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REVIEW ARTICLES

Culture of movement awareness through physical literacy integrated in physical education, physical activity and sport during COVID-19: systematic literature review

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Abstract

Purpose: A culture of movement awareness through physical literacy in physical education, physical activity and sports is a core aspect that must be promoted continually during the current COVID-19 pandemic. This study aims to conduct a literature review regarding the importance of a culture of movement awareness through physical literacy in physical education, physical activity and sports.

Material and Methods: This study used a Systematic Literature Review with Preferred Reporting Item for Systematic Reviews and Meta-Analytic method. There was 4 Stages in collecting data using a database search, namely through Sage Pub, Eric, Pubmed and Scienedirect. This study adopted 7 international journal articles indexed by Scopus Q1.

Results: The results of this study found that a culture of movement awareness through physical literacy which was integrated into physical education, physical activity and sports had a major contribution in creating active participation to lead a healthy life during the pandemic.

Conclusions: Therefore, maintaining and increasing a culture of movement awareness through physical literacy during the COVID-19 period in various settings is the key in maintaining the health status of people around the world

Keywords: Physical Literacy, Physical Education, Physical Activity, Sport



Анотація

Руслан Абдул Гані, Еді Сетааван, Новрі Газалі, Зсольт Немет, Ирфан Зінат Ахмад, Фірман Септіаді, Джекі Харіанто. Культура обізнаності руху за допомогою фізичної грамотності, інтегрованої у фізичну культуру, фізичну активність та спорт під час Covid-19: Систематична огляд літератури

Мета. Культура усвідомлення руху через фізичну грамотність у фізичному виході, фізичній активності та спорті-це основний аспект, який необхідно постійно впроваджувати під час нинішньої пандемії Covid-19. Це дослідження має на меті провести огляд літератури щодо важливості культури поінформованості про рух через фізичну грамотність у фізичній культурі, фізичній активності та спорті.

Матеріал та методи. У цьому дослідженні було використано систематичний огляд літератури з бажаним елементом звітності для систематичних оглядів та метааналітичного методу. У зборі даних було 4 етапи за допомогою пошуку бази даних, а саме через Sage Pub, Eric, PubMed та Sciencedirect. Це дослідження прийняло 7 міжнародних статей журналу, індексованих Scopus Q1.

Результати. Результати цього дослідження показали, що культура усвідомлення руху через фізичну грамотність, яка була інтегрована у фізичне виховання, фізичні навантаження та спорт, мала великий внесок у створення активної участі для ведення здорового життя під час пандемії.

Висновки. Отже, підтримка та збільшення культури усвідомлення руху через фізичну грамотність протягом періоду Коженд-19 в різних умовах є ключом у підтримці стану здоров'я людей у всьому світі.

Ключові слова: фізична грамотність, фізичне виховання, фізичні навантаження, спорт

Аннотация

Руслан Абдул Гани, Эди Сейяван, Новри Газали, Зсолт Немет, Ирфан Зинат Ахмад, Фирман Септияди, Джеки Харьанто. Культура осознания движения с помощью физической грамотности, интегрированной в физическое воспитание, физическую активность и спорт во время Covid -19: систематический обзор литературы

Цель: культура осознания движения через физическую грамотность в физическом воспитании, физической активности и спорте является основным аспектом, который должен постоянно продвигаться во время нынешней пандемии Covid-19. Это исследование направлено на проведение обзора литературы, касающегося важности культуры осознания движения посредством физической грамотности в физическом образовании, физической активности и спорте.

Материал и методы: в этом исследовании использовался систематический обзор литературы с предпочтительным элементом отчетности для систематических обзоров и метааналитического метода. В сборе данных было 4 этапа с использованием поиска в базе данных, а именно через Sage Pub, Eric, PubMed и ScienceDirect. Это исследование приняло 7 статей международного журнала, индексированные Scopus Q1.

Результаты. Результаты этого исследования показали, что культура осознания движения посредством физической грамотности, которая была интегрирована в физическое воспитание, физическую активность и спорт, внесла большой вклад в создание активного участия, чтобы вести здоровую жизнь во время пандемии.

Выводы. Следовательно, поддержание и повышение культуры осознания движения за счет физической грамотности в течение периода Covid-19 в различных условиях является ключом в поддержании состояния здоровья людей во всем мире.

Ключевые слова: физическая грамотность, физическая воспитание, физическая активность, спорт



Introduction

The COVID-19 pandemic had developed fear and anxious in society towards corona virus that attacks humans, which influenced all aspects, including economic, cultural and educational aspects. It had a greater impact on human health and the global economy compare to any other health crisis in the last 100 years [1]. The corona virus first broke out in Wuhan city China in 2019 has been spreading in whole world and almost all countries experienced this corona virus disaster. In Indonesia, COVID-19 had been handled started from March 2020 and until 2021 it was still incompleting, starting with the implementation of Large-Scale Social Restrictions to Implementation of Restrictions on Community Activities) [2]. The corona virus still haunted the conditions of Indonesian people, especially in urban areas. A high rate of death people induced this disease became a trending topic in every mass media, and this increasingly affected the human mentality to go out. Government health workers and especially doctors were focused on the COVID-19 pandemic, all sports services and facilities were closed and restriction social activities in the community was applied [3]. Preventive strategy was needed to limit the further spread of COVID-19 [4], [5]. All attention focused on this pandemic, and other health conditions were being neglected [6].

The COVID-19 pandemic also impacted on sport or physical activity of children and young people [7]. During the COVID-19 pandemic, one thing that must be considered was the body health level and how to maintain it was by regular exercise for at least 30 minutes to maintain our body's fitness. People who has a fit body is definitely has high immunity, and with a high immunity it will increase productivity at work. This element of movement becomes a widely concern by all people, because during this COVID-19 pandemic all sports facilities were closed, people unable to perform movement activities outside their home but they still able performed at home (e.g., training from home) [8]. This condition created a challenge for all of us to carry out movement activities, because motion is one of the characteristics of life. This movement activity must become a necessity for humans, if it becomes a primary need then humans will lose greatly if they do not do movement activities in a day. Movement activities can be done at a very low cost, for example by walking, jogging or doing physical activities with their own weight such as push-ups, sit-ups, pull-ups and others to keep the body in shape and improve the cardiovascular system [9,10, 11, 12]. To introduce this movement as a basic need for community, this

movement activity must become a massive international movement. This is widely known as physical literacy in European and American countries [13]. Physical literacy means a literacy movement for community to always carry out a planned and programmed physical activity every day [14]. In this current era of digitalization, it seems that physical literacy does not implement properly and to be underestimated and considered unimportant [15]. Even today's society prefers to play with their gadgets (smartphones, laptops) [16], as a result, humans become less mobile and if this condition is allowed then it will affect the human immune system, humans will easily get sick, tired and unproductive [17, 18, 19]. This physical literacy is widely adopted from Margaret Whithead, even though this concept was used in 1884 by engineers in the United States Army Corps [20, 21]. Both of these terms, physical literacy and physical education have the same goal, namely to instill knowledge, attitudes and movement skills in a person to be used in physical education, physical activity or lifelong sports [22, 23, 24, 25]. Physical literacy is a voluntary and free movement activity which is safe and fun for those who do it, it can be done at home or outside [26]. The physical literacy movement in Indonesia is still low when observe the rate of diabetes, heart disease and stroke in Indonesia is very high, these three diseases in Indonesia occupy the top rank among old and young people which is caused by an unhealthy lifestyle and lack of physical activity and exercise [27].

Previous research on physical literacy has been well documented [28, 29, 30, 31, 32, 33, 34, 35, 36]. However, according to our knowledge, the existing literature that reported on physical literacy of the Systematic Literature Review using the PRISMA method was limited. In addition, the novelty in this study tried to focus on analyzing articles on physical literacy using experimental and mixed-method research. Therefore, the purpose of this study was to conduct a Systematic Literature Review on articles related to physical literacy in the setting of physical education, physical activity and sports.

Material and methods

This study was Systematic Literature Review (SLR) type with Preferred Reporting Item for Systematic Reviews and Meta-Analytic (PRISMA) method, in which the researcher conducted an assessment, identification, evaluation and interpretation of all selected journals. Researcher reviewed and identified journals systematically by following the predetermined steps [37].



Data were collected using a database search tool that included Sage Pub, Eric, Pubmed and Sciencedirect using the keyword physical literacy in physical education, physical activity or sports settings. The time span of journals was from 2020 to 2022. The inclusion criteria of articles included (1) articles that discussed about physical literacy related to physical education, physical activity or sports that were indexed by Scopus, (2) articles that have been published with experimental research type. (3) article that able to be accessed (download). The exclusion criteria of articles included (1) literature review articles or meta-analysis, correlations, surveys, cohorts (2) articles published under 2020.

Searching the research database created the keyword of physical literacy related to physical education, physical activity or sports. Based on the

search results, it obtained 6 articles from Sage Pub, 17 articles from Eric, 21 articles from Pubmed and 4 articles from Sciencedirect. A total of 40 findings were excluded, because they were included as (1) literature review or meta-analysis, correlation, survey, cohort. At the same time, 8 articles met the criteria, namely in the form of topics (1) articles on physical literacy related to physical education, physical activity or sports that were indexed by Scopus, (2) articles that had been published with experimental research type and (3) article that can be accessed (download). Furthermore, these 8 articles were screened into 7 international articles from several Scopus indexed journals. The detail about literature search is described in Fig.1.

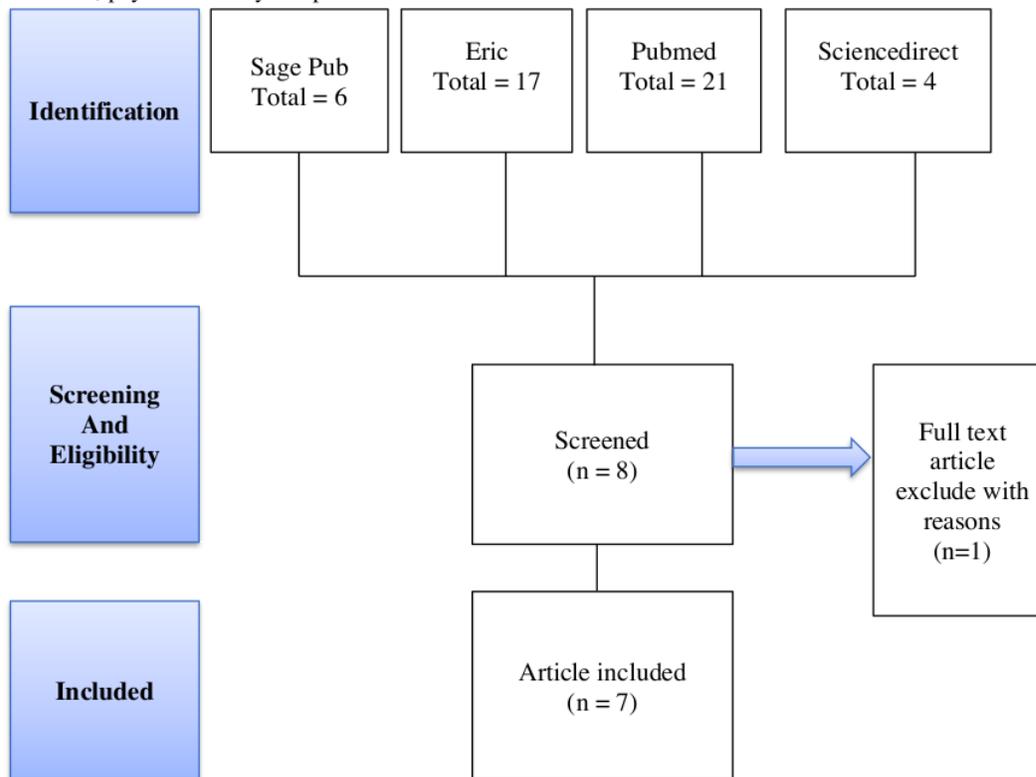


Fig. 1. Literature Review Search Method

Results

The results of this study are presented in Table 1 which displays Journal Name, Publisher, Publishing Year, Number of Articles and Q-index.

Meanwhile, Table 2 shows the results of the research which includes the results of articles analysis on physical literacy regarding the researcher, objectives, methods, subjects, instruments, statistical analysis and research results.



Table 1

Search Results for Physical Literacy Articles

Journal	Publisher	Year	Number of article	Q-index
Physical Education and Sport Pedagogy	Taylor and Francis Ltd.	2020	1	Q1
Health Education & Behavior	SAGE Publications Inc.	2021	1	Q1
Higher Education	Springer Netherlands	2020	1	Q1
International Journal of Environmental Research and Public Health	Frontiers Media S.A.	2020-2021	4	Q1

Table 2

Analysis Results of Physical Literacy Articles

Researcher	Objective	Method (Subject, Instrumen)	Statistical analysis	Results
Telford et al., 2020 [38]	Our aim was to determine whether the PEPL approach had an impact on physical literacy	<ul style="list-style-type: none"> Mixed-Method The sample consisted of 318 students from grade 5 Physical literacy assessment included physical domain, psychological domain, social domain and interviews. 	Type II F tests with Kenward-Rogers and interviews	The quantitative results in this study indicated that the program that has been designed can promote children's physical literacy in primary schools. Qualitative results showed that children enjoy PEPL.
Crozier et al., 2021 [39]	Our primary objective was to assess the effect of each type of programs on children's daily physical activity engagement. Secondary aims were to examine how each program impacts children's physical health, namely body composition and aerobic capacity, and FMS competence	<ul style="list-style-type: none"> Experimental There was 35 participants aged 5 to 12 years enrolled in two ASAPs, SportsCan and the City of Ottawa's High Five program Anthropometrics, Aerobic Capacity, FMS, Outside of Program Activity Involvement questionnaire, Physical Activity 	Changing scores within-group were assessed the significance using Wilcoxon signedrank tests for nonparametric data, and paired samples t tests were used with parametric data and Effect sizes	There were no significant differences between groups at baseline. After 6 months, the physical literacy group exhibited a significant improvement in their total raw score for the Gross Motor Development Test -2 ($p = .016$), which was likely due to improvements in object control skills ($p = .024$). The comparison group significantly increased body mass index ($p = .001$) and body fat ($p = .009$) over time. There was no significant differences between-group; however, there was a trend in the improvement of aerobic capacity in physical literacy group ($d = 0.58$)
Choi et al., 2020 [40]	The purpose of this study was to assess the impact of a	<ul style="list-style-type: none"> Experiment with cluster-randomized study design 372 participants Instruments using 	One-way analyses of variance (ANOVA)	Results showed increases in the



	season of sport education in university required PE on students' affective, cognitive, social, and behavioral domains of PL	physical activity measures, Situational motivation scale, physical activity enjoyment scale, Perceived physical literacy instrument, Empowering and disempowering motivational climate questionnaire in PE	and measures multivariate analysis of variance (MANOVA)	affective and social domains of physical literacy across both groups. The results also revealed a greater increase in daily self-reported physical activity levels and a reduction in perceived disempowering motivational climate in the sport education group at the follow-up phase
Bremer et al., 2020 [41]	This study was to design and evaluate a physical literacy intervention for the afterschool setting. Specifically, it assessed the effect of intervention on the components physical literacy in 7–13-year-old children and youth	<ul style="list-style-type: none"> • Experimental • Sample size was 90 afterschool participants, 7–13 years of age • This study used instruments such as: physical literacy (movement competence, affect, confidence, and motivation), pre- and post-intervention using a suite of assessment tools that included the PLAYfun assessment of movement competence and a comprehensive children questionnaire. 	ANOVAs	Program leaders' perceived knowledge and self-efficacy to implement the physical literacy program increased ($p < 0.05$) from pre- to post-training and these effects were maintained at post-intervention. There were no differences between these groups in the changes of children's motor competence, self-efficacy, or motivation from baseline to post-intervention. However, significant increases were observed among participants in the experimental group ($p < 0.05$). The program leaders said that they would recommend the program to future leaders.
Wright et al., 2020 [42]	The primary aim of this pragmatic study was to explore the feasibility of a novel PL-focused JEPD program and its impact on teachers' capacity to deliver and implement PL-enriched PE	<ul style="list-style-type: none"> • Mixed-Method. • In the study there was 15/44 teachers participated in the survey and 11/44 completed interviews (87% female, mean age group = 25–44 years) and students (631). • Questionnaires related to physical literacy 	A repeated measures ANOVA and interview notes were transcribed verbatim into pages for analysis purpose and data were categorized into codes and categories independently by two members of the research team experienced in qualitative research methods	Confidence to deliver PL enhancing PE increased significantly after JEPD ($p < 0.0001$). Teachers were highly satisfied with the JEPD ($X = 4.67/5$) and intended to change their practices ($X = 4.09/5$). During JEPD, with the exception of throwing ($p < 0.0001$), children's (47% female, mean age = 7.9 (1.7)) showed changes in running, jumping, kicking and balance walking backwards did not differ from usual practice (UP). During teacher implementation, motor skill competence regressed confounding factors could not be ruled out.
Kwan et al., 2020 [43]	The purpose of the current study was to	<ul style="list-style-type: none"> • Quasi-experimental • Participants included 65 first-year students 	one-way analysis of variance	Results from the 2x2 repeated measures ANOVA found moderate



	evaluate the impact of a pilot PL-based intervention on PA and fitness for students transitioning into university	(Mage = 17.85 _ 0.51; n = 46 females). <ul style="list-style-type: none"> Instruments that used in this study : International Physical Activity Questionnaire, Musculoskeletal fitness, Cardiorespiratory Fitness and Physical Literacy 	(ANOVA) models	effects in the time by condition interaction $F(1,56) = 2.70, p = 0.11, \eta^2 = 0.08$ for PA behaviors as well as for estimated cardiorespiratory fitness $F(1,61) = 8.35, p = 0.005, \eta^2 = 0.12$.
Holler et al., 2021 [25]	the purpose of this pilot study was to assess the association of a physical literacy-based intervention with changes in self-reported physical literacy among inactive adults	<ul style="list-style-type: none"> Experimental with cluster-randomized study design Twenty-eight inactive healthy participants in the intervention group (89% female) entered a physical literacy-based intervention once weekly for 14 weeks. The non-treated control group consisted of 22 inactive adults (96% female) Physical literacy was measured with a 55-item-questionnaire, which contained five subscales corresponding to our five domains of the physical literacy concept: (i) motivation; (ii) knowledge; (iii) self-efficacy/confidenc: (iv) attitude/understanding; and (v) physical activity behavior. Cardiorespiratory Fitness 	Independent t-tests, Mann–Whitney U-test and ANOVA	ANOVA models were applied to evaluate changes by time and condition. Following the intervention, significant improvements were observed for overall physical literacy and in four out of five physical literacy domains, including physical activity behavior, attitude/understanding, knowledge, and self-efficacy/confidence (all $p < 0.01$, Cohen's $d = 0.38–0.83$)

Discussion

This study aims to conduct a Systematic Literature Review on articles related to physical literacy in the setting of physical education, physical activity and sports. From seven articles used as literature reviews, it was known that all research tried to improve physical literacy through various settings, for example in schools through the physical education learning process students were introduced to various kinds of physical activities or sports to encourage students willing to participate and being active [44]. By introducing movement education with an playing sport approach to students could create a high motion. Movement education in schools is certainly studied in physical education subject

which presents students how to recognize basic movement concepts [32], basic techniques in a sport at every school level from elementary school, junior high school until high school and even to college [40, 43]. Physical literacy in schools depends on the role of physical education teachers. Physical education teachers must improve the quality of teaching, and must be able to master their knowledge, material, and understand technology in order to improve the quality of physical education [45].

Physical education has an important role in the developing of physical literacy in schools at all levels, physical literacy is a physical activity that can be carried out formally or non-formally such as running, jumping, throwing and other physical activities [32]. Physical literacy should be



encouraged in schools, to materialize this physical activity or sport became a necessity in students as a movement-aware culture, so that the end result is to maintain the students' health degrees. Basically, physical education is an activity that involves physical activity and sports as a pedagogical tool to stimulate students' physical literacy continually develop. By increasing physical literacy, it will also develop students' knowledge, attitudes and social skills. In addition, physical literacy will be realized if the physical education learning system in the school is implemented properly, which is not only cause students sweat but also considered and improved knowledge, moral values, responsibility, self-confidence, motivation and social skills by gradually and thoroughly [40].

Conclusions

Based on the analysis results on seven articles as the main reference sources in this study, it can be concluded that all research tried to create a culture of movement awareness through physical literacy, it was expected that with these efforts the potential of students related to movement competencies, even knowledge, attitudes, social skills can be developed continually and ultimately used to participate in settings of physical education, physical activities and sports in the entire life to maintain health status during and after the COVID-19 pandemic.

Conflict of interest

All authors confirm that there is no conflict of interest in this study.

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