

The Stimulation of Mental Health in Physical Education: A Systematic Review

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Abstract

The purpose of this study is to investigate the various techniques and interventions that strive to develop mental health in children aged 7 to 12 years through physical education. This study looked at 1123 research papers published between 2010 and 2022, and 13 of them were chosen because they satisfied the inclusion requirements. According to the findings, the most examined variables were motivation, emotion, and self-regulation. The literature evaluation conducted in this study indicates the necessity of considering mental health and doing in physical education in order to contribute to creating a positive atmosphere for all. Finally, school personnel should be aware of the importance of promoting students' mental health through physical education.

Keywords: Mental Health, Physical Education, Teachers, Systematic Review, Stimulation

Introduction

Mental health has no universal definition, however key issues include those of depression and anxiety, which have been shown to have high prevalence rate among children and adolescents over a number of years in high-income countries, especially in Northern Europe (Potrebny et al., 2017), but the reasons for this remain incomprehensible. The National Board of Health and Welfare in Sweden reported that the number of children and adolescents who have received healthcare for depression or anxiety has increased during the period 2006–2016 (Andermo et al., 2020). An analysis of factors associated with this apparently increasing trend of mental health problems did not specifically point out changes in family or socioeconomic factors, but instead highlighted the issue of increasing stress in school and worries related to further education and career opportunities in the longer perspective as possible factors behind this development (László et al., 2019). This raises the question of whether schools can intervene to prevent mental ill-health or promote the development of positive mental health defined as a state of well-being where individuals can cope with the normal stresses of life and successfully participate in everyday life (WHO, 2023). Schools are effective environments to reach children without involving any additional cost to the participants and their families. Based on these statistics, it is important to be able to identify potential low cost strategies for improving mental health for young people across the population.

Physical activity is often suggested as one of the effective approaches in recent years. Physical activity is defined as any bodily movement that gives rise to increased energy expenditure above resting level (WHO, 2010). Previous reviews have demonstrated beneficial psychological benefits of physical activity such as reductions in levels of depression among children and adolescents (Rodriguez-Ayllon et al., 2019) in addition to their general health promoting effects. Physical and health education have many benefits for students. It is also closely related to student academic achievement and student behavior. Students who venture into sports are proven to have a higher level of confidence and have high soft skills (Kiat et al., 2017). The importance of physical education create the necessity of proper implementation and must be taught in every level of educational (Lator et al., 2020). In Scotland, physical education is become a prioritised as cross-curricular area subject in ensuring health and wellbeing (Teraoka & Kirk, 2022). Promoting physical activities as an effective tool to improve mental health. Physical activity is powerful marker of physical health status. Study from meta-analysis showed correlation between cardiorespiratory fitness and psychological wellbeing in youth. This findings indicate that higher level of fitness are associated with better mental health in child and adolescence (Cadenas-Sanchez et al., 2021). Therefore, there is a need systematic review regarding the effectiveness of physical education on mental health, to specify the type of interventions and to clarify mechanisms of action. Such knowledge can be used by schools as a basis for actions to promote positive mental health and prevent mental ill-health in school-aged children.

The current systematic review plans are in the works to address the growing body of research needs in this context. It also aims to analyze and synthesize research articles between the year of 2010 and 2022 on stimulation of mental health in physical activities education to meet the proposed research questions as follow:

RQ1: What are the variables of mental health are considered in these studies?

RQ2: How do they conceive the mental health concept?

RQ3: What results do they obtain during interventions?

Methods

The method of preferred reporting items for systematic reviews (PRISMA) was utilized in this research. PRISMA consists of four stages, which are known as the identification process, screening, eligibility, and inclusion. The four stages can be seen in Figure 1. PRISMA was chosen as the most suitable method of research because of its comprehensiveness, and its flexibility in adapting in other studies. Hence, the stages of the current systematic review of this research are as follows.

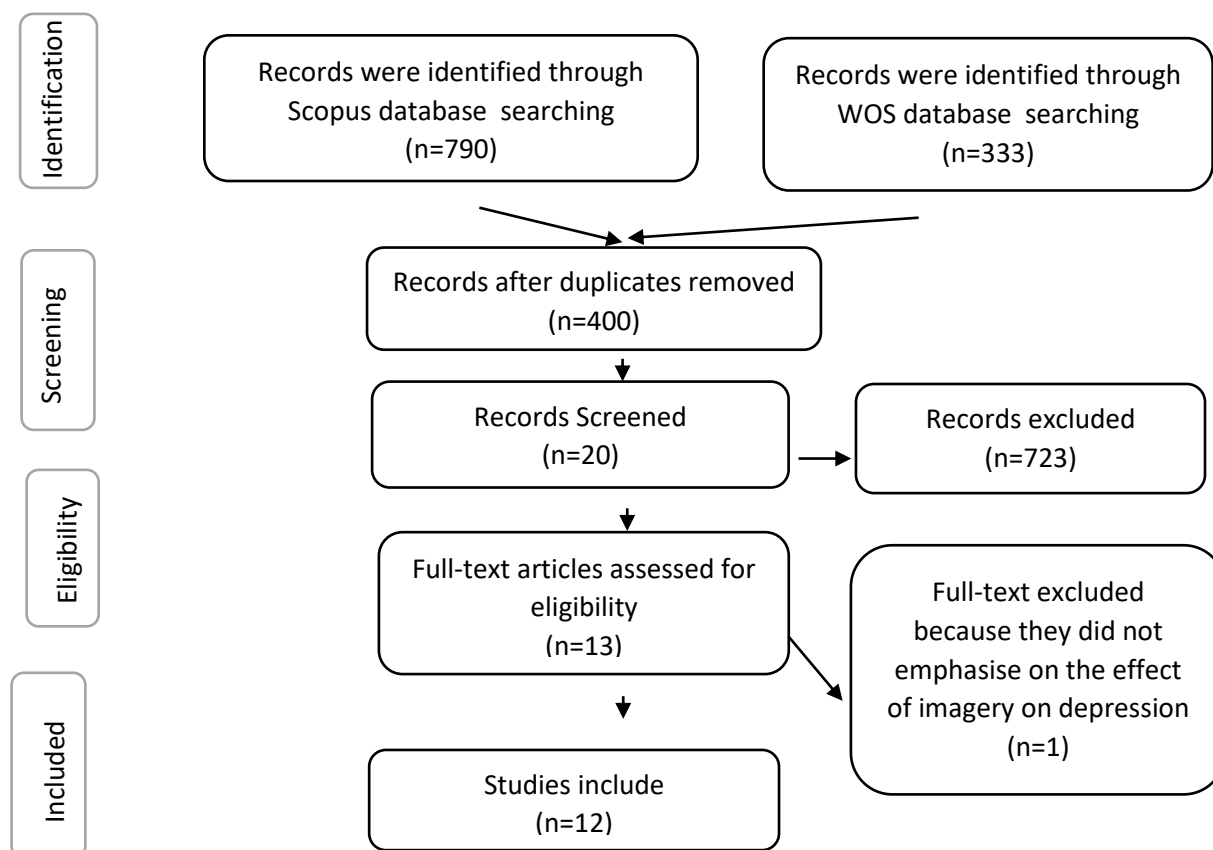


Figure 1. Systematic review using the PRISMA method, adapted from

Identification

In the identification stage as reported in the specifications of PRISMA, four databases were considered for the suitability of this research. The databases were Scopus and Web of Science (WoS). The researcher contrived the key terms to consider the constructs meant to be evaluated. Keywords directly related to Mental Health, Physical Education, Emotion and Education were keyed-in in each database. The search strings for each database were displayed in Table 1 below.

Table 1

Database search strings.

Databas e	Search String
Scopus	TITLE-ABS-KEY ("MENTAL HEALTH") AND (" PHYSICAL EDUCATION") AND ("EMOTION") AND ("EDUCATION") AND PUBYEAR > 2018 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (EXACTKEYWORD , "Mental Health")) AND (LIMIT-TO (OA , "all")) AND (LIMIT-TO (AFFILCOUNTRY , "Malaysia"))
Web of Science (WoS)	((((ALL=(mental health)) AND ALL=(physical education))) AND ALL=(emotion)) AND ALL=(education) and 1.273 Health Literacy & Telemedicine or 6.73 Social Psychology or 6.24 Psychiatry & Psychology (Citation Topics Meso) and 2023 or 2019 (Publication Years)

Screening

After the identification stage, the process of screening the articles followed suit. The researcher excluded all duplicated articles by comparing it between the four databases. In the first level of screening, 400 articles were eliminated leaving 723 eligible for further scrutiny. Among these 723 titles, 723 articles were excluded due to them not fulfilling the screening criteria of the title, abstract, and keywords. After the multiple levels of exclusion, only 20 articles remained, and were screened using the inclusion and exclusion criteria shown below in Table 2.

Table 2

Inclusion and exclusion criteria.

Criterion	Inclusion Criteria	Exclusion Criteria
Focus	Mental Health Education	Non-Malaysia
Context	Malaysia	Non-Malaysia
Language Skill	English	Non-English
Sources	Journal Articles	Conferences, proceeding, book chapters, thesis, reports, Review articles
Field of Study	Education and Educational Research	not applied in Education and Educational Research
Language	English Written text	Non-English written text
Year of Publication	Between 2010 - 2022	Before the year 2010

Ensuing the careful selection process according to the inclusion and exclusion criteria, only 13 possible articles were chosen for this systematic review. With reference to conference proceedings, thesis, reports, review articles and book chapters were in the exclusion criteria due to their incomprehensible nature, which was not suitable for a thorough review.

Inclusion

The systematic review articles were directly related to Physical Education- Mental Health. The research articles included are shown in Table 3. According to the table, seven articles were selected from Scopus and six from WoS. The majority of the research was conducted in higher institutions of learning such as universities and colleges focusing on mental health in physical education Washif et al (2021); Wu et al (2021); Zhang et al (2022); Sun (2023); Ganson et al (2021); Shaffer-Hudkins et al (2010); Hofmann et al (2018); Ibrahim et al (2021), followed by learners at school level Jie et al (2022); Yuan et al (2022); Chraif et al (2012), and teachers (Gilchrist et al., 2018).

Table 3

Summary of the factors that affect the readiness of English-speaking

Study	Databases	Aim	Sample	Findings
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Jie et al (2022)	Scopus	The purpose of this study is to investigate whether positive education intervention based on the PERMA model would help Chinese college students with learning-related academic boredom, class-related academic boredom, and intrinsic motivation	173 students, including 86 (n1 = 86) experimental and 87 (n2 = 87) control group students	These findings indicate that positive education intervention for college students is a promising approach to reducing academic boredom and increasing intrinsic motivation among Chinese college students
Yuan et al (2022)	Scopus	The effect of persistence of physical exercise on the psychological and emotional aspects of primary school students is studied to improve the comprehensive quality of current Chinese primary school students and explore the effect of physical exercise on students' emotions under the science, technology, engineering, art, mathematics (STEAM) education concept	300, primary school students were randomly selected from a primary school in Nanchang as participants Grade 1-6	These findings makes relevant recommendations for students and schools and has played a role in strengthening the physical exercise and mental health of primary and secondary school students.
Chraif et al (2012)	WoS	This studies analyses the impact of overload learning, attachment and coping styles on self-perceived physical and psychological health.	285 high school students, aged between 16 and 18 years old	These findings highlighted that positive coping styles, attachment, homework and extra activities overload are predictors for perceived mental and physical health.
Washif et al (2021)	Scopus	This studies investigated the changes in dietary habits, and the predictors of perceived stress during lockdown and a "bubble" training camp	76 elite and world-class athletes	These findings showed, better dietary habits, training routines and well-being have implications for reduced perceived stress

Table 3

Cont.

Study	Database	Aim	Sample	Findings
Wu et al (2021)	Scopus	The purpose of this study was to explore the relationship between dispositional mindfulness, psychological skills, and mental toughness among different types of athletes	101 college athletes	These findings suggest a positive linkage between mindfulness and the two examined psychological characteristics related to sports performance
Zhang et al (2022)	Scopus	This work aims to ameliorate college students' various mental illnesses caused by anxiety and confusion during the critical period of status transformation.	100, the mental health education of college students	The survey results indicate that the scores of college students who have completed a one-semester poetry appreciation course in different dimensions of mental disorders are lower than those of those who have not completed the course.
Sun (2023)	Scopus	This research intends to find the internal influence mechanism of interpersonal relationship on college students' mental health.	1661, valid samples	This study reveals the Influence mechanism of interpersonal relationships on college students' mental health.

Table 3

Cont.

Study	Data base	Aim	Sample	Findings
Ganson et al (2021)	WoS	The aims of this study were to, first, report the prevalence of physical violence perpetration among a sample of college students and, second, to	181,056 gender identity from 2014–2019	These findings highlight steadily rising prevalence of physical violence perpetration from 2014–2019 among college

		identify associations between physical violence perpetration, substance use, and mental health symptoms.		students, indicating a growing need for more research and prevention efforts to address this problem in higher education settings.
Gilchrist et al (2018)	WoS	This studies examined associations between actual and ideal fitness-related self-discrepancies and anticipated pride.	130 Participants	These findings experiencing congruence between actual and ideal selves may be important cognitive appraisals related to the anticipation of pride.
Shaffer-Hudkins et al (2010)	WoS	This Studies among youth have established a link between mental health and physical health, and highlight the importance of attending to these relationships to provide a more complete picture of functioning.	401 early adolescents	Results support the importance of attending to positive indicators of mental health when determining the link with physical health among youth.

Table 3
Cont.

Study	Datab ase	Aim	Sample	Findings
Hofmann et al (2018)	WoS	This studies investigates 14 self-help strategies compiled by Morgan and Jorm (Self-help strategies that are helpful for sub-threshold depression: a Delphi consensus study. J Affect Disord 2009;115:196–200) as items of a self-report scale to assess mental health promoting behavior.	852 German adults	These findings suggest that the self-help strategies introduced by Morgan and Jorm (2009) are indeed useful items for a brief scale to assess mental health activity.

Ibrahim et al (2021)	Scopus	This studies investigated the determinants of psychological well-being (depression, anxiety and stress) from the psychosocial work environment (job control, job demands and social support), and examined the moderating role of job control and social support in the relationship between job demands and psychological well-being among teachers	335	high school teachers	These findings provides insights and contributes to the literature of teachers' psychological well-being determinants and involves Malaysian respondents with a collectivistic eastern culture.
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Data Analysis

The selected journal articles were exported to Mendeley, a software for referencing. After that, an analysis was done in a thematic manner with the aim of answering the research questions as stated

1. What are the variables of mental health are considered in these studies?
2. How do they conceive the mental health concept?
3. What results do they obtain during interventions?

The researcher did the analysis by interpreting the contents of the articles and by categorizing the themes according to the research questions. In the first research question, the themes were classified based on how do they conceive the mental health concept. As for the second research question, the articles were categorized according to the results do they obtain during interventions.

Results

1.1. RQ1 What are the variables of mental health are considered in these studies?

In the systematic review, the variables of mental health are considered in these studies were classified into (1) emotion; (2) self-regulation; and (3) motivation. These classifications materialized based on the review of the literature and its relevance towards factors of the physical education implications of mental health to helps in mental balance situation. Therefore, Table 4. shows the classifications of the variables based on the findings of the journal articles.

Table 4

Types of variables

Variables	Study
Emotion	(Yuan et al., 2022), (Washif et al., 2021), (Zhang et al., 2022), (Ganson et al., 2021), (Wu et al., 2021), (Gilchrist et al., 2018)
Self-Regulation	(Chraif et al., 2012), (Sun 2023), (Shaffer-Hudkins et al., 2010), (Hofmann et al., 2018), (Ibrahim et al., 2021)
Motivation	(Jie et al., 2022)

Related to mental health, the most widely used concepts are linked with basic psychological needs, subjective well-being, and quality of life, while the most mentioned concepts are linked with academic or educational area (teacher, school environment, academic performance), motivation and physical condition perception.

1.2 RQ2 How do they conceive the mental health concept?

Mental health is studied in relation to many variables. The selected studies may conclude a positive persistence between the mental health perceived by students with the methodology of physical education (Yuan et al., 2022). Firstly, mental health is a positive indicator related to physical health or performance among students (Shaffer-Hudkins et al., 2010). Student self-motivation is also centered on mental health. Accordingly, student motivation can be positively associated with educational intervention approaches that are considered positive to reduce academic boredom and increase intrinsic motivation (Jie et al., 2022). In addition, better dietary habits, training routines and well-being have implications for reducing perceived stress as well (Washif et al., 2022). Morgan and Jorm introduced a helpful self-help strategy for depression, indeed this item is useful for a simple scale to assess mental health activities (Hofmann & Kohlmann 2019) and experiencing congruence between the actual and ideal self may be an important cognitive assessment related to expectations of pride (Gilchrist et al., 2019).

1.3 RQ3 What results do they obtain during interventions?

1.3.1 Academic Performance

Dissimilarities in this variable appear among authors. For some, the relationship between mental health and physical education is interesting, and their studies indicate positive correlations between both these variables (Jie et al., 2022; Yuan et al., 2022; Chraif et al., 2012; Washif et al., 2021; Wu et al., 2021). However, for other author (Ibrahim et al., 2021), the results are inconclusive across the population, with an association only appearing between mental health and Physical education performance in Malaysian respondents with a collectivistic eastern culture.

Specific Model and Program

Washif, J. et. al work with a camp 'bubble' for psychological development by empowering athletes to be in charge of their own personal mental health development. They study how dietary habits; training routines and well-being have implications for reduced perceived stress (Washif et al., 2021). Their work proves the effectiveness and changes in lifestyle. Hofmann and Kohlmann, investigate 14 self-help strategies compiled by Morgan and Jorm in Self-help strategies that are helpful for sub-threshold depression. These strategies are useful for the control group mental health, school life and social support (2019) and uses of PREMA model

help with learning-related academic boredom, class-related academic boredom, and intrinsic motivation (Jie et al., 2022). Because relevant physical exercise played role in strengthening mental health (Yuan et al., 2022). Next, the influence mechanism of interpersonal relationships is on students' mental health also important (Sun, 2023).

Discussion

The findings of the systematic review identified the constructed variables that stimulate mental health in physical education. The variables were emotion, self-regulation and motivation of the students that will contribute to mental health. This corroborated results of another study in students who frequently engage in physical activity have higher levels of subjective well-being than students who do not frequently engage in such activity (Yao et al., 2023). Emotional intelligence, self-regulation and motivations were closely related to well-being as it relate to psychological endurance (Jin, 2022). The results of another study also showed that higher productivity is correlated with self-regulation. Self-regulated learners with high self-efficacy are less likely to procrastinate because they appear to have control over their motivation (Milienos et al., 2021). This suggests that students combine self-regulation skills, and a strong sense of motivation may possibly stimulate better academic performance as well as less procrastination. In other words, due to the outcome of physical education academic performance of students improved.

Furthermore, engaging in physical activities could help students in social adaptations and psychological resilience (Li & Guo, 2023). As mentioned in a study that that adhering to a healthy exercise regimen can lower serum cortisol levels and strengthen the body's defences (Deng et al., 2018). This will help students emotionally good as indirectly will affect their motivation. Motivation is viewed through the lens of self-efficacy, which can be defined as students' assessments and beliefs about their abilities to complete a task in the course (Milienos et al., 2021). This is in line with a study which discovered that self-control and cognitive motivation had a strong positive relationship with one another and a strong negative relationship with depressed symptoms (Strobel et al., 2021) which help stimulation mental health for students.

The present systematic review provides some understanding in how mental health concept is conceived. Mental health formally created through educational intervention with daily lifestyle and social interaction. Many studies have found that mental health is more influenced by "nurture" than "nature," and that it is dependent on socialisation and external factors rather than just genetics (Sarah & Ray, 2017).

Finally, the review also examined the possible benefits students get while engaging in physical education. Instead of academic performance, specific model, or programme such as dietary habits as emotions are closely related to food choice (Ljubičić et al., 2023), training routines, self-help strategies that someone can do on their own to deal with a mental illness (Jorm et al., 2012) and well-being that have implications for reduced perceived stress among students. Interestingly, among all the variables, findings from this review closely related to the mental health stimulation while performing physical activities.

There was one limitation in this review, which is that it does not focus on physical education in school. This was because the review was mostly geared towards the benefits of physical activities in various field in stimulating mental health. Hence, they tended to have numerous results in many grounds related to physical activities and mental health.

Conclusions

In conclusion the researcher reviewed articles related to stimulation of mental health in physical activities. Therefore, the gap in understanding of stimulation mental health in physical activities has been filled. Two database specifically Scopus and Web of Science (WoS) were utilized. A total of 12 articles were included in this systematic review based on inclusion and exclusion criteria listed above. The main findings were as follows:

1. There are three variables stimulated by physical activities for mental health: emotions, self-regulations, and motivation.
2. Mental health concept conceives as positive indicator related to physical health or performance among students.
3. The results they obtained during physical activities interventions are academic performance and specific model or programme.

Based on discussion of the results, emotions, self-regulation, and motivations were main contributions for mental health. Students get all the variables when they performed physical activities. Furthermore, Students' mental health is a good predictor of their performance or physical health. In addition, motivation, dietary habits, physical activities routine and general well being part of implications to reduce stress. Self-help techniques become precaution measure as early action to prevent ignite mental illness. Physical activities not only affect academic performance of students besides promote students' physical and mental development through specific model or programme.

To conclude, the mental health of students is affected by psychological problems such as anxiety, depression, and interpersonal disorder but most of them have awareness on solving psychological obstacles through physical education. Through research, it is found that physical education improve students' psychological problems, help prevent and correct abnormal psychology, and at the same time, help them to improve their interpersonal skills and alleviate their negative emotions. Therefore, in order to give full play to physical education, schools need to enhance the quality of physical education teaching and learning system, to improve the physical fitness, health-related skills, self-responsibility and enjoyment of physical activity for all students so that they can be physically active for a lifetime with a balanced mental health. Moreover, future researchers can address the relationship between determinants and variables of mental health as its important correlations (Singh et al., 2022) that determine the development of mental illness.

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