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Physical Literacy and Its Relationship with Mental Health Outcomes in children and adolescents: A Systematic Review

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Corresponding author:
Manuel Ávila-García

mavila@cmli.es

Author Affiliation:
Inmaculada Teacher Training Centre, Sport and Health University Research Institute (IMUDS), University of Granada, Granada, Spain.

Valle-Muñoz, VM; Ávila-García, M; Huhtiniemi, M; Jaakkola, T; Barranco-Ruiz, Y; Villa-González, E.

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - The review has not yet started.

Update (June 2026): This systematic review has now been completed. The literature search, study selection, data extraction, risk-of-bias assessment, and narrative synthesis have all been finalized. The review has been submitted for peer review.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2025110011

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 5 November 2025 and was last updated on 15 June 2026.

INTRODUCTION

Review question / Objective This systematic review aims to comprehensively examine the existing evidence on the relationship between physical literacy (PL) and mental health in children and adolescents aged 5 to 17 years, based on observational studies. Specifically, the objectives are: (a) to provide an overview of studies that have investigated the associations between PL and mental health in youth, and (b) to analyze how PL relates to mental health outcomes, following the classification proposed by Viskari et al. (2025), which categorizes outcomes into four domains: internalizing symptoms (e.g., depression, anxiety, emotional problems), externalizing symptoms (e.g., behavioral problems, aggression, hyperactivity), mental well-being (e.g., happiness, quality of life, self-esteem, self-efficacy), and social well-being (e.g., prosocial behavior, peer relationships). This review is grounded in the conceptual framework proposed by the International Physical Literacy Association (IPLA, 2014), which defines PL as a multidimensional construct encompassing affective, physical, and cognitive components that foster lifelong engagement in physical activity (PA). Given the growing prevalence of physical inactivity and the increasing incidence of mental health problems among young people, this study seeks to clarify the potential role of PL as a protective factor for mental health. By systematically synthesizing the available evidence, this review aims to establish a solid foundation for understanding the impact of PL on mental health and to guide the development of effective educational, preventive, and intervention strategies that promote both physical and mental health from early developmental stages.

Rationale Physical inactivity and mental health problems among children and adolescents have emerged as two of the most pressing public health challenges worldwide. More than 80% of young people fail to meet the minimum recommended levels of PA, which has been associated not only with poorer physical fitness but also with deteriorations in mental and emotional well-being. Childhood and adolescence represent critical developmental stages characterized by profound biological, psychological, and social changes, periods during which up to 75% of lifetime mental health disorders first appear. The prevalence of mental health disorders is estimated at 8% in children aged 5–9 years and 14% in adolescents aged 10–19 years. However, mental health is not limited to the presence or absence of problems but rather exists on a complex continuum that encompasses both mental health problems and mental well-being. While mental health problems refer to negative symptoms, mental well-being reflects positive aspects of mental health, often referred to as positive mental health. This way, symptoms of mental health problems in children and adolescents can be conceptualized as internalizing symptoms, behaviors directed inward or characterized by overcontrol, such as depressive mood, anxiety, and emotional problems, and externalizing symptoms, which refer to problematic behaviors such as impulsivity, aggression, and hyperactivity. In contrast, mental well-being is defined as a resource encompassing subjective well-being and optimal functioning in life, whereas social well-being refers to positive functioning in relationships and interactions with others.

In this context, PL has gained increasing attention as a comprehensive and promising approach to fostering active, sustainable, and mentally healthy lifestyles from an early age. PL is defined as a multidimensional construct encompassing motivation, confidence, physical competence, and the knowledge and understanding required to engage in PA throughout life. This concept extends beyond motor skills, integrating cognitive and affective dimensions that directly influence both physical and psychological health. Accordingly, PL is structured around four fundamental domains, physical competence, knowledge and understanding, motivation, and confidence, each of which may play a crucial role in promoting mental well-being and reducing the risk of psychological distress.

Empirical research has consistently shown that higher levels of PL are linked to increased participation in PA, improved cognitive and emotional functioning, lower levels of depression, anxiety, and stress, and enhanced resilience and life satisfaction. Among adolescents, greater PL has also been associated with better academic performance, higher self-esteem, and improved social well-being. Despite growing evidence supporting these associations, no systematic review has yet comprehensively synthesized the available data on the relationship between PL and mental health in children and adolescents. The only existing scoping review (Leung et al., 2025) was focused exclusively on university students, leaving a significant gap in the literature concerning younger populations.

Given the growing recognition of PL as both an educational and public health priority, it is essential to clarify its potential role as a protective factor for mental health in early developmental stages. Therefore, this systematic review seeks to compile, evaluate, and critically synthesize the current evidence on the relationship between PL and mental health in children and adolescents. The findings are expected to enhance understanding of PL as a potential determinant of psychological well-being and to inform the development of effective educational strategies, preventive programs, and mental health interventions that promote active, healthy, and resilient lifestyles from early childhood.

Condition being studied This review focuses on observational studies that examine the relationship between PL and mental health in children and adolescents aged 5 to 17 years. Low levels of PL are characterized by deficits in motivation, confidence, physical competence, knowledge, or understanding, which can limit regular and autonomous participation in PA and may contribute to poorer psychological outcomes, such as higher levels of stress, anxiety, and depression, as well as lower well-being and life satisfaction. Given that PL encompasses multidimensional components, physical competence, knowledge and understanding, and motivation and confidence, examining its association with mental health provides valuable insights into how these factors may influence psychological well-being during critical developmental stages. Understanding this relationship is essential to inform educational, preventive, and public health strategies aimed at fostering healthier, more active, and resilient lifestyles while promoting mental well-being among youth.

METHODS

Search strategy Keywords and synonyms were entered in various combinations in the title, abstract or keywords: (“physical literacy” OR “physical* literacy”) AND (“mental health” OR

"psychological wellbeing" OR "psychological stress" OR "mental well-being" OR "self-esteem" OR "emotions" OR "depression" OR "anxiety" OR "stress" OR "body image" OR "resilience" OR "quality of life" OR "relationships" OR "life satisfaction" OR "Mental Competency" OR "motivation" OR "welfare" OR "wellness" OR "happiness" OR "social health" OR "aggression" OR "hyperactivity") AND ("child" OR "adolescent" OR "youth" OR "teen").

Participant or population Children and adolescents between the ages of 5 to 17 who are seemingly healthy.

Intervention For observational studies, the objective was to establish the relationship between PL and mental health in children and adolescents (cross-sectional or cohort).

Comparator N/A.

Study designs to be included Observational (cross-sectional or cohort).

Eligibility criteria Publications will be included if they meet the following criteria: (i) observational studies (cross-sectional or cohort); (ii) studies that investigate the relationship between PL and mental health outcomes, including those related to internalizing symptoms (e.g., depression, anxiety, emotional problems), externalizing symptoms (e.g., behavioral problems, aggression, hyperactivity), mental well-being (e.g., happiness, quality of life, self-esteem, self-efficacy), or social well-being (e.g., prosocial behavior, peer relationships); (iii) studies involving typically developing children (aged 5 to 12) and/or adolescents (aged 13 to 17); (iv) the use of validated instruments, self-reports, or indirect measures to assess PL; and (v) publications written in English or Spanish and peer-reviewed. Publications will be excluded if they meet any of the following criteria: (i) case studies or qualitative studies; (ii) participants belonging to populations with chronic diseases or medical conditions; (iii) studies that do not explicitly address the relationship between PL and any parameter of mental health; or (iv) publications that are reviews, commentaries, conference abstracts, case reports, or not original research.

Information sources The electronic search will be conducted in six databases: Web of Science, Scopus, PubMed, Cochrane Library, ERIC, Global Health, and MEDLINE. A search for grey literature will be performed in Google Scholar to minimize publication bias.

Main outcome(s) To determine the relationship between PL and mental health outcomes, classified according to four domains: internalizing symptoms (e.g., depression, anxiety, emotional problems), externalizing symptoms (e.g., behavioral problems, aggression, hyperactivity), mental well-being (e.g., happiness, quality of life, self-esteem, self-efficacy), and social well-being (e.g., prosocial behavior, peer relationships).

Data management The data extraction process will involve organizing the data in a Microsoft Excel spreadsheet using the Cochrane Consumers and Communication Review Group's data extraction template. This spreadsheet will be used to assess the inclusion criteria for all selected studies. In addition, the bibliographic manager EndNote version X9 will be utilized to extract articles and make decisions about their inclusion or exclusion from the review.

Quality assessment / Risk of bias analysis The Joanna Briggs Institute (JBI) Critical Appraisal Checklist was selected as the tool to assess the methodological quality of the included studies, as it is widely recommended for observational research. For cross-sectional studies, the corresponding 8-item checklist will be applied. This version evaluates whether inclusion criteria were clearly defined, whether participants and study settings were adequately described, whether the exposure and outcomes were measured in a valid and reliable way, whether standard criteria were used, whether confounding factors were identified and appropriately managed, and whether appropriate statistical analysis was conducted. For longitudinal (cohort) studies, the 11-item JBI checklist will be used. In addition to the aforementioned aspects, it includes evaluation of whether exposures were measured similarly across groups, whether participants were free of the outcome at the study's start, whether follow-up time was reported and sufficient, whether follow-up was complete or adequately addressed, and whether missing data were handled appropriately. Any disagreement between reviewers will be resolved through discussion with a third author (EV). Finally, risk of bias for each study will be classified as low, moderate, or high based on the percentage of items rated as "yes": greater than 70% indicates low risk, 50–69% moderate risk, and less than 50% high risk.

Strategy of data synthesis Extracted information from each study will be reported as follows: (1) author and year; (2) country; (3) study design; (4) participants (sample size, age, % female); (5) PL

(variable and method); (6) mental health (variable and method); and (7) outcomes.

Subgroup analysis N/A.

Sensitivity analysis N/A.

Language restriction English.

Country(ies) involved Spain and Finland.

Other relevant information N/A.

Keywords health; physical literacy; mental health; children; adolescents.

Contributions of each author

Author 1 - Víctor Manuel Valle-Muñoz - Performed the search and methodological search and made the synthesis of results. Wrote and revised the manuscript.
Email: victor_96@ugr.es
Author 2 - Manuel Ávila-García - Performed the search and methodological search and made the synthesis of results. Wrote and revised the manuscript.
Email: mavila@cmli.es
Author 3 - Mikko Huhtiniemi - Wrote and revised the manuscript.
Email: mikko.huhtiniemi@jyu.fi
Author 4 - Timo Jaakkola - Wrote and revised the manuscript.
Email: timo.jaakkola@jyu.fi
Author 5 - Yaira Barranco-Ruiz - Wrote and revised the manuscript, and participated as a reviewer in the systematic review process, contributing to data verification and quality assessment.
Email: ybarranco@ugr.es
Author 6 - Emilio Villa-González - Wrote and revised the manuscript, and participated as a reviewer in the systematic review process, contributing to data verification and quality assessment.
Email: evilla@ugr.es