



Correlation between Meditation and Physical Activity in Physical Education and Sports Science: A Bibliometric Analysis

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ABSTRACT

Meditation and physical activity are increasingly studied as complementary approaches for improving physical, cognitive, and mental well-being. This study aims to analyze the correlation between meditation and physical activity in the context of physical education and sports science using a bibliometric approach. Data were obtained from the Scopus database using the search query TITLE-ABS-KEY (meditation AND physical AND activity), covering publications from 1978 to 2025. The search identified 1,495 documents, showing a strong increase in publication trends, especially from 2017 onward. Meditation-related physical activity is connected with health, mindfulness, executive function, education, and sport performance. This study provides a research mapping foundation for future studies in physical education and sports science.

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1. INTRODUCTION

Meditation and physical activity have become important topics in education, health, and sports science because both are related to human well-being, self-regulation, and performance development. Meditation is commonly associated with mindfulness, attention, emotional regulation, and mental balance, while physical activity is associated with physical fitness, motor development, health promotion, and movement-based learning [1]. In physical education and sports science, the integration of mental and physical practices is increasingly relevant because students and athletes require not only physical competence but also concentration, motivation, discipline, and psychological readiness [1, 2].

Physical education plays an essential role in developing students' physical, cognitive, social, and affective abilities. Recent studies in the ASEAN context have discussed physical education through various perspectives, including technology-based instructional videos, physical and mental health, physical fitness, motor performance, physical activity modules, playground-based learning, STEAM-based physical education, student burnout, pickleball, and health-related teaching performance [2-10]. Physical education is no longer limited to physical training, but has expanded into a multidimensional learning process involving health, cognition, pedagogy, and psychosocial development [2, 7, 10].

Meditation has also gained attention as a practice that may support educational and developmental outcomes. Meditation has strong conceptual relationships with Buddhism and religion, indicating its historical, cultural, and philosophical foundations [11, 12]. However, meditation is not only relevant in religious or spiritual contexts. It can also be understood as a practical strategy for improving attention, self-awareness, emotional control, and executive function in educational settings [1].

The connection between meditation and physical activity is especially important for physical education. Mindful meditation can be integrated into physical activities to improve executive function skills among kindergarten children [1]. Meditation and physical activity may support each other in movement-based learning, especially when physical education aims to develop both body and mind. Similar discussions on yoga and physical health also show that meditative movement practices can contribute to physical well-being and health-oriented education [13].

In sports science, meditation-related physical activity may contribute to psychological readiness, stress management, focus, and performance. Students and athletes often face physical fatigue, anxiety, competition pressure, and motivational challenges. Therefore, meditation may serve as a complementary approach to support mental preparation and self-regulation before, during, and after physical activity [1, 8]. This perspective is also consistent with studies discussing student burnout, health-related factors, and mental health struggles during and after the COVID-19 pandemic [3, 8, 10].

Although meditation and physical activity have been studied in different fields, research mapping their relationship in physical education and sports science remains limited. Bibliometric analysis can help identify publication trends, research development, and thematic relationships in this area. Based on Scopus data using the query TITLE-ABS-KEY (meditation AND physical AND activity), 1,495 documents were identified from 1978 to 2025. The publication trend shows a strong increase, particularly from 2017 onward, indicating growing scholarly attention to meditation and physical activity. Therefore, this study aims to analyze the correlation between meditation and physical activity in physical education and

sports science using a bibliometric approach. This study is expected to provide an overview of publication trends, conceptual development, and future research opportunities related to meditation, physical activity, physical education, and sports science.

2. METHODS

This study used a bibliometric analysis method based on data obtained from the Scopus database. The search was conducted using the query TITLE-ABS-KEY (meditation AND physical AND activity) to identify publications related to meditation and physical activity. The search covered documents published from 1978 to 2025. Based on the Scopus search results, documents were identified and analyzed. The analysis focused on publication trends by year to describe the development of research on meditation and physical activity. The data were then interpreted descriptively to show the relevance of meditation and physical activity to physical education and sports science. This study was limited to documents indexed in Scopus and to the keywords used in the search query. Therefore, publications outside Scopus or studies using different terms may not have been included in the analysis.

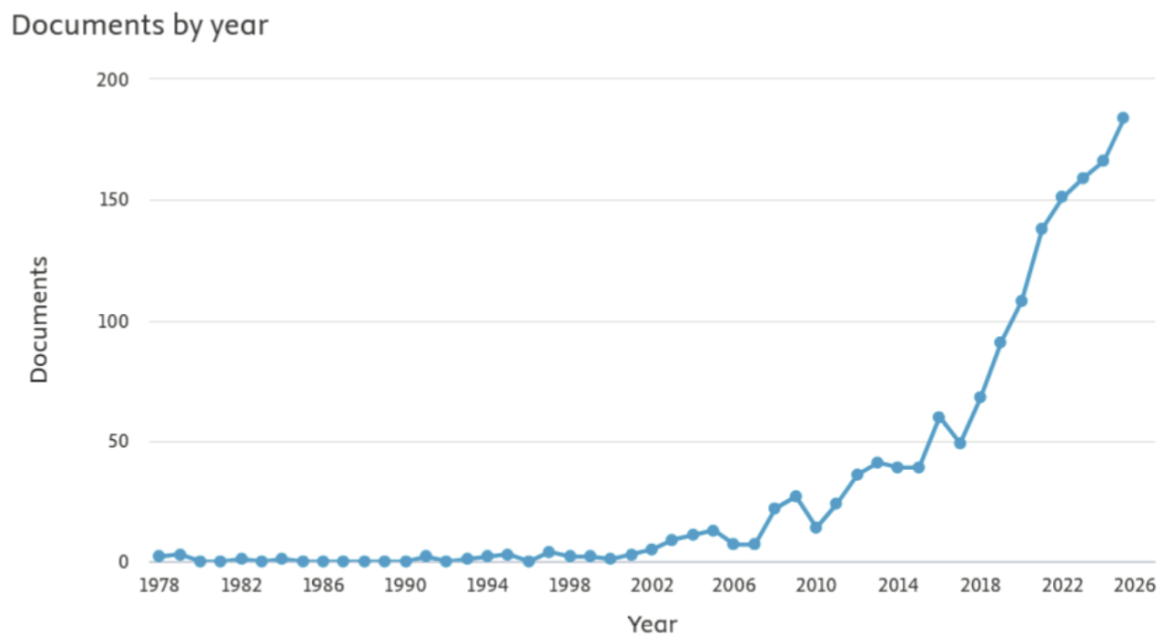
3. RESULTS

The Scopus search using the query TITLE-ABS-KEY (meditation AND physical AND activity) obtained 1,495 documents published between 1978 and 2025. Meditation and physical activity have become a long-developing research topic with increasing relevance to health, education, physical activity, and sports science. The large number of documents also suggests that the relationship between mental practice and physical movement has attracted multidisciplinary scholarly attention.

The annual publication trend shows a clear increase in recent years. As shown in **Table 1**, the number of publications increased from 49 documents in 2017 to 184 documents in 2025. Research on meditation and physical activity has developed rapidly, especially after 2017. The increase may be related to the growing academic interest in mindfulness, holistic health, physical activity, mental well-being, and educational development. The trend in **Table 1** is also presented visually in **Figure 1**. The figure shows a steady increase in publications from 2017 to 2025. The strongest growth can be seen between 2017 and 2021, when the number of publications rose from 49 to 138 documents. After 2021, the number of publications continued to increase, although the growth became more gradual. Meditation and physical activity have become a stable and expanding research area. The increasing trend supports the argument that meditation and physical activity are becoming important topics in contemporary research. Meditation is commonly associated with mindfulness, attention, relaxation, emotional regulation, and self-awareness, while physical activity is associated with fitness, motor development, health promotion, and movement competence. When these two topics are combined, they create a research area that connects mental and physical development. This connection is highly relevant to physical education and sports science because students and athletes need both physical ability and psychological readiness [1]. In the context of physical education, meditation may support learning readiness before physical activity. Students in physical education classes are required to listen to instructions, control their behavior, remember movement sequences, and participate actively in learning activities. These abilities are closely related to executive function. Mindful meditation can be integrated into physical activities to improve executive function skills among kindergarten children [1]. Therefore, meditation can be considered a complementary strategy for preparing students mentally before movement-based learning activities.

Table 1. Documents by year based on the Scopus database

YEAR	NUMBER OF DOCUMENTS
2017	49
2018	68
2019	91
2020	108
2021	138
2022	151
2023	159
2024	166
2025	184

**Figure 1.** Publication trend on meditation and physical activity in Scopus (updated on Feb 2026)

The growth of publications also reflects the broader development of physical education as a multidimensional field. Physical education is no longer understood only as sport training or physical fitness instruction. It also includes cognitive, affective, social, technological, and health-related dimensions. Studies in the ASEAN context have discussed technology-based instructional videos, physical and mental health, student fitness, motor performance, physical activity modules, playground-based learning, STEAM-based physical education, student burnout, pickleball, and teaching performance in physical education [2-10]. These studies show that physical education has developed into an interdisciplinary field that supports both physical and psychological development.

The relationship between meditation and physical activity is also relevant to health promotion. Physical activity contributes to fitness and bodily health, while meditation may contribute to mental balance and stress regulation. This relationship became especially important during and after the COVID-19 pandemic, when physical and mental health problems became major concerns in educational and domestic settings [3]. In this context,

meditation-based physical activity may provide a useful approach for supporting physical health, emotional stability, and student well-being.

In sports science, meditation-related physical activity may support focus, emotional control, stress management, and performance preparation. Students and athletes often face anxiety, fatigue, competition pressure, and motivation problems. Meditation may help individuals regulate attention and maintain psychological readiness before and during physical performance. This relevance is supported by studies discussing burnout among physical education students and physical performance in sport-based learning activities [8, 9]. Therefore, meditation can be viewed as a mental strategy that complements physical training and sport pedagogy.

The bibliometric result also suggests that meditation and physical activity are connected with holistic education. Holistic education emphasizes the development of the body, mind, emotion, and values. Meditation can support self-awareness and self-control, while physical activity can support movement skills, health, cooperation, and discipline. This connection is aligned with the idea that physical education should develop students as whole persons rather than only improve physical performance. Studies on yoga and physical health also support the idea that meditative movement practices can contribute to health-oriented physical education [13].

Although the publication trend is increasing, the topic still needs more specific studies in physical education and sports science. Many publications may discuss meditation from medical, psychological, religious, or general health perspectives, but fewer studies may focus directly on physical education learning, sport pedagogy, student movement development, or school-based physical activity. Therefore, future research should examine how meditation can be applied in physical education classes, sport training, warm-up sessions, cool-down activities, and mental preparation programs.

Overall, the Scopus data show that meditation and physical activity form a growing research area. The increase from 49 documents in 2017 to 184 documents in 2025 indicates strong scholarly development. For physical education and sports science, this trend is important because meditation may support learning readiness, executive function, mental health, body awareness, and sport performance. The findings provide a foundation for further studies on meditation-based physical activity and its contribution to holistic physical education.

4. DISCUSSION

4.1. Meditation as a Holistic Educational Practice

Meditation has traditionally been connected with religious and spiritual traditions. Previous bibliometric studies showed that meditation is closely related to Buddhism and religion, indicating that meditation has deep cultural, ethical, and educational roots [11, 12]. However, meditation should not be understood only as a religious practice. In educational and sports science contexts, meditation can also be interpreted as a psychological and pedagogical strategy that may help students develop attention, self-control, calmness, and awareness of bodily movement [1]. These qualities are strongly related to successful participation in physical education because students need physical competence, concentration, motivation, and psychological readiness during learning activities [1, 5]. Physical education often involves dynamic activities, competition, teamwork, and emotional

responses. Students may feel anxious, distracted, overly excited, or unmotivated during physical education classes. Meditation can provide a structured moment for students to regulate themselves before, during, or after physical activity. For example, short breathing exercises before a lesson may help students become more focused and prepared for movement learning [1].

4.2. Meditation and Physical Education Learning Readiness

Learning readiness is an important factor in physical education. Students who are physically present but mentally distracted may not fully benefit from instruction. Meditation can support readiness by preparing students' attention and emotional state [1]. In physical education, readiness includes listening to instructions, understanding movement tasks, controlling behavior, and safely interacting with peers. These skills require executive function, including attention control, working memory, and inhibitory control. Mindful meditation has been connected with physical activities and executive function skills among kindergarten children [1]. This is highly relevant because early childhood physical education requires both movement development and cognitive-behavioral regulation [1, 7]. The integration of meditation into physical activities may be especially useful for younger learners. Children often need support to transition from free movement to structured learning. A short mindfulness or breathing activity can help create a learning atmosphere that is calmer and more organized. In this sense, meditation can function as a bridge between mental preparation and physical performance [1].

4.3. Meditation, Executive Function, and Movement Learning

Executive function refers to cognitive processes that support goal-directed behavior. In physical education, executive function helps students follow rules, remember instructions, control impulses, and adapt movement strategies. These abilities are important not only for academic learning but also for sport participation and physical literacy [1]. Mindful meditation within physical activities has been emphasized as a strategy to improve executive function skills [1]. This suggests that meditation and physical education can be integrated rather than separated. For example, students may practice mindful breathing before balance activities, body awareness during stretching, or reflective silence after games [1, 13]. Movement learning requires concentration and body awareness. Students must understand how their bodies move, how to coordinate actions, and how to adjust performance based on feedback. Meditation can support this process by encouraging students to pay attention to breathing, posture, muscle tension, and movement rhythm. This may improve the quality of participation in physical education [1, 13].

4.4. Meditation and Sports Science

Sport science is concerned with physical performance, motor learning, health, and well-being. Meditation is relevant to sport science because students and athletes may need strategies to maintain attention, regulate stress, and support learning or performance during physical activity [1, 8]. In sport contexts, meditation may support concentration before competition, emotional control during performance, and recovery after training. Although this paper focuses on physical education, the relationship between meditation and sports science should also be considered. Meditation may be useful as a complementary strategy for students who participate in physical education, school sports, extracurricular activities, or sport-based learning programs [5, 8, 9]. The connection between meditation and sports science can be seen in three areas. First, meditation may support learning readiness. Second,

meditation may strengthen self-regulation during physical activity. Third, meditation may promote holistic well-being, which is consistent with modern approaches to physical education and sport science [1, 8, 10].

4.5. Meditation as a Values-Based Physical Education Strategy

Meditation also has a values-based dimension. Because meditation is historically connected with Buddhism and religion, it can be associated with self-discipline, compassion, patience, and ethical behavior [11, 12]. In physical education, values are important. Students learn fairness, respect, cooperation, responsibility, and self-control through movement and games. Meditation may support these values by encouraging reflection and awareness. For example, after a competitive activity, students can be guided to reflect on their emotions, their treatment of teammates, and their respect for opponents [1, 11, 12]. However, in diverse educational settings, meditation should be implemented carefully. Teachers should present meditation inclusively and educationally, not as a compulsory religious activity. The focus should be on breathing, attention, relaxation, self-awareness, and emotional regulation. This approach allows meditation to support physical education while respecting students' cultural and religious backgrounds [11, 12].

4.6. Proposed Conceptual Framework

This paper proposes a conceptual framework in which meditation contributes to physical education through four main pathways. As shown in **Table 2**, meditation may support attention, emotional regulation, executive function, and values education. These components are relevant because physical education requires not only physical movement, but also cognitive readiness, emotional control, social behavior, and ethical participation [1, 5, 11, 12]. The framework in **Table 2** suggests that meditation is not an additional burden in physical education. Instead, it can be integrated into warm-up, cool-down, reflection, classroom management, and sport psychology activities. This integration is relevant because current physical education studies increasingly emphasize motor performance, physical skill acquisition, mental health, student well-being, and holistic development [3, 5, 7, 8].

Table 2. Proposed conceptual framework of meditation in physical education

COMPONENT	ROLE OF MEDITATION	RELEVANCE TO PHYSICAL EDUCATION	TO EXPECTED OUTCOME	REF.
Attention	Helps students focus on breathing, body, and the present activity	Supports instruction-following and movement learning	Better learning readiness	[1]
Emotional regulation	Encourages calmness and self-control	Reduces anxiety, impulsive behavior, and conflict	More positive class participation	[1]
Executive function	Supports inhibitory control, working memory, and cognitive flexibility	Helps students follow rules and adapt movement strategies	Improved behavioral and cognitive control	[1]
Values education	Encourages reflection, discipline, and awareness	Supports fair play, respect, and cooperation	Holistic student development	[11, 12]

4.7. Suggested Bibliometric Mapping

A future bibliometric study on meditation and physical education may produce thematic clusters related to religion, education, physical activity, executive function, and sport psychology. As shown in **Table 3**, these clusters can help explain how meditation is connected with physical education and sports science. The mapping also shows that meditation has both conceptual roots and practical applications in education, movement, and sport contexts [1, 11, 12]. The thematic mapping in **Table 3** may help future researchers design a full bibliometric analysis using data from academic databases. It also shows that meditation and physical activity can be discussed not only from a health perspective, but also from educational, psychological, cultural, and sports science perspectives [1, 11, 12].

Table 3. Suggested thematic mapping of meditation and physical education

CLUSTER	POSSIBLE KEYWORDS	INTERPRETATION	RELATION TO AJOPESS SCOPE	REF.
Meditation and religion	Meditation, Buddhism, religion, spirituality	Shows the cultural and philosophical roots of meditation	Provides conceptual background	[11, 12]
Meditation and education	Mindfulness, learning, students, classroom	Shows the educational use of meditation	Relevant to school-based physical education	[1]
Meditation and physical activity	Physical activity, movement, exercise, body awareness	Shows integration of meditation with movement	Directly relevant to physical education and sports science	[1, 13]
Meditation and executive function	Attention, self-control, working memory, and child development	Shows cognitive benefits related to learning behavior	Relevant to motor learning and child development	[1]
Meditation and sport performance	Focus, motivation, performance, and physical activity	Shows relevance to physical performance and student participation	Relevant to sport performance and physical education practice	[5, 8, 9]

4.8. Implications for Physical Education Teachers

The integration of meditation into physical education has practical implications for teachers. First, teachers can use short breathing exercises before lessons to prepare students mentally. Second, teachers can include mindful movement during stretching, balance activities, yoga-related activities, or cool-down sessions. Third, teachers can use reflection after games to help students understand emotions, teamwork, and fair play [1, 13]. For young learners, meditation should be simple, short, and age-appropriate. Teachers may ask students to sit or stand calmly, breathe slowly, listen to instructions, and become aware of their bodies. The goal is not to teach complex meditation techniques, but to develop attention and self-regulation through simple mindful practices [1]. For older students and athletes, meditation can be connected with sports psychology. It may be used before performance, during recovery, or as part of mental skills training. In this way, meditation can contribute to both educational and performance-related outcomes [5, 8, 9].

4.9. Research Limitations

Although meditation has been discussed in relation to Buddhism, religion, and mindful physical activity, several gaps remain. First, there are still limited studies focusing specifically on the correlation between meditation and physical education. Second, more experimental research is needed to test the effect of meditation-based physical education on attention, executive function, physical performance, and student behavior. Third, bibliometric studies are needed to map publication trends, leading authors, journals, countries, and research themes [1, 11, 12]. Future studies should also examine the cultural context. In ASEAN countries, meditation may have strong cultural and religious associations. Researchers should explore how meditation can be adapted for inclusive physical education while respecting religious diversity. This is important because physical education should be accessible and acceptable to all students [11, 12].

5. CONCLUSION

This study analyzed the correlation between meditation and physical activity using bibliometric data from the Scopus database. The search identified 1,495 documents published from 1978 to 2025. The results showed that research on meditation and physical activity has increased strongly in recent years, especially from 2017 to 2025. The number of publications increased from 49 documents in 2017 to 184 documents in 2025, indicating growing academic attention to this topic. The findings suggest that meditation and physical activity form an important research area connected with health, mindfulness, self-regulation, executive function, physical education, and sports science. In physical education, meditation may support learning readiness, attention, emotional control, and student well-being. In sports science, meditation may contribute to focus, psychological readiness, stress management, and performance preparation. Meditation-related physical activity has strong potential for future development in physical education and sports science. Further studies are recommended to examine keyword networks, country contributions, source titles, and citation patterns, as well as experimental studies on the application of meditation in physical education and sport training.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

7. REFERENCES

- [1] Chano, J., Srijaroon, A., and Choompunuch, B. (2025). Integrating the ideas of mindful meditation into physical activities to improve executive function skills of kindergarten children: A Buddhist religious-educational perspective aligned with SDGs. *ASEAN Journal of Religion, Education, and Society*, 4(2), 117-128.
- [2] Zarco, M.E.H.C., Calixtro Jr., V.L., Deligero, J.D., Raymundo, A.M.O., and Tubac, J.L.V. (2026). Developing technology-based instructional videos to enhance cognitive and physical performance in physical education. *ASEAN Journal of Educational Research and Technology*, 5(1), 47-56.
- [3] Marcaida, J.P. (2022). Physical and mental health struggles during the time of pandemic: An overview of domestic setting. *ASEAN Journal of Community and Special Needs Education*, 1(1), 23-28.

- [4] Hidayatullah, W., Muktiarni, M., and Mupita, J. (2022). Analysis comparative of physical fitness of students with disabilities and normal students. *ASEAN Journal of Community and Special Needs Education*, 1(2), 69-74.
- [5] Ancog, J.C. (2025). Effect of structured volleyball activities on the motor performance of students in physical education. *ASEAN Journal of Physical Education and Sport Science*, 4(1), 25-30.
- [6] Abbaci, M., and Azizah, N. (2025). Physical activity module development for children with special educational needs. *ASEAN Journal of Physical Education and Sport Science*, 4(2), 39-50.
- [7] Sulyman, H.T. (2025). Influence of primary school playgrounds on pupils' physical skill acquisition. *ASEAN Journal of Physical Education and Sport Science*, 4(2), 63-74.
- [8] Arancillo, A.A.P., Gallo, D.C.A., Gomez, X.M.L., Saldua, J.V., and Morbo, E.A. (2025). Lived experiences of bachelor of physical education students on burnout: A phenomenological inquiry. *ASEAN Journal of Physical Education and Sport Science*, 4(1), 1-8.
- [9] Turan, L.V.M.P. (2024). Effect of playing pickleball on the physical performance of physical activity towards health and fitness students. *ASEAN Journal of Physical Education and Sport Science*, 3(2), 69-76.
- [10] Vera, M.J.C., and Calixtro Jr., V.L. (2024). Health-related factors and teaching performance of physical education teachers amidst COVID-19 pandemic. *ASEAN Journal of Physical Education and Sport Science*, 3(1), 17-26.
- [11] Chano, J., Tungtawee, C., and Luo, M. (2023). Correlation between meditation and Buddhism: Bibliometric analysis. *ASEAN Journal of Religion, Education, and Society*, 2(2), 139-148.
- [12] Chano, J., Tungtawee, C., and Luo, M. (2024). Correlation between meditation and religion: Bibliometric analysis. *ASEAN Journal of Religion, Education, and Society*, 3(1), 11-22.
- [13] Kamraju, M. (2023). The impact of yoga on physical health. *ASEAN Journal of Physical Education and Sport Science*, 2(2), 81-88.