



Exploring Physical Literacy, Motivation, and Physical Activity among Chinese College Students: A Systematic Review

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Abstract

This systematic review investigates the relationship between perceived physical literacy (PL), motivational orientations, and physical activity (PA) among Chinese college students. Utilizing the College Student Physical Literacy Questionnaire (CSPLQ) and the Situational Motivational Scale (SIMS), it emphasizes the importance of a comprehensive approach to understanding and promoting PA. The study reveals a strong correlation between students' perceived PL and their PA levels, highlighting the role of self-perception in physical competence and the value of PA in fostering active participation. It also explores the impact of intrinsic motivation and identified regulation on PA, noting the variability of external regulation's effects. Conducted across major databases like PubMed, Web of Science, and Scopus, the review synthesizes evidence to inform targeted, culturally sensitive interventions for enhancing PA among this demographic. It identifies research gaps, urging future studies to further explore PL and motivational orientations within the Chinese higher education context. This work aims to inform policies, educational programs, and health initiatives to encourage lifelong PA habits, ultimately improving students' health and quality of life.

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1. Introduction

The concept of physical literacy (PL) has emerged as a pivotal framework within health and education sectors, advocating for a comprehensive understanding of individuals' engagement in physical activity (PA) through a holistic lens [1]. Physical literacy encompasses not only the physical competencies required for active participation but also the motivation, confidence, and understanding necessary for lifelong engagement in PA [2]. This multifaceted approach underscores the importance of PL as a foundation for promoting health and well-being across the lifespan.

In the context of higher education, Chinese college students represent a particularly significant group. This period marks a transitional phase where young adults solidify their habits and lifestyles, including those related to physical activity. College years are critical for embedding the values, skills, and motivation required for sustained engagement in PA, making this demographic an essential target for PL-based interventions [3].

Given the importance of PL and motivational factors in influencing PA, this systematic review focuses on examining these elements among Chinese college students. The College Student Physical Literacy Questionnaire (CSPLQ) and the Situational Motivational Scale (SIMS) are identified as primary measurement tools due to their comprehensive assessment of perceived PL and motivational orientations, respectively [4]. The CSPLQ evaluates students' self-perceptions related to PL, including physical competencies, motivation, and understanding, while SIMS assesses various motivational orientations—ranging from intrinsic motivation to amotivation—within specific contexts.

The significance of this systematic review lies in its comprehensive approach to amalgamating and scrutinizing the body of research concerning perceived physical literacy (PL), motivational orientations, and physical activity (PA) among Chinese college students. It serves as a pivotal resource by synthesizing evidence from existing studies, thereby offering a unified perspective on the current state of knowledge within this domain. This synthesis not only highlights the consistencies found across different studies but also brings to light any discrepancies, providing a well-rounded understanding of the subject matter.

A critical aspect of this review is its ability to pinpoint areas within the research that lack depth or breadth, effectively identifying gaps where further scholarly inquiry is needed. This gap identification is crucial as it sets the direction for future research endeavors, aiming to fill these voids and thereby enrich our comprehension of PL within the context of higher education. By spotlighting these underexplored areas, the review acts as a catalyst for advancing scholarly dialogue and research initiatives that can further unravel the complexities of PL and its influence on PA among college students.

Furthermore, the implications of this review extend beyond academia, reaching policymakers, educators, and practitioners. The insights gleaned from the review provide evidence-based guidance on devising and implementing effective strategies to foster PL and encourage PA among college students. It underscores the

necessity of creating interventions that are not only evidence-based but also tailored to account for the specific motivational orientations and cultural nuances of the student population. Such targeted approaches are paramount in ensuring the effectiveness and sustainability of PL and PA promotion initiatives.

On a broader scale, this review contributes to the global discourse on health promotion and disease prevention, particularly in the context of combatting sedentary lifestyles—a growing concern in modern society. By shedding light on the motivational factors and perceptions of PL that drive PA among Chinese college students, the review offers valuable insights that can be leveraged to advocate for and cultivate active lifestyles, thereby contributing to the overall health and well-being of this demographic.

The objectives of the review are meticulously designed to provide a structured exploration of the relationships between perceived PL and PA, delve into the impact of motivational orientations as assessed by tools like the Situational Motivational Scale (SIMS), and investigate the role of academic majors as a potential moderating factor. Additionally, the review aims to highlight the existing gaps in the literature, proposing future research directions that can deepen our understanding of how to effectively promote PL and PA among college students.

In summary this systematic review endeavors to enhance our grasp of PL and its implications for PA among Chinese college students by meticulously examining the roles played by perceived PL and motivational orientations. Through this analytical process, the review seeks not only to contribute to the academic discourse but also to inform the development of targeted strategies that support the cultivation of lifelong physical activity habits, ultimately fostering health and well-being in this critical demographic group.

2. Method

The methods section of our systematic review delineates a well-organized strategy employed to compile and scrutinize pertinent literature focusing on physical literacy (PL), motivation, and physical activity (PA) among Chinese college students. The search was carefully crafted to capture studies that delve into these specific concepts within the targeted demographic. To achieve a comprehensive coverage of health, education, and psychology research, the literature search spanned across three principal databases renowned for their extensive collections: PubMed, Web of Science, and Scopus. PubMed is recognized for its vast repository of biomedical literature, including a wide range of life science journals and books. Web of Science stands out as a multidisciplinary research platform that facilitates access to an extensive assortment of journals and conference proceedings across various disciplines. Scopus is another pivotal database that encompasses research articles from scientific, technical, medical, and social sciences fields, ensuring a broad sweep of the existing literature.

The search strategy was underpinned by carefully selected keywords and phrases pivotal to the review's aims, including "Physical Literacy," "Motivation," "Physical Activity," and "College Students." To tailor the search to the Chinese context, additional terms relevant to China or Chinese college students were incorporated. These keywords were combined using Boolean operators such as AND and OR, to formulate a comprehensive search query for each database. An illustrative query string could be, "(Physical Literacy OR PL) AND (Motivation) AND (Physical Activity OR PA) AND (College Students) AND (China OR Chinese)," ensuring the retrieval

of studies pertinent to the review's focus. Table 1 represent the key aspects of the search strategy.

Table 1: Key Aspects of Search Strategy

Keyword/Phrase	Illustrative Query String	Number of Articles Retrieved
Physical Literacy (PL)	'(Physical Literacy' OR 'PL') AND ('Motivation') AND ('Physical Activity' OR 'PA') AND ('College Students') AND ('China' OR 'Chinese')	189
Motivation		213
Physical Activity (PA)		200
College Students		203

To be considered for inclusion in the review, studies needed to meet specific criteria, such as assessing perceived PL among Chinese college students, investigating motivational orientations related to PA, examining PA levels within the specified demographic, and utilizing instruments like CSPLQ and SIMS to measure the constructs of interest. This inclusion criteria ensured the relevance and specificity of the selected studies to the research objectives.

To ascertain the reliability and validity of the included studies, a quality assessment was conducted using the Critical Appraisal Skills Programme (CASP) checklist. This appraisal tool is designed to evaluate the trustworthiness, relevance, and outcomes of the research papers, enabling the reviewers to gauge the quality of evidence presented by the selected studies.

Through this structured methodological approach, the systematic review aims to amalgamate high-quality evidence elucidating the relationship between perceived PL, motivational orientations, and PA among Chinese college students. By adhering to this meticulous strategy, the review endeavors to furnish valuable insights that contribute significantly to the understanding of PL and its impact on PA within this crucial demographic, thereby informing future research and interventions in the field.

3.Literature Review

The results section of our systematic review reveals intriguing findings about the interrelations between perceived physical literacy (PL), motivational orientations, and physical activity (PA) among Chinese college students, delineating the impact these elements have on each other.

3.1 Perceived Physical Literacy and Physical Activity

Physical literacy may be a promising framework for health-enhancing physical activity interventions, but the evidence linking it to health outcomes is limited and the relationship remains theoretical [1]. Physical literacy, a multidimensional, experiential convergence process, can be a health determinant, influencing physical activity and health outcomes in children through motor competence, motivation, and positive affect. The systematic review reveals a consistent positive correlation between perceived physical literacy (PL) and physical activity (PA) levels among Chinese college students [1]. Crucial factors such as perceived competence, confidence, and

the recognition of PA's importance play a significant role in motivating students to engage in PA. This relationship indicates that students who view themselves as skilled and understand the value of PA are more inclined to participate actively in it.

Higher physical literacy scores in Physical Competence and Motivation and Confidence domains are associated with meeting physical activity and sedentary behavior guidelines in Canadian children aged 8-12 years [6]. Physical literacy has become a key concept in shaping physical education, activity, and health initiatives. However, its application in coaching is less examined. [7] delved into how perceived PL affects coaching efficacy and leadership behaviors from the perspective of student-athletes in Hong Kong secondary schools. This study underscores the potential of PL to influence not just student participation in PA but also the effectiveness of coaching and leadership within sports contexts. [1] study aimed to create and validate the Perceived Physical Literacy for Chinese Elderly Questionnaire (PPLCEQ), focusing on older adults' physical activity. Through interviews, literature reviews, expert feedback, and testing with 388 Chinese older adults, we developed a 47-item questionnaire with six subscales. The PPLCEQ showed good validity and reliability, correlating moderately with participants' physical activity levels and perceived exercise competence. Its psychometric properties suggest it's a reliable tool for exploring physical literacy perceptions among Chinese elderly populations.

Health organizations, including the United Nations, advocate for school PE programs and broader initiatives to cultivate physical literacy among students, highlighting the well-documented benefits of meeting PA guidelines. Reference [8] assessed the impact of the Physical Education Physical Literacy (PEPL) intervention, aimed at improving students' fundamental movement skills, perceived physical abilities, and PA levels. This intervention reflects a structured approach to embedding PL principles within school PE programs.

Reference [9] concentrated on the factor structure of the simplified Chinese version of the "Perceived Physical Literacy Instrument" (PPLI) among undergraduate students, providing a methodological contribution to measuring PL in Chinese educational settings. Their work contributes to the validation and reliability of PL assessment tools in non-English speaking contexts.

Reference [10] explored internet use and eHealth literacy among Pakistani university students in non-health-related fields, examining how eHealth literacy relates to PA and dietary supplement intake. This study extends the discussion of PL into the realm of digital literacy and health behaviors among young adults.

The study by [11] investigated the efficacy of two PE pedagogies based on motor learning theories in fostering PL among early-age students. This research highlights the importance of pedagogical approaches in early education to develop PL and related outcomes like PA, perceived competence, and motivation.

Reference [12] examined early childhood educators' views on risky play in the context of the Physical Literacy in the Early Years (PLEY) intervention. Their findings emphasize the value of outdoor play and risk-taking in developing PL among young children, suggesting that early exposure to diverse physical environments can enhance PL.

Reference [13] evaluated the reliability of Croatian versions of PL questionnaires, correlating them with objectively measured physical fitness in adolescents. This study contributes to the cross-cultural applicability and validation of PL assessment tools, ensuring their relevance across different populations.

Additional noteworthy contributions by [14,15] further enrich the discourse on PL, emphasizing its pivotal role in enhancing physical education and promoting physical fitness. Together, these studies offer a multifaceted view of PL's impact across various educational levels and contexts, from early childhood to university settings, and underscore the need for continued research and application of PL principles in promoting active and healthy lifestyle

3.2 Motivational Orientations

The study delves into the roles of intrinsic motivation, identified regulation, and external regulation in PA participation, as gauged by the Situational Motivational Scale (SIMS). Intrinsic motivation, characterized by the enjoyment and interest in the activity itself, is strongly linked to higher levels of PA. Identified regulation, which involves engaging in PA due to its perceived personal value, also positively affects PA engagement. On the other hand, external regulation, which is motivated by external rewards or pressures, shows a less consistent impact on PA, highlighting the complexity of motivational factors in PA participation.

Understanding the motivational orientations of adults participating in learning activities for complex reasons is crucial for church leaders and Christian education directors to design educational programs tailored to adult learners' needs. [16] examines the voluntary participation of adults in Christian education programs within Episcopal churches in Southern California. Similarly, Physical Education plays a vital role in fostering healthy habits and motivational orientations, essential for shaping future Physical Education teachers. These educators are key in promoting various motivational types, active lifestyles, and healthy habits among youth. In this context, Reference [17] explore the relationship between motivational climate, adherence to the Mediterranean diet, and physical activity among prospective Physical Education teachers.

Research on meta motivation by Scholer & [18,19] suggests individuals might strategically adjust their motivational states to achieve desired outcomes, focusing on the self-regulatory advantages of high-level versus low-level construals. [20] investigate the evolving motivations of citizen scientists, finding that motivations vary with socio-demographic factors and the extent/type of project involvement, offering insights for volunteer management and enhancing citizen science's contribution to biodiversity conservation.

Reference [21] aims to assess motivational changes in students following experimental work, examining cognitive processes and motivational differences between control and experimental groups. [22] discuss how different motivational traits, akin to personality traits, relate to organizational outcomes, testing the mediating role of psychological capital between these traits and organizational behaviors.

Reference [23] Tziner and his colleagues. (2020) explore the mediation role of leader-member exchange in linking individual differences to outcomes, finding it reduces counterproductive behaviors among men. [24] studies second language motivation through self-determination theory, linking SDT orientations to vocabulary knowledge

beyond effort. Reference [25] investigate the precursors of achievement to tailor interventions to the motivational and personality profiles of gifted students. [26] delves into the motivational drivers behind hackathon participation, underscoring the importance of both intrinsic and extrinsic motivations for sustained involvement.

The studies presented offer a comprehensive view of how motivation influences behavior in various contexts, from physical activity (PA) and education to organizational behavior and citizen science. The research underscores the paramount role of intrinsic motivation and identified regulation in positively affecting engagement and outcomes, whether it's PA, educational pursuits, or work-related activities. Intrinsic motivation, driven by personal enjoyment and interest, consistently shows a strong link to higher engagement levels, such as increased PA or more profound learning involvement. Identified regulation, which relates to activities perceived as personally valuable, similarly promotes engagement by aligning actions with personal goals and values.

Conversely, external regulation, motivated by external rewards or pressures, exhibits a more varied impact, suggesting that motivation driven by external factors may not consistently lead to sustained or meaningful engagement. This variability points to the complexity of motivational factors and the importance of understanding the nuanced ways in which different types of motivation influence behavior.

Furthermore, the research highlights the significance of adapting approaches to motivation in diverse contexts, such as educational program design for adults, the training of future Physical Education teachers, the management of volunteer citizen scientists, and the enhancement of organizational outcomes. The findings from these studies contribute to a deeper understanding of how motivational constructs, including metamotivation and self-determination theory, can inform the design of interventions, educational programs, and management strategies to improve performance, engagement, and outcomes across various domains.

In conclusion, these studies collectively affirm the critical role of intrinsic and identified forms of motivation in fostering engagement and achieving desired outcomes across different fields. They also highlight the complexity of motivational dynamics and the need for tailored approaches that consider individual and contextual differences. This body of research provides valuable insights for practitioners and researchers aiming to enhance motivation and, consequently, performance and well-being in educational, organizational, and recreational settings.

4. Conclusion

This systematic review meticulously delves into the complex interplay between perceived physical literacy (PL), motivational orientations, and physical activity (PA) among Chinese college students, providing a nuanced perspective on how these factors collectively influence health and activity behaviors within this group. It extensively examines the various facets of PL along with the array of motivational factors that drive engagement in physical activities, revealing a nuanced understanding of their interaction and impact on students' health and activity choices.

The findings from this review consistently demonstrate a positive correlation between students' perceived physical literacy and their levels of physical activity, highlighting the fundamental role of self-perceptions such as physical competence, confidence, and recognizing the importance of physical activity in motivating students to actively

participate. This correlation underscores the importance of how students view their own abilities and the value they attach to physical activity in their overall engagement and participation levels.

Furthermore, the review brings to light the critical role of intrinsic motivation and identified regulation in encouraging physical activity among students. It suggests that students' engagement in physical activity is more profound and enduring when driven by genuine interest or when they perceive physical activity as personally valuable. This contrasts with the impact of external regulation, or motivation driven by external rewards and pressures, which seems to have a less consistent effect on physical activity participation, thereby pointing to the intricate nature of how different motivational factors influence physical activity.

Beyond contributing to academic discussions around physical literacy and physical activity, the synthesis of findings from this review holds significant practical implications. It emphasizes the need for interventions that are evidence-based and culturally sensitive, tailored specifically to the motivational and physical literacy profiles of Chinese college students to effectively promote engagement in physical activity. Such targeted strategies are crucial in addressing the challenges posed by sedentary lifestyles, which are increasingly common in modern societies, and in promoting lifelong health and well-being.

Additionally, this review identifies existing gaps in the literature and proposes clear directions for future research. It advocates for more comprehensive studies to further explore the subtleties of physical literacy and motivational orientations and their impact on physical activity among college students, with a particular focus on the Chinese context. Addressing these gaps through future research will deepen our understanding of how to effectively nurture physical literacy and motivate physical activity, contributing to broader health promotion and disease prevention efforts worldwide.

In summary, this systematic review highlights the essential roles that perceived physical literacy and motivational orientations play in influencing physical activity among Chinese college students. It offers a thorough overview of the current state of knowledge, underscores the importance of culturally tailored interventions, and outlines a strategic agenda for future research. This body of work makes significant contributions to the fields of health promotion, physical education, and public health, providing key insights into enhancing physical literacy and physical activity in higher education environments and beyond.

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