
PHYSICAL LITERACY RESEARCH TRENDS IN CHILDREN IN INDONESIA: ANALYSIS USING SCOPUS DATABASE

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Abstract

This study aims to provide an overview of the state of physical literacy research in Indonesia and contribute to the global discussion on the development of physical literacy in children. It focuses on: (1) the prevailing themes and focus areas in physical literacy research related to children in Indonesia, (2) how these themes have evolved over time, (3) the dominant methodologies used in these studies, and (4) the gaps and areas identified for future research. The Scopus database was used to select articles containing information on the implementation and impact of physical literacy on children in Indonesia. The search followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. After applying exclusion criteria, only seven articles qualified for in-depth analysis. A review of the literature reveals that the development of physical literacy in children requires a planned approach involving a learning model that integrates fundamental motor skills. Evaluation instruments for physical literacy are also crucial, yet only a few adapted instruments have been tested. Moreover, there is currently no specific framework for physical literacy in Indonesia, despite its reliance on the ecological context of a region. This review identifies that research on physical literacy in Indonesia, particularly for children, remains very limited. Considering the critical role of early childhood development for later life, frameworks, assessment instruments, learning models, and programs to enhance physical literacy for children in Indonesia are notably scarce. Future research is expected to focus on these areas.

Keywords: Physical Literacy, Children, Literature Review, Instrument

INTRODUCTION

Physical literacy is a concept that has gained increasing attention in recent years (Cairney, Kiez, et al., 2019) that emphasizes the importance of developing physical skills, motivation, confidence, and knowledge to engage in physical activity throughout life (Whitehead, 2010). The IPLA defines physical literacy as motivation, confidence, physical competence, knowledge, and

understanding to appreciate and take responsibility for lifelong physical activity engagement (Barnett, Mazzoli, Hawkins, et al., 2022). As a multidimensional construct, physical literacy encompasses the physical, psychological, cognitive, and social aspects of movement activities (Keegan et al., 2019), making it essential for a child's holistic development (Lloyd, Colley, & Tremblay, 2010). In recent years, physical literacy has emerged as a meaningful understanding of how and why it is necessary to keep individuals moving (Tremblay et al., 2018). Physical literacy has also been conceptualized as a determinant of health, with considerable implications for physical activity, motor skills, affective skills, and social learning processes (Keegan et al., 2019) (Cairney, Dudley, et al., 2019a) which aims to provide physical activity and sports services or programs to intervene in the health of the wider community (Mandigo et al., 2019) (Belton et al., 2019) (Tremblay et al., 2018). A recent scope review identified that several approaches to defining physical literacy and defining physical literacy assessors include psychology, cognitive ability, physical competence, and social learning (Martins et al., 2021).

UNESCO has made Physical Literacy a framework for physical education (Robinson & Randall, 2017). Physical literacy is used as a guideline by policymakers and continues to gain credibility and momentum to become an educational concept (Edwards et al., 2017) (Edwards et al., 2018). Since 2007, many countries have begun to develop physical literacy (Young et al., 2021). Researchers and practitioners have been looking for a concept to implement a long-term active lifestyle because there have been many studies that prove that physical activity has a positive effect on physical health (Li et al., 2018) (Warburton & Bredin, 2017). Research in various countries has shown that encouraging physical literacy in children can bring many benefits, including improved physical health, better mental well-being, and better academic achievement (Roetert & MacDonald, 2015). Physical literacy is not only the goal of physical education, but also the process of each individual with different experiences (Dudley et al., 2017). Experts agree that physical literacy is just as important as literacy and numeracy in other fields (Edwards et al., 2017). Several tools used to measure physical literacy have been developed by several researchers including self-assessment tools (Barnett et al., 2023) (Aarskog, 2021). Physical activity and physical literacy are different things, where physical activity is part of physical literacy and physical literacy development, one of which is through physical activity (Warner et al., 2021) (Giblin et al., 2014).

In Indonesia, physical literacy research is still in its infancy, with few studies focusing on its application and impact on children (Friskawati & Stephani, 2021). The topic of physical literacy-based learning in early childhood states that the domains in physical literacy are very relevant to aspects of early childhood development (Suherman et al., 2021). However, research related to physical literacy is still very low (Friskawati & Stephani, 2021). Research conducted by (Suntoda



et al., 2021) measured the physical literacy of urban children aged 11-12 years with the Canadian Assessment Physical Literacy (CAPL) instrument showed good motivation and confidence results but had low knowledge and understanding of physical literacy. (Gustian, 2020) stated that traditional games can be used as an alternative to improve students' physical literacy. The Indonesian context presents unique challenges and opportunities to promote physical literacy, given the diverse cultural, geographical, and socioeconomic landscapes in the country (Yuliati, 2017). Understanding how physical literacy is conceptualized, measured, and promoted among Indonesian children is essential to develop effective interventions and policies that meet specific needs (Friskawati et al., 2023). Physical literacy is increasingly recognized as the foundation of a healthy active lifestyle; However, in-depth research that shows its constitution, its relationship to health-related outcomes, and intervention strategies for its improvement need to be explored more deeply. (Longmuir & Tremblay, 2016). There has been a surge in research interest on physical literacy in children and adolescents in the last 5 years (Web of Science: <80 articles per year in 2014/15, 100+ articles in 2016/2017, 170+ articles in 2018/19, 250+ articles annually in 2020/21, and 800+ articles in 2022 (Cairney, Dudley, et al., 2019b).

According to data (Riskesdas, 2018) the prevalence of lack of physical activity in children in Indonesia reaches 73.7%. Therefore, the purpose of this study is to analyze the trends of physical literacy research related to children in Indonesia using the Scopus database. By examining the scope, focus areas, and methodologies of existing studies, the study aims to identify gaps and highlight potential areas for future research.

METHODOLOGY

The data search in this study used the Scopus database which is considered one of the leading indexers for citations that are frequently visited by researchers around the world (Samsuddin et al., 2020). Search strategy uses keywords ("physical literacy"). The search was conducted by following the guidelines of Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) (Mohamed Shaffril et al., 2019). Then PRISMA emphasizes on proposal reports that evaluate randomized trials that can also be used as a basis in systematic review reporting for other types of research (Moher et al., 2009).

The criteria used are as follows: (1) articles published in the last 5 years 2019-2024. (2) the article published does not come from Indonesia, (3) the article is excluded because the document is not in the form of an article, (4) the article does not explicitly mention physical literacy in children. Initially, 836 publications were obtained from identification through a search of the Scopus database. After following the exception criteria, only 7 articles remain. Most of the items



that are thrown away because the article is not physically literacy in children in Indonesia. All articles are extracted from the source and analyzed through Zotero software to remove duplicate articles.

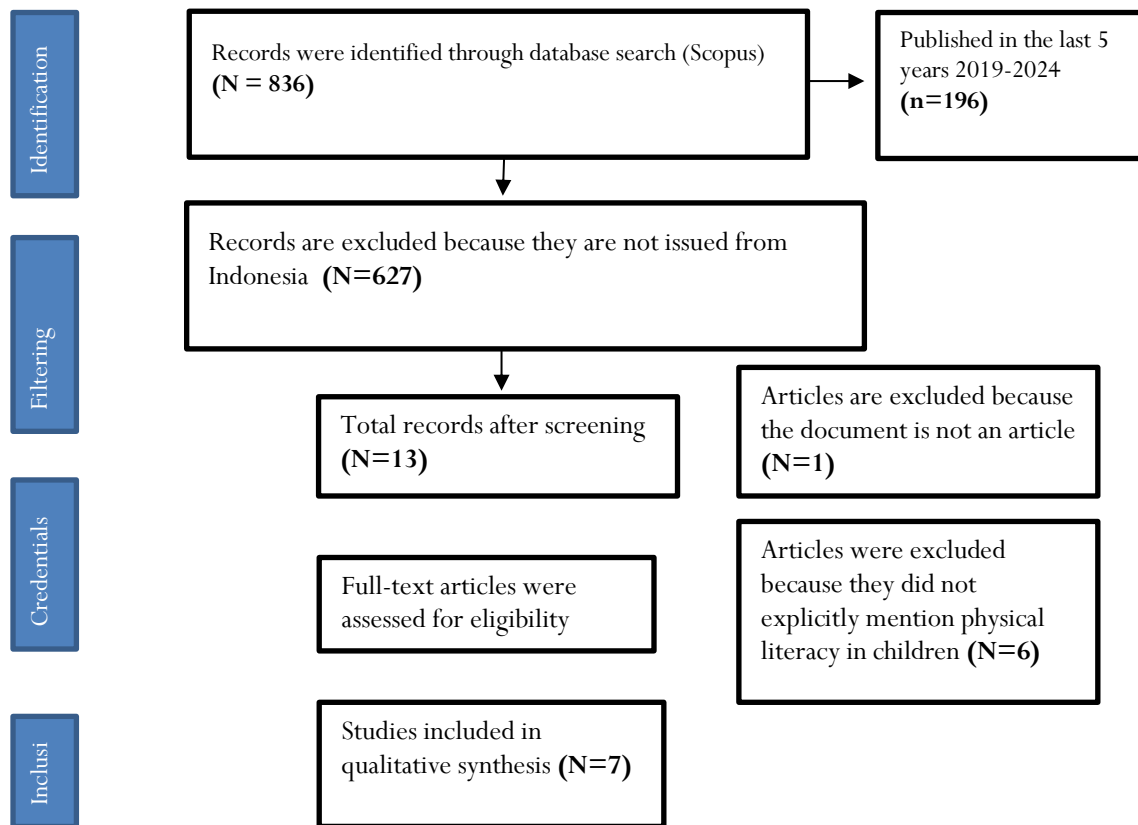


Figure 2. Prisma

RESULTS

The four categories listed in Table 1 are described and discussed in 1 prepared article. Country categories are not displayed, as all articles focus on one country, namely Indonesia. The results can be seen in Table 1.

Table 1. Indonesian physical literacy research

Author and Year	Research Methods and Types	Research Results
(Rihatno & Nuraini, 2021)	Research Survey with random sampling of 52 PAUD teachers, data collection using questionnaires.	Almost all teachers give examples of physical activity to children. Teachers use mobile phones in learning. Furthermore, parents support physical activity at home and do physical activity in the family. The development of early childhood physical literacy using mobile learning is very necessary for early childhood teachers. Mobile learning is a solution in learning that prioritizes aspects of convenience and practicality and can be used anywhere and anytime to develop children's physical literacy.



(Pambudi et al., 2021)	The method used in this study is the R&D (research & development) method using quantitative and qualitative settings. With a proportional sampling of 52 teachers from a total of 350 kindergartens.	The physical activity model to develop basic movement skills of kindergarten students has good results and is very beneficial for early childhood.
(Librianty & Yufiarti, 2021)	the research uses a comparative quantitative approach; The sample amounted to 94 children and 15 early childhood educators and was obtained using the convenience sampling technique.	There was a significant difference between the group with active teacher involvement in achieving children's physical literacy compared to the group with low teacher involvement. The instrument adopted and modified is the Preschool Physical Literacy Assessment (Pre-PLAY) instrument (Cairney et al., 2018)
(Irmansyah et al., 2021)	Metode pengembangan dengan pendekatan campuran strategi eksploratif sekuensial. Prosedur penelitian terdiri dari tiga tahap; Tahap 1. Desain Literasi Jasmani; Tahap 2. Konsensus Ahli (n=8); dan Tahap 3. Penilaian Praktisi (n=12)	Phase 1 which was qualitatively analyzed produced three main themes, namely; (a) theoretical foundations, (b) physical literacy construction, and (c) operationalization of physical literacy. In Stages 2 and 3 which were analyzed quantitatively, experts and practitioners reached a consensus statement on the developed physical literacy model, with percentage values of 86.01% (Stage 2) and 91.84% (Stage 3). The results stated that the OT model was in accordance with the culture of education in elementary school and could be implemented in the learning process.
(Hidayat et al., 2022)	This study uses an experimental method with a pretest-posttest one-group design. The sample used in this study amounted to 105 people consisting of male and female students, using cluster random sampling techniques	The Leveling System model has been proven to be effective in improving the Physical Literacy of elementary school students. This is supported by the results of the t-test obtained a sig value. (2-tailed) by $0.000 < 0.05$. Therefore, it can be said that there is a difference in PL scores between pre-test and post-test in this study.
(Permana et al., 2023)	The test-retest method is used to test the feasibility of APL-PCD. The sample was taken from a larger population of 258 students, with 122 students from each of the five primary schools in the East Priangan region	APL-PCD has a very high validity value for men, which is 1.017 and also has good dependability. in addition to having good dependency. The result was 0.937 when referring to women. The high reliability value in men was 0.747%, while in women it was 0.606%. As a result, APL-PCD can be considered as a test instrument to evaluate physical literacy in the field of physical competence. Because of these findings, it will be easier for educators to accurately assess students' physical literacy.
(Priadana et al., 2023a)	Correlation Method Carried out in Bojonegoro Regency with 351 participants consisting of 184 men and 167 women with an average age of 11.38 years. The influence of parental education, parental income, and parental fondness for sports on children's physical literacy was collected using questionnaires and analyzed using a structural equation model.	Parents' income and love for sports have a significant effect on children's physical literacy. Meanwhile, parental education does not have a significant effect on children's physical literacy. Positive correlation between parental wealth and physical literacy levels in children and a good relationship between parental interest in sports and children's physical literacy. However, this study has not produced conclusive evidence showing the positive impact of parental education on children's physical literacy

DISCUSSION

This study identified seven articles that discuss physical literacy in children in Indonesia in the Scopus database for the 2019-2024 period. These findings confirm the limitations of physical literacy research in Indonesia as stated by (Friskawati & Stephani, 2021), which shows that related research is still very low compared to the explosion of international publications which reached 800+ articles per year in 2022 (Brown et al., 2023). In contrast to the international framework that uses a multidimensional concept (Whitehead, 2010) with four domains (physical, cognitive, affective, behavioral), Indonesian research tends to focus on motor and pedagogical aspects without comprehensively integrating affective and cognitive domains. Only (Priadana et al., 2023b) explored the motivational aspect through the analysis of parental influence factors.

Temporal analysis shows a shift in the focus of research from year to year. The 2021 period



was dominated by the development of learning models and technological adaptation during the COVID-19 pandemic (Rihatno & Nuraini, 2021; Pambudi et al., 2021; Librianty & Yufiarti, 2021), reflecting the response to conventional learning disruptions. The 2022-2023 period shows the maturation of research with a focus on the development of assessment instruments (Permana et al., 2023) and the analysis of external factors (Priadana et al., 2023). This evolution is different from the global trend that has reached the stage of implementation science and large-scale validation studies (Barnett et al., 2023). While countries such as Canada have implemented CAPL-2 for national populations (Longmuir & Tremblay, 2016), Indonesia is still in the foundational research stage with a focus on proof-of-concept for local instruments such as APL-PCD (Permana et al., 2023).

The dominant methodology used is the development model considering the absence of a framework and concept of physical literacy in Indonesia. Therefore, it is necessary to construct physical literacy so that stakeholders can more easily design educational models (Carl et al., 2023) in improving physical literacy, especially in children (Goss et al., 2022). Social factors such as parental income and interest in sports have a significant effect on children's physical literacy, while parental education does not show a significant influence. Overall, the study concludes that improving physical literacy in children can be achieved through the use of technology, appropriate physical activity models, and adequate social support (Warner et al., 2021). A strong finding in this study is that existing research in Indonesia on children's physical literacy based on the Scopus database, mostly focuses on improving children's physical literacy through model development. Only 1 study developed a physical literacy construct and a physical literacy framework. This is certainly an opportunity for future researchers to validate the constructs and frameworks that have been developed by (Irmansyah et al., 2021) so that Indonesia has the concept of physical literacy. In addition, there is also a need for physical literacy measurement instruments as a benchmark for the extent to which the programs carried out have an impact on children's physical literacy (Diao et al., 2024) (Barnett, Mazzoli, Bowe, et al., 2022). So far, only (Permana et al., 2023) has tried to develop assessment instruments based on the ecology and culture of the Indonesian state

CONCLUSION

This study examines various methods and research results related to improving children's physical literacy through various approaches in PAUD and elementary school, showing that physical literacy instilled from an early age has a positive impact on physical activity habits in the future. Although various models and instruments have been developed, research in Indonesia is still in the stage of developing a physical literacy framework that is appropriate to the local culture.



The Leveling System and APL-PCD models have proven to be effective in improving and measuring physical literacy, but further validation is needed. Social factors such as parents' income have a significant effect on children's physical literacy, while parental education does not. The weakness of this study is that the data is only taken from the Scopus database. Further research can be done by combining other databases such as WoS, EBSCO, and other trusted databases. These findings underscore the need for further research to develop valid constructs and physical literacy measurement instruments, as well as expand research data sources beyond Scopus.

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