

Effective Programs to Increase Physical Activity Participation and Physical Fitness Levels: A Literature Review

Sri Wicahyani¹, Hari Setijono², Sapto Wibowo³, Heryanto Nur Muhammad⁴, Taufiq Hidayat⁵, Septian Wiliyanto⁶, Agung Prasetyo⁷

^{1,3,4,5} Physical education, Sport and Recreation, Faculty of Sport Science and Health, University Negeri Surabaya

² Sport Science, Faculty of Sport Science and Health, University Negeri Surabaya

⁶ Sport Science, Faculty of Sport Science, University Pendidikan Indonesia

⁷ Sport Science, Faculty of Sport Science, University Negeri Gorontalo



ABSTRACT

Keywords:

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Physical activity
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The purpose of this study was to analyze the effective programs for increasing physical activity participation and physical fitness levels. The research method used is a systematic review of articles with the Scopus database. Researchers used the Spider framework whose inclusion criteria were: sample: students or youth; phenomenon of interest focused on programs for students or youth, about programs to increase sports participation and physical activity; survey or experimental research design, evaluation: effectiveness of programs to promote sports participation and physical activity; type of research is basic research. The research results state that the research in the selected articles was conducted with the ultimate goal of improving health and well-being through increasing physical activity. Research primarily focused on increasing, measuring, or understanding physical activity. Other research attempted to identify factors that influence the level of participation or success of physical activity programs. Program recommendations include increasing MVPA among middle school students during indoor classes, designing and implementing not only activities focused strictly on PA but also activities at home, subsequent physical activity interventions, and implementing school policies that encourage walking to and from school at specific distances. Campus programs such as sports clubs, summer programs, and spontaneous sporting events can be a way to increase physical activity participation and fitness in children and adolescents. Sports clubs offer opportunities to pursue specific interests in a supportive and fun atmosphere. Spontaneous sporting events can be designed to be inclusive and accessible to a variety of fitness levels, thereby attracting broader participation.

INTRODUCTION

The phenomenon of sedentary behavior or lack of movement is becoming an increasingly worrying global issue. Lack of physical activity in childhood has serious consequences for long-term health and development. The culture of life that is starting to be spoiled by technology is often reflected in the ease of obtaining entertainment and information through handheld devices, thus reducing the need to move physically. Parents who are busy or less aware of the long-term impacts may also unknowingly facilitate their children with technology so that all needs can be more practical.

The development of digital technology in recent decades has brought significant changes to various aspects of life, including the way children play, learn, and interact. On the one hand, technology offers various benefits, such as unlimited access to information, interactive learning platforms, and communication facilities that facilitate social relationships. However, on the other hand, concerns have arisen regarding its negative impact on children's physical health and development, especially related to the decline in physical activity levels.

As children grow older, their participation in physical activity often declines, resulting in lower levels of physical activity. Although physical education is a mandatory component of the curriculum, students' active engagement is often limited in the actual school environment. To foster health resilience, physical education should emphasize the promotion of active lifestyles both inside and outside the school environment (1). The widespread lack of healthy habits is a major problem for everyone, and schools, especially through physical education, can be an important platform for promoting physical activity and healthier habits among adolescents (2).

One of the goals of the curriculum is to help students improve their physical health and encourage lifelong physical activity participation (3). Providing adolescents with the knowledge and awareness to participate in physical activity is essential for their short-term and long-term well-being (4). Schools can serve as supportive environments to promote physical activity by providing structure and opportunities for moderate-to-vigorous physical activity. Teachers have a critical role in facilitating and delivering effective physical education instruction to instill movement and exercise awareness in students. Schools can be an effective environment to help children achieve the recommended levels of moderate to vigorous physical activity because they provide support and structure. Regular education classes have been shown to significantly contribute to the recommended levels of moderate to vigorous physical activity. Likewise, in the campus environment, campus regulatory policies regarding student physical activity participation need attention as an effort to increase student physical participation to support optimal achievement.

RESEARCH METHOD

The research method used is a systematic review of articles with the Scopus database. Researchers used the Spider framework whose inclusion criteria were: sample: students or youth; phenomenon of interest focused on programs for students or youth, about programs to increase sports participation and physical activity; survey or experimental research design, evaluation: effectiveness of programs to promote sports participation and physical activity; type of research is basic research.

The inclusion criteria in this study were articles containing research related to effective programs to increase physical activity participation and physical fitness levels. The exclusion criteria in this study were: (1) articles published more than 5 years ago; (2) articles not in English; (3) a part of book chapter.

The identification of research in this study from beginning to end is presented in the Prisma Flowchart below:

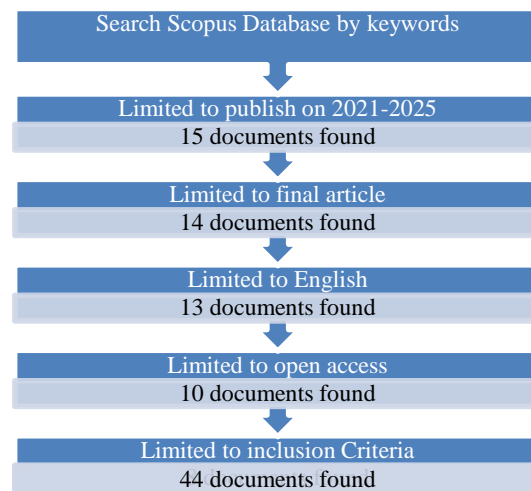


Figure 1. Prisma Flowchart

The analysis technique used is quantitative descriptive, namely data analysis techniques used to describe or explain data. The goal is to provide an overview of the characteristics of the data collected

RESULTS AND DISCUSSION

The results of the study showed dominant similarities in the sample characteristics, phenomena of interest, research design, and research results. The following are the articles that entered the selection:

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Table 1. Articles Match on Criteria

Title	Purpose	Result	Conclusion
Moderate-to-vigorous intensity physical activity during school hours in a representative sample of 10-11-year-olds in Scotland (5)	This study was to assess objectively measured levels of moderate to vigorous physical activity (MVPA) in a large sample of Scottish children.	The study found that most children did not meet the 30-minute MVPA recommendation. The results showed that girls were significantly less likely to meet their MVPA than boys. Children in rural areas were more likely to meet the recommendation than those in urban areas, and there was a significant seasonal trend, with lower odds of meeting the recommendation in winter compared to summer.	Most Scottish children aged 10-11 do not meet the 30-minute MVPA recommendation during school hours, highlighting the need for interventions to increase MVPA in this setting to promote public health.
Design and Development of an Intelligent Skipping Rope and Service System for Pupils (7)	This study analyzes, designs, and implements a rope skipping service system that can help elementary school students participate in rope skipping activities and motivate them to jump with the aim of improving fitness and enjoyment.	This research resulted in a combined software and hardware innovation used to increase children's participation in physical activity.	The developed intelligent skipping rope and service system has the potential to help primary school students engage in rope skipping activities, promoting both fitness and enjoyment.
Work-related musculoskeletal disorders among	This study provides evidence on how to plan a health promotion program aimed at maintaining appropriate	The study found a prevalence of WMSD in physiotherapists and students, with	The study highlighted poor flexibility among students, suggesting a need for activities to

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physiotherapists and physiotherapy students in Croatia and their association with physical fitness. (8)	physical fitness to reduce work-related musculoskeletal disorders (WMSD) among physiotherapists and students.	the results of the analysis showing that students had poorer flexibility.	improve muscle extensibility and increased awareness of WMSDs.
Start small and let it build; a mixed-method evaluation of a school-based physical activity program, Kilometre Club (9)	This study examined the perceptions of families, teachers, and principals regarding the benefits, enablers, and barriers of the Kilometer Club (KM), and to assess the program's benefits on students' physical activity levels.	The research results indicate benefits of increased social connectedness, well-being, and increased levels of physical activity in several schools from the policies implemented.	Flexible and adaptable factors are important for the successful implementation of school-based physical activity programs like KM Club, which showed various health, wellbeing, and educational benefits.
Evaluation of a Pilot College Student-Based Physical Activity Implementation Strategy in a Rural Middle School (10)	The purpose of this study was to evaluate the implementation of Hoosier Sport in a rural middle school.	The study found all measures of eligibility were met and demonstrated high efficacy. Fidelity was high among student implementers and child participants.	The study results show the success of programs aligned with the ORBIT model.
The impact of sports participation, spontaneous sports,	This study explains the complex relationships between sport participation, spontaneous exercise,	Sports participation and spontaneous involvement of students in sports	Interrelationships among sports participation, spontaneous sports,

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and motivational factors on the physical fitness of university students in Fuzhou (11)	sport motivation, lifetime exercise, and physical fitness in college students in Fuzhou.	showed a significant positive influence on physical fitness.	Sports Motivation, and physical fitness
Health effects of children's summer holiday programs: a systematic review and meta-analysis (12)	This study aims to determine the effectiveness of summer vacation programs.	The summer program had a significant moderate effect on reducing sedentary behavior and a significant small effect on increasing MVPA. No significant changes were detected for cardiorespiratory fitness, energy intake, or diet quality.	Summer programs show good potential in promoting healthy lifestyle behaviors in children during the summer months.

In general, these studies have the ultimate goal of improving health and well-being through increased physical activity. Studies (5)(7) (9) (10) (11) (12) have focused primarily on improving, measuring, or understanding physical activity. Studies (5) (9) (11) attempted to identify factors that influence the level of participation or success of physical activity programs (e.g., gender, geographic location, motivation, facilities).

Most children do not meet the recommended 30 minutes of moderate to vigorous physical activity (MVPA), with girls being less active than boys. Children in rural areas are more active than in urban areas, and there is a seasonal trend with lower physical activity in winter compared to summer. Children in urban areas are more likely to use online games, PC games and other games that do not involve much physical activity. In addition, they are less likely to socialize with people around their home, leading to a sedentary lifestyle.

Sports participation and spontaneous sports involvement have been shown to have significant positive effects on the physical fitness of university students. Furthermore, sports participation is a strong predictor of sustained physical activity levels.

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Interesting programs such as summer programs have a significant moderate effect on reducing sedentary behavior and a significant small effect on increasing moderate to vigorous physical activity and reducing adiposity.

There is a need for strategies to increase MVPA among middle school students during indoor lessons, such as improving aesthetic facilities, integrating green spaces, and designing multifunctional activity areas (13). From the perspective of educational practice, attention should also be paid to the design and implementation of not only activities focused strictly on PA but also on activities at home, in a supportive and developmentally conducive environment created by parents and children (14).

The importance of promoting physical activity interventions and implementing school policies that encourage walking to and from school at certain distances (15). Walking is a good physical activity to maintain heart health, reduce the risk of obesity, and improve students' physical fitness. Walking activities can improve mood, reduce stress, and improve students' concentration in learning. The policy of walking to school has great potential to provide positive benefits for students, the environment, and society. However, its implementation needs to consider various factors and involves cooperation from various parties, including the government, schools, parents, and the community. Provision of adequate infrastructure and effective socialization.

Campus programs such as sports clubs, summer programs, and spontaneous sporting events can be a way to increase physical activity participation and fitness in children and adolescents. Campus environments often have adequate sports facilities that are easily accessible to the surrounding community, including children and adolescents. These programs create opportunities to interact with peers who share similar interests, building a community that supports an active lifestyle.

Sports clubs offer the opportunity to pursue a particular interest in a supportive and fun atmosphere. Summer programs designed with a variety of physical activities can also be an interesting and active vacation alternative. Spontaneous sporting events provide unexpected excitement and challenges, motivating participation without the pressure of competition. Positive participation in these programs can instill active habits from a young age, which will benefit long-term health.

Spontaneous sporting events can be designed to be inclusive and accessible to a variety of fitness levels, thereby attracting wider participation. Examples include organizing impromptu fun runs around campus, age-group futsal or basketball tournaments, or short fitness challenges announced on campus social media.

Some recommendations from the study are (1) Given the high proportion of children who do not meet MVPA recommendations during school hours, this study highlights the need for interventions to increase MVPA in school settings to promote public health; (2) Given the effectiveness of the SHARP Principles Model intervention in increasing MVPA in PE lessons, this study recommends that this model be replicated and evaluated on a larger scale to see the potential for wider implementation; (3) For further implementation and testing of the developed smart skipping rope system in school settings to see its impact on student participation and motivation in skipping activities; (4) The need for health promotion programs aimed at maintaining adequate physical fitness to reduce WMSDs among physiotherapists and students. Specifically, given the poor flexibility of students, activities to improve muscle extension and awareness of WMSDs are recommended; (5) The importance of flexible and adaptable factors for the successful implementation of

school-based physical activity programs such as KM Club. This implies the need for approaches that are tailored to different school contexts and take into account enablers and barriers that may arise; (6) The potential of summer vacation programs to promote healthier movement behaviors and support healthy weight in children. Therefore, it is recommended to develop and implement summer vacation programs that focus on increasing physical activity and reducing sedentary behavior.

CONCLUSION

The research in the selected articles was conducted with the ultimate goal of improving health and well-being through increasing physical activity. Research primarily focused on increasing, measuring, or understanding physical activity. Other research attempted to identify factors that influence the level of participation or success of physical activity programs.

Program recommendations include increasing MVPA among middle school students during indoor classes, designing and implementing not only activities focused strictly on PA but also activities at home, subsequent physical activity interventions, and implementing school policies that encourage walking to and from school at specific distances. Campus programs such as sports clubs, summer programs, and spontaneous sporting events can be a way to increase physical activity participation and fitness in children and adolescents. Sports clubs offer opportunities to pursue specific interests in a supportive and fun atmosphere. Spontaneous sporting events can be designed to be inclusive and accessible to a variety of fitness levels, thereby attracting broader participation.

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