

ANALYSIS OF THE ADDED VALUE OF PHYSICAL EDUCATION IN HIGHER EDUCATION

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Abstract

Objectives. This study aims to systematically examine the added value of physical education (PE) in higher education by analyzing its academic, psychological, and social effects on university students and by deriving evidence-based implications for curriculum design and institutional policy.

Material and methods. A structured, systematic literature review was conducted using two international databases: Scopus and Google Scholar. The search targeted peer-reviewed studies on physical education in higher education that involved university students aged 18–30. Following screening of 724 records, removal of duplicates, and application of predefined inclusion and exclusion criteria, 32 empirical studies were selected for final analysis. Of these, 12 employed longitudinal designs, 8 used mixed-methods approaches, and 7 were meta-analyses or systematic reviews; the remaining studies were cross-sectional quantitative or qualitative investigations. Study quality was assessed using the Critical Appraisal Skills Programme [CASP] checklist for qualitative studies and A Measurement Tool to Assess Systematic Reviews [AMSTAR] for systematic reviews and meta-analyses. Data were synthesized through qualitative thematic analysis and comparative synthesis of reported outcomes.

Results. The analyzed studies report associations between participation in physical education and improved academic engagement, concentration, and cognitive functioning. Psychological outcomes frequently included reduced stress, anxiety, and depressive symptoms, as well as increased self-esteem and emotional resilience. Social outcomes encompassed enhanced interpersonal relationships, teamwork, communication skills, and a stronger sense of belonging within the university community. Gender, institutional support, and facility availability were reported as moderating factors influencing these outcomes.

Conclusions. Physical education represents a multidimensional educational resource in higher education, contributing to academic engagement, mental health, and social development. The findings support the systematic integration of PE into university curricula and underscore the need for evidence-based institutional policies, particularly in contexts such as Albania, where implementation remains limited.

Keywords: physical education curriculum, higher education, student well-being, academic engagement, PRISMA-informed systematic review

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Introduction

Physical education (PE) is widely recognized as an educational process that contributes not only to physical development but also to cognitive, psychological, and social outcomes (Corbin et al., 2019). Contemporary approaches conceptualize PE as an integral component of holistic education, supporting student engagement, emotional regulation, and social interaction (Bailey et al., 2012; Keating et al., 2005).

Within higher education, increasing academic demands, sedentary lifestyles, and rising mental health concerns have renewed interest in the role of physical education as a supportive educational resource (European Commission, 2017). Research indicates that participation in physical activity during university studies is associated with academic engagement, stress management, and social integration; however, evidence remains fragmented across disciplines and study designs (Bondarenko et al., 2025).

Although a substantial body of research has examined physical education in primary and secondary education, fewer studies have systematically synthesized evidence focused specifically on higher education contexts. Existing reviews often address physical activity broadly rather than physical education as a curricular component embedded within university programs.

In Albania, the integration of physical education in higher education remains limited and uneven, with considerable variation in institutional policies, curricular implementation, and infrastructural support. This context highlights the need for evidence-based insights to inform educational planning and student well-being strategies.

Against this background, the present study systematically reviews empirical research on the academic, psychological, and social effects of physical education in higher education, with particular attention to moderating factors and implications for institutional policy and practice.

Purpose and objectives of the study

This study contributes to the literature by systematically analyzing the multidimensional roles and impacts of physical education in higher education, with a specific focus on academic, psychological, and social outcomes among university students.

Accordingly, the study addresses the following research questions:

- (1) What outcomes of PE participation are reported for university students?
- (2) What moderating factors influence these outcomes?
- (3) What institutional implications emerge for higher education policy and practice?

Material and methods.

This study followed a PRISMA-informed systematic literature review design. Searches were conducted in Scopus and Google Scholar, yielding 724 records. After screening and application of the inclusion criteria, 32 studies were retained for analysis. Of these, 12 were longitudinal, 8 employed mixed-methods designs, and 7 were systematic reviews or meta-analyses; the remaining 5 studies were cross-sectional studies.

CASP was used as a guiding critical appraisal framework to assess clarity, relevance, and methodological transparency, rather than as a scoring instrument. AMSTAR was applied to systematic reviews and meta-analyses due to its established validity in evaluating methodological rigor and risk of bias.

Data source: CASP was used as a guiding critical appraisal framework to assess clarity, relevance, and methodological transparency, rather than as a scoring instrument. AMSTAR was applied to systematic reviews and meta-analyses due to its established validity in evaluating methodological rigor and risk of bias.

Search terms included physical education, higher education, academic performance, and well-being, combined using Boolean operators. Searches were conducted between January and March 2025, with no restrictions on year of publication.

Inclusion and exclusion criteria: Inclusion criteria targeted studies involving university students aged 18–30 and published in English. Conference abstracts without full texts and studies not focused on physical education within higher education were excluded. Given the scope of the retrieved literature, the review focused on longitudinal, mixed-methods, and synthesis studies to ensure analytical depth and relevance to higher education outcomes, allowing for a deeper understanding of the long-term effects of physical education on students’ academic and psychological outcomes. For identified articles, titles, and abstracts were analyzed, and duplicate data or studies that did not meet the criteria were eliminated. Finally, 32 articles were selected for full-text analysis based on the specified criteria (see Table 1 for study selection flow).

A qualitative thematic content analysis was conducted to synthesize findings across heterogeneous study designs. Extracted indicators included authorship, year, study design, sample characteristics, and reported academic, psychological, and social outcomes (Appendix 1).

Table 1

Study Selection Flow

Step	Number of Articles
1. Articles identified	724
2. Articles after duplicates removed	610
3. Articles excluded (title/abstract)	445
4. Full-text articles reviewed	165
5. Full-text articles excluded	130
6. Articles included in review	32

Results

The final sample comprised 32 peer-reviewed studies (2005–2025), including 12 longitudinal studies, 8 mixed-methods or qualitative studies, 7 systematic reviews or meta-analyses, and 5

cross-sectional quantitative investigations. The studies were conducted across Europe, Asia, North America, and Australia, including one national study from Albania.

Across the reviewed studies, participation in physical education was associated with reported improvements in academic engagement, reductions in stress (reported in 82% of studies), and increased self-esteem (measured with validated scales in 12 studies). Gender and institutional support were reported as moderating variables in 16 studies.

Physical health and lifestyle-related outcomes

A substantial proportion of the reviewed studies reported data on physical activity levels, fitness indicators, body mass index, and health-related behaviors among university students. Several large-scale surveys documented associations between participation in physical education or structured physical activity and levels of physical fitness, body composition, and movement behaviors (Ding, 2025; Grasdalsmoen et al., 2019; Reiner et al., 2013; Keating et al., 2005).

Systematic reviews and longitudinal studies reported patterns of sustained physical activity engagement among students exposed to structured physical education or sport-based programs during university years (Zhang et al., 2025; Tin & Van Phat, 2025). Studies conducted within public health frameworks reported population-level distributions of activity, sedentary behavior, and exercise frequency in student samples (Bauman et al., 2012; World Health Organization [WHO], 2020; Delito, 2023).

Psychological and emotional dimensions

Multiple studies included measures of psychological well-being, self-esteem, stress, anxiety, and emotional regulation. Cross-sectional and longitudinal research documented differences in mental health indicators between students who participated in regular physical education activities and those who did not (Xia et al., 2025; Han et al., 2025a; Han et al., 2025b).

Systematic reviews reported psychological domains most frequently assessed, including self-confidence, mood states, perceived stress, and emotional balance (Eather et al., 2023; Zhang et al., 2023). Several studies disaggregated findings by gender, reporting variation in psychological indicators across male and female student groups (Arora & Wolbring, 2022; Wenyu et al., 2025).

Academic engagement and cognitive-related outcomes

A subset of studies examined academic engagement, concentration, motivation, and cognitive functioning in relation to physical education participation. Quantitative studies reported measured differences in attention, academic adjustment, and engagement scores across student cohorts (Bowman et al., 2019; Zhang et al., 2023).

Reviews focusing on cognitive outcomes catalogued types of cognitive indicators assessed, including executive functioning, learning engagement, and academic persistence (Reiner et al., 2013; Ferriz-Valero et al., 2020). No study reported direct academic performance indicators (e.g., GPA) as a primary outcome, though several included self-reported academic engagement measures.

Social integration and interpersonal development

Numerous studies reported social variables, including peer interaction, teamwork, communication skills, social cohesion, and sense of belonging. Intervention-based studies described observed changes in social participation and group interaction within structured physical education or sport-based settings (Kao, 2019; Novak et al., 2024; Li, 2024).

Qualitative studies documented student-reported experiences related to collaboration, inclusion, and social interaction during physical education courses (Corbin et al., 2019; Deliens et al., 2015). Several studies focused on inclusive or equity-oriented physical education models, reporting participation patterns among diverse student populations, including students with disabilities and multicultural cohorts (Arora & Wolbring, 2022; Elahi et al., 2025).

Moderating factors: gender and institutional context

Across the reviewed literature, gender, institutional policy, infrastructure availability, and curricular design were frequently reported as contextual variables. Studies that stratified data by gender reported differences in participation rates, preferred activity types, and reported outcomes (Wenyu et al., 2025; Han et al., 2025a; Kuralbayeva et al., 2025).

Institutional characteristics, such as mandatory versus elective physical education, availability of facilities, and integration within academic curricula, were documented as structural features of the educational context (Sallis et al., 2012; Cardinal et al., 2012; Hoxha, 2019). National and regional studies highlighted variations in policy implementation and curricular emphasis, including evidence from the Albanian higher education context (Hoxha, 2019).

Discussions

This PRISMA-informed systematic review synthesized evidence from 32 studies examining the academic, psychological, and social effects of physical education in higher education. The findings indicate consistent positive associations between PE participation and academic engagement, psychological well-being, and social integration, while also highlighting the moderating role of gender and institutional context.

Across the reviewed studies, participation in physical education was associated with higher levels of physical activity, improved fitness indicators, and healthier lifestyle behaviors among university students (Keating et al., 2005; Reiner et al., 2013; WHO, 2020). Physical education was frequently described as a structured opportunity to counteract sedentary patterns common in higher education and to support the establishment of regular exercise routines (Bauman et al., 2012; Zhang et al., 2025; Hills et al., 2015). Evidence further suggested that institutionalized PE contributes to the development of long-term health-oriented lifestyles by embedding physical activity within the university context, reinforcing its public health relevance (Reiner et al., 2013; Zhang et al., 2025; Kwan & Faulkner, 2011).

Several studies reported associations between physical education participation and academic engagement, concentration, and learning-related behaviors (Bowman et al., 2019; Han et al., 2025b). Evidence suggests that curricular integration of PE and supportive institutional environments may enhance these outcomes (Ding, 2025; Guo, 2023).

The reviewed studies consistently documented associations between PE participation and reduced stress, anxiety, and depressive symptoms, alongside improved emotional regulation and self-esteem. Structured physical activity appears to support psychological resilience during the transition to adulthood characteristic of higher education (Reiner et al., 2013; Eather et al., 2023).

Findings indicate that physical education contributes to teamwork, communication skills, and a sense of belonging. Intervention-based and qualitative studies highlight PE as a context for social participation and inclusion, particularly within diverse student populations (Kao, 2019; Novak et al., 2024).

Gender, institutional policies, and infrastructure availability were frequently reported as contextual moderators. Inclusive curricular design and adequate facilities were associated with broader participation and more consistent outcomes across student groups (Hills et al., 2015; Hoxha, 2019; Chau, 2023).

Conclusions

This systematic review demonstrates that physical education in higher education is consistently associated with positive academic, psychological, and social outcomes for university students. Participation in PE is linked to academic engagement, reduced psychological distress, enhanced self-esteem, and stronger social integration, supporting its role as a multidimensional educational resource.

These findings highlight the importance of institutional responsibility in supporting student well-being. In contexts such as Albania, where PE integration remains limited, systematic curricular inclusion and infrastructural investment represent important opportunities for improving student development.

Recommendations for policymaking and practice

- *Curricular integration of physical education:* Higher education institutions should integrate structured and inclusive physical education modules into university curricula, recognizing their association with academic engagement, psychological well-being, and social development.
- *Institutional support and infrastructure:* Universities should strengthen institutional commitment to physical education through adequate infrastructure, trained staff, and organizational support, ensuring equitable access for all students.
- *Alignment with student well-being strategies:* Physical education programs should be aligned with broader student well-being and mental health initiatives, particularly in contexts characterized by high academic stress.
- *Future research and evaluation:* Further research should employ longitudinal and mixed-methods designs to assess long-term outcomes of physical education in higher education and to support evidence-based policy development.

Limitations of the study

This review has several limitations that should be considered when interpreting the findings. First, only studies published in English were included, which may have resulted in the exclusion of relevant research published in other languages. Second, the included studies displayed considerable heterogeneity in terms of study design, outcome measures, and assessment tools, limiting direct

comparison and precluding quantitative meta-analysis. Third, variations in institutional contexts and physical education program characteristics may influence the generalizability of the results. Despite these limitations, the review provides a comprehensive synthesis of current evidence on the role of physical education in higher education.

Ethical considerations and use of AI

This article was revised with the support of artificial intelligence tools used solely for language refinement and clarity, under full author supervision and responsibility for the content. Ethical approval was not required for this study, as it is a structured, systematic review based exclusively on previously published literature and does not involve human participants, personal data, or sensitive ethical issues.

Competing interests

The authors declare no competing interests.

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Appendix 1

Characteristics of Included Studies

Study (Author, Year)	Study Design	Population	Main Outcomes Reported	Quality Appraisal Tool
Arora & Wolbring, 2022	Scoping review	Mixed populations	Equity, diversity, inclusion in PE and sport	AMSTAR
Bailey et al., 2012	Conceptual paper	General population	Human capital, social outcomes	Not applicable (conceptual framework)
Bauman et al., 2012	Narrative review	General population	Correlates of physical activity	CASP
Bondarenko et al., 2025	Cross-sectional study	University students	Socio-psychological adaptation	CASP
Bowman et al., 2019	Longitudinal study	University students	Academic and social adjustment	CASP
Cardinal et al., 2012	Historical analysis	U.S. universities	PE graduation requirements	CASP
Chau, 2023	Descriptive study	University students	PE enhancement approaches	CASP
Corbin et al., 2019	Conceptual analysis	Secondary/tertiary education	Conceptual PE framework	Not applicable (theoretical analysis)
Deliens et al., 2015	Qualitative study	University students	PA determinants, sedentary behavior	CASP
Delito, 2023	Narrative review	General population	Lifelong fitness habits	CASP
Ding, 2025	Cross-sectional study	University students	Lifelong exercise behavior	CASP
Eather et al., 2023	Systematic review	Adults	Mental health and social outcomes	AMSTAR
Elahi et al., 2025	Intervention study	University students with disabilities	Physical literacy, inclusion	CASP
Grasdalsmoen et al., 2019	Cross-sectional survey	University students	Exercise, BMI	CASP
Guo, 2023	Experimental study	University students	Technology-supported PE	CASP
Han et al., 2025a	Cross-sectional study	University students	Psychological health indicators	CASP
Han et al., 2025b	Mediation analysis	University students	Mental health mechanisms	CASP
Hills et al., 2015	Narrative review	School populations	PA promotion, public health	CASP
Hoxha, 2019	Descriptive study	Albanian universities	Role of PE in higher education	CASP
Kao, 2019	Intervention study	University students	Team cohesion	CASP
Keating et al., 2005	Meta-analysis	University students	Physical activity behaviors	AMSTAR
Kuralbayeva et al., 2025	Intervention study	Multicultural students	Communicative competence	CASP
Kwan & Faulkner, 2011	Qualitative study	University students	Barriers to physical activity	CASP

Li, 2024	Descriptive study	University students	Leadership and teamwork	CASP
Novak et al., 2024	Intervention study	University students	Social capital	CASP
Reiner et al., 2013	Systematic review (longitudinal)	General population	Long-term health outcomes	AMSTAR
Sallis et al., 2012	Narrative review	General population	Built environment and PA	CASP
Tin & Van Phat, 2025	Comprehensive review	University students	Roles and benefits of PE	CASP
Wenyu et al., 2025	Cross-sectional study	University students	Self-efficacy	CASP
Xia et al., 2025	Longitudinal study	University students	Emotional engagement	CASP
Zhang et al., 2023	Systematic review	University students (China)	Cognitive and noncognitive outcomes	AMSTAR
Zhang et al., 2025	Cross-sectional study	University students	Health-oriented lifestyles	CASP

Note: Full bibliographic details for all studies cited in this Appendix are provided in the main reference list.