physical activities (Öztürk et al., 2023). Research on physical literacy in Indonesia remains limited compared to more developed countries, reflecting a gap in the understanding and advancement of this concept. Several factors may contribute to this condition, including the lack of academic attention and insufficient resources allocated to such studies. Research trend analyses reveal that the focus of studies in Indonesia has been relatively stagnant, with only a few investigations conducted over the past decade (Hidayat et al., 2024). This may be attributed to the low level of awareness regarding the importance of physical literacy in the context of children's health and development. In addition, the infrastructure and programs that support physical activity in schools and communities may not yet be sufficiently robust to stimulate broader research. To advance the understanding of physical literacy, collaborative efforts among academics, policymakers, and educational institutions are needed to conduct more comprehensive and in-depth studies. In this way, physical literacy can be more effectively integrated into school curricula and public health programs, ultimately generating positive outcomes for adolescents' health and well-being (Higgs et al., 2019).

With the growing recognition of physical literacy as a foundation for supporting healthy and active lifestyles, this study becomes increasingly relevant in exploring how physical literacy contributes to students' physical fitness levels. Physical literacy which encompasses competence, motivation, and confidence to engage in physical activity has been identified as a key factor in fostering students' participation in activities that enhance their fitness (Cairney et al., 2019; (Dudley et al., 2022). The relationship between these two aspects is not only essential for ensuring students' physical well-being but also for fostering a more holistic and sustainable approach to physical education. Therefore, this study aims to examine the correlation between physical literacy and physical fitness levels as an effort to strengthen the role of physical education in supporting students' overall development (Whitehead, 2019).

The novelty of this study lies in its empirical investigation of the relationship between physical literacy and students' physical fitness within the Indonesian secondary school context a topic that remains largely unexplored in the current literature. Unlike prior studies that have predominantly treated physical literacy as a theoretical construct or confined their analyses to motor competence, this research adopts a holistic perspective by examining physical literacy as an integrated framework encompassing motivation, confidence, knowledge, and physical competence. Together, these dimensions are considered fundamental determinants of students' engagement and performance in physical fitness. Furthermore, the study utilizes the Adolescent Physical Literacy Questionnaire (APLQ) an internationally validated instrument that has been culturally adapted for the Indonesian educational context thus contributing methodologically to the localized assessment of physical literacy. The findings provide empirical evidence that physical literacy plays a significant role in shaping students' physical fitness, highlighting the potential of physical education as a medium for comprehensive physical, social, and emotional development.

METHODS

This study employed a quantitative design with a cross-sectional approach. This approach was utilized to explore the relationship between physical literacy and physical fitness levels among students at a single point in time. The method was selected as it is effective in identifying correlations between variables within a specific population.

The participants in this study were ninth-grade students from junior high schools in Garut Regency, West Java, with a total population

of 191 students. The sample size was determined using the Krejcie and Morgan table to verify the ideal number of participants. Based on this population, the table recommended a sample of approximately 127 students. Sampling was carried out using proportional stratified random sampling with the following criteria: (i) students were actively enrolled in school during the academic year in which the study was conducted; (ii) students fell within the appropriate age range for physical fitness assessment (12–15 years); (iii) students were willing to participate in all research procedures and provided written parental/guardian consent; and (iv) students with medical conditions that prevented them from taking part in physical fitness tests were excluded

Physical literacy was assessed using the Adolescent Physical Literacy Questionnaire (APLQ). This instrument is designed to evaluate multiple dimensions of physical literacy, including motivation, confidence, knowledge, and understanding related to engagement in physical activity (Mohammadzadeh et al., 2022).

Physical literacy was measured using the Adolescent Physical Literacy Questionnaire (APLQ). This questionnaire encompasses multiple dimensions, including psychological, behavioral, knowledge, awareness, as well as competence and participation in physical activities. The instrument consists of 25 items, each rated on a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

The level of physical fitness was assessed using the Indonesian Physical Fitness Test (Tes Kesegaran Jasmani Indonesia/TKJI). This standardized test battery evaluates various components of physical fitness and includes the following test items: (1) 50-meter sprint (speed); (2) Pull-ups (upper body strength); (3) Sit-ups (abdominal strength and endurance); (4) Vertical jump (leg power); (5) Endurance run: 1000 meters for male students and 800 meters for female students.

This study was conducted in August. Data on physical literacy were collected using the Adolescent Physical Literacy Questionnaire (APLQ), which was distributed to respondents via Google Forms. The link to the Google Form was shared through each class's WhatsApp group. To maintain objectivity, respondents were instructed to provide accurate and truthful information when completing the questionnaire. The completed forms were submitted directly to the researcher through the Google Form platform.

For the collection of physical fitness data, the Indonesian Physical Fitness Test (Tes Kesegaran Jasmani Indonesia/TKJI) was administered. The students were divided into several groups, with each group supervised by trained personnel who guided and monitored the test implementation to minimize potential errors. The procedure began with an explanation of the testing protocol, followed by a warm-up session after the students assembled in the field. The fitness tests were then carried out in accordance with the standardized guidelines of the TKJI. The results were systematically recorded by the test administrators, which constituted the final stage of the data collection process

RESULTS AND DISCUSSION

The findings obtained in this study are presented in the following **Table 1.**

Table 1. Statistical Description of Research Findings

	PL	KS
N	127	127
Mean	77,53	13,37
Median	77,00	14,00
Std. Deviation	14,141	2,868
Min	34	8
Max	123	24
Sum	9846	1740

Note: PL = Physical Literacy; KS = Physical Fitness

The descriptive statistical results presented in **Table 2** provide an overview of the distribution of Physical Literacy (PL) and Physical Fitness (KS) scores among the participants (N = 127).

For Physical Literacy (PL), the mean score was 77.53, with a median of 77.00, indicating that the central tendency of the data is relatively consistent. The standard deviation of 14.141 suggests a moderate variation in students' PL scores.

The range of scores was wide, from a minimum of 34 to a maximum of 123, reflecting differences in the level of physical literacy among students.

For Physical Fitness (KS), the mean score was 13.37 with a median of 14.00, showing that the data are slightly skewed toward higher values. The standard deviation was 2.868, which indicates relatively low variability compared to PL. The scores ranged from 8 to 24, suggesting that while most students achieved moderate levels of fitness, some displayed both lower and higher extremes.

Overall, the findings indicate that while both PL and KS show variability, physical lit-

eracy demonstrates a broader spread of scores compared to physical fitness. This highlights that students' competencies and confidence related to physical literacy are more diverse than their physical fitness levels.

Table 2. Frequency Criteria of Physical Literacy

I	C	F	%
X > 98,97	Excellent	8	6%
84,80 < X ≤ 98,97	Good	30	24%
70,62 < X ≤ 85,80	Enough	53	42%
56,45 < X ≤ 70,62	Less	31	24%
X ≤ 56,45	Very Less	5	4%
Total		127	100%

Note: I = Interval; C = Criteria; F = Frequency; % = Percentage.

Table 3. Frequency Criteria of Physical Fitness

I	C	F	%
22 - 25	Excellent	0	0%
28 – 21	Good	13	10%
14 – 17	Enough	53	42%
10 – 13	Less	53	42%
5 – 9	Very Less	8	6%
Total		127	100%

Note: I = Interval; C = Criteria; F = Frequency; % = Percentage.

Out of 127 respondents, the majority of students fell into the Moderate category, with 53 students (42%). A total of 30 students (24%) were in the Good category, while another 31 students (24%) were classified as Poor. A small proportion of students achieved the Excellent category (8 students, 6%), whereas 5 students (4%) were in the Very Poor category. These findings indicate that, overall, students' physical literacy levels are predominantly in the moderate range. However, a considerable proportion falls into the lower categories, suggesting the need for greater attention in physical education learning.

In terms of physical fitness, the distribution shows a similar pattern. Most students were classified in the Moderate and Poor categories, each with 53 students (42%). Meanwhile, 13 students (10%) were in the Good category, 8 students (6%) in the Very Poor category, and none of the students reached the Excellent category. This result suggests that students' physical fitness levels tend to remain at moderate to low levels, with very few achieving optimal performance.

Taken together, both physical literacy and physical fitness among students are largely concentrated in the Moderate and Poor categories. This emphasizes the importance of implementing more systematic and literacy-oriented physical education interventions to enhance students' overall physical fitness and holistic development.

Table 4. The Correlation Coefficient between Physical Literacy and Physical Fitness

Correlation	r Count	r Table	Sig.
X.Y	0,220	0,174	0,013

The findings of this study indicate a significant relationship between physical literacy and the physical fitness levels of ninth-grade junior high school students, as evidenced by a significance value of $p = 0.013$ (< 0.05). Physical literacy was found to contribute to the variation in students' physical fitness levels. This result demonstrates a positive correlation, suggesting that the higher a student's level of physical literacy, the better their physical fitness. Conversely, lower levels of physical literacy tend to be associated with reduced physical fitness outcomes.

One of the key factors influencing an individual's physical fitness is physical literacy. A person who is aware of and possesses a high level of physical literacy is generally more concerned with maintaining their physical fitness. Physical literacy is defined as the motivation, confidence, knowledge, and understanding necessary to value and take responsibility for lifelong engagement in physical activity. Individuals with higher levels of physical literacy tend to demonstrate a stronger understanding of how to perform various physical activities correctly and effectively, which in turn fosters sustained active participation.

Moreover, strong physical literacy equips individuals with an appreciation of the importance of different components of fitness, such as speed, balance, flexibility, strength, and endurance. This understanding enhances both awareness and motivation to maintain and improve physical fitness. In addition, individuals with higher physical literacy are more adept at selecting and planning appropriate physical activities that align with their needs and goals, including adjusting the intensity, volume, and type of activity to achieve desired outcomes. This perspective is consistent with the view of [author/source], who emphasizes that physical literacy serves as a foundation for optimizing physical fitness and supporting long-term engagement in active lifestyles. (Higgs et al., 2019) Limited participation in physical activity can largely be explained by insufficient skills, low confidence, limited com-

petence, and inadequate knowledge, all of which are essential for engaging in meaningful and sustained physical activity.

There is a clear trend indicating that students possessing higher physical literacy achieve superior physical fitness. In contrast, those with moderate literacy levels typically display correspondingly moderate activity and fitness levels, while students with low physical literacy tend to exhibit less-than-optimal physical fitness outcomes (Caldwell et al., 2020) The results reinforce the positive influence of physical literacy on physical fitness. Nevertheless, the low to very low physical literacy levels among ninth-grade students in Garut Regency suggest notable deficiencies in motivation and self-confidence, limited physical competence, inadequate knowledge and understanding, and generally low participation in physical activities.

CONCLUSION

This study demonstrates that physical literacy has a significant and positive association with students' physical fitness levels. Physical literacy, which encompasses motivation, confidence, knowledge, and understanding of physical activity, accounted for 4.84% of the variance in physical fitness. Students with higher levels of physical literacy tended to achieve better physical fitness outcomes, whereas those with lower levels of literacy showed insufficient fitness levels. These findings highlight the importance of fostering physical literacy among students to enhance their active participation in sustainable physical activities.

Moreover, adequate physical literacy enables individuals to understand and apply key fitness components such as speed, strength, balance, flexibility, and endurance in daily life. Nevertheless, the relatively low physical literacy observed among some students underscores existing challenges, including limited motivation, confidence, and physical competence, which hinder their engagement in physical activities. Therefore, systematic efforts to strengthen physical literacy through effective and inclusive physical education programs are essential to support students' physical health and promote an active lifestyle.

It is worth noting, however, that this study focused solely on the relationship between physical literacy and physical fitness, without considering other contributing factors such as diet, lifestyle habits, or psychological influences. Future research may incorporate these additional variables to provide a more comprehensive analysis.

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